



IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM-606 201, VILLUPURAM DISTRICT, TAMIL NADU, INDIA.

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai.

An ISO 9001: 2015 Certified Institution

A Christian Minority Institution run by the Franciscan Sisters of the Immaculate Heart of Mary Society, Puducherry.

Phone: 04151-258325, 258326

Website: www.iecw.edu.in

Email ID: indhaya@iecw.edu.in

1.3.2 Average percentage of courses that include experiential learning through project work/field work/ internship during last five years

ACADEMIC YEAR 2016-17

S.No	Name of the Programme	No. of Courses
1.	B.E - Computer Science and Engineering	22
2.	B.E - Electrical and Electronics Engineering	19
3.	B.E - Electronics and Communication Engineering	21
4.	B.Tech - Information Technology	7
5.	M.E - Computer Science and Engineering	10
6.	M.E – Communication Systems	11
	Total	91



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S.No	Program Name	Program Code	Course Code	Course Name	Project Work	Field Work	Internship
1.	B.E-CSE	104	GE6151	Computer Programming	√		
2.	B.E-CSE	104	CS6201	Digital Principles and System Design	√		
3.	B.E-CSE	104	CS6202	Programming and Data Structures I	√		
4.	B.E-CSE	104	CS6301	Programming and Data Structure II	√		
5.	B.E-CSE	104	CS6302	Database Management Systems	√		
6.	B.E-CSE	104	CS6303	Computer Architecture	√		
7.	B.E-CSE	104	CS6551	Computer Networks	√		
8.	B.E-CSE	104	CS6401	Operating Systems	√		
9.	B.E-CSE	104	CS6402	Design and Analysis of Algorithms	√		
10.	B.E-CSE	104	CS6403	Software Engineering	√		
11.	B.E-CSE	104	CS6501	Internet Programming	√	√	
12.	B.E-CSE	104	CS6502	Object Oriented Analysis and Design	√		
13.	B.E-CSE	104	CS6503	Theory of Computation	√		
14.	B.E-CSE	104	CS6504	Computer Graphics	√		
15.	B.E-CSE	104	CS6601	Distributed Systems	√		
16.	B.E-CSE	104	IT6601	Mobile Computing	√		
17.	B.E-CSE	104	CS6660	Compiler Design	√		
18.	B.E-CSE	104	CS6659	Artificial Intelligence	√		
19.	B.E-CSE	104	CS6703	Grid and Cloud Computing	√		
20.	B.E-CSE	104	CS6003	Ad hoc and Sensor Networks	√		
21.	B.E-CSE	104	EC6703	Embedded and Real Time Systems	√		
22.	B.E-CSE	104	CS6008	Human Computer Interaction	√		
23.	B.E-EEE	105	EE6301	Digital Logic Circuits	√		
24.	B.E-EEE	105	EE6302	Electromagnetic Theory	√		
25.	B.E-EEE	105	EC6202	Electronic Devices and Circuits	√		
26.	B.E-EEE	105	EE6401	Electrical Machines – I	√	√	
27.	B.E-EEE	105	EE6402	Transmission and Distribution	√	√	
28.	B.E-EEE	105	EE6404	Measurements and Instrumentation	√		
29.	B.E-EEE	105	EE6501	Power System Analysis	√	√	
30.	B.E-EEE	105	EE6503	Power Electronics	√	√	
31.	B.E-EEE	105	EE6601	Electrical Machines – II	√		
32.	B.E-EEE	105	EC6651	Communication Engineering	√	√	
33.	B.E-EEE	105	EE6602	Embedded Systems	√	√	√
34.	B.E-EEE	105	EE6603	Power System Operation and Control	√		
35.	B.E-EEE	105	EE6604	Design of Electrical Machines	√		
36.	B.E-EEE	105	EE6701	High Voltage Engineering	√		
37.	B.E-EEE	105	EE6702	Protection and Switchgear	√		

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Kallakurichi Taluk, Villupuram District



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38.	B.E-EEE	105	EE6703	Special Electrical Machines	√		
39.	B.E-EEE	105	EE6005	Power Quality	√		
40.	B.E-EEE	105	EE6801	Electric Energy Generation, Utilization and Conservation	√		
41.	B.E-EEE	105	EE6010	High Voltage Direct Current Transmission	√		
42.	B.E-ECE	106	EC6302	Digital Electronics	√		
43.	B.E-ECE	106	EC6303	Signals and Systems	√	√	
44.	B.E-ECE	106	EC6304	Electronic Circuits- I	√		
45.	B.E-ECE	106	EC6401	Electronic Circuits II	√		
46.	B.E-ECE	106	EC6402	Communication Theory	√	√	
47.	B.E-ECE	106	EC6404	Linear Integrated Circuits	√		
48.	B.E-ECE	106	EC6405	Control System Engineering	√		
49.	B.E-ECE	106	EC6501	Digital Communication	√	√	
50.	B.E-ECE	106	EC6502	Principles of Digital Signal Processing	√		
51.	B.E-ECE	106	EC6503	Transmission Lines and Wave Guides	√		
52.	B.E-ECE	106	CS6303	Computer Architecture	√		
53.	B.E-ECE	106	CS6551	Computer Networks	√		
54.	B.E-ECE	106	EC6601	VLSI Design	√		
55.	B.E-ECE	106	EC6602	Antenna and Wave propagation	√		
56.	B.E-ECE	106	EC6001	Medical Electronics	√		
57.	B.E-ECE	106	EC6701	RF and Microwave Engineering	√		
58.	B.E-ECE	106	EC6702	Optical Communication and Networks	√		
59.	B.E-ECE	106	IT6005	Digital Image Processing	√		
60.	B.E-ECE	106	EC6011	Advanced Computer Architecture	√		
61.	B.E-ECE	106	EC6016	Opto Electronic Devices	√		
62.	B.E-ECE	106	EC6801	Wireless Communication	√		
63.	B.E-ECE	106	EC6802	Wireless Networks	√		
64.	B.Tech-IT	205	IT6501	Graphics and Multimedia	√		
65.	B.Tech-IT	205	IT6503	Web Programming	√		
66.	B.Tech-IT	205	IT6602	Software Architectures	√		
67.	B.Tech-IT	205	IT6701	Information Management	√		
68.	B.Tech-IT	205	IT6702	Data Ware Housing and Data Mining	√		
69.	B.Tech-IT	205	IT6801	Service Oriented Architecture	√		
70.	B.Tech-IT	205	CS6004	Cyber Forensics	√		
71.	M.E-CSE	405	CP7101	Design and Management of Computer Networks	√		
72.	M.E-CSE	405	CP7102	Advanced Data Structures and Algorithms	√		
73.	M.E-CSE	405	CP7103	Multicore Architectures	√		


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74.	M.E-CSE	405	CP7201	Theoretical Foundations of Computer Science	√		
75.	M.E-CSE	405	CP7202	Advanced Databases	√		
76.	M.E-CSE	405	CP7203	Principles of Programming Languages	√		
77.	M.E-CSE	405	CP7204	Advanced Operating Systems	√		
78.	M.E-CSE	405	IF7202	Cloud Computing	√		
79.	M.E-CSE	405	CP7301	Software Process and Project Management	√		
80.	M.E-CSE	405	NE7011	Mobile Application Development	√		
81.	M.E-CS	405	CU7101	Advanced Radiation Systems	√		
82.	M.E-CS	403	CU7102	Advanced Digital Communication Techniques	√		
83.	M.E-CS	403	AP7101	Advanced Digital Signal Processing	√		
84.	M.E-CS	403	CU7103	Optical Networks	√		
85.	M.E-CS	403	AP7202	ASIC and FPGA Design	√		
86.	M.E-CS	403	CU7201	Wireless Communication Networks	√		
87.	M.E-CS	403	CU7202	MIC and RF System Design	√		
88.	M.E-CS	403	CU7003	Digital Communication Receivers	√		
89.	M.E-CS	403	DS7201	Advanced Digital Image Processing	√		
90.	M.E-CS	403	CU7301	Advanced Satellite Based Systems	√		
91.	M.E-CS	403	NC7201	Communication Network Security	√		


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Nainarpalaym Road, CHINNASALEM-606201,
Kallakurichi Taluk, Villupuram District.

OBJECTIVES:**The students should be made to:**

- Learn the organization of a digital computer.
- Be exposed to the number systems.
- Learn to think logically and write pseudo code or draw flow charts for problems.
- Be exposed to the syntax of C.
- Be familiar with programming in C.
- Learn to use arrays, strings, functions, pointers, structures and unions in C.

UNIT I	INTRODUCTION	8
Generation and Classification of Computers- Basic Organization of a Computer –Number System – Binary – Decimal – Conversion – Problems. Need for logical analysis and thinking – Algorithm –Pseudo code – Flow Chart.		
UNIT II	C PROGRAMMING BASICS	10
Problem formulation – Problem Solving - Introduction to „C“ programming –fundamentals – structure of a „C“ program – compilation and linking processes – Constants, Variables – Data Types – Expressions using operators in „C“ – Managing Input and Output operations – Decision Making and Branching – Looping statements – solving simple scientific and statistical problems.		
UNIT III	ARRAYS AND STRINGS	9
Arrays – Initialization – Declaration – One dimensional and Two dimensional arrays. String- String operations – String Arrays. Simple programs- sorting- searching – matrix operations.		
UNIT IV	FUNCTIONS AND POINTERS	9
Function – definition of function – Declaration of function – Pass by value – Pass by reference – Recursion – Pointers - Definition – Initialization – Pointers arithmetic – Pointers and arrays- ExampleProblems.		
UNIT V	STRUCTURES AND UNIONS	9
Introduction – need for structure data type – structure definition – Structure declaration – Structure within a structure - Union - Programs using structures and Unions – Storage classes, Pre-processor directives.		

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

- Design C Programs for problems.
- Write and execute C programs for simple applications

TEXTBOOKS:

1. Anita Goel and Ajay Mittal, "Computer Fundamentals and Programming in C", Dorling Kindersley(India) Pvt. Ltd., Pearson Education in South Asia, 2011.
2. Pradip Dey, Manas Ghosh, "Fundamentals of Computing and Programming in C", First Edition, Oxford University Press, 2009.
3. Yashavant P. Kanetkar. "Let Us C", BPB Publications, 2011.

REFERENCES:

1. Byron S Gottfried, "Programming with C", Schaum's Outlines, Second Edition, Tata McGraw-Hill, 2006.
2. Dromey R.G., "How to Solve it by Computer", Pearson Education, Fourth Reprint, 2007.
3. Kernighan, B.W and Ritchie, D.M, "The C Programming language", Second Edition, Pearson Education, 2006.



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Adhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60020
Kallakurichi Taluk, Villupuram District

P637



**DETECTING MALICIOUS
FACEBOOK APPLICATIONS**



A PROJECT REPORT

Submitted by

S. SHENAAZ FATHIMA	621113104033
S. SOUNDARYA	621113104034
G. S. VIMALA	621113104041

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING


IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY : CHENNAI 600 025

APRIL 2017


I


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Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-601
kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY : CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "DETECTING MALICIOUS FACEBOOK APPLICATIONS" is the bonafide work of "S.SHENAAZ FATHIMA, S.SOUNDARYA, G.S.VIMALA" who carried out the project work under my supervision.


SIGNATURE


SIGNATURE

Mr.S.JAYAPRAKASH,M.E.,(Ph.D),

Sr.MARIA ANAND MILANI,M.E.,

HEAD OF THE DEPARTMENT

SUPERVISOR

Assistant Professor/CSE


Assistant Professor/CSE


Idhaya Engineering College For
Women,

Idhaya Engineering College For
Women,

Chinnasalem-606 201.

Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


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Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

The student should be made to:

- Learn the various number systems.
- Learn Boolean Algebra
- Understand the various logic gates.
- Be familiar with various combinational circuits.
- Be familiar with designing synchronous and asynchronous sequential circuits.
- Be exposed to designing using PLD

UNIT I	BOOLEAN ALGEBRA AND LOGIC GATES	9
Review of Number Systems – Arithmetic Operations – Binary Codes – Boolean Algebra and Theorems – Boolean Functions – Simplification of Boolean Functions using Karnaugh Map and Tabulation Methods – Logic Gates – NAND and NOR Implementations.		
UNIT II	COMBINATIONAL LOGIC	9
Combinational Circuits – Analysis and Design Procedures – Circuits for Arithmetic Operations, Code Conversion – Decoders and Encoders – Multiplexers and Demultiplexers – Introduction to HDL – HDL Models of Combinational circuits.		
UNIT III	SYNCHRONOUS SEQUENTIAL LOGIC	9
Sequential Circuits – Latches and Flip Flops – Analysis and Design Procedures – State Reduction and State Assignment – Shift Registers – Counters – HDL for Sequential Logic Circuits.		
UNIT IV	ASYNCHRONOUS SEQUENTIAL LOGIC	9
Analysis and Design of Asynchronous Sequential Circuits – Reduction of State and Flow Tables – Race-free State Assignment – Hazards.		
UNIT V	MEMORY AND PROGRAMMABLE LOGIC	9
RAM and ROM – Memory Decoding – Error Detection and Correction – Programmable Logic Array – Programmable Array Logic – Sequential Programmable Devices – Application Specific Integrated Circuits.		

TOTAL: 45 PERIODS

OUTCOMES:

At the end of this course, the student will be able to:

- Perform arithmetic operations in any number system.
- Simplify the Boolean expression using K-Map and Tabulation techniques.
- Use boolean simplification techniques to design a combinational hardware circuit.
- Design and Analysis of a given digital circuit – combinational and sequential.
- Design using PLD.

TEXT BOOK:

1. Morris Mano M. and Michael D. Ciletti, "Digital Design", IV Edition, Pearson Education, 2008.

REFERENCES:

1. John F. Wakerly, "Digital Design Principles and Practices", Fourth Edition, Pearson Education, 2007.
2. Charles H. Roth Jr, "Fundamentals of Logic Design", Fifth Edition – Jaico Publishing House, Mumbai, 2003.
3. Donald D. Givone, "Digital Principles and Design", Tata Mcgraw Hill, 2003.
4. Kharate G. K., "Digital Electronics", Oxford University Press, 2010.


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 Idhaya Engineering College for Women,
 Nainarpalaym Road, CHINNAsALEM-606204
 kallakurichi Taluk, Villupuram District



**A STABLE APPROACH FOR QUERY
ROUTING IN UNSTRUCTURED
PEER TO PEER NETWORK**



A PROJECT REPORT

Submitted by

ASWINI.A

621113104005

MONISHA.K

621113104019

NITHYA PRIYA.A

621113104023

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

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ANNA UNIVERSITY:CHENNAI-600 025

APRIL 2017

Principals
PRINCIPAL

Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-606 001
Sallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI-600 025

BONAFIDE CERTIFICATE

Certified that this project report "**A STABLE APPROACH FOR QUERY ROUTING IN UNSTRUCTURED PEER TO PEER NETWORK**" is the bonafide work of "**A. ASWINI, K. MONISHA, A. NITHYA PRIYA**" who carried out their project work under my supervision.


SIGNATURE

Mr.S. JAYAPRAKASH., M.E., (Ph.D)

HEAD OF THE DEPARTMENT

Assistant professor/CSE,

Idhaya engineering college for women,

Chinnasalem-606 201.


SIGNATURE

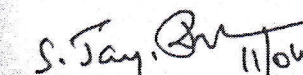
Sr. MARIA ANANDMILANI, M.E.,

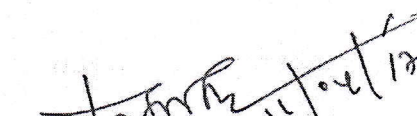
SUPERVISOR

Assistant Professor/CSE,

Idhaya engineering college for women,

Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER

OBJECTIVES:

The student should be made to:

- Be familiar with the basics of C programming language.
- Be exposed to the concepts of ADTs
- Learn linear data structures – list, stack, and queue.
- Be exposed to sorting, searching, hashing algorithms

UNIT I	C PROGRAMMING FUNDAMENTALS- A REVIEW	9
	Conditional statements – Control statements – Functions – Arrays – Preprocessor - Pointers - Variation in pointer declarations – Function Pointers – Function with Variable number of arguments	
UNIT II	C PROGRAMMING ADVANCED FEATURES	9
	Structures and Unions - File handling concepts – File read – write – binary and Stdio - File Manipulations	
UNIT III	LINEAR DATA STRUCTURES – LIST	9
	Abstract Data Types (ADTs) – List ADT – array-based implementation – linked list implementation – singly linked lists- circularly linked lists- doubly-linked lists – applications of lists –Polynomial Manipulation – All operation (Insertion, Deletion, Merge, Traversal)	
UNIT IV	LINEAR DATA STRUCTURES – STACKS, QUEUES	9
	Stack ADT – Evaluating arithmetic expressions- other applications- Queue ADT – circular queue implementation – Double ended Queues – applications of queues	
UNIT V	SORTING, SEARCHING AND HASH TECHNIQUES	9
	Sorting algorithms: Insertion sort - Selection sort - Shell sort - Bubble sort - Quick sort - Merge sort - Radix sort – Searching: Linear search –Binary Search Hashing: Hash Functions – Separate Chaining – Open Addressing – Rehashing – Extendible Hashing.	

TOTAL: 45 PERIODS

OUTCOMES:

At the end of the course, the student should be able to:

- Use the control structures of C appropriately for problems.
- Implement abstract data types for linear data structures.
- Apply the different linear data structures to problem solutions.
- Critically analyse the various algorithms.

TEXT BOOKS:

1. Brian W. Kernighan and Dennis M. Ritchie, "The C Programming Language", 2nd Edition, Pearson Education, 1988.
2. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", 2nd Edition, Pearson Education, 1997.

REFERENCES:

1. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein, "Introduction to Algorithms", Second Edition, Mcgraw Hill, 2002.
2. Reema Thareja, "Data Structures Using C", Oxford University Press, 2011
3. Aho, Hopcroft and Ullman, "Data Structures and Algorithms", Pearson Education, 1983.
4. Stephen G. Kochan, "Programming in C", 3rd edition, Pearson Ed.,

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Jonnaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60012
Kallakurichi Taluk, Villupuram District



**7T LIKE IMAGES ARE
RECONSTRUCTED FROM 3T MRI**



A PROJECT REPORT

Submitted by

GEETHA BASTINA.S	621113104009
MADHUMETHA.R	621113104014
NISHA.A	621113104022

In partial fulfilment for the award of the degree

of

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IDHAYA ENGINEERING COLLEGE FOR WOMEN

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ANNA UNIVERSITY: CHENNAI-600 025

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PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600 025
Kallakurichi Taluk, Villupuram District.

ANNA UNIVERSITY: CHENNAI-600 025

BONAFIDE CERTIFICATE


Certified that this project report “7T LIKE IMAGES ARE RECONSTRUCTED FROM 3T MRI” is the bonafide work of “S.GEETHA BASTINA, R.MADHUMETHA, A.NISHA” who carried out their project work under my supervision.

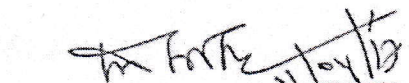

SIGNATURE

Mr.S.JAYAPRAKASH, M.E., (Ph.D)
HEAD OF THE DEPARTMENT
Assistant Professor / CSE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.


SIGNATURE

P.MOHANAVALLI, M.E.,
SUPERVISOR
Assistant Professor / CSE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER

OBJECTIVES:

The student should be made to:

- Be familiar with the C++ concepts of abstraction, encapsulation, constructor, polymorphism, overloading and Inheritance.
- Learn advanced nonlinear data structures.
- Be exposed to graph algorithms
- Learn to apply Tree and Graph structures

UNIT I	OBJECT ORIENTED PROGRAMMING FUNDAMENTALS	9
	C++ Programming features - Data Abstraction - Encapsulation - class - object - constructors - static members – constant members – member functions – pointers – references - Role of this pointer – Storage classes – function as arguments.	
UNIT II	OBJECT ORIENTED PROGRAMMING CONCEPTS	9
	String Handling – Copy Constructor - Polymorphism – compile time and run time polymorphisms – function overloading – operators overloading – dynamic memory allocation - Nested classes - Inheritance – virtual functions.	
UNIT III	C++ PROGRAMMING ADVANCED FEATURES	9
	Abstract class – Exception handling - Standard libraries - Generic Programming - templates – class template - function template – STL – containers – iterators – function adaptors – allocators - Parameterizing the class - File handling concepts.	
UNIT IV	ADVANCED NON-LINEAR DATA STRUCTURES	9
	AVL trees – B-Trees – Red-Black trees – Splay trees - Binomial Heaps – Fibonacci Heaps – Disjoint Sets – Amortized Analysis – accounting method – potential method – aggregate analysis.	
UNIT V	GRAPHS	9
	Representation of Graphs – Breadth-first search – Depth-first search – Topological sort – Minimum Spanning Trees – Kruskal and Prim algorithm – Shortest path algorithm – Dijkstra’s algorithm – Bellman-Ford algorithm – Floyd - Warshall algorithm.	

TOTAL: 45 PERIODS

OUTCOMES:

At the end of the course, the student should be able to:

- Design problem solutions using Object Oriented Techniques.
- Apply the concepts of data abstraction, encapsulation and inheritance for problem solutions.
- Use the control structures of C++ appropriately.
- Critically analyse the various algorithms.
- Apply the different data structures to problem solutions.

TEXT BOOKS:

1. Bjarne Stroustrup, “The C++ Programming Language”, 3rd Edition, Pearson Education, 2007.
2. Mark Allen Weiss, “Data Structures and Algorithm Analysis in C++”, 2nd Edition, Pearson Education, 2005

REFERENCES:

1. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", Second Edition, Mc Graw Hill, 2002.
2. Michael T Goodrich, Roberto Tamassia, David Mount, “Data Structures and Algorithms in C++”, 7th Edition, Wiley Publishers, 2004.

Aravind
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District



**DEVICE TO DEVICE COMMUNICATION
UNDERLAYING CELLULAR NETWORKS**



A PROJECT REPORT

Submitted by

ISWARYA.S

621113104011

NIVETHA.P

621113104024

VIJAYA SREE BAVANI.V

621113104040

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

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IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNA SALEM

ANNA UNIVERSITY :: CHENNAI 600 025

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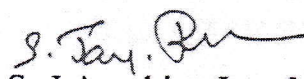
Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-60626,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY : CHENNAI 600 025


BONAFIDE CERTIFICATE

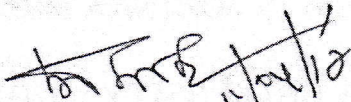
Certified that this project report "DEVICE TO DEVICE COMMUNICATON UNDERLAYING CELLULAR NETWORKS" is the bonafide work of "ISWARYA.S (621113104011), NIVETHA.P (621113104024),VIJAYA SREE BAVANI (621113104040)" who carried out the project work under my supervision.


Mr.S.Jaya Prakash M.E.,(Ph.D).
HEAD OF THE DEPARTEMENT
Professor & Head
Department of CSE ,
Idhaya engineering college
for women,
Chinnasalem- 606 201.


Sr.J.Arockiya Jaya,M.E.
SUPERVISOR
Assistant Professor,
Department of CSE,
Idhaya engineering
college for women,
Chinnasalem-606 201.

Submitted for the University Examination held on 11.04.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER

OBJECTIVES:

- To make students understand the basic structure and operation of digital computer.
- To understand the hardware-software interface.
- To familiarize the students with arithmetic and logic unit and implementation of fixed point and floating-point arithmetic operations.
- To expose the students to the concept of pipelining.
- To familiarize the students with hierarchical memory system including cache memories and virtual memory.
- To expose the students with different ways of communicating with I/O devices and standard I/O interfaces.

UNIT I	OVERVIEW & INSTRUCTIONS	9
	Eight ideas — Components of a computer system — Technology — Performance — Power wall — Uniprocessors to multiprocessors; Instructions — operations and operands — representing instructions — Logical operations — control operations — Addressing and addressing modes.	
UNIT II	ARITHMETIC OPERATIONS	7
	ALU - Addition and subtraction — Multiplication — Division — Floating Point operations — Subword parallelism.	
UNIT III	PROCESSOR AND CONTROL UNIT	11
	Basic MIPS implementation — Building datapath — Control Implementation scheme — Pipelining — Pipelined datapath and control — Handling Data hazards & Control hazards — Exceptions.	
UNIT IV	PARALLELISM	9
	Instruction-level-parallelism — Parallel processing challenges — Flynn's classification — Hardware multithreading — Multicore processors	
UNIT V	MEMORY AND I/O SYSTEMS	9
	Memory hierarchy - Memory technologies — Cache basics — Measuring and improving cache performance - Virtual memory, TLBs - Input/output system, programmed I/O, DMA and interrupts, I/O processors.	

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

- Design arithmetic and logic unit.
- Design and analyse pipelined control units
- Evaluate performance of memory systems.
- Understand parallel processing architectures.

TEXT BOOK:

1. David A. Patterson and John L. Hennessey, "Computer organization and design", MorganKauffman / Elsevier, Fifth edition, 2014.

REFERENCES:

1. V. Carl Hamacher, Zvonko G. Varanasic and Safat G. Zaky, "Computer Organisation", VIth edition, Mc Graw-Hill Inc, 2012.
2. William Stallings "Computer Organization and Architecture", Seventh Edition, Pearson Education, 2006.
3. Vincent P. Heuring, Harry F. Jordan, "Computer System Architecture", Second Edition, Pearson Education, 2005.
4. Govindarajulu, "Computer Architecture and Organization, Design Principles and Applications", first edition, Tata McGraw Hill, New Delhi, 2005.
5. John P. Hayes, "Computer Architecture and Organization", Third Edition, Tata Mc Graw Hill, 1998.
6. <http://nptel.ac.in/>.

Sreeni
PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-606.
Kallakurichi Taluk, Villupuram District



**BUS TRANSPORT SYSTEM
USING RFID AND GSM**



A PROJECT REPORT

Submitted by

K.LAVANYA

621113104012

S.MARTINA SANTHANA NANCY

621113104015

A.SAGAYA JESEENTHA RUPANI 621113104030

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY : CHENNAI 600 025

APRIL 2017

BONAFIDE CERTIFICATE

Certified that this project report "BUS TRANSPORT SYSTEM USING RFID AND GSM" is the bonafide work of "K.LAVANYA, S.MARTINA SANTHANA NANCY, A.SAGAYA JESEENTHA RUPANI" who carried out the project work under my supervision.


SIGNATURE


Mr. S. JAYAPRAKASH, M.E., (Ph.D)

HEAD OF THE DEPARTMENT

Assistant Professor/CSE

Idhaya Engineering College For
Women,

Chinnasalem-606 201.


INTERNAL EXAMINER


SIGNATURE

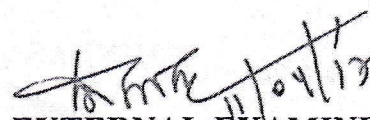
M. ABINAYA, M.E.,

SUPERVISOR

Assistant Professor/CSE

Idhaya Engineering College For
Women,

Chinnasalem-606 201.


EXTERNAL EXAMINER

OBJECTIVES:**The student should be made to:**

- Understand the division of network functionalities into layers.
- Be familiar with the components required to build different types of networks
- Be exposed to the required functionality at each layer
- Learn the flow control and congestion control algorithms

UNIT I	FUNDAMENTALS & LINK LAYER	9
Building a network – Requirements - Layering and protocols - Internet Architecture – Network software – Performance ; Link layer Services - Framing - Error Detection - Flow control		
UNIT II	MEDIA ACCESS & INTERNETWORKING	9
Media access control - Ethernet (802.3) - Wireless LANs – 802.11 – Bluetooth - Switching and bridging – Basic Internetworking (IP, CIDR, ARP, DHCP, ICMP)		
UNIT III	ROUTING	9
Routing (RIP, OSPF, metrics) – Switch basics – Global Internet (Areas, BGP, IPv6), Multicast – addresses – multicast routing (DVMRP, PIM)		
UNIT IV	TRANSPORT LAYER	9
Overview of Transport layer - UDP - Reliable byte stream (TCP) - Connection management - Flow control - Retransmission – TCP Congestion control - Congestion avoidance (DECbit, RED) – QoS – Application requirements		
UNIT V	APPLICATION LAYER	9
Traditional applications - Electronic Mail (SMTP, POP3, IMAP, MIME) – HTTP – Web Services – DNS - SNMP		

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

- Identify the components required to build different types of networks
- Choose the required functionality at each layer for given application
- Identify solution for each functionality at each layer
- Trace the flow of information from one node to another node in the network

TEXT BOOK:

1. Larry L. Peterson, Bruce S. Davie, "Computer Networks: A Systems Approach", Fifth Edition, Morgan Kaufmann Publishers, 2011.

REFERENCES:

1. James F. Kurose, Keith W. Ross, "Computer Networking - A Top-Down Approach Featuring the Internet", Fifth Edition, Pearson Education, 2009.
2. Nader F. Mir, "Computer and Communication Networks", Pearson Prentice Hall Publishers, 2010.
3. Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, "Computer Networks: An Open Source Approach", Mc Graw Hill Publisher, 2011.
4. Behrouz A. Forouzan, "Data communication and Networking", Fourth Edition, Tata McGraw – Hill, 2011.



PRINCIPAL

Idhaya Engineering College for Women
Nainarpalayam Road, CHINNASALEM-606206
Kallakurichi Taluk, Villupuram District

D641



**AADHAR BASED ONLINE VOTING
SYSTEM USING ARDUINO**



A PROJECT REPORT

Submitted by

LAVANYA.M	621113104013
PREETHI SOUNDARYA.E	621113104025
RAJESHWAR.L.C	621113104027
SANGEETHA.V	621113104031

In partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM 606 201

ANNA UNIVERSITY :: CHENNAI 600 025


APRIL 2017

M. S. Senthil
PRINCIPAL


Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

BONAFIDE CERTIFICATE

Certified that this project report "AADHAR BASED ONLINE VOTING SYSTEM USING ARDUINO" is the bonafide work of "LAVANYA.M (621113104013), PREETHI SOUNDARYA.E (621113104025), RAJESHWARI.C (621113104027), SANGEETHA.V (621113104031)" who carried out the project work under my supervision.

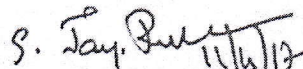

Mr.S.Jaya Prakash M.E.,(Ph.D)

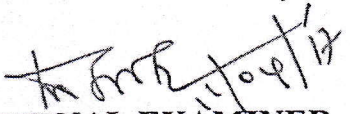
HEAD OF THE DEPARTEMENT
Assistant Professor
Department of CSE
Idhaya Engineering
College for Women
Chinnasalem-606 201.


Mr.S.Jaya Prakash, M.E.,(Ph.D)

SUPERVISOR
Assistant Professor & HOD
Department of CSE
Idhaya Engineering
College for women
Chinnasalem-606 201.

Submitted for the University Examination held on 11/04/17


INTERNAL EXAMINER


EXTERNAL EXAMINER

OBJECTIVES:

- To expose the students to the fundamentals of Database Management Systems.
- To make the students understand the relational model.
- To familiarize the students with ER diagrams.
- To expose the students to SQL.
- To make the students to understand the fundamentals of Transaction Processing and Query Processing.
- To familiarize the students with the different types of databases.
- To make the students understand the Security Issues in Databases.

UNIT I	INTRODUCTION TO DBMS	10
	File Systems Organization - Sequential, Pointer, Indexed, Direct - Purpose of Database System- Database System Terminologies-Database characteristics- Data models — Types of data models — Components of DBMS- Relational Algebra. LOGICAL DATABASE DESIGN: Relational DBMS - Codd's Rule - Entity-Relationship model - Extended ER Normalization — Functional Dependencies. Anomaly- 1NF to 5NF- Domain Key Normal Form — Denormalization	
UNIT II	SQL & QUERY OPTIMIZATION	8
	SQL Standards - Data types - Database Objects- DDL-DML-DCL-TCL-Embedded SQL-Static Vs Dynamic SQL - QUERY OPTIMIZATION: Query Processing and Optimization - Heuristics and Cost Estimates in Query Optimization.	
UNIT III	TRANSACTION PROCESSING AND CONCURRENCY CONTROL	8
	Introduction-Properties of Transaction- Serializability- Concurrency Control – Locking Mechanisms- Two Phase Commit Protocol- Dead lock.	
UNIT IV	TRENDS IN DATABASE TECHNOLOGY	10
	Overview of Physical Storage Media – Magnetic Disks – RAID – Tertiary storage – File Organization – Organization of Records in Files – Indexing and Hashing – Ordered Indices – B+ tree Index Files – B tree Index Files – Static Hashing – Dynamic Hashing - Introduction to Distributed Databases- Client server technology- Multidimensional and Parallel databases- Spatial and multimedia databases- Mobile and web databases- Data Warehouse-Mining- Data marts.	
UNIT V	ADVANCED TOPICS	9
	DATABASE SECURITY: Data Classification-Threats and risks – Database access Control – Types of Privileges – Cryptography- Statistical Databases.- Distributed Databases-Architecture-Transaction Processing-Data Warehousing and Mining-Classification- Association rules-Clustering-Information Retrieval- Relevance ranking-Crawling and Indexing the Web- Object Oriented Databases- XML Databases.	

TOTAL: 45 PERIODS

OUTCOMES:

At the end of the course, the student should be able to:

- Design Databases for applications.
- Use the Relational model, ER diagrams.
- Apply concurrency control and recovery mechanisms for practical problems.
- Design the Query Processor and Transaction Processor.
- Apply security concepts to databases.

TEXT BOOK:

1. Ramez Elmasri and Shamkant B. Navathe, "Fundamentals of Database Systems", Fifth Edition, Pearson Education, 2008.

REFERENCES:

1. Abraham Silberschatz, Henry F. Korth and S. Sudharshan, "Database System Concepts", Sixth Edition, Tata Mc Graw Hill, 2011.
2. C.J.Date, A.Kannan and S.Swamynathan, "An Introduction to Database Systems", Eighth Edition, Pearson Education, 2006.
3. Atul Kahate, "Introduction to Database Management Systems", Pearson Education, New Delhi, 2006.
4. Alexis Leon and Mathews Leon, "Database Management Systems", Vikas Publishing House Private Limited, New Delhi, 2003.
5. Raghu Ramakrishnan, "Database Management Systems", Fourth Edition, Tata Mc Graw Hill, 2010.
6. G.K.Gupta, "Database Management Systems", Tata Mc Graw Hill, 2011.
7. Rob Cornell, "Database Systems Design and Implementation", Cengage Learning, 2011.

PRINCIPAL

Adhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-6062
Kallakurichi Taluk, Villupuram District



**TRAVEL PACKAGE RECOMMENDATION
USING COCKTAIL APPROACH**



A PROJECT REPORT

Submitted by

P.BRINDHA	621113104006
J.MEERA SHINY	621113104018
P.MONISHA	621113104020
R.D.RAVEENA	621113104028

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY::CHENNAI 600 025

APRIL 2017

Mani
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY : CHENNAI-600 025

BONAFIDE CERTIFICATE

Certified that this project report **"TRAVEL PACKAGE RECOMMENDATION USING COCKTAIL APPROACH"** is the bonafide work of **"BRINDHA.P, MEERASHINY.J, MONISHA.P, RAVEENA.R.D"** who carried out the project work under my supervision.

S. Jay. Prakash
SIGNATURE

Mr. S. JAYAPRAKASH, M.E.,
HEAD OF THE DEPARTMENT
Assistant Professor/CSE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.

P. Sumathi
SIGNATURE

Mrs. P.SUMATHI, M.E.,
SUPERVISOR
Assistant Professor/CSE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.

S. Jay. Prakash
11/04/12
INTERNAL EXAMINER

m m r e
11/04/12
EXTERNAL EXAMINER

meeni
PRINCIPAL
Idhaya Engineering College
Nainarpalayam Road, CHINNASALEM-606201
kallakurichi Taluk, Villupuram District

OBJECTIVES:**The student should be made to:**

- Study the concepts of Artificial Intelligence.
- Learn the methods of solving problems using Artificial Intelligence.
- Introduce the concepts of Expert Systems and machine learning.

UNIT I	INTRODUCTION TO AI AND PRODUCTION SYSTEMS	9
	Introduction to AI-Problem formulation, Problem Definition -Production systems, Control strategies, Search strategies. Problem characteristics, Production system characteristics -Specialized production system- Problem solving methods - Problem graphs, Matching, Indexing and Heuristic functions -Hill Climbing-Depth first and Breadth first, Constraints satisfaction - Related algorithms, Measure of performance and analysis of search algorithms.	
UNIT II	REPRESENTATION OF KNOWLEDGE	9
	Game playing - Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, Use of predicate calculus, Knowledge representation using other logic-Structured representation of knowledge.	
UNIT III	KNOWLEDGE INFERENCE	9
	Knowledge representation -Production based system, Frame based system. Inference - Backward chaining, Forward chaining, Rule value approach, Fuzzy reasoning - Certainty factors, Bayesian Theory-Bayesian Network-Dempster - Shafer theory.	
UNIT IV	PLANNING AND MACHINE LEARNING	9
	Basic plan generation systems - Strips -Advanced plan generation systems — K strips -Strategic explanations -Why, Why not and how explanations. Learning- Machine learning, adaptive Learning.	
UNIT V	EXPERT SYSTEMS	9
	Expert systems - Architecture of expert systems, Roles of expert systems - Knowledge Acquisition — Meta knowledge, Heuristics. Typical expert systems - MYCIN, DART, XOON, Expert systems shells.	

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

- Identify problems that are amenable to solution by AI methods.
- Identify appropriate AI methods to solve a given problem.
- Formalise a given problem in the language/framework of different AI methods.
- Implement basic AI algorithms.
- Design and carry out an empirical evaluation of different algorithms on a problem formalisation, and state the conclusions that the evaluation supports.

TEXT BOOKS:

1. Kevin Night and Elaine Rich, Nair B., "Artificial Intelligence (SIE)", Mc Graw Hill- 2008.(Units-I,II,VI & V)
2. Dan W. Patterson, "Introduction to AI and ES", Pearson Education, 2007. (Unit-III).

REFERENCES:

1. Peter Jackson, "Introduction to Expert Systems", 3rd Edition, Pearson Education, 2007.
2. Stuart Russel and Peter Norvig "AI – A Modern Approach", 2nd Edition, Pearson Education 2007.
3. Deepak Khemani "Artificial Intelligence", Tata Mc Graw Hill Education 2013.
4. <http://nptel.ac.in>



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Adhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

OBJECTIVES:**The student should be made to:**

- Learn the design principles of a Compiler.
- Learn the various parsing techniques and different levels of translation
- Learn how to optimize and effectively generate machine codes

UNIT I	INTRODUCTION TO COMPILERS	5
Translators-Compilation and Interpretation-Language processors -The Phases of Compiler-Errors Encountered in Different Phases-The Grouping of Phases-Compiler Construction Tools - Programming Language basics.		
UNIT II	LEXICAL ANALYSIS	9
Need and Role of Lexical Analyzer-Lexical Errors-Expressing Tokens by Regular Expressions- Converting Regular Expression to DFA- Minimization of DFA-Language for Specifying Lexical Analyzers-LEX-Design of Lexical Analyzer for a sample Language.		
UNIT III	SYNTAX ANALYSIS	10
Need and Role of the Parser-Context Free Grammars -Top Down Parsing -General Strategies- Recursive Descent Parser Predictive Parser-LL(1) Parser-Shift Reduce Parser-LR Parser-LR (0)Item- Construction of SLR Parsing Table - Introduction to LALR Parser - Error Handling and Recovery in Syntax Analyzer-YACC-Design of a syntax Analyzer for a Sample Language .		
UNIT IV	SYNTAX DIRECTED TRANSLATION & RUN TIME ENVIRONMENT	12
Syntax directed Definitions-Construction of Syntax Tree-Bottom-up Evaluation of S-Attribute Definitions- Design of predictive translator - Type Systems-Specification of a simple type checker- Equivalence of Type Expressions-Type Conversions.		
RUN-TIME ENVIRONMENT: Source Language Issues-Storage Organization-Storage Allocation- Parameter Passing-Symbol Tables-Dynamic Storage Allocation-Storage Allocation in FORTRAN.		
UNIT V	CODE OPTIMIZATION AND CODE GENERATION	9
Principal Sources of Optimization-DAG- Optimization of Basic Blocks-Global Data Flow Analysis- Efficient Data Flow Algorithms-Issues in Design of a Code Generator - A Simple Code Generator Algorithm.		

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

- Design and implement a prototype compiler.
- Apply the various optimization techniques.
- Use the different compiler construction tools.

TEXTBOOK:

1. Alfred V Aho, Monica S. Lam, Ravi Sethi and Jeffrey D Ullman, "Compilers — Principles, Techniques and Tools", 2nd Edition, Pearson Education, 2007.

REFERENCES:

1. Randy Allen, Ken Kennedy, "Optimizing Compilers for Modern Architectures: A Dependence-based Approach", Morgan Kaufmann Publishers, 2002.
2. Steven S. Muchnick, "Advanced Compiler Design and Implementation", Morgan Kaufmann Publishers - Elsevier Science, India, Indian Reprint 2003.
3. Keith D Cooper and Linda Torczon, "Engineering a Compiler", Morgan Kaufmann Publishers Elsevier Science, 2004.
4. Charles N. Fischer, Richard. J. LeBlanc, "Crafting a Compiler with C", Pearson Education, 2008.

Mona
PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalaym Road, CHINNASALEM-606,
Kallakurichi Taluk, Villupuram District

D641



**AADHAR BASED ONLINE VOTING
SYSTEM USING ARDUINO**



A PROJECT REPORT

Submitted by

LAVANYA.M	621113104013
PREETHI SOUNDARYA.E	621113104025
RAJESHWAR.L.C	621113104027
SANGEETHA.V	621113104031

In partial fulfillment for the award of the degree

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CHINNASALEM 606 201

ANNA UNIVERSITY :: CHENNAI 600 025


APRIL 2017

Principi
PRINCIPAL


**Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District**

BONAFIDE CERTIFICATE

Certified that this project report “**AADHAR BASED ONLINE VOTING SYSTEM USING ARDUINO**” is the bonafide work of “**LAVANYA.M (621113104013), PREETHI SOUNDARYA.E (621113104025), RAJESHWARI.C (621113104027), SANGEETHA.V (621113104031)**” who carried out the project work under my supervision.

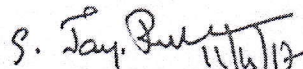

Mr.S.Jaya Prakash M.E.,(Ph.D)

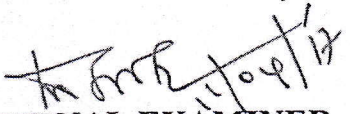
HEAD OF THE DEPARTEMENT
Assistant Professor
Department of CSE
Idhaya Engineering
College for Women
Chinnasalem-606 201.


Mr.S.Jaya Prakash, M.E.,(Ph.D)

SUPERVISOR
Assistant Professor & HOD
Department of CSE
Idhaya Engineering
College for women
Chinnasalem-606 201.

Submitted for the University Examination held on 11/04/17


INTERNAL EXAMINER


EXTERNAL EXAMINER

OBJECTIVES:**The student should be made to:**

- Learn Java Programming.
- Understand different Internet Technologies.
- Be exposed to java specific web services architecture.

UNIT I	JAVA PROGRAMMING	9
An overview of Java — Data Types — Variables and Arrays — Operators — Control Statements — Classes — Objects — Methods — Inheritance - Packages — Abstract classes — Interfaces and Inner classes — Exception handling - Introduction to Threads — Multithreading — String handling — Streams and I/O — Applets.		
UNIT II	WEBSITES BASICS, HTML 5, CSS 3, WEB 2.0	8
Web 2.0: Basics-RIA Rich Internet Applications - Collaborations tools - Understanding websites and web servers: Understanding Internet — Difference between websites and web server- Internet technologies Overview –Understanding the difference between internet and intranet; HTML and CSS: HTML 5.0, XHTML, CSS 3.		
UNIT III	CLIENT SIDE AND SERVER SIDE PROGRAMMING	11
Java Script: An introduction to JavaScript—JavaScript DOM Model-Date and Objects,-Regular Expressions- Exception Handling-Validation-Built-in objects-Event Handling- DHTML with JavaScript. Servlets: Java Servlet Architecture- Servlet Life Cycle- Form GET and POST actions- Session Handling- Understanding Cookies- Installing and Configuring Apache Tomcat Web Server;- DATABASE CONNECTIVITY: JDBC perspectives, JDBC program example - JSP: Understanding Java Server Pages-JSP Standard Tag Library(JSTL)- Creating HTML forms by embedding JSP code.		
UNIT IV	PHP and XML	8
An introduction to PHP: PHP- Using PHP- Variables- Program control- Built-in functions-Connecting to Database — Using Cookies- Regular Expressions; XML: Basic XML- Document Type Definition- XML Schema DOM and Presenting XML, XML Parsers and Validation, XSL and XSLT Transformation, News Feed (RSS and ATOM).		
UNIT V	INTRODUCTION TO AJAX and WEB SERVICES	9
AJAX: Ajax Client Server Architecture-XML Http Request Object-Call Back Methods; Web Services: Introduction- Java web services Basics — Creating, Publishing, Testing and Describing a Web services (WSDL)-Consuming a web service, Database Driven web service from an application — SOAP.		

TOTAL (L:45+T:15): 60 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

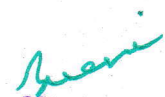
- Implement Java programs.
- Create a basic website using HTML and Cascading Style Sheets.
- Design and implement dynamic web page with validation using JavaScript objects and by applying different event handling mechanisms.
- Design rich client presentation using AJAX.
- Design and implement simple web page in PHP, and to present data in XML format.
- Design and implement server side programs using Servlets and JSP.

TEXT BOOKS:

1. Deitel and Deitel and Nieto, “Internet and World Wide Web - How to Program”, Prentice Hall, 5th Edition, 2011.
2. Herbert Schildt, “Java-The Complete Reference”, Eighth Edition, Mc Graw Hill Professional, 2011.

REFERENCES:

1. Stephen Wynnkoop and John Burke “Running a Perfect Website”, QUE, 2nd Edition, 1999.
2. Chris Bates, Web Programming – Building Intranet Applications, 3rd Edition, Wiley Publications, 2009.
3. Jeffrey C and Jackson, “Web Technologies A Computer Science Perspective”, Pearson Education, 2011.
4. Gopalan N.P. and Akilandeswari J., “Web Technology”, Prentice Hall of India, 2011.
5. Paul Dietel and Harvey Deitel, “Java How to Program”, , 8th Edition Prentice Hall of India.
6. Mahesh P. Matha, “Core Java A Comprehensive Study”, Prentice Hall of India, 2011.
7. Uttam K.Roy, “Web Technologies”, Oxford University Press, 2011


PRINCIPALIdhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600
Kallakurichi Taluk, Villupuram District

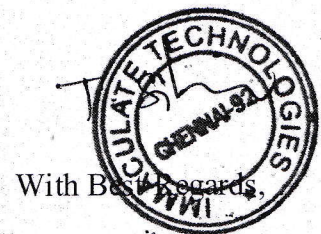


IMMACULATE TECHNOLOGIES

TO WHOM IT MAY CONCERN

This is to certify that **A.ASWINI (RegNo: 621113104005)** student of **IDHAYA ENGINEERING COLLEGE FOR WOMEN** has completed her **INPLANT TRAINING** in **JAVA** language successfully in our organization for the partial fulfillment of her **B.E (CSE) Final Year** degree for a period starting from **16.02.2017** to **18.02.2017**. During the training session, student attended the classes regularly with discipline.

Wishing her the very best forever.



With Best Regards,

Aswini
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201. KALLAKURICHI DT.

Project Manager

OBJECTIVES:**The student should be made to:**

- Study the concepts of Artificial Intelligence.
- Learn the methods of solving problems using Artificial Intelligence.
- Introduce the concepts of Expert Systems and machine learning.

UNIT I	INTRODUCTION TO AI AND PRODUCTION SYSTEMS	9
	Introduction to AI-Problem formulation, Problem Definition -Production systems, Control strategies, Search strategies. Problem characteristics, Production system characteristics -Specialized production system- Problem solving methods - Problem graphs, Matching, Indexing and Heuristic functions -Hill Climbing-Depth first and Breath first, Constraints satisfaction - Related algorithms, Measure of performance and analysis of search algorithms.	
UNIT II	REPRESENTATION OF KNOWLEDGE	9
	Game playing - Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, Use of predicate calculus, Knowledge representation using other logic-Structured representation of knowledge.	
UNIT III	KNOWLEDGE INFERENCE	9
	Knowledge representation -Production based system, Frame based system. Inference - Backward chaining, Forward chaining, Rule value approach, Fuzzy reasoning - Certainty factors, Bayesian Theory-Bayesian Network-Dempster - Shafer theory.	
UNIT IV	PLANNING AND MACHINE LEARNING	9
	Basic plan generation systems - Strips -Advanced plan generation systems — K strips -Strategic explanations -Why, Why not and how explanations. Learning- Machine learning, adaptive Learning.	
UNIT V	EXPERT SYSTEMS	9
	Expert systems - Architecture of expert systems, Roles of expert systems - Knowledge Acquisition — Meta knowledge, Heuristics. Typical expert systems - MYCIN, DART, XOON, Expert systems shells.	

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

- Identify problems that are amenable to solution by AI methods.
- Identify appropriate AI methods to solve a given problem.
- Formalise a given problem in the language/framework of different AI methods.
- Implement basic AI algorithms.
- Design and carry out an empirical evaluation of different algorithms on a problem formalisation, and state the conclusions that the evaluation supports.

TEXT BOOKS:

1. Kevin Night and Elaine Rich, Nair B., "Artificial Intelligence (SIE)", Mc Graw Hill- 2008.(Units-I,II,VI & V)
2. Dan W. Patterson, "Introduction to AI and ES", Pearson Education, 2007. (Unit-III).

REFERENCES:

1. Peter Jackson, "Introduction to Expert Systems", 3rd Edition, Pearson Education, 2007.
2. Stuart Russel and Peter Norvig "AI – A Modern Approach", 2nd Edition, Pearson Education 2007.
3. Deepak Khemani "Artificial Intelligence", Tata Mc Graw Hill Education 2013.
4. <http://nptel.ac.in>



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Adhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

OBJECTIVES:**The student should be made to:**

- Learn the design principles of a Compiler.
- Learn the various parsing techniques and different levels of translation
- Learn how to optimize and effectively generate machine codes

UNIT I INTRODUCTION TO COMPILERS

5

Translators-Compilation and Interpretation-Language processors -The Phases of Compiler-Errors Encountered in Different Phases-The Grouping of Phases-Compiler Construction Tools - Programming Language basics.

UNIT II LEXICAL ANALYSIS

9

Need and Role of Lexical Analyzer-Lexical Errors-Expressing Tokens by Regular Expressions- Converting Regular Expression to DFA- Minimization of DFA-Language for Specifying Lexical Analyzers-LEX-Design of Lexical Analyzer for a sample Language.

UNIT III SYNTAX ANALYSIS

10

Need and Role of the Parser-Context Free Grammars -Top Down Parsing -General Strategies- Recursive Descent Parser Predictive Parser-LL(1) Parser-Shift Reduce Parser-LR Parser-LR (0)Item- Construction of SLR Parsing Table - Introduction to LALR Parser - Error Handling and Recovery in Syntax Analyzer-YACC-Design of a syntax Analyzer for a Sample Language .

UNIT IV SYNTAX DIRECTED TRANSLATION & RUN TIME ENVIRONMENT

12

Syntax directed Definitions-Construction of Syntax Tree-Bottom-up Evaluation of S-Attribute Definitions- Design of predictive translator - Type Systems-Specification of a simple type checker- Equivalence of Type Expressions-Type Conversions.

RUN-TIME ENVIRONMENT: Source Language Issues-Storage Organization-Storage Allocation- Parameter Passing-Symbol Tables-Dynamic Storage Allocation-Storage Allocation in FORTRAN.

UNIT V CODE OPTIMIZATION AND CODE GENERATION

9

Principal Sources of Optimization-DAG- Optimization of Basic Blocks-Global Data Flow Analysis- Efficient Data Flow Algorithms-Issues in Design of a Code Generator - A Simple Code Generator Algorithm.

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

- Design and implement a prototype compiler.
- Apply the various optimization techniques.
- Use the different compiler construction tools.

TEXTBOOK:

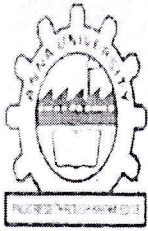
1. Alfred V Aho, Monica S. Lam, Ravi Sethi and Jeffrey D Ullman, "Compilers — Principles, Techniques and Tools", 2nd Edition, Pearson Education, 2007.

REFERENCES:

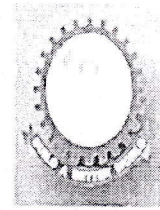
1. Randy Allen, Ken Kennedy, "Optimizing Compilers for Modern Architectures: A Dependence-based Approach", Morgan Kaufmann Publishers, 2002.
2. Steven S. Muchnick, "Advanced Compiler Design and Implementation", Morgan Kaufmann Publishers - Elsevier Science, India, Indian Reprint 2003.
3. Keith D Cooper and Linda Torczon, "Engineering a Compiler", Morgan Kaufmann Publishers Elsevier Science, 2004.
4. Charles N. Fischer, Richard. J. LeBlanc, "Crafting a Compiler with C", Pearson Education, 2008.

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PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalayam Road, CHINNASALEM-606,
Kallakurichi Taluk, Villupuram District



**POTHOLES AND UNEVEN
SURFACE DETECTION TO
ASSIST VISUALLY IMPAIRED
USING ULTRASONIC SENSOR**



A PROJECT REPORT

Submitted by

CHANDIRAVATHANA.R

621113106008

DHIVYABHARATHY.K

621113106011

KIRUTHIKA.S

621113106022

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI-600 025

APRIL 2017

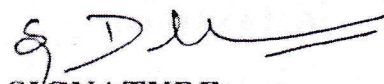

PRINCIPAL

**Idhaya Engineering College for Women,
Nainarpalayam Road, CHINNASALEM-606201,
Kallakurichi Taluk, Villupuram District**

ANNA UNIVERSITY: CHENNAI 600 025

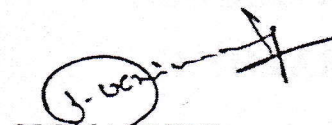
BONAFIDE CERTIFICATE

Certified that this project report "POTHOLES AND UNEVEN SURFACE DETECTION TO ASSIST VISUALLY IMPAIRED USING ULTRASONIC SENSOR" is the bonafide work of "R.CHANDIRA VATHANA, K.DHIVYA BHARATHY, S.KIRUTHIKA" who carried out the project work under my supervision.


SIGNATURE

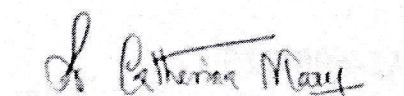
Mrs. P.POOVIZHI., M.E.,
HEAD OF THE DEPARTMENT

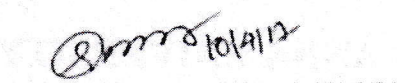
Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem- 606 201


SIGNATURE

Mr. M.MAHESH., M.Tech.,
SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem- 606 201


INTERNAL EXAMINER


EXTERNAL EXAMINER


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Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-606,
Kallakurichi Taluk, Villupuram District

OBJECTIVES:**The student should be made to:**

- Gain knowledge about graphics hardware devices and software used.
- Understand the two dimensional graphics and their transformations.
- Understand the three dimensional graphics and their transformations.
- Be familiar with understand clipping techniques.

UNIT I	INTRODUCTION	9
Survey of computer graphics, Overview of graphics systems — Video display devices, Raster scan systems, Random scan systems, Graphics monitors and Workstations, Input devices, Hard copy Devices, Graphics Software; Output primitives — points and lines, line drawing algorithms, loading the frame buffer, line function; circle and ellipse generating algorithms; Pixel addressing and object geometry, filled area primitives.		
UNIT II	TWO DIMENSIONAL GRAPHICS	9
Two dimensional geometric transformations — Matrix representations and homogeneous coordinates, composite transformations; Two dimensional viewing — viewing pipeline, viewing coordinate reference frame; widow-to-viewport coordinate transformation, Two dimensional viewing functions; clipping operations — point, line, and polygon clipping algorithms.		
UNIT III	THREE DIMENSIONAL GRAPHICS	10
Three dimensional concepts; Three dimensional object representations — Polygon surfaces- Polygon tables- Plane equations - Polygon meshes; Curved Lines and surfaces, Quadratic surfaces; Blobby objects; Spline representations — Bezier curves and surfaces - B-Spline curves and surfaces . TRANSFORMATION AND VIEWING: Three dimensional geometric and modeling transformations — Translation, Rotation, Scaling; Three dimensional viewing — viewing pipeline, viewing coordinates, Projections, Clipping; Visible surface detection methods.		
UNIT IV	ILLUMINATION AND COLOUR MODELS	7
Light sources - basic illumination models — halftone patterns and dithering techniques; Properties of light - Standard primaries and chromaticity diagram; Intuitive colour concepts - RGB colour model - YIQ colour model - CMY colour model - HSV colour model - HLS colour model; Colour selection.		
UNIT V	ANIMATIONS & REALISM	10
ANIMATION GRAPHICS: Design of Animation sequences — animation function — raster animation — key frame systems — motion specification — morphing — tweening. COMPUTER GRAPHICS REALISM: Tiling the plane — Recursively defined curves — Koch curves — C curves — Dragons — space filling curves — fractals — Grammar based models — fractals — turtle graphics — ray tracing.		

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

- Design two and three dimensional graphics.
- Apply two and three dimensional transformations.
- Apply Illumination and color models.
- Apply clipping techniques to graphics.
- Design animation sequences.

TEXT BOOKS:

1. John F. Hughes, Andries Van Dam, Morgan Mc Guire ,David F. Sklar , James D. Foley, Steven K. Feiner and Kurt Akeley , "Computer Graphics: Principles and Practice", 3rd Edition, Addison-Wesley Professional,2013. (UNIT I, II, III, IV).
2. Donald Hearn and Pauline Baker M, "Computer Graphics", Prentice Hall, New Delhi, 2007(UNIT V).

REFERENCES:

1. Donald Hearn and M. Pauline Baker, Warren Carithers, "Computer Graphics With Open GL", 4th Edition, Pearson Education, 2010.
2. Jeffrey McConnell, "Computer Graphics: Theory into Practice", Jones and Bartlett Publishers, 2006.
3. Hill F S Jr, "Computer Graphics", Maxwell Macmillan", 1990.
4. Peter Shirley, Michael Ashikhmin, Michael Gleicher, Stephen R Marschner, Erik Reinhard, Kelvin Sung, and AK Peters, Fundamental of Computer Graphics, CRC Press, 2010.
5. William M. Newman and Robert F. Sproull, "Principles of Interactive Computer Graphics", Mc GrawHill 1978.
6. <http://nptel.ac.in/>



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Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

OBJECTIVES:**The student should be made to:**

- Understand foundations of Distributed Systems.
- Introduce the idea of peer to peer services and file system.
- Understand in detail the system level and support required for distributed system.
- Understand the issues involved in studying process and resource management.

UNIT I INTRODUCTION

7

Examples of Distributed Systems–Trends in Distributed Systems – Focus on resource sharing – Challenges. **Case study:** World Wide Web.

UNIT II COMMUNICATION IN DISTRIBUTED SYSTEM

10

System Model – Inter process communication - the API for internet protocols – External data representation and Multicast communication. **Network virtualization:** Overlay networks. **Case study:** MPI **Remote Method Invocation And Objects:** Remote Invocation – Introduction - Request-reply protocols - Remote procedure call - Remote method invocation. **Case study:** Java RMI - Group communication - Publish-subscribe systems - Message queues - Shared memory approaches - Distributed objects - Case study: Enterprise Java Beans -from objects to components.

UNIT III PEER TO PEER SERVICES AND FILE SYSTEM

10

Peer-to-peer Systems – Introduction - Napster and its legacy - Peer-to-peer – Middleware - Routing overlays. **Overlay case studies:** Pastry, Tapestry- Distributed File Systems –Introduction - File service architecture – Andrew File system. **File System:** Features-File model -File accessing models
- File sharing semantics **Naming:** Identifiers, Addresses, Name Resolution – Name Space Implementation – Name Caches –LDAP.

UNIT IV SYNCHRONIZATION AND REPLICATION

9

Introduction - Clocks, events and process states - Synchronizing physical clocks- Logical time and logical clocks - Global states – Coordination and Agreement – Introduction - Distributed mutual exclusion – Elections – Transactions and Concurrency Control– Transactions -Nested transactions –Locks – Optimistic concurrency control - Timestamp ordering – Atomic Commit protocols -Distributed deadlocks – Replication – Case study – Coda.

UNIT V PROCESS & RESOURCE MANAGEMENT

9

Process Management: Process Migration: Features, Mechanism - Threads: Models, Issues, Implementation. **Resource Management:** Introduction- Features of Scheduling Algorithms –Task Assignment Approach – Load Balancing Approach – Load Sharing Approach.

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

- Discuss trends in Distributed Systems.
- Apply network virtualization.
- Apply remote method invocation and objects.
- Design process and resource management systems.

TEXT BOOK:

1. George Coulouris, Jean Dollimore and Tim Kindberg, “Distributed Systems Concepts and Design”, Fifth Edition, Pearson Education, 2012.

REFERENCES:

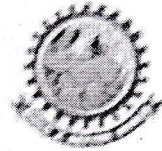
1. Pradeep K Sinha, "Distributed Operating Systems: Concepts and Design", Prentice Hall of India, 2007.
2. Tanenbaum A.S., Van Steen M., “Distributed Systems: Principles and Paradigms”, Pearson Education, 2007.
3. Liu M.L., “Distributed Computing, Principles and Applications”, Pearson Education, 2004.
4. Nancy A Lynch, “Distributed Algorithms”, Morgan Kaufman Publishers, USA, 2003.


 PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-601
Kallakurichi Taluk, Villupuram District



**BRAIN TUMOR DETECTION
USING K-MEANS CLUSTERING
AND ANN CLASSIFICATION**



A PROJECT REPORT

Submitted by

K.ABIRAMI

621113104001

A.MEENA

621113104016

B.NANDHINI

621113104021

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI-600 025

APRIL 2017

Meena
PRINCIPAL

**Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60621
Kallakurichi Taluk, Villupuram District**

BONAFIDE CERTIFICATE

Certified that this project report "BRAIN TUMOR DETECTION USING K-MEANS CLUSTERING AND ANN CLASSIFICATION" is the bonafide work of "K.ABIRAMI, A.MEENA, B.NANDHINI" who carried out their project work under my supervision.


SIGNATURE

Mr.S.JAYAPRAKASH,M.E.,(Ph.D),
HEAD OF THE DEPARTMENT

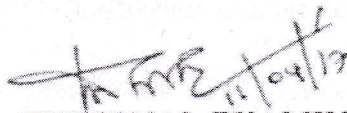
Assistant Professor / CSE,
Idhaya Engineering College
For Women,
ChinnaSalem-606 201.


SIGNATURE

Mrs.K.GANDHIMATHI,M.E.,
SUPERVISOR

Assistant Professor / CSE,
Idhaya Engineering College
For Women,
ChinnaSalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER

OBJECTIVES:**The student should be made to:**

- Understand the basic concepts of mobile computing
- Be familiar with the network protocol stack
- Learn the basics of mobile telecommunication system
- Be exposed to Ad-Hoc networks
- Gain knowledge about different mobile platforms and application development

UNIT I	INTRODUCTION	9
	Mobile Computing – Mobile Computing Vs wireless Networking – Mobile Computing Applications – Characteristics of Mobile computing – Structure of Mobile Computing Application. MAC Protocols – Wireless MAC Issues – Fixed Assignment Schemes – Random Assignment Schemes – ReservationBased Schemes.	
UNIT II	MOBILE INTERNET PROTOCOL AND TRANSPORT LAYER	9
	Overview of Mobile IP – Features of Mobile IP – Key Mechanism in Mobile IP – route Optimization. Overview of TCP/IP – Architecture of TCP/IP- Adaptation of TCP Window – Improvement in TCP Performance.	
UNIT III	MOBILE TELECOMMUNICATION SYSTEM	9
	Global System for Mobile Communication (GSM) – General Packet Radio Service (GPRS) – Universal Mobile Telecommunication System (UMTS).	
UNIT IV	MOBILE AD-HOC NETWORKS	9
	Ad-Hoc Basic Concepts – Characteristics – Applications – Design Issues – Routing – Essential of Traditional Routing Protocols – Popular Routing Protocols – Vehicular Ad Hoc networks (VANET) – MANET Vs VANET – Security.	
UNIT V	MOBILE PLATFORMS AND APPLICATIONS	9
	Mobile Device Operating Systems – Special Constrains & Requirements – Commercial Mobile Operating Systems – Software Development Kit: iOS, Android, BlackBerry, Windows Phone – M- Commerce – Structure – Pros & Cons – Mobile Payment System – Security Issues.	

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

- Explain the basics of mobile telecommunication system
- Choose the required functionality at each layer for given application
- Identify solution for each functionality at each layer
- Use simulator tools and design Ad hoc networks
- Develop a mobile application.

TEXT BOOK:

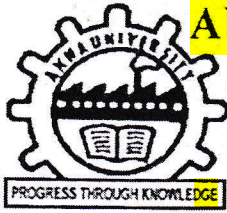
1. Prasant Kumar Pattnaik, Rajib Mall, "Fundamentals of Mobile Computing", PHI Learning Pvt.Ltd, New Delhi – 2012.

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1. Jochen H. Schller, "Mobile Communications", Second Edition, Pearson Education, New Delhi,2007.
2. Dharma Prakash Agarval, Qing and An Zeng, "Introduction to Wireless and Mobile systems", Thomson Asia Pvt Ltd, 2005.
3. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, "Principles of Mobile Computing", Springer, 2003.
4. William.C.Y.Lee, "Mobile Cellular Telecommunications-Analog and Digital Systems", Second Edition, Tata Mc Graw Hill Edition ,2006.
5. C.K.Toth, "AdHoc Mobile Wireless Networks", First Edition, Pearson Education, 2002.
6. Android Developers : <http://developer.android.com/index.html>
7. Apple Developer : <https://developer.apple.com/>
8. Windows Phone Dev Center : <http://developer.windowsphone.com>
9. BlackBerry Developer : <http://developer.blackberry.com/>

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idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
hallakurichi Taluk, Villupuram District.



**AUDIO STEGANOGRAPHY: AN APPROACH
TOWARD SECURE INFORMATION
TRANSMISSION SYSTEM**



A PROJECT REPORT

Submitted by

S. DEIVANAI

621113104008

R. PRIYADHARSHNI

621113104026

A. ROSELIN MARY

621113104029

R. SWATHI

621113104036

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

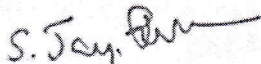

PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalaym Road, CHINNASALEM-60624
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI-600 025

BONAFIDE CERTIFICATE

Certified that this project report "AUDIO STEGANOGRAPHY-AN APPROACH TOWARD SECURE INFORMATION TRANSMISSION SYSTEM" is the bonafide work of "S. DEIVANAI, R. PRIYADHARSHNI, A. ROSELIN MARY, R. SWATHI" who carried out their project work under my supervision.



SIGNATURE

Mr.S. JAYAPRAKASH., M.E., (Ph.D)

HEAD OF THE DEPARTMENT

Assistant professor/CSE.

Idhaya engineering college for women,
Chinnasalem-606 201.



SIGNATURE


Mrs.P. MOHANAVALLI., M.E.,

SUPERVISOR

Assistant Professor/CSE.

Idhaya engineering college for women.
Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER

OBJECTIVES:**The student should be made to:**

- Understand the design issues in ad hoc and sensor networks.
- Learn the different types of MAC protocols.
- Be familiar with different types of adhoc routing protocols.
- Be expose to the TCP issues in adhoc networks.
- Learn the architecture and protocols of wireless sensor networks.

UNIT I INTRODUCTION

9

Fundamentals of Wireless Communication Technology — The Electromagnetic Spectrum — Radio propagation Mechanisms — Characteristics of the Wireless Channel -mobile ad hoc networks (MANETs) and wireless sensor networks (WSNs) :concepts and architectures. Applications of Ad Hoc and Sensor networks. Design Challenges in Ad hoc and Sensor Networks.

UNIT II MAC PROTOCOLS FOR AD HOC WIRELESS NETWORKS

9

Issues in designing a MAC Protocol- Classification of MAC Protocols- Contention based protocols-Contention based protocols with Reservation Mechanisms- Contention based protocols with Scheduling Mechanisms — Multi channel MAC-IEEE 802.11

UNIT III ROUTING PROTOCOLS AND TRANSPORT LAYER IN AD HOC WIRELESS NETWORKS

9

Issues in designing a routing and Transport Layer protocol for Ad hoc networks- proactive routing, reactive routing (on-demand), hybrid routing- Classification of Transport Layer solutions-TCP over Ad hoc wireless Networks.

UNIT IV WIRELESS SENSOR NETWORKS (WSNS) AND MAC PROTOCOLS

9

Single node architecture: hardware and software components of a sensor node - WSN Network architecture: typical network architectures- data relaying and aggregation strategies -MAC layer protocols: self-organizing, Hybrid TDMA/FDMA and CSMA based MAC- IEEE 802.15.4.

UNIT V WSN ROUTING, LOCALIZATION & QOS

9

Issues in WSN routing — OLSR- Localization — Indoor and Sensor Network Localization-absolute andrelative localization, triangulation- QOS in WSN-Energy Efficient Design-Synchronization-Transport Layer issues.

TOTAL: 45 PERIODS**OUTCOMES:****Upon completion of the course, the student should be able to:**

- Explain the concepts, network architectures and applications of ad hoc and wireless sensornetworks
- Analyze the protocol design issues of ad hoc and sensor networks
- Design routing protocols for ad hoc and wireless sensor networks with respect to some protocol design issues
- Evaluate the QoS related performance measurements of ad hoc and sensor networks

TEXT BOOK:

1. C. Siva Ram Murthy, and B. S. Manoj, "Ad Hoc Wireless Networks: Architectures and Protocols ",Prentice Hall Professional Technical Reference, 2008.

REFERENCES:

1. Carlos De Morais Cordeiro, Dharma Prakash Agrawal "Ad Hoc & Sensor Networks:Theory and Applications", World Scientific Publishing Company, 2006.
2. Feng Zhao and Leonides Guibas, "Wireless Sensor Networks", Elsevier Publication -2002.
3. Holger Karl and Andreas Willig "Protocols and Architectures for Wireless Sensor Networks",Wiley, 2005
4. Kazem Sohraby, Daniel Minoli, & Taieb Znati, "Wireless Sensor Networks-Technology,Protocols, and Applications", John Wiley, 2007.
5. Anna Hac, "Wireless Sensor Network Designs", John Wiley, 2003.

Principi
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idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEY
Kallakurichi Taluk, Villupuram District

OBJECTIVES:**The student should be made to:**

- Understand how Grid computing helps in solving large scale scientific problems.
- Gain knowledge on the concept of virtualization that is fundamental to cloud computing.
- Learn how to program the grid and the cloud.
- Understand the security issues in the grid and the cloud environment.

UNIT I INTRODUCTION

9

Evolution of Distributed computing: Scalable computing over the Internet – Technologies for network based systems – clusters of cooperative computers - Grid computing Infrastructures – cloud computing - service oriented architecture – Introduction to Grid Architecture and standards – Elements of Grid – Overview of Grid Architecture.

UNIT II GRID SERVICES

9

Introduction to **Open Grid Services Architecture (OGSA)** – Motivation – Functionality Requirements – Practical & Detailed view of OGSA/OGSI – Data intensive grid service models – OGSA services.

UNIT III VIRTUALIZATION

9

Cloud deployment models: public, private, hybrid, community – Categories of cloud computing: Everything as a service: Infrastructure, platform, software - Pros and Cons of cloud computing – Implementation levels of virtualization – virtualization structure – virtualization of CPU, Memory and I/O devices – virtual clusters and Resource Management – Virtualization for data center automation.

UNIT IV PROGRAMMING MODEL

9

Open source grid middleware packages – **Globus Toolkit (GT4) Architecture , Configuration** – Usage of Globus – Main components and Programming model - Introduction to Hadoop Framework - Mapreduce, Input splitting, map and reduce functions, specifying input and output parameters, configuring and running a job – Design of Hadoop file system, HDFS concepts, command line and java interface, dataflow of File read & File write.

UNIT V SECURITY

9

Trust models for Grid security environment – Authentication and Authorization methods – Grid security infrastructure – Cloud Infrastructure security: network, host and application level – aspects of data security, provider data and its security, Identity and access management architecture, IAM practices in the cloud, SaaS, PaaS, IaaS availability in the cloud, Key privacy issues in the cloud.

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course, the student should be able to:**

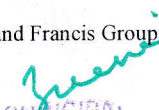
- Apply grid computing techniques to solve large scale scientific problems.
- Apply the concept of virtualization.
- Use the grid and cloud tool kits.
- Apply the security models in the grid and the cloud environment.

TEXT BOOK:

1. Kai Hwang, Geoffery C. Fox and Jack J. Dongarra, “Distributed and Cloud Computing: Clusters, Grids, Clouds and the Future of Internet”, First Edition, Morgan Kaufman Publisher, an Imprint of Elsevier, 2012.

REFERENCES:

1. Jason Venner, “Pro Hadoop- Build Scalable, Distributed Applications in the Cloud”, A Press, 2009
2. Tom White, “Hadoop The Definitive Guide”, First Edition. O’Reilly, 2009.
3. Bart Jacob (Editor), “Introduction to Grid Computing”, IBM Red Books, Vervante, 2005
4. Ian Foster, Carl Kesselman, “The Grid: Blueprint for a New Computing Infrastructure”, 2nd Edition, Morgan Kaufmann.
5. Frederic Magoules and Jie Pan, “Introduction to Grid Computing” CRC Press, 2009.
6. Daniel Minoli, “A Networking Approach to Grid Computing”, John Wiley Publication, 2005.
7. Barry Wilkinson, “Grid Computing: Techniques and Applications”, Chapman and Hall, CRC, Taylor and Francis Group, 2010.


 PRINCIPAL
 Idhaya Engineering College for Women
 Vainarpalayam Road, CHINNASALEM-60520
 Kallakurichi Taluk, Villupuram District

OBJECTIVES:**The student should be made to:**

- Learn the architecture and programming of ARM processor.
- Be familiar with the embedded computing platform design and analysis.
- Be exposed to the basic concepts of real time Operating system.
- Learn the system design techniques and networks for embedded systems

UNIT I INTRODUCTION TO EMBEDDED COMPUTING AND ARM PROCESSORS 9

Complex systems and micro processors– Embedded system design process –Design example: Model train controller- Instruction sets preliminaries - ARM Processor – CPU: programming input and output- supervisor mode, exceptions and traps — Co-processors- Memory system mechanisms — CPU performance- CPU power consumption.

UNIT II EMBEDDED COMPUTING PLATFORM DESIGN 9

The CPU Bus-Memory devices and systems–Designing with computing platforms – consumer electronics architecture – platform-level performance analysis - Components for embedded programs- Models of programs- Assembly, linking and loading – compilation techniques- Program level performance analysis – Software performance optimization – Program level energy and power analysis and optimization – Analysis and optimization of program size- Program validation and testing.

UNIT III PROCESSES AND OPERATING SYSTEMS 9

Introduction – Multiple tasks and multiple processes – Multirate systems- Preemptive real-time operating systems- Priority based scheduling- Interprocess communication mechanisms – Evaluating operating system performance- power optimization strategies for processes – Example Real time operating systems-POSIX-Windows CE.

UNIT V SYSTEM DESIGN TECHNIQUES AND NETWORKS 9

Design methodologies- Design flows - Requirement Analysis – Specifications-System analysis and architecture design – Quality Assurance techniques- Distributed embedded systems – MPSoCs and shared memory multiprocessors.

UNIT V CASE STUDY 9

Data compressor - Alarm Clock - Audio player - Software modem-Digital still camera - Telephone answering machine-Engine control unit – Video accelerator.

TOTAL: 45 PERIODS**OUTCOMES:****Upon completion of the course, students will be able to:**

- Describe the architecture and programming of ARM processor.
- Outline the concepts of embedded systems
- Explain the basic concepts of real time Operating system design.
- Use the system design techniques to develop software for embedded systems
- Differentiate between the general purpose operating system and the real time operating system
- Model real-time applications using embedded-system concepts

TEXT BOOK:

1. Marilyn Wolf, "Computers as Components - Principles of Embedded Computing System Design", Third Edition "Morgan Kaufmann Publisher (An imprint from Elsevier), 2012.

REFERENCES:

1. Jonathan W.Valvano, "Embedded Microcomputer Systems Real Time Interfacing", Third Edition Cengage Learning, 2012.
2. David. E. Simon, "An Embedded Software Primer", 1st Edition, Fifth Impression, Addison-Wesley Professional, 2007.
3. Raymond J.A. Buhr, Donald L.Bailey, "An Introduction to Real-Time Systems- From Design to Networking with C/C++", Prentice Hall, 1999.
4. C.M. Krishna, Kang G. Shin, "Real-Time Systems", International Editions, Mc Graw Hill 1997
5. K.V.K.K.Prasad, "Embedded Real-Time Systems: Concepts, Design & Programming", DreamTech Press, 2005.
6. Sriram V Iyer, Pankaj Gupta, "Embedded Real Time Systems Programming", Tata Mc Graw Hill, 2004.

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rdhaya Engineering College for Women
Mainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

OBJECTIVES:**The student should be made to:**

- Learn the foundations of Human Computer Interaction.
- Be familiar with the design technologies for individuals and persons with disabilities.
- Be aware of mobile HCI.
- Learn the guidelines for user interface.

UNIT I FOUNDATIONS OF HCI 9

The Human: I/O channels – Memory – Reasoning and problem solving; The computer: Devices – Memory – processing and networks; Interaction: Models – frameworks – Ergonomics – styles – elements – interactivity- Paradigms.

UNIT II DESIGN & SOFTWARE PROCESS 9

Interactive Design basics – process – scenarios – navigation – screen design – Iteration and prototyping. HCI in software process – software life cycle – usability engineering – Prototyping in practice – design rationale. Design rules – principles, standards, guidelines, rules. Evaluation Techniques – Universal Design.

UNIT III MODELS AND THEORIES 9

Cognitive models – Socio-Organizational issues and stake holder requirements – Communication and collaboration models-Hypertext, Multimedia and WWW.

UNIT IV MOBILE HCI 9

Mobile Ecosystem: Platforms, Application frameworks- Types of Mobile Applications: Widgets, Applications, Games- Mobile Information Architecture, Mobile 2.0, Mobile Design: Elements of Mobile Design, Tools.

UNIT V WEB INTERFACE DESIGN 9

Designing Web Interfaces – Drag & Drop, Direct Selection, Contextual Tools, Overlays, Inlays and Virtual Pages, Process Flow. Case Studies.

L: 45, T: 0, TOTAL: 45 PERIODS

OUTCOMES:**Upon completion of the course, the student should be able to:**

- Design effective dialog for HCI.
- Design effective HCI for individuals and persons with disabilities.
- Assess the importance of user feedback.

TEXT BOOKS:

1. Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale, "Human Computer Interaction", 3rd Edition, Pearson Education, 2004 (UNIT I, II & III).
2. Brian Fling, "Mobile Design and Development", First Edition, O'Reilly Media Inc., 2009 (UNIT –IV).

Bueni
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District



**TRAVEL PACKAGE RECOMMENDATION
USING COCKTAIL APPROACH**



P 638

A PROJECT REPORT

Submitted by

P.BRINDHA	621113104006
J.MEERA SHINY	621113104018
P.MONISHA	621113104020
R.D.RAVEENA	621113104028

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY::CHENNAI 600 025

APRIL 2017

Mani
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY : CHENNAI-600 025

BONAFIDE CERTIFICATE

Certified that this project report "TRAVEL PACKAGE RECOMMENDATION USING COCKTAIL APPROACH" is the bonafide work of "BRINDHA.P, MEERASHINY.J, MONISHA.P, RAVEENA.R.D" who carried out the project work under my supervision.

S. Jay. Prakash
SIGNATURE

Mr. S. JAYAPRAKASH, M.E.,
HEAD OF THE DEPARTMENT
Assistant Professor/CSE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.

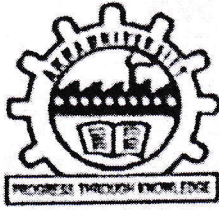
P. Sumathi
SIGNATURE

Mrs. P.SUMATHI, M.E.,
SUPERVISOR
Assistant Professor/CSE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.

S. Jay. Prakash
11/04/12
INTERNAL EXAMINER

m m r e
11/04/12
EXTERNAL EXAMINER

meeni
PRINCIPAL
Idhaya Engineering College
Nainarpalayam Road, CHINNASALEM-606201
kallakurichi Taluk, Villupuram District



1645

**IRIS RECOGNITION BASED
ON HUMAN-INTERPRETABLE
FEATURES**



A PROJECT REPORT

Submitted by

MEENAKSHI MIRUTHULA.A

621113104017

SUBALAKSHMI.S

621113104035

PAVITHRA.R

621113104301

HAJARA YASMIN.HR

621113104701

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI-600 025

APRIL 2017


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meeni
PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600041
hallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI-600 025

BONAFIDE CERTIFICATE

Certified that this project report "**IRIS RECOGNITION BASED ON HUMAN-INTERPRETABLE FEATUERS**" is the bonafide work of "**MEENAKSHI MIRUTHULA.A**" (Reg.No.621113104017), "**SUBALAKSHMI.S**" (Reg. No. 621113104035), "**PAVITHRA.R**" (Reg.No.621113104301), "**HAJARA YASMIN.HR.**" (Reg.No.621113104701) who carried out their project work under my supervision.


SIGNATURE

Mr. S.JAYAPRAKASH., M.E.,(Ph.D)

HEAD OF THE DEPARTMENT

Assistant professor,

Computer science and engineering,

Idhaya engineering college for women,

Chinnasalem- 606 201.


SIGNATURE

Sr. JANSI SOFIA MARY. M.E.,

SUPERVISOR

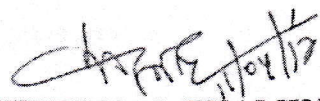
Assistant Professor,

Computer science and engineering,

Idhaya engineering college for women,

Chinnasalem- 606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER

OBJECTIVES:**The student should be made to:**

- Be familiar with the structure of basic electronic devices.
- Be exposed to the operation and applications of electronic devices.

UNIT I PN JUNCTION DEVICES

9

PN junction diode –structure, operation and V-I characteristics, diffusion and transient capacitance -Rectifiers — Half Wave and Full Wave Rectifier,— Display devices- LED, Laser diodes- Zener diode- characteristics-Zener Reverse characteristics – Zener as regulator

UNIT II TRANSISTORS

9

BJT, JFET, MOSFET- structure, operation, characteristics and Biasing UJT, Thyristor and IGBT - Structure and characteristics.

UNIT III AMPLIFIERS

9

BJT small signal model — Analysis of CE, CB, CC amplifiers- Gain and frequency response — MOSFET small signal model— Analysis of CS and Source follower – Gain and frequency response-High frequency analysis.

UNIT IV MULTISTAGE AMPLIFIERS AND DIFFERENTIAL AMPLIFIER

9

BIMOS cascade amplifier, Differential amplifier – Common mode and Difference mode analysis – FET input stages – Single tuned amplifiers – Gain and frequency response – Neutralization methods, power amplifiers –Types (Qualitative analysis).

UNIT V FEEDBACK AMPLIFIERS AND OSCILLATORS

9

Advantages of negative feedback – voltage / current, series , Shunt feedback –positive feedback – Condition for oscillations, phase shift – Wien bridge, Hartley, Colpitts and Crystal oscillators.

TOTAL (L:45+T:15): 60 PERIODS**OUTCOMES:**


- To explain the structure of the basic electronic devices.
- To design applications using the basic electronic devices.

TEXT BOOKS:

1. David A. Bell, [Electronic Devices and Circuits], Prentice Hall of India, 2004.
2. Sedra and Smith, —Microelectronic Circuits — Oxford University Press, 2004.

REFERENCES:

1. Rashid, —Micro Electronic Circuits| Thomson publications, 1999.
2. Floyd, —Electron Devices| Pearson Asia 5th Edition, 2001.
3. Donald A Neamen, —Electronic Circuit Analysis and Design| Tata McGraw Hill, 3rd Edition, 2003.
4. Robert L. Boylestad, —Electronic Devices and Circuit theory|, 2002.
5. Robert B. Northrop, —Analysis and Application of Analog Electronic Circuits to Biomedical Instrumentation|, CRC Press, 2004.



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Idhaya Engineering College for Women
Nainarpalayam Road, CHINNASALEM-606206
Kallakurichi Taluk, Villupuram District



**WIRELESS POWER TRANSFER
FOR ELECTRIC VEHICLE
USING RF CONTROL**



A PROJECT REPORT

Submitted by

GAYATHRI.A

621113105009

PRAVEENA.A

621113105025

PREETHI.D

621113105026

SIVASANKARI.M

621113105031

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRICAL AND ELECTRONICS ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM-606 201

ANNA UNIVERSITY::CHENNAI 600 025

APRIL 2017

Mene
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY::CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "WIRELESS POWER TRANSFER FOR ELECTRIC VEHICLE USING RF CONTROL" is the bonafide work of "A.GAYATHRI, A.PRAVEENA, D.PREETHI, M.SIVASANKARI" who carried out the project work under my supervision.


SIGNATURE

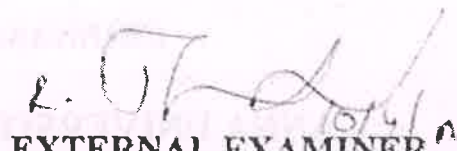
Mrs.A.YOGARANI., M.E.,
HEAD OF THE DEPARTMENT,
DEPARTMENT OF EEE,
IECW,
CHINNASALEM,
VILLUPURAM (DT).


SIGNATURE

Mrs.A.YOGARANI.,M.E.,
SUPERVISOR,
DEPARTMENT OF EEE,
IECW,
CHINNASALEM,
VILLUPURAM (DT).

Submitted for the University Examination Held on 10-4-2017 EN


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60626
Sattakurichi Taluk, Villupuram District

ABSTRACT

Wireless power transfer (WPT) using magnetic resonance is the technology which could set human free from the annoying wires. In fact, the WPT adopts the same basic theory which has already been developed for at least 30 years with the term inductive power transfer. WPT technology is developing rapidly in recent years. The advances make the WPT very attractive to the electric vehicle (EV) charging applications in both stationary and dynamic charging scenarios. A high power and large capacity battery pack is usually equipped as an energy storage unit to make an EV to operate for a satisfactory distance. By introducing WPT in EVs, the obstacles of charging time, range, and cost can be easily mitigated. Battery technology is no longer relevant in the mass market penetration of EVs. With this we introduce a new technology for fast charging. If the driver enables fast charging the WPT give high ampere to the Vehicle. With help of RF wireless technology the vehicle battery full charged means both charging and discharging will be terminate.

OBJECTIVES:

- To introduce the basic functional elements of instrumentation
- To introduce the fundamentals of electrical and electronic instruments
- To educate on the comparison between various measurement techniques
- To introduce various storage and display devices
- To introduce various transducers and the data acquisition systems

UNIT I INTRODUCTION

9

Functional elements of an instrument – Static and dynamic characteristics – Errors in measurement – Statistical evaluation of measurement data – Standards and calibration.

UNIT II ELECTRICAL AND ELECTRONICS INSTRUMENTS

9

Principle and types of analog and digital voltmeters, ammeters, multimeters – Single and three phase wattmeters and energy meters – Magnetic measurements – Determination of B-H curve and measurements of iron loss – Instrument transformers – Instruments for measurement of frequency and phase.

UNIT III COMPARISON METHODS OF MEASUREMENTS

9

D.C & A.C potentiometers, D.C & A.C bridges, transformer ratio bridges, self-balancing bridges. Interference & screening – Multiple earth and earth loops - Electrostatic and electromagnetic interference – Grounding techniques.

UNIT IV STORAGE AND DISPLAY DEVICES

9

Magnetic disk and tape – Recorders, digital plotters and printers, CRT display, digital CRO, LED, LCD & dot matrix display – Data Loggers.

UNIT V TRANSDUCERS AND DATA ACQUISITION SYSTEMS

9

Classification of transducers – Selection of transducers – Resistive, capacitive & inductive transducers – Piezoelectric, Hall effect, optical and digital transducers – Elements of data acquisition system – A/D, D/A converters – Smart sensors.

TOTAL :45 PERIODS**OUTCOMES:**

- Ability to model and analyze electrical apparatus and their application to power system

TEXT BOOKS:

1. A.K. Sawhney, 'A Course in Electrical & Electronic Measurements & Instrumentation', Dhanpat Rai and Co, 2004.
2. J. B. Gupta, 'A Course in Electronic and Electrical Measurements', S. K. Kataria & Sons, Delhi, 2003.
3. Doebelin E.O. and Manik D.N., 'Measurement Systems – Applications and Design, Special Indian Edition, Tata McGraw Hill Education Pvt. Ltd., 2007.

REFERENCES:

1. H.S. Kalsi, 'Electronic Instrumentation', Tata McGraw Hill, II Edition 2004.
2. D.V.S. Moorthy, 'Transducers and Instrumentation', Prentice Hall of India Pvt Ltd, 2007.
3. A.J. Bouwens, 'Digital Instrumentation', Tata McGraw Hill, 1997.
4. Martin Reissland, 'Electrical Measurements', New Age International (P) Ltd, Delhi, 2001.
5. Alan. S. Morris, 'Principles of Measurements and Instrumentation, 2nd Edition, Prentice Hall of India, 2003.



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Adhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-605
Kallakurichi Taluk, Villupuram District



STEAM TURBINE GENERATOR PROTECTION

USING NUMERICAL RELAY

A PROJECT REPORT



Submitted by

S.ANANTHI

621113105002

A.LAVANYA

621113105016

E.NIVETHA

621113105020

R.SAVITHRI

621113105030

In partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

In

ELECTRICAL AND ELECTRONICS ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASELEM-606201

ANNA UNIVERSITY: CHENNAI-600025

APRIL 2017

Mani

PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASELEM-606201
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI-600025

BONAFIDE CERTIFICATE

Certificate that this project titled **"STEAM TURBINE GENERATOR PROTECTIONS USING NUMERICAL RELAY"** is the bonafide work of **"S.ANANTHI, A.LAVANYA, E.NIVETHA and R.SAVITHRI"** who carried out their project work under my supervision


SIGNATURE

MRS.YOGARANI.A,M.E
HEAD OF THE DEPARTMENT,

Department of EEE,
Idhaya Engineering College For
Women, Chinnasalem.


SIGNATURE

M. S.MENAGA GANDHI,K,M.Tech
SUPERVISOR,
ASSISTANT PROFESSOR,

Department of EEE,
Idhaya Engineering college For
Women, Chinnasalem.

Submitted for the university examination held on.10/4/17.../F.N.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-6062
Kallakurichi Taluk, Villupuram Dist.

ABSTRACT

Multilevel inverter technology has emerged recently as a very important alternative in the area of high-power medium-voltage energy control. This project presents the most important topologies like diode-clamped inverter (neutral-point clamped), capacitor-clamped (flying capacitor), and cascaded multicell with separate dc sources. High efficiency and compact single phase flying capacitor multilevel inverter is used in many applications such as power inverter drivers and industries.

The inverter features as ZVZCS based single phase, 7-level flying capacitor multilevel inverter. ZVZCS switch used for frequent operations and there is no switching losses and heat sink. It also includes an ANN feedback network, it detects the error and predetecting the advance errors.

An efficiency of the inverter is improved and also overall efficiency is improved. This project also presents the most relevant control and modulation methods developed for this family of converters multilevel sinusoidal pulse width modulation, multilevel selective harmonic elimination, and space-vector modulation. Finally, the peripherally developing areas such as high-voltage high-power devices and optical sensors and other opportunities for future development are addressed.

OBJECTIVES:

- To get an overview of different types of power semiconductor devices and their switching characteristics.
- To understand the operation, characteristics and performance parameters of controlled rectifiers.
- To study the operation, switching techniques and basic topologies of DC-DC switching regulators.
- To learn the different modulation techniques of pulse width modulated inverters and to understand harmonic reduction methods.
- To study the operation of AC voltage controller and various configurations.

UNIT I POWER SEMI-CONDUCTOR DEVICES 9

Study of switching devices, Diode, SCR, TRIAC, GTO, BJT, MOSFET, IGBT-Static and Dynamic characteristics - Triggering and commutation circuit for SCR- Design of Driver and snubber circuit.

UNIT II PHASE-CONTROLLED CONVERTERS 9

2-pulse, 3-pulse and 6-pulse converters – performance parameters – Effect of source inductance – Gate Circuit Schemes for Phase Control – Dual converters.

UNIT III DC TO DC CONVERTER 9

Step-down and step-up chopper-control strategy – Forced commutated chopper – Voltage commutated, Current commutated, Load commutated, Switched mode regulators - Buck, boost, buck-boost converter, Introduction to Resonant Converters.

UNIT IV INVERTERS 9

Single phase and three phase voltage source inverters (both 120° mode and 180° mode) – Voltage & harmonic control – PWM techniques: Sinusoidal PWM, modified sinusoidal PWM - multiple PWM – Introduction to space vector modulation – Current source inverter.

UNIT V AC TO AC CONVERTERS 9

Single phase and Three phase AC voltage controllers – Control strategy - Power Factor Control – Multistage sequence control - single phase and three phase cyclo converters – Introduction to Matrix converters.

TOTAL: 45 PERIODS**OUTCOMES:**

- Ability to understand and analyse, linear and digital electronic circuits.

TEXT BOOKS:

1. M.H. Rashid, 'Power Electronics: Circuits, Devices and Applications', Pearson Education, PHI Third Edition, New Delhi, 2004.
2. P.S. Bimbra — Power Electronics | Khanna Publishers, third Edition, 2003.
3. L. Umanand, — Power Electronics Essentials and Applications |, Wiley, 2010.

REFERENCES:

1. Joseph Vithayathil, 'Power Electronics, Principles and Applications', McGraw Hill Series, 6th Reprint, 2013.
2. Ashfaq Ahmed Power Electronics for Technology Pearson Education, Indian reprint, 2003.
3. Philip T. Krein, — Elements of Power Electronics | Oxford University Press, 2004 Edition.
4. Ned Mohan, Tore. M. Undel and, William. P. Robbins, 'Power Electronics: Converters, Applications and Design', John Wiley and sons, third edition, 2003.
5. Daniel. W. Hart, — Power Electronics |, Indian Edition, Mc Graw Hill, 3rd Print, 2013.
6. M.D. Singh and K.B. Khanchandani, — Power Electronics |, Mc Graw Hill India, 2013.

B. S. Srinivas
 PRINCIPAL
 Vidhya Engineering College for Women
 Nainarpalaym Road, CHINNASALEM-60620
 Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To introduce the power quality problem
- To educate on production of voltages sags, over voltages and harmonics and methods of control.
- To study overvoltage problems
- To study the sources and effect of harmonics in power system
- To impart knowledge on various methods of power quality monitoring.

UNIT I INTRODUCTION TO POWER QUALITY 9

Terms and definitions: Overloading - under voltage - over voltage. Concepts of transients - short duration variations such as interruption - long duration variation such as sustained interruption. Sags and swells - voltage sag - voltage swell - voltage imbalance - voltage fluctuation - power frequency variations. International standards of power quality. Computer Business Equipment Manufacturers Associations (CBEMA) curve.

UNIT II VOLTAGE SAGS AND INTERRUPTIONS 9

Sources of sags and interruptions - estimating voltage sag performance. Thevenin's equivalent source - analysis and calculation of various faulted condition. Voltage sag due to induction motor starting. Estimation of the sag severity - mitigation of voltage sags, active series compensators. Static transfer switches and fast transfer switches.

UNIT III OVERVOLTAGES 9

Sources of over voltages - Capacitor switching — lightning - ferro resonance. Mitigation of voltage swells - surge arresters - low pass filters - power conditioners. Lightning protection — shielding — line arresters - protection of transformers and cables. An introduction to computer analysis tools for transients, PSCAD and EMTP.

UNIT IV HARMONICS 9

Harmonic sources from commercial and industrial loads, locating harmonic sources. Power system response characteristics - Harmonics Vs transients. Effect of harmonics - harmonic distortion - voltage and current distortion - harmonic indices - inter harmonics — resonance. Harmonic distortion evaluation - devices for controlling harmonic distortion - passive and active filters. IEEE and IEC standards.

UNIT V POWER QUALITY MONITORING 9

Monitoring considerations - monitoring and diagnostic techniques for various power quality problems - modeling of power quality (harmonics and voltage sag) problems by mathematical simulation tools - power line disturbance analyzer — quality measurement equipment - harmonic / spectrum analyzer - flicker meters - disturbance analyzer. Applications of expert systems for power quality monitoring.

TOTAL : 45 PERIODS**OUTCOMES:**

- Ability to understand and analyze power system operation, stability, control and protection.

TEXT BOOKS:

1. Roger. C. Dugan, Mark. F. McGranaghan, Surya Santoso, H.Wayne Beaty, 'Electrical Power Systems Quality' McGraw Hill, 2003. (For Chapters 1, 2, 3, 4 and 5).
2. Eswald.F.Fudis and M.A.S.Masoum, "Power Quality in Power System and Electrical Machines," Elsevier Academic Press, 2013.
3. J. Arrillaga, N.R. Watson, S. Chen, 'Power System Quality Assessment', Wiley, 2011.

REFERENCES:

1. G.T. Heydt, 'Electric Power Quality', 2nd Edition. (West Lafayette, IN, Stars in a Circle Publications, 1994). (For Chapter 1, 2, 3 and 5)
2. M.H.J Bollen, 'Understanding Power Quality Problems: Voltage Sags and Interruptions', (New York: IEEE Press, 1999). (For Chapters 1, 2, 3 and 5)
3. G.J.Wakileh, —Power Systems Harmonics — Fundamentals, Analysis and Filter Design, I Springer 2007.
4. E.Acha and M.Madrigal, —Power System Harmonics, Computer Modelling and Analysis, — Wiley India, 2012.
5. R.S.Vedam, M.S.Sarma, —Power Quality — VAR Compensation in Power Systems, I CRC Press 2013.
6. C. Sankaran, 'Power Quality', CRC press, Taylor & Francis group, 2002.

Mani
PRINCIPAL
Vignaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To understand the concept, planning of DC power transmission and comparison with AC Power transmission.
- To analyze HVDC converters.
- To study about the HVDC system control.
- To analyze harmonics and design of filters.
- To model and analysis the DC system under study state.

UNIT I INTRODUCTION

9

DC Power transmission technology – Comparison of AC and DC transmission – Application of DC transmission – Description of DC transmission system – Planning for HVDC transmission – Modern trends in HVDC technology – DC breakers – Operating problems – HVDC transmission based on VSC – Types and applications of MTDC systems.

UNIT II ANALYSIS OF HVDC CONVERTERS

9

Line commutated converter - Analysis of Graetz circuit with and without overlap - Pulse number – Choice of converter configuration – Converter bridge characteristics – Analysis of a 12 pulse converters – Analysis of VSC topologies and firing schemes.

UNIT III CONVERTER AND HVDC SYSTEM CONTROL

9

Principles of DC link control – Converter control characteristics – System control hierarchy – Firing angle control – Current and extinction angle control – Starting and stopping of DC link – Power control – Higher level controllers – **Control of VSC based HVDC link.**

UNIT IV REACTIVE POWER AND HARMONICS CONTROL

9

Reactive power requirements in steady state – Sources of reactive power – **SVC and STATCOM** – Generation of harmonics – Design of AC and DC filters – Active filters.

UNIT V POWER FLOW ANALYSIS IN AC/DC SYSTEMS

9

Per unit system for DC quantities – DC system model – Inclusion of constraints – Power flow analysis – case study.

TOTAL: 45 PERIODS**OUTCOMES:**

- Ability to understand and analyze power system operation, stability, control and protection.

TEXT BOOKS:

1. Padiyar, K. R., —HVDC power transmission systeml, New Age International (P) Ltd., New Delhi, Second Edition, 2010.
2. Edward Wilson Kimbark, —Direct Current Transmissionl, Vol. I, Wiley interscience, New York, London, Sydney, 1971.
3. Rakosh Das Begamudre, —Extra High Voltage AC Transmission Engineeringl, New Age International (P) Ltd., New Delhi, 1990.

REFERENCES:

1. Kundur P., —Power System Stability and Controll, McGraw-Hill, 1993.
2. Colin Adamson and Hingorani NG, —High Voltage Direct Current Power Transmissionl, Garraway Limited, London, 1960.
3. Arrillaga, J., —High Voltage Direct Current Transmissionl, Peter Pregrinus, London, 1983.
4. S. Kamakshaiiah, V. Kamaraju, 'HVDC Transmission', Tata McGraw Hill Education Private Limited, 2011.

Aravind
PRINCIPAL

Adhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-604266
Kallakurichi Taluk, Villupuram District



**COMPUTERIZED SUPERVISORY
CONTROL MECHANISM FOR
INTELLECTUAL SOLAR PANEL
POSITION CONTROL USING WSN**

A PROJECT REPORT

Submitted by

AVILA JOWIN.A

621113105005

KIRUBA.M

621113105013

PRIYANGA.R

621113105027

REKHA.P

621113105029

In partial fulfillment for the award of the degree

Of

BACHELOR OF ENGINEERING

IN

ELECTRICAL AND ELECTRONICS ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM-606 201

ANNA UNIVERSITY::CHENNAI 600 025

APRIL 2017


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "COMPUTERIZED SUPERVISORY CONTROLMECHANISM FOR INTELLECTUAL SOLAR PANEL POSITION CONTROL USING WSN" is the bonafide work of "A.AVILA JOWIN, M.KIRUBA, R.PRIYANGA, P.REKHA" who carried out the project work under my supervision.


SIGNATURE

Mrs.A.YOGARANI., M.E.,

HEAD OF THE DEPARTMENT, SUPERVISOR,

Department of EEE,

Idhaya Engineering College

For Women,

Chinnasalem-606 201.


SIGNATURE

Mr.V.KARTHIKEYAN., M.E.,

Department of EEE,

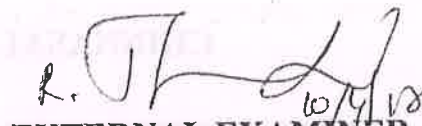
Idhaya Engineering College

For Women,

Chinnasalem-606201.

Submitted for the university examination held on 10.4.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-6062
Sallakurichi Taluk, Villupuram District

ABSTRACT

In maritime industry, high fuel costs encourage use of variable frequency drives (VFDs) for energy-saving applications. However, introduction of such nonlinear loads in the vessel's power distribution network induces harmonics, which can lead to potential risks if are not predicted and controlled. In this paper, design of harmonic filter and power quality improvement for VFD application in a marine vessels and monitoring methodology is proposed to calculate VFD contribution to voltage distortion at the point of common coupling (PCC), considering the source short-circuit capacity and the existing vessel's power system harmonics. According to voltage harmonic distortion limits set by marine classification societies, design and sizing of appropriate harmonic attenuation filters is made, including AC and DC chokes and frequency-tuned passive filter options. The effectiveness of the proposed design of harmonic filter and power quality improvement for VFD application in marine vessels analyzing procedure is evaluated through a real practical example, which includes harmonic filter design for VFD retrofit application to fan and pump motors that operate constantly during sea-going operation in a typical tanker vessel. Power quality field measurements obtained through a harmonic monitoring platform implemented on board verify that total voltage harmonic distortion and individual voltage harmonics at PCC are maintained below 5% and 3%, respectively.



**UPGRADING HARMONIC
COMPENSATION USING
HYBRID POWER FILTER
BASED ON FOUR SWITCH
TWO LEG INVERTER**



A PROJECT REPORT

Submitted by

ABIRAMI.S

621113105001

BALASARASWATHIDEVI.P

621113105006

PAVEENA.P

621113105023

VINOTHINI.M

621113105037

In partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRICAL AND ELECTRONICS ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM-606 201

ANNA UNIVERSITY::CHENNAI 600 025

APRIL 2017

Maw

PRINCIPAL

Idhaya Engineering College for Women
Nainarpalayam Road, CHINNASALEM-606 201
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "UPGRADING HARMONIC COMPENSATION USING HYBRID POWER FILTERER BASED ON FOUR SWITCH TWO LEG INVERTER" is the bonafide work of "S.ABIRAMI, P.BALASARASWATHIDEVI, P.PAVEENA and M.VINOTHINI" carried out the project work under my supervision.


SIGNATURE

Mrs.A.YOGARANI.,M.E.,

HEAD OF THE DEPARTMENT

Department of EEE,

Idhaya Engineering College

For Women,

Chinnasalem-606 201.


SIGNATURE

Mr.S.SILAMBARASAN.,M.E.,

SUPERVISOR

Department of EEE,

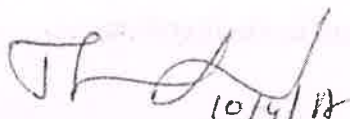
Idhaya Engineering College

For Women,

Chinnasalem-606 201.

Submitted for the University Examination held on 10/4/17


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ABSTRACT

In this project, the design aspects of an embedded device which can monitor Distribution Transformer by sending a specific IOT message from a Server are presented. The objective of the project is to control the Distribution Transformer using wireless technology. The scope of the project is to ON, OFF and monitor the parameters like load voltage, Load Current Transformer Oil viscosity and temperature of Distribution Transformer by using IOT. The controller is extremely handy at places where we have to control the ON and OFF switching of the devices but no wired connection to that place is available. IOT controlled Distribution Transformer is automatic control system which is capable of receiving a set of command instructions in the form of internet of things and performs the necessary actions like monitoring, ON and OFF. We use a dedicated modem at the receiver module and send the AT commands using IOT service as per the required actions. The technology allows a distance control of standard equipment due to an intelligent and independent system, providing supervision, alarms and system control applicable to Distribution Transformer.

OBJECTIVES:

- To impart knowledge on Construction and performance of salient and non — salient types synchronous generators.
- To impart knowledge on Principle of operation and performance of synchronous motor.
- To impart knowledge on Construction, principle of operation and performance of induction machines.
- To impart knowledge on Starting and speed control of three-phase induction motors.
- To impart knowledge on Construction, principle of operation and performance of single phase induction motors and special machines.

UNIT I SYNCHRONOUS GENERATOR

9

Constructional details – Types of rotors –winding factors- emf equation – Synchronous reactance – Armature reaction – Phasor diagrams of non salient pole synchronous generator connected to infinite bus--Synchronizing and parallel operation – Synchronizing torque -Change of excitation and

mechanical input- Voltage regulation – EMF, MMF, ZPF and A.S.A methods – steady state power- angle characteristics– Two reaction theory –slip test -short circuit transients - Capability Curves

UNIT II SYNCHRONOUS MOTOR

9

Principle of operation – Torque equation – Operation on infinite bus bars - V and Inverted V curves – Power input and power developed equations – Starting methods – Current loci for constant power input, constant excitation and constant power developed- Hunting – natural frequency of oscillations – damper windings- synchronous condenser.

UNIT III THREE PHASE INDUCTION MOTOR

9

Constructional details – Types of rotors – Principle of operation – Slip – cogging and crawling- Equivalent circuit – Torque-Slip characteristics - Condition for maximum torque – Losses and efficiency – Load test - No load and blocked rotor tests - Circle diagram – Separation of losses – Double cage induction motors – Induction generators – Synchronous induction motor.

UNIT IV STARTING AND SPEED CONTROL OF THREE PHASE INDUCTION MOTOR

9

Need for starting – Types of starters – DOL, Rotor resistance, Autotransformer and Star-delta starters – Speed control – Voltage control, Frequency control and pole changing – Cascaded connection-V/f control – Slip power recovery scheme-Braking of three phase induction motor: Plugging, dynamic braking and regenerative braking.

UNIT V SINGLE PHASE INDUCTION MOTORS AND SPECIAL MACHINES

9

Constructional details of single phase induction motor – Double field revolving theory and operation – Equivalent circuit – No load and blocked rotor test – Performance analysis – Starting methods of single-phase induction motors – Capacitor-start capacitor run Induction motor- Shaded pole induction motor - Linear induction motor – Repulsion motor - Hysteresis motor - AC series motor- Servo motors- Stepper motors - introduction to magnetic levitation systems.

TOTAL (L:45+T:15): 60 PERIODS**OUTCOMES:**

- Ability to model and analyze electrical apparatus and their application to power system

TEXT BOOKS:

1. A.E. Fitzgerald, Charles Kingsley, Stephen. D.Umans, 'Electric Machinery', Tata Mc Graw Hill publishing Company Ltd, 2003.
2. D.P. Kothari and I.J. Nagrath, 'Electric Machines', Tata McGraw Hill Publishing Company Ltd, 2002.
3. P.S. Bhimbhra, 'Electrical Machinery', Khanna Publishers, 2003.

REFERENCES:

1. M.N.Bandyopadhyay, Electrical Machines Theory and Practice, PHI Learning PVT LTD., New Delhi, 2009.
2. Charless A. Gross, —Electric /Machines, —CRC Press, 2010.
3. K. Murugesh Kumar, 'Electric Machines', Vikas Publishing House Pvt. Ltd, 2002.
4. Syed A. Nasar, Electric Machines and Power Systems: Volume I, Mcgraw -Hill College; International ed Edition, January 1995.
5. Alexander S. Langsdorf, Theory of Alternating-Current Machinery, Tata McGraw Hill Publications, 2001.

PRINCIPAL

idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60624
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To understand the various types of over voltages in power system and protection methods.
- Generation of over voltages in laboratories.
- Measurement of over voltages.
- Nature of Breakdown mechanism in solid, liquid and gaseous dielectrics.
- Testing of power apparatus and insulation coordination.

UNIT I	OVER VOLTAGES IN ELECTRICAL POWER SYSTEMS	9
Causes of over voltages and its effects on power system – Lightning, switching surges and temporary overvoltages, Corona and its effects – Reflection and Refraction of Travelling waves- Protection against overvoltages.		
UNIT II	DIELECTRIC BREAKDOWN	9
Gaseous breakdown in uniform and non-uniform fields – Corona discharges – Vacuum breakdown –Conduction and breakdown in pure and commercial liquids, Maintenance of oil Quality – Breakdown mechanisms in solid and composite dielectrics.		
UNIT III	GENERATION OF HIGH VOLTAGES AND HIGH CURRENTS	9
Generation of High DC, AC, impulse voltages and currents - Triggering and control of impulse generators.		
UNIT IV	MEASUREMENT OF HIGH VOLTAGES AND HIGH CURRENTS	9
High Resistance with series ammeter – Dividers, Resistance, Capacitance and Mixed dividers - Peak Voltmeter, Generating Voltmeters - Capacitance Voltage Transformers, Electrostatic Voltmeters – Sphere Gaps - High current shunts- Digital techniques in high voltage measurement.		
UNIT V	HIGH VOLTAGE TESTING & INSULATION COORDINATION	9
High voltage testing of electrical power apparatus as per International and Indian standards – Power frequency, impulse voltage and DC testing of Insulators, circuit breakers, bushing, isolators and transformers- Insulation Coordination.		
TOTAL : 45 PERIODS		

OUTCOMES:

- Ability to understand and analyze power system operation, stability, control and protection.

TEXT BOOKS:

1. S.Naidu and V. Kamaraju, 'High Voltage Engineering', Tata McGraw Hill, Fifth Edition, 2013.
2. E. Kuffel and W.S. Zaengl, J.Kuffel, 'High voltage Engineering fundamentals', Newnes Second Edition Elsevier, New Delhi, 2005.
3. Subir Ray, 'An Introduction to High Voltage Engineering' PHI Learning Private Limited, New Delhi, Second Edition, 2013.

REFERENCES:

1. L.L. Alston, 'High Voltage Technology', Oxford University Press, First Indian Edition, 2011.
2. C.L. Wadhwa, 'High voltage Engineering', New Age International Publishers, Third Edition, 2010.

Principals
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Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-606201
Wallokurichi Taluk, Villupuram District



**IOT BASED TRANSFORMER
MONITORING AND CONTROL
SYSTEM**



A PROJECT REPORT

Submitted by

ASIGADEVLA

621113105004

ELAKIYA.S

621113105008

JAYALAKSHMI.P

621113105011

KIRUBASRI.S

621113105014

In partial fulfillment for the award of the degree

OF

BACHELOR OF ENGINEERING

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ELECTRICAL AND ELECTRONICS ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM-606201

ANNAUNIVERSITY::CHENNAI 600 025

APRIL 2017


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Sallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report suitable "IOT BASED TRANSFORMER MONITORING AND CONTROL SYSTEM" is the bonafide work of **ASIGAADEVI. A, ELAKIYA.S, JAYALAKSHMI.P, KIRUBASRI.S** who carried out the project work under my supervision.

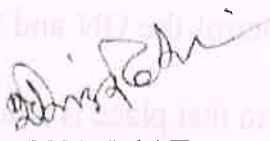

SIGNATURE

Mrs. A. YOGARANI, ME.,
HEAD OF THE DEPARTMENT

Department Of EEE,

IECW

Chinnasalem-606 201


SIGNATURE

Mr. V. KARTHIKEYAN, M.E.,
SUPERVISOR,

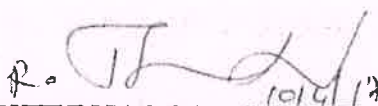
Department Of EEE,

IECW

Chinnasalem-606 201

Submitted for the university examination held on 10.4.2017.....


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

rdhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-60626
Hallakurichi Taluk, Villupuram District

ABSTRACT

In this project, the design aspects of an embedded device which can monitor Distribution Transformer by sending a specific IOT message from a Server are presented. The objective of the project is to control the Distribution Transformer using wireless technology. The scope of the project is to ON, OFF and monitor the parameters like load voltage, Load Current Transformer Oil viscosity and temperature of Distribution Transformer by using IOT. The controller is extremely handy at places where we have to control the ON and OFF switching of the devices but no wired connection to that place is available. IOT controlled Distribution Transformer is automatic control system which is capable of receiving a set of command instructions in the form of internet of things and performs the necessary actions like monitoring, ON and OFF. We use a dedicated modem at the receiver module and send the AT commands using IOT service as per the required actions. The technology allows a distance control of standard equipment due to an intelligent and independent system, providing supervision, alarms and system control applicable to Distribution Transformer.

OBJECTIVES:

- To have an overview of power system operation and control.
- To model power-frequency dynamics and to design power-frequency controller.
- To model reactive power-voltage interaction and the control actions to be implemented for maintaining the voltage profile against varying system load.
- To study the economic operation of power system.
- To teach about SCADA and its application for real time operation and control of power systems.

UNIT I INTRODUCTION

9

An overview of power system operation and control - system load variation - load characteristics - load curves and load-duration curve - load factor - diversity factor - Importance of load forecasting and quadratic and exponential curve fitting techniques of forecasting - plant level and system level controls .

UNIT II REAL POWER - FREQUENCY CONTROL

9

Basics of speed governing mechanism and modeling - speed-load characteristics — load sharing between two synchronous machines in parallel - control area concept - LFC control of a single-area system - static and dynamic analysis of uncontrolled and controlled cases - two-area system — modeling - static analysis of uncontrolled case - tie line with frequency bias control - state variable model - integration of economic dispatch control with LFC.

UNIT III REACTIVE POWER-VOLTAGE CONTROL

9

Generation and absorption of reactive power - basics of reactive power control - excitation systems — modeling - static and dynamic analysis - stability compensation - methods of voltage control: tap- changing transformer, SVC (TCR + TSC) and STATCOM — secondary voltage control.

UNIT IV UNIT COMMITMENT AND ECONOMIC DISPATCH

9

Formulation of economic dispatch problem — I/O cost characterization — incremental cost curve - co- ordination equations without and with loss (No derivation of loss coefficients) - solution by direct method and λ -iteration method - statement of unit commitment problem — priority-list method - forward dynamic programming.

UNIT V COMPUTER CONTROL OF POWER SYSTEMS

9

Need for computer control of power systems - concept of energy control centre - functions - system monitoring - data acquisition and control - system hardware configuration — SCADA and EMS functions - network topology - state estimation — WLSE - Contingency Analysis - state transition diagram showing various state transitions and control strategies.

TOTAL : 45 PERIODS**OUTCOMES:**

- Ability to understand and analyze power system operation, stability, control and protection.

TEXT BOOKS:

1. Olle.I.Elgerd, 'Electric Energy Systems theory - An introduction', Tata McGraw Hill Education Pvt. Ltd., New Delhi, 34th reprint, 2010.
2. Allen. J. Wood and Bruce F. Wollenberg, 'Power Generation, Operation and Control', John Wiley & Sons, Inc., 2003.
3. Abhijit Chakrabarti, Sunita Halder, 'Power System Analysis Operation and Control', PHI learning Pvt. Ltd., New Delhi, Third Edition, 2010.

REFERENCES:

1. Nagrath I.J. and Kothari D.P., 'Modern Power System Analysis', Tata McGraw-Hill, Fourth Edition, 2011.
2. Kundur P., 'Power System Stability and Control', Tata McGraw Hill Education Pvt. Ltd., New Delhi, 10th reprint, 2010.
3. Hadi Saadat, 'Power System Analysis', Tata McGraw Hill Education Pvt. Ltd., New Delhi, 21st reprint, 2010.
4. N.V.Ramana, —Power System Operation and Control, Pearson, 2011.
5. C.A.Gross, —Power System Analysis, Wiley India, 2011.



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Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-606211
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To study mmf calculation and thermal rating of various types of electrical machines.
- To design armature and field systems for D.C. machines.
- To design core, yoke, windings and cooling systems of transformers.
- To design stator and rotor of induction machines.
- To design stator and rotor of synchronous machines and study their thermal behaviour.

UNIT I INTRODUCTION

9

Major considerations in Electrical Machine Design - Electrical Engineering Materials – Space factor – Choice of Specific Electrical and Magnetic loadings - Thermal considerations - Heat flow — Temperature rise and Insulating Materials - Rating of machines – Standard specifications.

UNIT II DC MACHINES

9

Output Equations – Main Dimensions – Choice of Specific Electric and Magnetic Loading - Magnetic Circuits Calculations - Carter's Coefficient - Net length of Iron – Real & Apparent flux densities — Selection of number of poles — Design of Armature – Design of commutator and brushes — performance prediction using design values.

UNIT III TRANSFORMERS

9

Output Equations – Main Dimensions - kVA output for single and three phase transformers – Window space factor – Design of core and winding – Overall dimensions – Operating characteristics – No load current – Temperature rise in Transformers – Design of Tank - Methods of cooling of Transformers.

UNIT IV INDUCTION MOTORS

9

Output equation of Induction motor – Main dimensions – Choice of Average flux density – Length of air gap- Rules for selecting rotor slots of squirrel cage machines – Design of rotor bars & slots – Design of end rings – Design of wound rotor – Magnetic leakage calculations – Leakage reactance of polyphase machines- Magnetizing current - Short circuit current – Operating characteristics- Losses and Efficiency.

UNIT V SYNCHRONOUS MACHINES

9

Output equations – choice of Electrical and Magnetic Loading – Design of salient pole machines – Short circuit ratio – shape of pole face – Armature design – Armature parameters – Estimation of air gap length – Design of rotor – Design of damper winding – Determination of full load field mmf – Design of field winding – Design of turbo alternators – Rotor design.

TOTAL (L:45+T:15): 60 PERIODS**OUTCOMES:**

- Ability to model and analyze electrical apparatus and their application to power system

TEXT BOOKS:

1. Sawhney, A.K., 'A Course in Electrical Machine Design', Dhanpat Rai & Sons, New Delhi, 1984.
2. M.V.Deshpande — Design and Testing of Electrical Machine Design | Wheeler Publications, 2010.

REFERENCES:

1. A.Shanmuga Sundaram, G.Gangadharan, R.Palani 'Electrical Machine Design DataBook', New Age International Pvt. Ltd., Reprint, 2007.
2. R.K.Agarwal — Principles of Electrical Machine Design | Esskay Publications, Delhi, 2002.
3. Sen, S.K., 'Principles of Electrical Machine Designs with Computer Programmes', Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi, 1987.

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PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-626 002
Kallakurichi Taluk, Villupuram District



ZVZCS BASED SINGLE-PHASE

7-LEVEL FLYING CAPACITOR

MULTILEVEL INVERTER

WITH AN ANN CONTROLLER



A PROJECT REPORT

Submitted by

ARULMOZHILA

621113105003

IRFANA ANJUM.K

621113105010

VENNILA.K

621113105035

VIDHYA.R

621113105036

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRICAL AND ELECTRONICS ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM-606 201

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

i

PRINCIPAL

Idhaya Engineering College for Women
Mainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "ZVZCS BASED SINGLE-PHASE, 7-LEVEL FLYING CAPACITOR MULTILEVEL INVERTER WITH AN ANN CONTROLLER" is the bonafide work of **A.ARULMOZHI, K.IRFANA ANJUM, K.VENNILA, R.VIDHYA** who carried out the project work under my supervision.


SIGNATURE

Mrs.A. YOGARANI., M.E.,
HEAD OF THE DEPARTMENT
Department of EEE,

Idhaya Engineering College
For Women,
Chinnasalem-606 201.

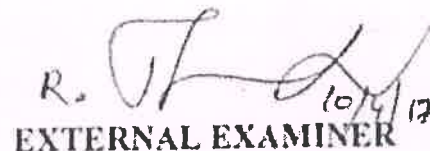

SIGNATURE

Mr.C.KUMAR., M.E.,
SUPERVISOR

Assistant Professor,
Department of EEE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.

Submitted For the University Examination Held On 10/04/2017


INTERNAL EXAMINER


EXTERNAL EXAMINER

ABSTRACT

The main aim of this project is to harvest electrical energy that could charge a mobile battery without causing any kind of pollution in an economical way. The Piezo electric plates are embedded within the keys of the computer keyboard. When that keyboard is used for typing, the mechanical stress exerted by our hand on the Piezo electric crystal is converted into electrical energy. A half wave rectifier is used to renovate that ac into dc voltage. Then boost converter is used to regulate the voltage. The mobile battery can be charged even at the time of blackout.



**ECO-FRIENDLY ENERGY
HARVESTING BY KEYBOARD
USING PIEZOELECTRIC
EFFECT**



A PROJECT REPORT

Submitted by

DURGADEVI.G

621113105007

LOYALA SHASHINI.A

621113105017

NIVETHA.G

621113105021

SURYA IMMACULATE.P

621113105033

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

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IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM-606 201

ANNA UNIVERSITY::CHENNAI 600 025

APRIL 2017

PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-606201,
Kallakurichi Taluk, Villupuram District


ANNA UNIVERSITY::CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "ECO-FRIENDLY ENERGY HARVESTING BY KEYBOARD USING PIEZOELECTRIC EFFECT" is the bonafide work of **DURGADEVI.G.LOYALA SHASHINI.A,NIVETHA.G,SURYA IMMACULATE.P** who carried out the project work under my supervision.


SIGNATURE


Mrs.A.YOGARANI, M.E.,
HEAD OF THE DEPARTMENT,
DEPARTMENT OF EEE,
IECW,
CHINNASALEM,
VILLUPURAM (DT).


SIGNATURE

Ms.MBENITTAMARY, M.E.,
SUPERVISOR,
DEPARTMENT OF EEE,
IECW,
CHINNASALEM,
VILLUPURAM (DT).

Submitted for the University Examination Held on 10.04.17 EN


INTERNAL EXAMINER


EXTERNAL EXAMINER

ABSTRACT

In this project hybrid power filter based on four switch two leg inverter is used to filter out the harmonics. Now-a-days with the advancement of technology, the demand for electric power is increasing at an exponential rate. And the quality of power delivered to the end user is affected by the increasing number of nonlinear loads connected to the power grid, such as diode and thyristor front-end rectifiers. The main affect caused by these problems is the presence of harmonics. One of the most important issues is related to current harmonics generated by the increasing number of nonlinear loads connected to the power grid. This leads to the overheating of the equipment, insulation failure, over speeding of induction motors, voltage distortions, additional losses in the power system, and malfunction of sensitive electronic equipment etc., Harmonic restriction standards, such as IEEE 519, have been recommended to limit the harmonic currents injected into the grid by nonlinear loads etc., the solution to overcome these problems is to filter out these harmonics. For this purpose there are many filters topologies present in the literature.


PRINCIPAL



**DESIGN OF HARMONIC FILTER AND
POWER QUALITY IMPROVEMENT FOR
VFD APPLICATION IN MARINE VESSELS**



A PROJECT REPORT

Submitted by

G.Kokila

621113105015

S.Nivetha

621113105022

I.Poomani

621113105024

P.Tamilmozhi

621113105034

In partial fulfilment for the award of the degree

Of

BACHELOR OF ENGINEERING

In

ELECTRICAL AND ELECTRONICS ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASELEM-606201

ANNA UNIVERSITY::CHENNAI-600025

APRIL 2017


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASELEM-606201
Kallakurichi Taluk, Villupuram Dist.

ANNA UNIVERSITY:CHENNAI 600025

BONAFIDE CERTIFICATE

Certificate that this project report titled "DESIGN OF HARMONIC FILTER AND POWER QUALITY IMPROVEMENT FOR VFD APPLICATION IN MARINE VESSELS" is the bonafide work of "G.Kokila, S.Nivetha, I.Poomani and P.Tamilmozhi" who carried out the project work under my supervision.

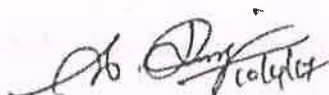

SIGNATURE

Mrs.A.YOGARANI.,M.E.,
HEAD OF THE DEPARTMENT,
DEPARTMENT OF EEE,
IECW,
CHINNASALEM,
VILLUPURAM (DT).


SIGNATURE

Mrs.A. YOGARANI., M.E.,
INTERNAL GUIDE,
DEPARTMENT OF EEE,
IECW,
CHINNASALEM,
VILLUPURAM (DT).

Submitted for the University Examination Held on 10.04.17.FD.


INTERNAL EXAMINER


EXTERNAL EXAMINER

ABSTRACT

Our project is about the protections, data acquisition, communication and continuous self-monitoring of 210MW Steam Turbine Generators with the use of Micro Processor based Numerical protection Relays. Protection of any Electrical Equipment is essential to protect them against any abnormal operating condition such as over loading, short circuit faults and earth fault etc. Basic protective device for any electrical equipment or electrical circuit is Fuse. There are other protective devices such as bi-metallic over load relays and moulded case circuit breakers for small and medium capacity electrical equipment. Large capacity electrical equipments protected with circuit breakers operating on protective Relays detecting the abnormal operating parameters/fault conditions. Different types of protective relays are Electro-Mechanical relays, Static relays using semi-conductor devices and Micro Processor based Numerical relays .Of these type of relays our project is on 210MW Generator Protections with Numerical relays which have the advantages of Choice of alternative CT/Aux. Voltage Ratings and Characteristics in single execution, Enhanced Protection functions, Adaptive protections, Data acquisition, Communication and Continuous self-monitoring.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606211
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To impart knowledge on Construction, principle of operation and performance of synchronous reluctance motors.
- To impart knowledge on the Construction, principle of operation, control and performance of stepping motors.
- To impart knowledge on the Construction, principle of operation, control and performance of switched reluctance motors.
- To impart knowledge on the Construction, principle of operation, control and performance of permanent magnet brushless D.C. motors.
- To impart knowledge on the Construction, principle of operation and performance of permanent magnet synchronous motors.

UNIT I SYNCHRONOUS RELUCTANCE MOTORS 9
 Constructional features – Types – Axial and Radial flux motors – Operating principles – Variable Reluctance Motors – Voltage and Torque Equations - Phasor diagram - performance characteristics – Applications.

UNIT II STEPPER MOTORS 9
 Constructional features – Principle of operation – Variable reluctance motor – Hybrid motor – Single and multi stack configurations – Torque equations – Modes of excitation – Characteristics – Drive circuits – Microprocessor control of stepper motors – Closed loop control-Concept of lead angle– Applications.

UNIT III SWITCHED RELUCTANCE MOTORS (SRM) 9
 Constructional features – Rotary and Linear SRM - Principle of operation – Torque production – Steady state performance prediction- Analytical method -Power Converters and their controllers – Methods of Rotor position sensing – Sensor less operation – Characteristics and Closed loop control - Applications.

UNIT IV PERMANENT MAGNET BRUSHLESS D.C. MOTORS 9
Permanent Magnet materials – Minor hysteresis loop and recoil line-Magnetic Characteristics – Permeance coefficient -Principle of operation – Types – Magnetic circuit analysis – EMF and torque equations –Commutation - Power Converter Circuits and their controllers – Motor characteristics and control– Applications.

UNIT V PERMANENT MAGNET SYNCHRONOUS MOTORS (PMSM) 9
 Principle of operation – Ideal PMSM – **EMF and Torque equations** – **Armature MMF** – **Synchronous Reactance** – Sine wave motor with practical windings - Phasor diagram – Torque/speed characteristics - Power controllers - Converter Volt-ampere requirements– Applications.

TOTAL : 45 PERIODS**OUTCOMES:**

- Ability to model and analyze electrical apparatus and their application to power system

TEXT BOOKS:

1. K.Venkataratnam, 'Special Electrical Machines', Universities Press (India) Private Limited, 2008.
2. T.J.E. Miller, 'Brushless Permanent Magnet and Reluctance Motor Drives', Clarendon Press, Oxford, 1989.
3. T. Kenjo, 'Stepping Motors and Their Microprocessor Controls', Clarendon Press London, 1984.

REFERENCES:

1. R.Krishnan, 'Switched Reluctance Motor Drives — Modeling, Simulation, Analysis, Design and Application', CRC Press, New York, 2001.
2. P.P. Aearnley, 'Stepping Motors — A Guide to Motor Theory and Practice', Peter Perengrinus London, 1982.
3. T. Kenjo and S. Nagamori, 'Permanent Magnet and Brushless DC Motors', Clarendon Press, London, 1988.
4. E.G. Janardanan, 'Special electrical machines', PHI learning Private Limited, Delhi, 2014.


 PRINCIPAL
 Vidhya Engineering College for Women
 Nainarpalaym Road, CHINNASALEM-60620
 Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To educate the causes of abnormal operating conditions (faults, lightning and switching surges) of the apparatus and system.
- To introduce the characteristics and functions of relays and protection schemes.
- To impart knowledge on apparatus protection
- To introduce static and numerical relays
- To impart knowledge on functioning of circuit breakers

UNIT I	PROTECTION SCHEMES	9
Principles and need for protective schemes — nature and causes of faults — types of faults — fault current calculation using symmetrical components — Methods of Neutral grounding — Zones of protection and essential qualities of protection — Protection schemes		
UNIT II	ELECTROMAGNETIC RELAYS	9
Operating principles of relays - the Universal relay — Torque equation — R-X diagram — Electromagnetic Relays — Overcurrent, Directional, Distance, Differential, Negative sequence and Under frequency relays.		
UNIT III	APPARATUS PROTECTION	9
Current transformers and Potential transformers and their applications in protection schemes - Protection of transformer, generator, motor, busbars and transmission line.		
UNIT IV	STATIC RELAYS AND NUMERICAL PROTECTION	9
Static relays – Phase, Amplitude Comparators – Synthesis of various relays using Static comparators – Block diagram of Numerical relays – Overcurrent protection, transformer differential protection, distant protection of transmission lines.		
UNIT V	CIRCUIT BREAKERS	9
Physics of arcing phenomenon and arc interruption - DC and AC circuit breaking – re-striking voltage and recovery voltage - rate of rise of recovery voltage - resistance switching - current chopping - interruption of capacitive current - Types of circuit breakers – air blast, air break, oil, SF ₆ and vacuum circuit breakers – comparison of different circuit breakers – Rating and selection of Circuit breakers.		

TOTAL : 45 PERIODS**OUTCOMES:**

- Ability to understand and analyze power system operation, stability, control and protection.

TEXT BOOKS:

1. Sunil S.Rao, 'Switchgear and Protection', Khanna Publishers, New Delhi, 2008.
2. B.Rabindranath and N.Chander, 'Power System Protection and Switchgear', New Age International (P) Ltd., First Edition 2011.
3. M.L.Soni, P.V.Gupta, U.S.Bhatnagar, A.Chakrabarti, 'A Text Book on Power System Engineering', Dhanpat Rai & Co., 1998.

REFERENCES:

1. Badri Ram ,B.H. Vishwakarma, 'Power System Protection and Switchgear', New Age International Pvt Ltd Publishers, Second Edition 2011.
2. Y.G.Paithankar and S.R.Bhide, 'Fundamentals of power system protection', Second Edition, Prentice Hall of India Pvt. Ltd., New Delhi, 2010.
3. C.L.Wadhwa, 'Electrical Power Systems', 6th Edition, New Age International (P) Ltd., 2010
4. Ravindra P.Singh, 'Switchgear and Power System Protection', PHI Learning Private Ltd., New Delhi, 2009.
5. Bhavesh Bhalja, R.P. Maheshwari, Nilesh G. Chotani, 'Protection and Switchgear' Oxford University Press, 2011.

Reshmi
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalayam Road, CHINNASALEM-606206
Kallakurichi Taluk, Villupuram District



**UNINTERRUPTED POWER SUPPLY TO
THE SOCIETY FROM VARIABLE POWER
RESOURCES WITH HIGH EFFICIENCY**



A PROJECT REPORT

Submitted by

E.MARIA MONICA

621113105018

N.NATHIYA

621113105019

A.PRIYANKA

621113105028

T.SOWMIYA

621113105032

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRICAL AND ELECTRONICS ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM-606 201

ANNA UNIVERSITY::CHENNAI 600 025

APRIL 2017

Neena
PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-606201,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY::CHENNAI 600 025

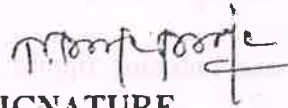
BONAFIDE CERTIFICATE

Certified that this project report "UNINTERRUPTED POWER SUPPLY TO THE SOCIETY FROM VARIABLE RESOURCES WITH HIGH EFFICIENCY" is the bonafide work of "E.MARIAMONICA, N.NATHIYA, A.PRIYANKA, T.SOWMIYA" who carried out the project work under my supervision.


SIGNATURE

Mrs. A. YOGARANI., M.E.,
HEAD OF THE DEPARTMENT

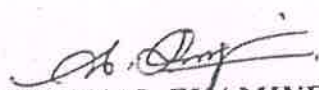
Department of EEE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.



SIGNATURE

Mrs. T. JAYAPRIYA., M.E.,
SUPERVISOR

Assistant professor
Department of EEE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.

Submitted for the University Examination Held on 10-04-2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Sallakurichi Taluk, Villupuram District

ABSTRACT

Solar panel based power generation is developed and implemented in various part of our country. As per the recent analysis the researchers concluded that the 8-9% of solar rays can be converted to electricity while the ray falls at full concentration at solar panels. But fixed angle plate position much reduces the amount of power generation. So the panel should be angled based on the light rays to ensure the ray falls higher. In recent years more technologies invented to track the sun rays to angle the solar panel direction. 'Light intensity tracker' technology is the most successful among them. In this project we implement 'Light intensity tracker' technology with wireless sensor network. The parameter monitoring and control over computerized supervisory GUI is developed by MATLAB based program. The control of solar panel position is done by stepper motor. PIC16f877a microcontroller used for hardware realization. Zigbee transmitter - receiver pair is implemented to receive the data from remote location (plant) i.e. for data acquisition purpose. Liquid Crystal Display (LCD) is used to display the output DC voltage and current on site.

OBJECTIVES:

- To analyze the various concepts behind renewable energy resources.
- To introduce the energy saving concept by different ways of illumination.
- To understand the different methods of electric heating and electric welding.
- To introduce knowledge on Solar Radiation and Solar Energy Collectors
- To introduce concepts of Wind Energy and its utilization

UNIT I ELECTRIC DRIVES AND TRACTION

9

Fundamentals of electric drive - choice of an electric motor - application of motors for particular services - traction motors - characteristic features of traction motor - systems of railway electrification - electric braking - train movement and energy consumption - traction motor control - track equipment and collection gear.

UNIT II ILLUMINATION

9

Introduction - definition and meaning of terms used in illumination engineering - classification of light sources - incandescent lamps, sodium vapour lamps, mercury vapour lamps, fluorescent lamps — design of illumination systems - indoor lighting schemes - factory lighting halls - outdoor lighting schemes - flood lighting - street lighting - energy saving lamps, LED.

UNIT III HEATING AND WELDING

9

Introduction - advantages of electric heating — modes of heat transfer - methods of electric heating - resistance heating - arc furnaces - induction heating - dielectric heating - electric welding — types - resistance welding - arc welding - power supply for arc welding - radiation welding.

UNIT IV SOLAR RADIATION AND SOLAR ENERGY COLLECTORS

9

Introduction - solar constant - solar radiation at the Earth's surface - solar radiation geometry — estimation of average solar radiation - physical principles of the conversion of solar radiation into heat — flat-plate collectors - transmissivity of cover system - energy balance equation and collector efficiency - concentrating collector - advantages and disadvantages of concentrating collectors - performance analysis of a cylindrical - parabolic concentrating collector — Feedin Invertors.

UNIT V WIND ENERGY

9

Introduction - basic principles of wind energy conversion - site selection considerations - basic components of a WECS (Wind Energy Conversion System) - Classification of WECS - types of wind Turbines - analysis of aerodynamic forces acting on the blade - performances of wind.

TOTAL : 45 PERIODS**OUTCOMES:**

- Ability to understand and analyze power system operation, stability, control and protection.
- Ability to handle the engineering aspects of electrical energy generation and utilization.

TEXT BOOKS:

1. N.V. Suryanarayana, —Utilisation of Electric Power, Wiley Eastern Limited, New Age International Limited, 1993.
2. J.B.Gupta, —Utilisation Electric power and Electric Traction, S.K.Kataria and Sons, 2000.
3. G.D.Rai, —Non-Conventional Energy Sources, Khanna Publications Ltd., New Delhi, 1997.

REFERENCES:

1. R.K.Rajput, Utilisation of Electric Power, Laxmi publications Private Limited., 2007.
2. H.Partab, Art and Science of Utilisation of Electrical Energy, Dhanpat Rai and Co., New Delhi, 2004.
3. C.L.Wadhwa, —Generation, Distribution and Utilisation of Electrical Energy, New Age International Pvt.Ltd., 2003.
4. S. Sivanagaraju, M. Balasubba Reddy, D. Srilatha, ' Generation and Utilization of Electrical Energy', Pearson Education, 2010.
5. Donald L. Steeby, ' Alternative Energy Sources and Systems', Cengage Learning, 2012.

Meeni
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalayam Road, CHINNASALEM-606206
hallakurichi Taluk, Villupuram District

OBJECTIVES:

- To introduce techniques of magnetic-circuit analysis and introduce magnetic materials
- To familiarize the constructional details, the principle of operation, prediction of performance, the methods of testing the transformers and three phase transformer connections.
- To study the working principles of electrical machines using the concepts of electromechanical energy conversion principles and derive expressions for generated voltage and torque developed in all Electrical Machines.
- To study the working principles of DC machines as Generator types, determination of their no- load/load characteristics, starting and methods of speed control of motors.
- To estimate the various losses taking place in D.C. Motor and to study the different testing methods to arrive at their performance.

UNIT I MAGNETIC CIRCUITS AND MAGNETIC MATERIALS

9

Magnetic circuits –Laws governing magnetic circuits - Flux linkage, Inductance and energy – Statically and Dynamically induced EMF - Torque — Properties of magnetic materials, Hysterisis and Eddy Current losses - AC excitation, introduction to permanent magnets-Transformer as a magnetically coupled circuit.

UNIT II TRANSFORMERS

9

Construction – principle of operation – equivalent circuit parameters – phasor diagrams, losses – testing – efficiency and voltage regulation-all day efficiency-Sumpner's test, per unit representation – inrush current - three phase transformers-connections – Scott Connection – Phasing of transformer–parallel operation of three phase transformers-auto transformer – tap changing transformers-tertiarywinding.

UNIT III ELECTROMECHANICAL ENERGY CONVERSION AND CONCEPTS IN ROTATING MACHINES

9

Energy in magnetic system – Field energy and coenergy-force and torque equations – singly and multiply excited magnetic field systems-mmf of distributed windings – Winding Inductances-, magnetic fields in rotating machines – rotating mmf waves – magnetic saturation and leakage fluxes.

UNIT IV DC GENERATORS

9

Construction and components of DC Machine – Principle of operation - Lap and wave windings-EMF equations– circuit model – armature reaction –methods of excitation-commutation and interpoles - compensating winding –characteristics of DC generators.

UNIT V DC MOTORS

9

Principle and operations - types of DC Motors – Speed Torque Characteristics of DC Motors-starting and speed control of DC motors – Plugging, dynamic and regenerative braking- testing and efficiency – Retardation test- Swinburne's test and Hopkinson's test - Permanent magnet dc motors(PMDC)-DC Motor applications.

TOTAL (L:45+T:15): 60 PERIODS**OUTCOMES:**

- Ability to model and analyze electrical apparatus and their application to power system

TEXT BOOKS:

1. Nagrath I. J and Kothari D. P. 'Electric Machines', Fourth Edition, Tata McGraw Hill Publishing Company Ltd, 2010.
2. M.N.Bandyopadhyay, 'Electrical Machines Theory and Practice', PHI Learning PVT LTD., NewDelhi, 2009.
3. Fitzgerald. A.E., Charles Kingsely Jr, Stephen D.Umans, 'Electric Machinery', Sixth edition, Tata McGraw Hill Books Company, 2003.

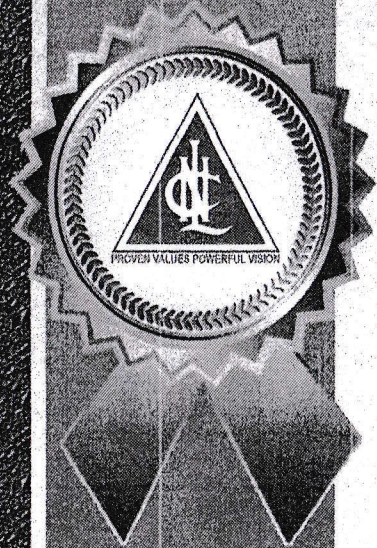
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1. P. C. Sen., 'Principles of Electrical Machines and Power Electronics', John Wiley & Sons, 1997.
2. Syed A. Nasar, 'Electric Machines and Power Systems: Volume I, Mcgraw-Hill College;International Edition, January 1995.
3. Deshpande M. V., —'Electrical Machines' PHI Learning Pvt. Ltd., New Delhi, 2011.
4. P.S. Bimbhra, 'Electrical Machinery', Khanna Publishers, 2003.
5. S.Sarma & K.Pathak —'Electric Machines', Cengage Learning India (P) Ltd., Delhi, 2011.



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Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-600
Kallakurichi Taluk, Villupuram District



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BLOCK-20, NEYVELI-607 803. TAMILNADU



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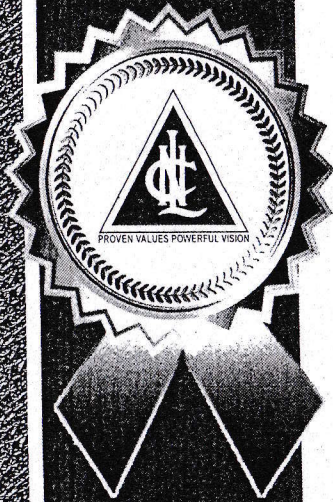
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PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

NLC wishes him / her Success in all future endeavours.



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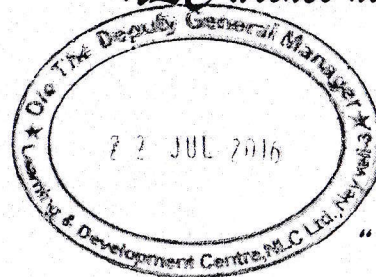
This is to certify that Mr/Ms LOYALA SHASHINI.A III B.E/EEE.....

IDHAYA ENGINEERING COLLEGE FOR WOMEN, CHINNASALEM.....

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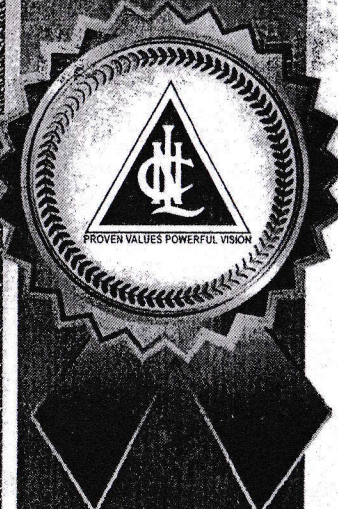
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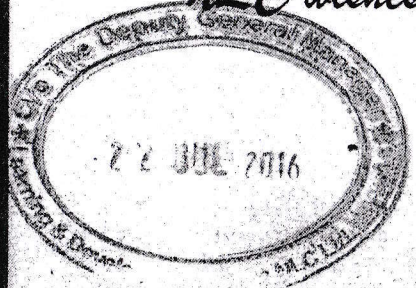
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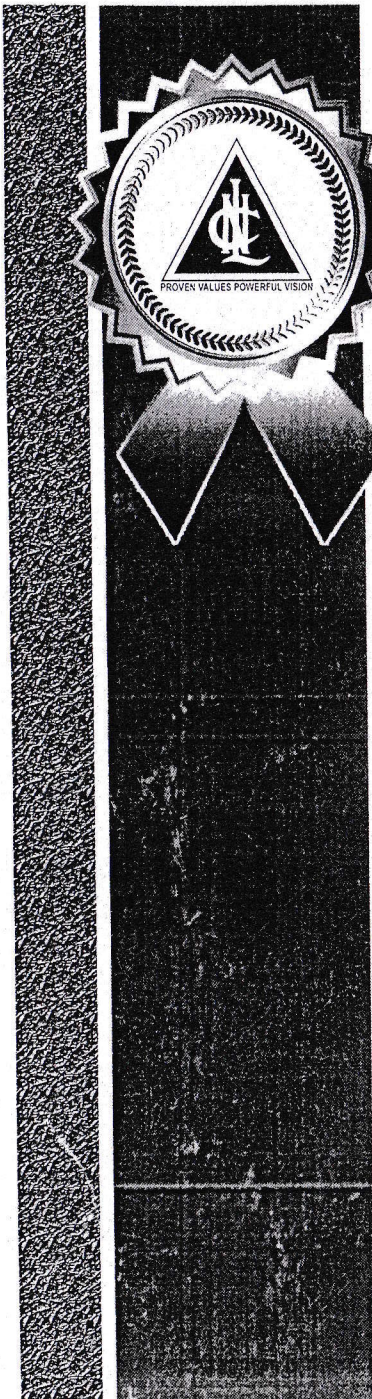
R. G. Guramani
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.I.S.T.E., F.I.E.
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DISTRICT

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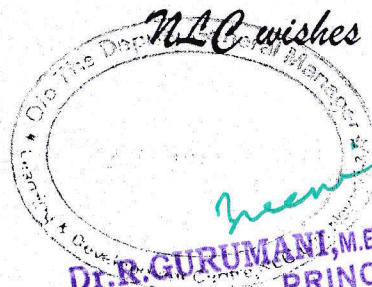
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IDHAYA ENGINEERING COLLEGE FOR WOMEN, CHINNASALEM

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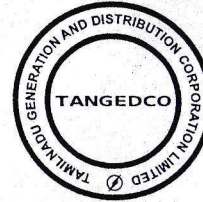


DR. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL

IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201. KALLAKURICHI
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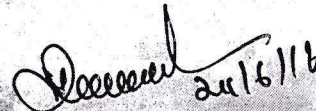
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IN-PLANT TRAINING CERTIFICATE

This is to certify that ~~Thiru~~ / Ms. A. LOYALA SHASHINI THIRD year
BE / EEE of IDHAYA ENGINEERING COLLEGE FOR
WOMEN , CHINNASALEM. has undergone In - Plant Training at
Mettur Thermal Power Station-1, Mettur Dam From 20-06-2016 To 24-06-2016
Area of Training : ELECTRICAL MAINTANANCE-II , CONTROL & INSTRUMENTATION.


Signature of the student




EXECUTIVE ENGINEER
Training and Environment / MTPS-I, Mettur Dam.

IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LIMITED
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METTUR THERMAL POWER STATION-I

IN-PLANT TRAINING CERTIFICATE

This is to certify that *Thiru / Ms.* P. SURYA IMMACULATE, THIRD year
BE / EEE of IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM has undergone In - Plant Training at
Mettur Thermal Power Station-1, Mettur Dam From 20-06-2016 To 24-06-2016
Area of Training : ELECTRICAL MAINTENANCE II AND CONTROL & INSTRUMENTATION.

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Signature of the student

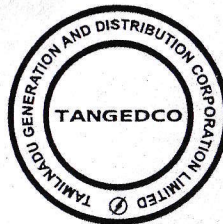
Dr. R. GURUMANI, M.E. P.E.



24/6/16
EXECUTIVE ENGINEER
Training and Environment / MTPS-I, Mettur Dam.

CHINNASALEM-606 201. KALLAKURICHI DT

TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LIMITED
(Subsidiary of TNEB Ltd.,)



METTUR THERMAL POWER STATION-I

IN-PLANT TRAINING CERTIFICATE

This is to certify that *Thiru / Ms.* R. SAVITHRI, THIRD year

B. E / EEE of IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM has undergone In - Plant Training at

Mettur Thermal Power Station-1, Mettur Dam From 27.06.2016 To 01.07.2016

Area of Training : METER & RELAY TESTING , ELECTRICAL MAINTENANCE I

R. Savithri
Signature of the student



Devede
11/2/16
EXECUTIVE ENGINEER
Training and Environment / MTPS-I, Mettur Dam.
DR. R. GURUMANI, M.E., Ph.D., M.B.A., M.I.S.T.E., F.I.
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM, KALLAKURICHI

OBJECTIVES:

- To model the power system under steady state operating condition.
- To apply numerical methods to solve the power flow problem.
- To model and analyze the system under faulted conditions.
- To model and analyze the transient behaviour of power system when it is subjected to a fault.

UNIT I INTRODUCTION

9

Need for system planning and operational studies – basic components of a power system. -Introduction to restructuring - Single line diagram – per phase and per unit analysis – Generator - transformer – transmission line and load representation for different power system studies. - Primitive network - construction of Y-bus using inspection and singular transformation methods – z-bus.

UNIT II POWER FLOW ANALYSIS

9

Importance of power flow analysis in planning and operation of power systems - statement of power flow problem - classification of buses - development of power flow model in complex variables form - iterative solution using Gauss-Seidel method - Q-limit check for voltage controlled buses – power flow model in polar form - iterative solution using Newton-Raphson method .

UNIT III FAULT ANALYSIS – BALANCED FAULTS

9

Importance of short circuit analysis - assumptions in fault analysis - analysis using Thevenin's theorem - Z-bus building algorithm - fault analysis using Z-bus – computations of short circuit capacity, post fault voltage and currents.

UNIT IV FAULT ANALYSIS – UNBALANCED FAULTS

9

Introduction to symmetrical components – sequence impedances – sequence circuits of synchronous machine, transformer and transmission lines - sequence networks analysis of single line to ground, line to line and double line to ground faults using Thevenin's theorem and Z-bus matrix.

UNIT V STABILITY ANALYSIS

9

Importance of stability analysis in power system planning and operation - classification of power system stability - angle and voltage stability – Single Machine Infinite Bus (SMIB) system: Development of swing equation - equal area criterion - determination of critical clearing angle and time– solution of swing equation by modified Euler method and Runge-Kutta fourth order method.

TOTAL : 45 PERIODS**OUTCOMES:**

- Ability to understand and analyze power system operation, stability, control and protection.

TEXT BOOKS:

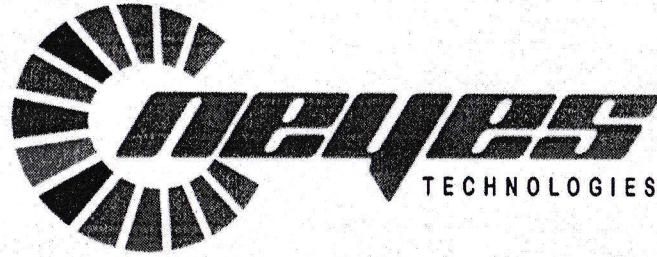
1. Nagrath L.J. and Kothari D.P., 'Modern Power System Analysis', Tata McGraw-Hill, Fourth Edition, 2011.
2. John J. Grainger and W.D. Stevenson Jr., 'Power System Analysis', Tata McGraw-Hill, Sixth reprint, 2010.
3. P. Venkatesh, B.V. Manikandan, S. Charles Raja, A. Srinivasan, 'Electrical Power Systems-Analysis, Security and Deregulation', PHI Learning Private Limited, New Delhi, 2012.

REFERENCES:

1. Hadi Saadat, 'Power System Analysis', Tata McGraw Hill Education Pvt. Ltd., New Delhi, 21st reprint, 2010.
2. Kundur P., 'Power System Stability and Control, Tata McGraw Hill Education Pvt. Ltd., New Delhi, 10th reprint, 2010.
3. Pai M.A., 'Computer Techniques in Power System Analysis', Tata McGraw-Hill Publishing Company Ltd., New Delhi, Second Edition, 2007.
4. J. Duncan Glover, Mulukutla S. Sarma, Thomas J. Overbye, 'Power System Analysis & Design', Cengage Learning, Fifth Edition, 2012.
5. Olle. I Elgerd, 'Electric Energy Systems Theory — An Introduction', Tata McGraw Hill Publishing Company Limited, New Delhi, Second Edition, 2012.
6. C.A.Gross, 'Power System Analysis', Wiley India, 2011.


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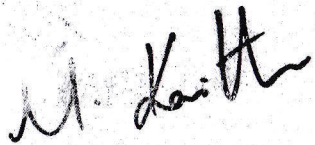


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Certificate of Completion

This is to certify that Mr/Mrs/Miss **R. PRIYANGA**
has undergone Inplant Training from **23. 11. 2016** to **27. 11. 2016**. During the training period the
performance of the trainee was found to be **GOOD**


Project Co-ordinator



Bhuvan
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.


Trainer

OBJECTIVES:

- To get an overview of different types of power semiconductor devices and their switching characteristics.
- To understand the operation, characteristics and performance parameters of controlled rectifiers.
- To study the operation, switching techniques and basic topologies of DC-DC switching regulators.
- To learn the different modulation techniques of pulse width modulated inverters and to understand harmonic reduction methods.
- To study the operation of AC voltage controller and various configurations.

UNIT I POWER SEMI-CONDUCTOR DEVICES 9

Study of switching devices, Diode, SCR, TRIAC, GTO, BJT, MOSFET, IGBT-Static and Dynamic characteristics - Triggering and commutation circuit for SCR- Design of Driver and snubber circuit.

UNIT II PHASE-CONTROLLED CONVERTERS 9

2-pulse, 3-pulse and 6-pulse converters—performance parameters—Effect of source inductance—Gate Circuit Schemes for Phase Control—Dual converters.

UNIT III DC TO DC CONVERTER 9

Step-down and step-up chopper-control strategy—Forced commutated chopper—Voltage commutated, Current commutated, Load commutated, Switched mode regulators - Buck, boost, buck-boost converter, Introduction to Resonant Converters.

UNIT IV INVERTERS 9

Single phase and three phase voltage source inverters (both 120° mode and 180° mode)—Voltage & harmonic control—PWM techniques: Sinusoidal PWM, modified sinusoidal PWM - multiple PWM—Introduction to space vector modulation—Current source inverter.

UNIT V AC TO AC CONVERTERS 9

Single phase and Three phase AC voltage controllers—Control strategy- Power Factor Control—Multistage sequence control - single phase and three phase cyclo converters—Introduction to Matrix converters.

TOTAL:45 PERIODS**OUTCOMES:**

- Ability to understand and analyse, linear and digital electronic circuits.

TEXT BOOKS:

1. M.H. Rashid, 'Power Electronics: Circuits, Devices and Applications', Pearson Education, PHI Third Edition, New Delhi, 2004.
2. P.S. Bimbra—Power Electronics | Khanna Publishers, third Edition, 2003.
3. L. Umanand, —Power Electronics Essentials and Applications |, Wiley, 2010.

REFERENCES:

1. Joseph Vithayathil, 'Power Electronics, Principles and Applications', McGraw Hill Series, 6th Reprint, 2013.
2. Ashfaq Ahmed Power Electronics for Technology Pearson Education, Indian reprint, 2003.
3. Philip T. Krein, —Elements of Power Electronics | Oxford University Press, 2004 Edition.
4. Ned Mohan, Tore. M. Undel and, William. P. Robbins, 'Power Electronics: Converters, Applications and Design', John Wiley and sons, third edition, 2003.
5. Daniel. W. Hart, —Power Electronics |, Indian Edition, Mc Graw Hill, 3rd Print, 2013.
6. M.D. Singh and K.B. Khanchandani, —Power Electronics, | Mc Graw Hill India, 2013.

B. S. Srinivas
PRINCIPAL
Sadhya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District



22/06/2016

TO WHOMSOEVER IT MAY CONCERN

This is to certify that S. Abirami, A. Arulmozhi, A. Avila Jowin, P. Paveena, P. Balasaraswathidevi, K. Vennila, K. Irfana Anjum, M. Vinothini, M. Kiruba, P. Rekha, R. Priyanga, R. Vidhya B.E (EEE) Third year students of Idhaya Engineering College for Women, Chinna Salem, Villupuram, has successfully completed Their inplant training in our organization from 21/06/2016 to 22/06/2016.

With Best Wishes,

**M V MURALI
GENERAL MANAGER – HR**

Murali
**Dr.R.GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201. KALLAKURICHI DT.**



WHIRLPOOL OF INDIA LIMITED

OBJECTIVES:

- To introduce different methods of analog communication and their significance
- To introduce Digital Communication methods for high bit rate transmission
- To introduce the concepts of source and line coding techniques for enhancing rating of transmission of minimizing the errors in transmission.
- To introduce MAC used in communication systems for enhancing the number of users.
- To introduce various media for digital communication

UNIT I ANALOG COMMUNICATION

9

AM – Frequency spectrum – vector representation – power relations – generation of AM – DSB, DSB/SC, SSB, VSB AM Transmitter & Receiver; FM and PM – frequency spectrum – power relations : NBFM & WBFM, Generation of FM and DM, Amstrong method & Reactance modulations : FM & PM frequency.

UNIT II DIGITAL COMMUNICATION

9

Pulse modulations – concepts of sampling and sampling theorems, PAM, PWM, PPM, PTM, quantization and coding : DCM, DM, slope overload error. ADM, DPCM, OOK systems – ASK, FSK, PSK, BSK, QPSK, QAM, MSK, GMSK, applications of Data communication.

UNIT III SOURCE CODES, LINE CODES & ERROR CONTROL (Qualitative only)

9

Primary communication – entropy, properties, BSC, BEC, source coding : Shaum, Fao, Huffman coding : noiseless coding theorem, BW – SNR trade off codes: NRZ, RZ, AMI, HDBP, ABQ, MBnB codes : Efficiency of transmissions, error control codes and applications: convolutions & blockcodes.

UNIT IV MULTIPLE ACCESS TECHNIQUES

9

SS&MA techniques : FDMA, TDMA, CDMA, SDMA application in wire and wireless communication : Advantages (merits) :

UNIT V SATELLITE, OPTICAL FIBER – POWERLINE, SCADA

9

Orbits : types of satellites : frequency used link establishment, MA techniques used in satellite communication, earth station; aperture actuators used in satellite – Intelsat and Insat: fibers – types: sources, detectors used, digital filters, optical link: power line carrier communications: SCADA

TOTAL : 45 PERIODS**OUTCOMES:**

- Ability to understand and analyse, linear and digital electronic circuits.

TEXT BOOKS:

1. Taub & Schilling —Principles of Communication Systems| Tata McGraw Hill 2007.
2. J.Das —Principles of Digital Communication| New Age International, 1986.

REFERENCES:

1. Kennedy and Davis —Electronic Communication Systems| Tata McGraw hill, 4th Edition, 1993.
2. Sklar —Digital Communication Fundamentals and Applications— Pearson Education, 2001.
3. Bary le, Memuschmidt, Digital Communication, Kluwer Publication, 2004.
4. B.P.Lathi —Modern Digital and Analog Communication Systems| Oxford University Press, 1998.

Nisani
 PRINCIPAL
 Idhaya Engineering College for Women
 Nainarpalayam Road, CHINNASALEM-606.
 Hallakurichi Taluk, Villupuram District

OBJECTIVES:

- To develop expressions for the computation of transmission line parameters.
- To obtain the equivalent circuits for the transmission lines based on distance and operating voltage for determining voltage regulation and efficiency. Also to improve the voltage profile of the transmission system.
- To analyse the voltage distribution in insulator strings and cables and methods to improve the same.
- To understand the operation of the different distribution schemes.

UNIT I STRUCTURE OF POWER SYSTEM 9

Structure of electric power system: generation, transmission and distribution; Types of AC and DC distributors – distributed and concentrated loads – interconnection – EHVAC and HVDC transmission -Introduction to FACTS.

UNIT II TRANSMISSION LINE PARAMETERS 9

Parameters of single and three phase transmission lines with single and double circuits - Resistance, inductance and capacitance of solid, stranded and bundled conductors, Symmetrical and unsymmetrical spacing and transposition - application of self and mutual GMD; skin and proximity effects - interference with neighboring communication circuits - Typical configurations, conductor types and electrical parameters of EHV lines, corona discharges.

UNIT III MODELLING AND PERFORMANCE OF TRANSMISSION LINES 9

Classification of lines - short line, medium line and long line - equivalent circuits, phasor diagram, attenuation constant, phase constant, surge impedance; transmission efficiency and voltage regulation, real and reactive power flow in lines, Power - circle diagrams, surge impedance loading, methods of voltage control; Ferranti effect.

UNIT IV INSULATORS AND CABLES 9

Insulators - Types, voltage distribution in insulator string, improvement of string efficiency, testing of insulators. Underground cables - Types of cables, Capacitance of Single-core cable, Grading of cables, Power factor and heating of cables, Capacitance of 3-core belted cable, D.C cables.

UNIT V MECHANICAL DESIGN OF LINES AND GROUNDING 9

Mechanical design of transmission line – sag and tension calculations for different weather conditions, Tower spotting, Types of towers, Substation Layout (AIS, GIS), Methods of grounding.

TOTAL : 45 PERIODS**OUTCOMES:**

- Ability to understand and analyze power system operation, stability, control and protection.

TEXT BOOKS:

1. D.P.Kothari, I.J. Nagarath, 'Power System Engineering', Tata McGraw-Hill Publishing Company limited, New Delhi, Second Edition, 2008.
2. C.L.Wadhwa, 'Electrical Power Systems', New Academic Science Ltd, 2009.
3. S.N. Singh, 'Electric Power Generation, Transmission and Distribution', Prentice Hall of India Pvt. Ltd, New Delhi, Second Edition, 2011.

REFERENCES:

1. B.R.Gupta, S.Chand, 'Power System Analysis and Design' New Delhi, Fifth Edition, 2008.
2. Luces MFualken berry, Walter Coffey, 'Electrical Power Distribution and Transmission', Pearson Education, 2007.
3. Hadi Saadat, 'Power System Analysis', PSA Publishing; Third Edition, 2010.
4. J.Brian, Hardy and Colin R.Bayliss 'Transmission and Distribution in Electrical Engineering', Newnes; Fourth Edition, 2012.
5. G.Ramamurthy, —Handbook of Electrical power Distribution, Universities Press, 2013.

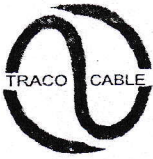
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Sudhaya Engineering College for Women
Nainarpalaym Road, CHINNABALEV-606623
Kallakurichi Taluk, Villupuram District

ട്രാക്കോ കേബിൾ കമ്പനി ലിമിറ്റഡ്

(ഒരു കേരള സർക്കാർ സ്ഥാപനം)

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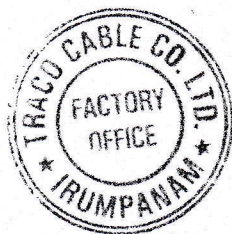
No. P&A/TRG/832

Irimpanam,
12.08.2016

CERTIFICATE

This is to certify that 90 Nos. of Final year B.E. Electrical & Electronics Engineering and Electronics & Communication Engineering Students along with 7 faculty members of Idhaya Engineering College for women, Chinnasalem, Villupuram, Tamil Nadu – 606 201 have undergone a Factory visit in this Institution on 12.08.2016 .A.N.

For TRACO CABLE COMPANY LIMITED



[Signature]
UNIT HEAD

[Signature]
**Dr.R.GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.II
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201. KALLAKURICHI DT.**

Regd. Office ; XXXIX/5465, 4th Floor, KSHB Office Complex, Panampilly Nagar, Kochi - 682 036, Kerala
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OBJECTIVES:

- To introduce basic postulates of Boolean algebra and shows the correlation between Boolean expressions
- To introduce the methods for simplifying Boolean expressions
- To outline the formal procedures for the analysis and design of combinational circuits and sequential circuits
- To introduce the concept of memories and programmable logic devices.
- To illustrate the concept of synchronous and asynchronous sequential circuits

UNIT I MINIMIZATION TECHNIQUES AND LOGIC GATES

9

Minimization Techniques: Boolean postulates and laws – De-Morgan's Theorem - Principle of Duality - Boolean expression - Minimization of Boolean expressions — Minterm – Maxterm - Sum of Products (SOP) – Product of Sums (POS) – Karnaugh map Minimization – Don't care conditions – Quine - Mc Cluskey method of minimization.

Logic Gates: AND, OR, NOT, NAND, NOR, Exclusive-OR and Exclusive-NOR Implementations of Logic Functions using gates, NAND-NOR implementations – Multilevel gate implementations- Multi output gate implementations. TTL and CMOS Logic and their characteristics – Tristate gates

UNIT II COMBINATIONAL CIRCUITS

9

Design procedure – Half adder – Full Adder – Half subtractor – Full subtractor – Parallel binary adder, parallel binary Subtractor – Fast Adder - Carry Look Ahead adder – Serial Adder/Subtractor -BCD adder – Binary Multiplier – Binary Divider - Multiplexer/ Demultiplexer – decoder - encoder – parity checker – parity generators – code converters - Magnitude Comparator.

UNIT III SEQUENTIAL CIRCUITS

9

Latches, Flip-flops - SR, JK, D, T, and Master-Slave – Characteristic table and equation –Application table – Edge triggering – Level Triggering – Realization of one flip flop using other flip flops – serial adder/subtractor- Asynchronous Ripple or serial counter – Asynchronous Up/Down counter - Synchronous counters – Synchronous Up/Down counters – Programmable counters – Design of Synchronous counters: state diagram- State table –State minimization –State assignment - Excitation table and maps-Circuit implementation - Modulo-n counter, Registers – shift registers - Universal shift registers – Shift register counters – Ring counter – Shift counters - Sequence generators.

UNIT IV MEMORY DEVICES

9

Classification of memories – ROM - ROM organization - PROM – EPROM – EEPROM –EAPROM, RAM – RAM organization – Write operation – Read operation – Memory cycle - Timing wave forms – Memory decoding – memory expansion – Static RAM Cell- Bipolar RAM cell – MOSFET RAM cell – Dynamic RAM cell – Programmable Logic Devices – Programmable Logic Array (PLA) - Programmable Array Logic (PAL) – Field Programmable Gate Arrays (FPGA) - Implementation of combinational logic circuits using ROM, PLA, PAL

UNIT V SYNCHRONOUS AND ASYNCHRONOUS SEQUENTIAL CIRCUITS

9

Synchronous Sequential Circuits: General Model – Classification – Design – Use of Algorithmic State Machine – Analysis of Synchronous Sequential Circuits

Asynchronous Sequential Circuits: Design of fundamental mode and pulse mode circuits – Incompletely specified State Machines – Problems in Asynchronous Circuits – Design of Hazard Free Switching circuits. Design of Combinational and Sequential circuits using VERILOG.

TOTAL: 45 PERIODS**OUTCOMES:****Students will be able to:**

- Analyze different methods used for simplification of Boolean expressions.
- Design and implement Combinational circuits.
- Design and implement synchronous and asynchronous sequential circuits.
- Write simple HDL codes for the circuits.

TEXT BOOK:

1. M. Morris Mano, "Digital Design", 4th Edition, Prentice Hall of India Pvt. Ltd., 2008 / Pearson Education (Singapore) Pvt. Ltd., New Delhi, 2003.

REFERENCES:

1. John F. Wakerly, "Digital Design", Fourth Edition, Pearson/PHI, 2008
2. John.M Yarbrough, "Digital Logic Applications and Design", Thomson Learning, 2006.
3. Charles H.Roth. "Fundamentals of Logic Design", 6th Edition, Thomson Learning, 2013.
4. Donald P.Leach and Albert Paul Malvino, "Digital Principles and Applications", 6th Edition, TMH,2006.
5. Thomas L. Floyd, "Digital Fundamentals", 10th Edition, Pearson Education Inc, 2011
6. Donald D.Givone, "Digital Principles and Design", TMH, 2003.

Mansi
PRINCIPAL

idhaya Engineering College for Women
Nainarpalaym Road, CHINNASELEN
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To introduce the elements of control system and their modeling using various Techniques.
- To introduce methods for analyzing the time response, the frequency response and the stability of systems
- To introduce the state variable analysis method

UNIT I CONTROL SYSTEM MODELING

Basic Elements of Control System — Open loop and Closed loop systems - Differential equation - Transfer function, Modeling of Electric systems, Translational and rotational mechanical systems - Block diagram reduction Techniques - Signal flow graph

9

UNIT II TIME RESPONSE ANALYSIS

Time response analysis - First Order Systems - Impulse and Step Response analysis of second order systems - Steady state errors – P, PI, PD and PID Compensation, Analysis using MATLAB

9

UNIT III FREQUENCY RESPONSE ANALYSIS

Frequency Response - Bode Plot, Polar Plot, Nyquist Plot - Frequency Domain specifications from the plots - Constant M and N Circles - Nichol's Chart - Use of Nichol's Chart in Control System Analysis. Series, Parallel, series-parallel Compensators - Lead, Lag, and Lead Lag Compensators, Analysis using MATLAB.

9

UNIT IV STABILITY ANALYSIS

Stability, Routh-Hurwitz Criterion, Root Locus Technique, Construction of Root Locus, Stability, Dominant Poles, Application of Root Locus Diagram - Nyquist Stability Criterion - Relative Stability, Analysis using MATLAB

9

UNIT V STATE VARIABLE ANALYSIS

State space representation of Continuous Time systems – State equations – Transfer function from State Variable Representation – Solutions of the state equations - Concepts of Controllability and Observability – State space representation for Discrete time systems. Sampled Data control systems - Sampling Theorem – Sampler & Hold – Open loop & Closed loop sampled data systems.

9

TOTAL: 45 PERIODS**OUTCOMES:****Upon completion of the course, students will be able to:**

- Perform time domain and frequency domain analysis of control systems required for stability analysis.
- Design the compensation technique that can be used to stabilize control systems.

TEXTBOOK:

1. J.Nagrath and M.Gopal, "Control System Engineering", New Age International Publishers, 5th Edition, 2007.

REFERENCES:

1. Benjamin.C.Kuo, "Automatic control systems", Prentice Hall of India, 7th Edition, 1995.
2. M.Gopal, "Control System – Principles and Design", Tata McGraw Hill, 2nd Edition, 2002.
3. Schaum's Outline Series, "Feed back and Control Systems" Tata Mc Graw-Hill, 2007.
4. John J.D'Azzo & Constantine H.Houpis, "Linear Control System Analysis and Design", Tata McGraw-Hill, Inc., 1995.
5. Richard C. Dorf and Robert H. Bishop, "Modern Control Systems", Addison – Wesley, 1999.

Wani
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

The student should be made to

- Learn about biasing of BJTs and MOSFETs
- Design and construct amplifiers
- Construct amplifiers with active loads
- Study high frequency response of all amplifiers

UNIT I	POWER SUPPLIES AND BIASING OF DISCRETE BJT AND MOSFET	9
	Rectifiers with filters- DC Load line, operating point, Various biasing methods for BJT-Design- Stability-Bias compensation, Thermal stability, Design of biasing for JFET, Design of biasing for MOSFET	
UNIT II	BJT AMPLIFIERS	9
	Small signal Analysis of Common Emitter-AC Load line, Voltage swing limitations, Common collector and common base amplifiers — Differential amplifiers- CMRR- Darlington Amplifier- Bootstrap technique - Cascaded stages - Cascode Amplifier-Large signal Amplifiers – Class A , Class B and Class C Power Amplifiers .	
UNIT III	JFET AND MOSFET AMPLIFIERS	9
	Small signal analysis of JFET amplifiers- Small signal Analysis of MOSFET and JFET, Common source amplifier, Voltage swing limitations, Small signal analysis of MOSFET and JFET Source follower and Common Gate amplifiers, - BiMOS Cascode amplifier	
UNIT IV	FREQUENCY ANALYSIS OF BJT AND MOSFET AMPLIFIERS	9
	Low frequency and Miller effect, High frequency analysis of CE and MOSFET CS amplifier, Short circuit current gain, cut off frequency — f_u and f_β unity gain and Determination of bandwidth of single stage and multistage amplifiers	
UNIT V	IC MOSFET AMPLIFIERS	9
	IC Amplifiers- IC biasing Current steering circuit using MOSFET- MOSFET current sources- PMOS and NMOS current sources, Amplifier with active loads - enhancement load, Depletion load and PMOS and NMOS current sources load- CMOS common source and source follower- CMOS differential amplifier- CMRR.	
TOTAL (L: 45+T: 15): 60 PERIODS		

OUTCOMES:

Upon Completion of the course, the students will be able to:

- Design circuits with transistor biasing.
- Design simple amplifier circuits.
- Analyze the small signal equivalent circuits of transistors.Design and analyze large signal amplifiers.

TEXT BOOK:

1. Donald .A. Neamen, Electronic Circuit Analysis and Design –2nd Edition,Tata Mc Graw Hill,2009.

REFERENCES:

1. Adel .S. Sedra, Kenneth C. Smith, “Micro Electronic Circuits”, 6th Edition, Oxford University Press, 2010.
2. David A., “Bell Electronic Devices and Circuits”, Oxford Higher Education Press, 5th Edition,2010
3. Behzad Razavi, “Design of Analog CMOS Integrated Circuits”, Tata Mc Graw Hill, 2007.
4. Paul Gray, Hurst, Lewis, Meyer “Analysis and Design of Analog Integrated Circuits”,4th Edition ,John Willey & Sons 2005
5. Millman.J. and Halkias C.C, “Integrated Electronics”, Mc Graw Hill, 2001.
6. D.Schilling and C.Belove, “Electronic Circuits”, 3rd Edition, Mc Graw Hill, 1989.
7. Robert L. Boylestad and Louis Nasheresky, “Electronic Devices and Circuit Theory”,10th Edition, Pearson Education / PHI, 2008.

M. S. S.

PRINCIPAL

Adhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-686
Kallakurichi Taluk, Villupuram Distric,



**ANDROID BASED HAND
GESTURE TO VOICE
CONVERSION
FOR SPEECH IMPAIRED**



A PROJECT REPORT

Submitted by

ANUSUYA.M

621113106004

AROCKIA INNOCENTIA MARY.Y

621113106005

BHARATHI.S

621113106007

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

In

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "ANDROID BASED HAND GESTURE TO VOICE CONVERSION FOR SPEECH IMPAIRED" is the bonafide work of "M.ANUSUYA, Y.AROCKIA INNOCENTIA MARY, S.BIHARATHI" who carried out the project work under my supervision.


SIGNATURE

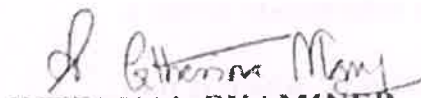
Mrs.P.POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT

Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem - 606 201.


SIGNATURE

Ms.K.SATHIYA, M.E.,
SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem - 606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Electromyography (EMG) signals are becoming increasingly important in many applications, including clinical/ biomedical, prosthesis or rehabilitation devices, human machine interactions and more. EMG is the electromyography, is a technique for evaluating and recording the electrical activity produced by human muscles. The main objective of the project is to measure the activities and properties of muscles by attaching surface electrodes when they are injured or occurrences of skin variations with the help of EMG. In that project consists of sensor networks, electrode plates, ARDUINO microcontroller, and database server. An electrode plates are attached with the skin human. The EMG signal is pass to the human skin through electrodes. The microcontroller is attached with the EMG sensor network. In that the data will be in analog form. Then the values are transmitted into the webserver using Wi-Fi module in database manner. We create the PHP script page due to the Wi-Fi module. In that page will be displayed the muscle activities in graphical manner. Finally the results displayed in graphical manner using WAMP SERVER software application.

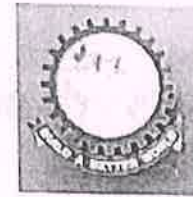

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Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-606202
Kallakurichi Taluk, Villupuram District

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**EVALUATION OF USER
MUSCLE ACTIVITIES USING
SENSOR NETWORK FROM
EMG SIGNAL BASED ON IOT**



A PROJECT REPORT

Submitted by

SASIKALA.A

621113106050

SASIKALA.S

621113106051

UDHAYABANU.S

621113106068

In partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI - 600 025

APRIL 2017

[Signature]
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606211
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI - 600 025

BONAFIDE CERTIFICATE

Certified that this project report "EVALUATION OF USER MUSCLE ACTIVITIES USING SENSOR NETWORK FROM ELECTRO MYOGRAPHIC SIGNALS BASED ON INTERNET OF THINGS" is the bonafide work of "SASIKALA.A, SASIKALA.S, UDHAYABANU.S" who carried out the project work under my supervision.


SIGNATURE

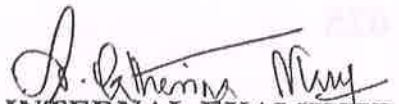
Mrs.P.POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT

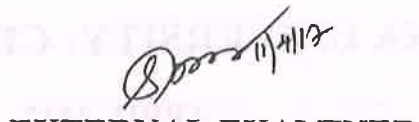
Department of ECE,
Idhaya Engineering College
For women,
Chinnasalem - 606 201.


SIGNATURE

Mrs.S.DHANALAKSHMI, M.E.,
SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
For women,
Chinnasalem - 606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Raspberry pi is a revolutionary credit card sized embedded computer using which many projects that were earlier not possible or were not practical can be implemented. This is because Raspberry pi uses embedded Operating system, using which many programs and applications can be created that are not easily possible on conventional embedded systems. At the same time the Raspberry pi is low cost, low power and small. Hence, can be used for many projects. Here, automatic number plate scanning will be implemented using a combination of various technologies like embedded operating system, image processing and number plate recognition. The project can be used in many applications like real time number plate details about the vehicle. The project can also be used in applications like gathering the address of the particular vehicle. A Raspberry pi board connected to a embedded camera module is used, using which a picture of the vehicle is take automatically. This image is then transferred to the web server using Apache server, this information can be recovered from the particular IP address.

OBJECTIVES:

- To understand the advantages and method of analysis of feedback amplifiers.
- To understand the analysis and design of LC and RC oscillators, amplifiers, multivibrators, and time base generators.

UNIT I FEEDBACK AMPLIFIERS

9

General Feedback Structure – Properties of negative feedback – Basic Feedback Topologies – Feedback amplifiers – Series – Shunt, Series – Series, Shunt – Shunt and Shunt – Series Feedback – Determining the Loop Gain – Stability Problem – Nyquist Plot – Effect of feedback on amplifier poles – Frequency Compensation.

UNIT II OSCILLATORS

9

Classification, Barkhausen Criterion - Mechanism for start of oscillation and stabilization of amplitude, General form of an Oscillator, Analysis of LC oscillators - Hartley, Colpitts, Clapp, Franklin, Armstrong, Tuned collector oscillators, RC oscillators - phase shift - Wienbridge - Twin-T Oscillators, Frequency range of RC and LC Oscillators, Quartz Crystal Construction, Electrical equivalent circuit of Crystal, Miller and Pierce Crystal oscillators, frequency stability of oscillators.

UNIT III TUNED AMPLIFIERS

9

Coil losses, unloaded and loaded Q of tank circuits, small signal tuned amplifiers - Analysis of capacitor coupled single tuned amplifier – double tuned amplifier - effect of cascading single tuned and double tuned amplifiers on bandwidth – Stagger tuned amplifiers – large signal tuned amplifiers – Class C tuned amplifier – Efficiency and applications of Class C tuned amplifier - Stability of tuned amplifiers – Neutralization - Hazeltine neutralization method.

UNIT IV WAVE SHAPING AND MULTIVIBRATOR CIRCUITS

9

RC & RL Integrator and Differentiator circuits – Storage, Delay and Calculation of Transistor Switching Times – Speed-up Capacitor - Diode clippers, Diode comparator - Clampers, Collector coupled and Emitter coupled Astable multivibrator – Monostable multivibrator - Bistable multivibrators - Triggering methods for Bistable multivibrators - Schmitt trigger circuit

UNIT V BLOCKING OSCILLATORS AND TIMEBASE GENERATORS

9

UJT saw tooth waveform generator, Pulse transformers – equivalent circuit – response - applications, Blocking Oscillator – Free running blocking oscillator - Astable Blocking Oscillators with base timing – Push-pull Astable blocking oscillator with emitter timing, Frequency control using core saturation, Triggered blocking oscillator – Monostable blocking oscillator with base timing – Monostable blocking oscillator with emitter timing, Time base circuits - Voltage-Time base circuit, Current-Time base circuit - Linearization through adjustment of driving waveform.

TOTAL: 45 PERIODS**OUTCOMES:**

Upon Completion of the course, the students will be able to

- Design and analyze feedback amplifiers.
- Design LC and RC oscillators, tuned amplifiers, wave shaping circuits, multivibrators, blocking oscillators and time base generators.
- Analyze performance of tuned amplifiers.

TEXT BOOK:

1. Sedra and Smith, "Micro Electronic Circuits"; Sixth Edition, Oxford University Press, 2011.

REFERENCES:

1. Robert L. Boylestad and Louis Nasheresky, "Electronic Devices and Circuit Theory", 10th Edition, Pearson Education / PHI, 2008
2. David A. Bell, "Electronic Devices and Circuits", Fifth Edition, Oxford University Press, 2008.
3. Millman J. and Taub H., "Pulse Digital and Switching Waveforms", TMH, 2000.
4. Millman and Halkias. C., Integrated Electronics, TMH, 2007.

Mansi
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60626
Kallakurichi Taluk, Villupuram District



**WIRELESS POWER TRANSFER
VIA STRONGLY COUPLED
MAGNETIC RESONANCES**



A PROJECT REPORT

Submitted by

KEERTHANA DEVI.D 621113106021

KRITHIKA.D 621113106023

MEENA.V 621113106031

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

Meeni
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600021
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report **“WIRELESS POWER TRANSFER VIA STRONGLY COUPLED MAGNETIC RESONANCES”** is the bonafide work of **“D.KEERTHANA DEVI, D.KRITHIKA, V.MEENA”** who carried out the project work under my supervision.


SIGNATURE

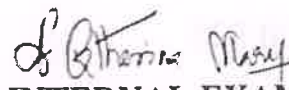
**Mrs. P.POOVIZHI., M.E.,
HEAD OF THE DEPARTMENT**

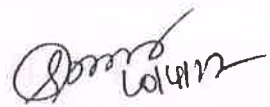
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.


SIGNATURE

**Mrs. P.NATHIYA., M.E.,
SUPERVISOR**

Assistant Professor,
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ABSTRACT

There are several systems implemented for security level enhancement for cash boxes like key, finger print scanner, GSM, Bluetooth etc. After such implementation the use of systems in real time is quite difficult. Here we create a real time cash box with RFID control. RFID card types which can be used as the ID Cards so that whenever an authorized person tries to open the cash box they have to show the card as well as use the key so that unauthorized person don't use the box. System is very efficient and bears zero error chances and it's readily usable for security purpose.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
hallakurichi Taluk, Villupuram District



9666

**IOT BASED SMART SECURITY
AND MONITORING DEVICES
FOR AGRICULTURE**



A PROJECT REPORT

Submitted by

PRIYA.S

621113106041

UMAMAGESHWARI.R

621113106069

VIRGINIYA.X

621113106071

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017


PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-6062.
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "IOT BASED SMART SECURITY AND MONITORING DEVICES FOR AGRICULTURE" is the bonafide work of "S.PRIYA, R.UMAMAGESHWARI, X.VIRGINIYA" who carried out the project work under my supervision.


SIGNATURE

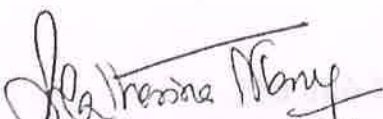
Mrs. P. POOVIZHI, ME.,
HEAD OF THE DEPARTMENT

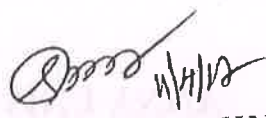
Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.



SIGNATURE
Ms. T. RADHA, M.E.,
SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ABSTRACT

In the modern world, every supermarket and hypermarket employee shopping baskets and shopping trolley in order to aid customers to select and store the products which they intend to purchase and waiting for the billing in the counter. In previous, using RFID technology and bar code scanner the products were sensed and billed. In order to reduce the time in billing counter an super market the intelligent shopping basket is going to be designed.

It uses mobile camera module to allow user to self- checkout and pay the bill in the billing counter. By using this method, the camera senses the product easily and the information sends to the billing counter in a fast manner. The LCD is also attached to the trolley used to display the total billing amount during the time of purchasing. So customer can aware about the total bill. Buzzer is used to indicate the product is added into the billing counter.

OBJECTIVES:

- To introduce the basic building blocks of linear integrated circuits.
- To learn the linear and non-linear applications of operational amplifiers.
- To introduce the theory and applications of analog multipliers and PLL.
- To learn the theory of ADC and DAC.
- To introduce the concepts of waveform generation and introduce some special function ICs.

UNIT I BASICS OF OPERATIONAL AMPLIFIERS

Current mirror and current sources, Current sources as active loads, Voltage sources, Voltage References, BJT Differential amplifier with active loads, Basic information about op-amps — Ideal Operational Amplifier - General operational amplifier stages -and internal circuit diagrams of IC 741, DC and AC performance characteristics, slew rate, Open and closed loop configurations.

UNIT II APPLICATIONS OF OPERATIONAL AMPLIFIERS

Sign Changer, Scale Changer, Phase Shift Circuits, Voltage Follower, V-to-I and I-to-V converters, adder, subtractor, Instrumentation amplifier, Integrator, Differentiator, Logarithmic amplifier, Antilogarithmic amplifier, Comparators, Schmitt trigger, Precision rectifier, peak detector, clipper and clamper, Low-pass, high-pass and band-pass Butterworth filters.

UNIT III ANALOG MULTIPLIER AND PLL

Analog Multiplier using Emitter Coupled Transistor Pair - Gilbert Multiplier cell — Variable transconductance technique, analog multiplier ICs and their applications, Operation of the basic PLL, Closed loop analysis, Voltage controlled oscillator, Monolithic PLL IC 565, application of PLL for AM detection, FM detection, FSK modulation and demodulation and Frequency synthesizing.

UNIT IV ANALOG TO DIGITAL AND DIGITAL TO ANALOG CONVERTERS

Analog and Digital Data Conversions, D/A converter — specifications - weighted resistor type, R-2R Ladder type, Voltage Mode and Current-Mode $R \square 2R$ Ladder types - switches for D/A converters, high speed sample-and-hold circuits, A/D Converters — specifications - Flash type - Successive Approximation type - Single Slope type — Dual Slope type - A/D Converter using Voltage-to-Time Conversion - Over-sampling A/D Converters.

UNIT V WAVEFORM GENERATORS AND SPECIAL FUNCTION ICs

Sine-wave generators, Multivibrators and Triangular wave generator, Saw-tooth wave generator, ICL8038 function generator, Timer IC 555, IC Voltage regulators — Three terminal fixed and adjustable voltage regulators - IC 723 general purpose regulator - Monolithic switching regulator, Switched capacitor filter IC MF10, Frequency to Voltage and Voltage to Frequency converters, Audio Power amplifier, Video Amplifier, Isolation Amplifier, Opto-couplers and fibre optic IC.

TOTAL: 45 PERIODS**OUTCOMES:**

Upon Completion of the course, the students will be able to:

- Design linear and non linear applications of op – amps.
- Design applications using analog multiplier and PLL.
- Design ADC and DAC using op – amps.
- Generate waveforms using op – amp circuits.
- Analyze special function ICs.

TEXT BOOKS:

1. D.Roy Choudhry, Shail Jain, "Linear Integrated Circuits", New Age International Pvt. Ltd.,2000.
2. Sergio Franco, "Design with Operational Amplifiers and Analog Integrated Circuits", 3rd Edition, Tata Mc Graw-Hill, 2007.

REFERENCES:

1. Ramakant A. Gayakwad, "OP-AMP and Linear ICs", 4th Edition, Prentice Hall / Pearson Education,2001.
2. Robert F.Coughlin, Frederick F.Driscoll, "Operational Amplifiers and Linear Integrated Circuits",6th Edition, PHI, 2001.
3. B.S.Sonde, "System design using Integrated Circuits" , 2nd Edition, New Age Pub, 2001
4. Gray and Meyer, "Analysis and Design of Analog Integrated Circuits", Wiley International, 2005.
5. Michael Jacob, "Applications and Design with Analog Integrated Circuits", Prentice Hall of India,1996.
6. William D.Stanley, "Operational Amplifiers with Linear Integrated Circuits", Pearson Education,2004.
7. S.Salivahanan & V.S. Kanchana Bhaskaran, "Linear Integrated Circuits", TMH, 2008.

Mani
PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To learn discrete Fourier transform and its properties
- To know the characteristics of IIR and FIR filters learn the design of infinite and finite impulse response filters for filtering undesired signals
- To understand Finite word length effects
- To study the concept of Multirate and adaptive filters

UNIT I DISCRETE FOURIER TRANSFORM

Discrete Signals and Systems- A Review – Introduction to DFT – Properties of DFT – Circular Convolution - Filtering methods based on DFT – FFT Algorithms – Decimation in time Algorithms, Decimation in frequency Algorithms – Use of FFT in Linear Filtering. 9

UNIT II IIR FILTER DESIGN

Structures of IIR – Analog filter design – Discrete time IIR filter from analog filter – IIR filter design by Impulse Invariance, Bilinear transformation, Approximation of derivatives – (LPF, HPF, BPF, BRF) filter design using frequency translation. 9

UNIT III FIR FILTER DESIGN

Structures of FIR – Linear phase FIR filter – Fourier Series - Filter design using windowing techniques (Rectangular Window, Hamming Window, Hanning Window), Frequency sampling techniques – Finite word length effects in digital Filters: Errors, Limit Cycle, Noise Power Spectrum. 9

UNIT IV FINITE WORDLENGTH EFFECTS

Fixed point and floating point number representations – ADC – Quantization- Truncation and Rounding errors - Quantization noise – coefficient quantization error – Product quantization error - Overflow error – Roundoff noise power - limit cycle oscillations due to product round off and overflow errors – Principle of scaling 9

UNIT V DSP APPLICATIONS

Multirate signal processing: Decimation, Interpolation, Sampling rate conversion by a rational factor – Adaptive Filters: Introduction, Applications of adaptive filtering to equalization. 9

TOTAL (L:45+T:15): 60 PERIODS

OUTCOMES:**Upon completion of the course, students will be able to**

- apply DFT for the analysis of digital signals & systems
- design IIR and FIR filters
- characterize finite Word length effect on filters
- design the Multirate Filters
- apply Adaptive Filters to equalization

TEXT BOOK:

1. John G. Proakis & Dimitris G. Manolakis, "Digital Signal Processing — Principles, Algorithms & Applications", Fourth Edition, Pearson Education / Prentice Hall, 2007.

REFERENCES:

1. Emmanuel C. Ifeachor, & Barrie W. Jervis, "Digital Signal Processing", Second Edition, Pearson Education / Prentice Hall, 2002.
2. Sanjit K. Mitra, "Digital Signal Processing — A Computer Based Approach", Tata Mc Graw Hill, 2007.
3. A.V. Oppenheim, R.W. Schaffer and J.R. Buck, "Discrete-Time Signal Processing", 8th Indian Reprint, Pearson, 2004.
4. Andreas Antoniou, "Digital Signal Processing", Tata Mc Graw Hill, 2006.

(Handwritten Signature)
PRINCIPAL

Adhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM,
Kallakurichi Taluk, Villupuram District

P6 50



**DIGITAL ENERGY MANAGEMENT
FOR HOUSES AND SMALL
INDUSTRIES BASED ON PLC
SYSTEM**



A PROJECT REPORT

Submitted by

BAKKIYALAKSHMI.T

621113106006

KALPANA.V

621113106020

NITHIYA.R

621113106036

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

meeni

PRINCIPAL

**Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600 025
Kallakurichi Taluk, Villupuram District**

ANNA UNIVERSITY: CHENNAI 600 025

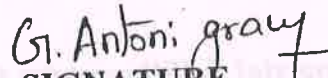
BONAFIDE CERTIFICATE

Certified that this project report "DIGITAL ENERGY MANEGEMENT FOR HOUSES AND SMALL INDUSTRIES BASED ON PLC SYSTEM" is the bonafide work of "T.BAKKIYALAKSHM,V.KALPANA,R.NITHYA" who carried out the project work under my supervision.


SIGNATURE


Mrs.P.POOVIZHI.,M.E.
HEAD OF THE DEPARTMENT

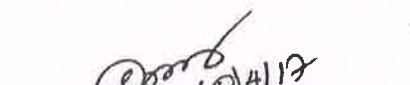
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.


SIGNATURE

Ms.G.ANTONIGRACY.,M.E.,
SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Unconsciousness is a state of unawareness of self and environment of those mental activities by which people are made aware of themselves and their environment, coupled with a diminished responsiveness to environmental stimuli. Smart sensors are mostly used in aeronautical, computer and for gesture recognition in biomedical application. This system designed and developed a reliable, energy efficient for sending alert message to the concern person when person in coma. The system used smart sensors like flex sensor, MEMS body sensor and eye blink sensor. Whenever person moves any finger, any eye lid and tilt the body towards right or left side, the flex sensor, eye blink sensor and MEMS sensor detects the movement respectively, and alert to the concern person through GSM and also we can update the information of the patient in system through serial port.



**MONITORING COMATOSE PATIENT
USING GSM WITH SENSORS**



A PROJECT REPORT

Submitted by

ANGEL VINITHA.A

621113106003

GOMATHI.G

621113106015

JANANI.R

621113106016

MANGANL.K

621113106028

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI 600 025

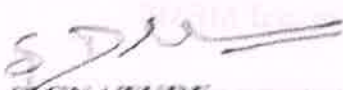
BONAFIDE CERTIFICATE

Certified that this project report **"MONITORING, CONTROL**

PATIENT USING GSM WITH SENSORS" is the bonafide work of

ANGEL VISITHA A. COMATHIL, JASASIK, MAM, 69136

who carried out the project work under my supervision

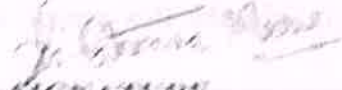


SIGNATURE

Mr. P. POOVIZHI, M.E.,

HEAD OF THE DEPARTMENT

Department of ECE,
Idhaya Engineering College
for Women,
Chinnasaalem-606 201

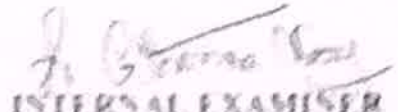


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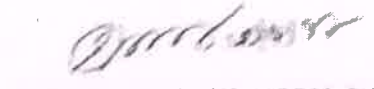
Sr. CATHERINA MARY, M.E.,

SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
for Women,
Chinnasaalem-606 201



INTERNAL EXAMINER



EXTERNAL EXAMINER



PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-6062,
Kallakurichi Taluk, Villupuram District

ABSTRACT

Embedded system is a fast growing technology in various fields like industrial automation, home appliances, automobiles, aeronautics etc. Embedded technology uses PC or a controller to do the specific task and the programming is done using assembly language programming or embedded C/assembly programming.

This project is a system designed to control a military gun remotely using Android. A soldier on the watch tower specifically can be replaced by Bluetooth controlled gun using android mobile. At the top of a watchtower, a gun will be mounted and its movements will be controlled from a remote control room using android mobile. Camera installed on-board the gun will give us the visuals on the monitor. Since the soldier is not operating the gun directly, security will be maintained even at heavy firing. Thus this project reduces death risk of soldiers.


PRINCIPAL



**CCTV FACE RECOGNITION
AND VIDEO ANALYTICS
SOFTWARE SYSTEM**



A PROJECT REPORT

Submitted by

ABIRAMILA

621113106002

CHANDARA KALA.V

621113106009

CHANDRA MEKALA.V

621113106010

In partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI-600 025

APRIL 2017

Principals
PRINCIPAL

**Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District**

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "CCTV FACE RECOGNITION AND VIDEO ANALYTICS SOFTWARE SYSTEM" is the bonafide work of "ABIRAMI.A, CHANDRA KALA.V, CHANDRA MEKALA.V" who carried out the project work under my supervision.


SIGNATURE

Mrs. P. POOVIZHI., M.E.,

HEAD OF THE DEPARTMENT

Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201


INTERNAL EXAMINER



SIGNATURE

Ms. A. JOSEPHINE SUGAN

PRIYA., M.E.,

SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalayam Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ABSTRACT

Unconsciousness is a state of unawareness of self and environment of those mental activities by which people are made aware of themselves and their environment, coupled with a diminished responsiveness to environmental stimuli. Smart sensors are mostly used in aeronautical, computer and for gesture recognition in biomedical application. This system designed and developed a reliable, energy efficient for sending alert message to the concern person when person in coma. The system used smart sensors like flex sensor, MEMS body sensor and eye blink sensor. Whenever person moves any finger, any eye lid and tilt the body towards right or left side, the flex sensor, eye blink sensor and MEMS sensor detects the movement respectively, and alert to the concern person through GSM and also we can update the information of the patient in system through serial port.


PRINCIPAL



**MONITORING COMATOSE PATIENT
USING GSM WITH SENSORS**



A PROJECT REPORT

Submitted by

ANGEL VINITHA.A

621113106003

GOMATHI.G

621113106015

JANANI.R

621113106016

MANGANI.K

621113106028

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

Angel Vinitha
ANGEL VINITHA

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

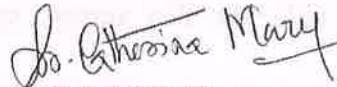
Certified that this project report “**MONITORING COMATOSE PATIENT USING GSM WITH SENSORS**” is the bonafide work of **ANGEL VINITHA.A, GOMATHI.G, JANANI.R, MANGANI.K**

who carried out the project work under my supervision.


SIGNATURE

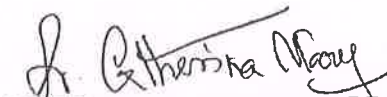
Mrs.P.POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT

Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.


SIGNATURE

Sr.CATHERINA MARY, M.E.,
SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-60621,
Kallakurichi Taluk, Villupuram District

ABSTRACT

ATMs are predominantly used all over the world. Maintaining the security of an ATM fleet is one of the most technically challenging areas. To ensure the most effective protection against these types of threats, must implement a comprehensive, security program that includes hardware, software and services designed to protect against all breaches today and in the future. The idea of our project is to develop the prevention of theft of the ATM card and to control the usage of the ATM card by unauthorized person. Conditional security is provided with protocol data unit. The additional feature of our project is that no transaction can be done without the knowledge of the respective card holder for the cause that NFC transactions are being implemented. In our paper, monitor the location of the ATM usage, time taken for the user to accessing the ATM machine, sequence of events processed by the user and expected amount of withdrawal by the user. All these four factors are verified for the authentication purpose of the user along with password. If any of the above said, parameter are differing and then the One Time Password is generated to the User's Mobile number for further more secure authentication system.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60624
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To introduce the various types of transmission lines and to discuss the losses associated.
- To give thorough understanding about impedance transformation and matching.
- To use the Smith chart in problem solving.
- To impart knowledge on filter theories and waveguide theories

UNIT I TIME VARYING FIELDS AND MAXWELL'S EQUATIONS

Motional Electromotive Force, General Expression for motional EMF, Faraday's Law of Induction, Displacement current, Maxwell's equation in the point or differential form, Maxwell's equations in Integral form, Maxwell's equations from Gauss's Law, Maxwell's equations and Boundary conditions, Poynting's theorem, Time harmonic (sinusoidal) fields, Maxwell's equations in phasor form.

9

UNIT II TRANSMISSION LINES

Need for Transmission Lines, Types of Transmission lines, Characterization in terms of primary and secondary constants, Characteristic impedance, General wave equation, Loss less propagation, Propagation constant, Wave reflection at discontinuities, Voltage standing wave ratio, Transmission line of finite length, The Smith Chart, Smith Chart calculations for lossy lines, Impedance matching by Quarter wave transformer, Single and double stub matching.

9

UNIT III THE UNIFORM PLANE WAVE

Wave propagation in free space, Wave propagation in dielectrics, Forward and Backward Travelling Wave, Poynting Theorem and Wave Power, Energy of the Radiated wave, Propagation in good conductors and good dielectrics, Skin effect, Wave polarization, Linearly, Elliptically and Circularly polarized waves,

9

UNIT IV TRANSMISSION AND REFLECTION OF PLANE WAVES AT BOUNDARIES

Normal incidence of Uniform Plane waves: Conductor-Conductor interface, Dielectric-Dielectric interface, Dielectric-perfect Conductor interface, Dielectric-Conductor interface. Oblique incidence on a plane boundary for perpendicular polarization, Dielectric-Dielectric interface, Dielectric-Conductor interface.

9

UNIT V WAVE GUIDES AND CAVITY RESONATORS

General Wave behaviours along uniform Guiding structures, Transverse Electromagnetic waves, Transverse Magnetic waves, Transverse Electric waves, TM and TE waves between parallel plates, TM and TE waves in Rectangular wave guides, Bessel's differential equation and Bessel function, TM and TE waves in Circular wave guides, Rectangular and circular cavity Resonators.

9

TOTAL (L: 45+T:15): 60 PERIODS .**OUTCOMES:**

Upon completion of the course, students will be able to:

- Discuss the propagation of signals through transmission lines.
- Analyze signal propagation at Radio frequencies.
- Explain radio propagation in guided systems.
- Utilize cavity resonators.

TEXT BOOK:

1. John D Ryder, "Networks lines and fields", Prentice Hall of India, New Delhi, 2005

REFERENCES:

1. William H Hayt and Jr John A Buck, "Engineering Electromagnetics" Tata Mc Graw-Hill Publishing Company Ltd, New Delhi, 2008.
2. David K Cheng, "Field and Wave Electromagnetics", Pearson Education Inc, Delhi, 2004.
3. John D Kraus and Daniel A Fleisch, "Electromagnetics with Applications", Mc Graw Hill Book Co, 2005.
4. GSN Raju, "Electromagnetic Field Theory and Transmission Lines", Pearson Education, 2005.
5. Bhag Singh Guru and HR Hizioglu, "Electromagnetic Field Theory Fundamentals", Vikas Publishing House, New Delhi, 2001.
6. N. Narayana Rao, "Elements of Engineering Electromagnetics" 6th edition Prentice Hall, 2004.

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idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606206
Kallakurichi Taluk, Villupuram District

P655.



**AUTOMATIC VIDEO
SURVEILLANCE FOR THEFT
DETECTION IN ATM MACHINE**



A PROJECT REPORT

Submitted by

JAYASREE.P

621113106018

MUTHU LAKSHMI.T

621113106033

NANDHINI.M

621113106035

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

Meevi
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI-600 025


BONAFIDE CERTIFICATE

Certified that this project report "AUTOMATIC VIDEO SURVILLANCE FOR THEFT DETECTION IN ATM MACHINES" is the bonafide work of, "P.JAYASREE, M.NANDHINI, T.MUTHULAKSHMI" who carried out the project work under my supervision.


SIGNATURE

Mrs.P.POOVIZHI,M.E.,
HEAD OF THE DEPARTMENT

Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem- 606 201


SIGNATURE

Ms.J.RANJITH MARIYAL,M.E.,
SUPERVISOR

Assistant Professor,

Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem- 606 201


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
kallakurichi Taluk, Villupuram District

ABSTRACT

Colorectal cancer is the third most common cancer in both men and women. Computed Tomography (CT) and Colonography is a valid technique for detecting and screening colorectal cancers. In order to accomplish an effective way to identify colon cancer at an early stage, digital images of colon polyps have been investigated. The proposed work has Neural Network for diagnosis of cancer. The proposed method performs cancer detection by acquiring histopathological images and analysing it using the MATRIX laboratory software from Math works along with image processing techniques based on feature extraction, which determines the cancer with less complexity and produce results in faster response time. The histopathological images of colon lesions are pre-processed. Then we go for feature extraction by Gray level Co-occurrence Matrix (GLCM) and Histogram. Features describing like energy, entropy mean, and variance typically characterize the segmented candidates. Such features will serve as input for the classification system. Neural Network performs classification. The experimental results shows that these features allow the accurate detection and retrieve the database without the need of specialized assistant to interpret the test results.

P665



**DIAGNOSIS OF COLON
CANCER USING
NEURAL NETWORK**



A PROJECT REPORT

Submitted by

OOVIYA.M

621113106037

REBEKAH ADLINE.T

621113106047

SRIRAJESHWARI.P

621113106064

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

Manoj
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "DIAGNOSIS OF COLON CANCER

USING NEURAL NETWORK" is the bonafide work of "OOVIYA.M,

REBEKAH ADLINE.T, SRI RAJESHWARI.P" who carried out the

project work under my supervision.



SIGNATURE

Mrs.P.POOVIZHI, M.E.,

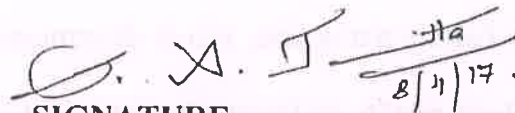
HEAD OF THE DEPARTMENT

Department of ECE,

Idhaya engineering college

for women,

Chinnasalem-606 201.



SIGNATURE

Sr.A.JENITTA, M.E., (PH.D.),

SUPERVISOR

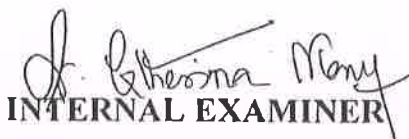
Assistant professor,

Department of ECE,

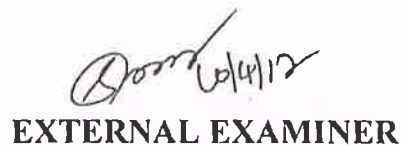
Idhaya engineering college

for women,

Chinnasalem-606 201.



INTERNAL EXAMINER



EXTERNAL EXAMINER



PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-60620,
Kallakurichi Taluk, Villupuram District

ABSTRACT

Industrial safety is one of the main aspects of industry specially mining industry. In the mining industry safety is a very vital factor. To avoid loss of material and damaging of human health, protection system as well as faithful communication system is necessary inside the underground mines. To increase both safety and productivity in mines, a reliable communication must be established between workers, moving in the mine, and a fixed base station. Inside mines, the wired communication system is not so effective, because of wires can be damaged inside mines. In this project we are going to monitor the Mine parameters like abnormal gas, temperature, humidity and vibration sensor to avoid the harmful gas, high temperature, abnormal humidity and vibration attacking the Mine workers. In this project to avoid loss of material and damaging of human health in mine workers because of using text to voice converter. The text to voice converter gives continues information inside the mine workers. The observed information can be updated to the control section.

OBJECTIVES:

- To introduce the various types of transmission lines and to discuss the losses associated.
- To give thorough understanding about impedance transformation and matching.
- To use the Smith chart in problem solving.
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UNIT I TIME VARYING FIELDS AND MAXWELL'S EQUATIONS

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TOTAL (L: 45+T:15): 60 PERIODS .**OUTCOMES:**

Upon completion of the course, students will be able to:

- Discuss the propagation of signals through transmission lines.
- Analyze signal propagation at Radio frequencies.
- Explain radio propagation in guided systems.
- Utilize cavity resonators.

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REFERENCES:

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2. David K Cheng, "Field and Wave Electromagnetics", Pearson Education Inc, Delhi, 2004.
3. John D Kraus and Daniel A Fleisch, "Electromagnetics with Applications", Mc Graw Hill Book Co, 2005.
4. GSN Raju, "Electromagnetic Field Theory and Transmission Lines", Pearson Education, 2005.
5. Bhag Singh Guru and HR Hiziroglu, "Electromagnetic Field Theory Fundamentals", Vikas Publishing House, New Delhi, 2001.
6. N. Narayana Rao, "Elements of Engineering Electromagnetics" 6th edition Prentice Hall, 2004.

Principals
PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606206
Kallakurichi Taluk, Villupuram District



RAIL NET SOFTWARE SOLUTIONS

(Recognised by DOE, Government of India)

CERTIFICATE

This is to certify that R.MEENAKSHI doing B.E (ECE) at IDHAYA ENGINEERING COLLEGE FOR WOMEN has undergone In-plant Training (JUNE 27th 2016 to JULY 2nd 2016) at Railnet Software Solutions.

The program includes the study and observation of the Railway Data Network and the functionality of components used. The training program also includes the study of the working of Software packages and network gargets used in Automated Train Platform Announcement, Coach Display System which are in use for public at Madurai Railway Junction. Studies were made on FOIS and Loco Pilot performance.

The Field visits include working of 140 ton Hydro-Mechanic crane which is working on automated digital sensors, working of microwave transmitter used for wireless communication for rail Movement, technical visit for OFC transmission Centre, Digital exchange and Train Route Relay Cabin.

During the training period, the student's conduct was good.

E. Yogavi
Secretary

(E.Yogavi Natesh)

**SECRETARY
RAILNET / S RWWO
RAILWAY COLONY
MADURAI**

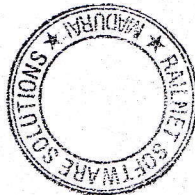
meena
**Dr.R.GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL**

**IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201. KALLAKURICHI DT.**

S. Asha
Administrator

(S.Ashok)

Administrator
**RAILNET
SRWWO**
Southern Railway / Madurai Division



Software
Development



Web
Design



Web
Services



Desktop
Application

E-mail : railnet@srwwo.com

Phone : 0452 - 2308785, Railway : 72785

Railway Mixed Hr. Sec. School Campus, Railway Colony,

E-mail : railnetmdu@gmail.com * Web : www.railnet.srwwo.com

OBJECTIVES:

- To introduce the concepts of various analog modulations and their spectral characteristics.
- To understand the properties of random process.
- To know the effect of noise on communication systems.
- To study the limits set by Information Theory.

UNIT I AMPLITUDE MODULATION

Generation and detection of AM wave-spectra-DSBSC, Hilbert Transform, Pre-envelope & complex envelope - SSB and VSB-comparison -Superheterodyne Receiver. 9

UNIT II ANGLE MODULATION

Phase and frequency modulation-Narrow Band and Wide band FM - Spectrum - FM modulation and demodulation – FM Discriminator- PLL as FM Demodulator - Transmission bandwidth. 9

UNIT III RANDOM PROCESS

Random variables, Central limit Theorem, Random Process, Stationary Processes, Mean, Correlation & Covariance functions, Power Spectral Density, Ergodic Processes, Gaussian Process, Transmission of a Random Process Through a LTI filter. 9

UNIT IV NOISE CHARACTERIZATION

Noise sources and types – Noise figure and noise temperature – Noise in cascaded systems. Narrowband noise – PSD of in-phase and quadrature noise –Noise performance in AM systems – Noise performance in FM systems – Pre-emphasis and de-emphasis – Capture effect, threshold effect. 9

UNIT V INFORMATION THEORY

Entropy - Discrete Memoryless channels - Channel Capacity -Hartley - Shannon law - Source coding theorem - Huffman & Shannon - Fano codes 9

**TOTAL: 45
PERIODS**

OUTCOMES:**At the end of the course, the students would**

- Design AM communication systems.
- Design Angle modulated communication systems
- Apply the concepts of Random Process to the design of Communication systems
- Analyze the noise performance of AM and FM systems

TEXT BOOKS:

1. J.G.Proakis, M.Salehi, "Fundamentals of Communication Systems", Pearson Education 2006.
2. S. Haykin, "Digital Communications", John Wiley, 2005.

REFERENCES:

1. B.P.Lathi, "Modern Digital and Analog Communication Systems", 3rd Edition, Oxford University Press, 2007.
2. B.Sklar, "Digital Communications Fundamentals and Applications", 2nd Edition Pearson Education 2007
3. H P Hsu, Schaum Outline Series - "Analog and Digital Communications" TMH 2006
4. Couch.L., "Modern Communication Systems", Pearson, 2001.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To know the principles of sampling & quantization
- To study the various waveform coding schemes
- To learn the various baseband transmission schemes
- To understand the various Band pass signaling schemes
- To know the fundamentals of channel coding

UNIT I SAMPLING & QUANTIZATION

9

Low pass sampling — Aliasing- Signal Reconstruction-Quantization - Uniform & non-uniform quantization - quantization noise - Logarithmic Companding of speech signal- PCM - TDM

UNIT II WAVEFORM CODING

9

Prediction filtering and DPCM - Delta Modulation - ADPCM & ADM principles-Linear Predictive Coding

UNIT III BASEBAND TRANSMISSION

9

Properties of Line codes- Power Spectral Density of Unipolar / Polar RZ & NRZ – Bipolar NRZ - Manchester- ISI – Nyquist criterion for distortionless transmission – Pulse shaping – Correlative coding - Mary schemes – Eye pattern - Equalization

UNIT IV DIGITAL MODULATION SCHEME

9

Geometric Representation of signals - Generation, detection, PSD & BER of Coherent BPSK, BFSK & QPSK - QAM - Carrier Synchronization - structure of Non-coherent Receivers - Principle of DPSK.

UNIT V ERROR CONTROL CODING

9

Channel coding theorem - Linear Block codes - Hamming codes - Cyclic codes-Convolutional codes - Vitterbi Decoder

TOTAL: 45 PERIODS**OUTCOMES:****Upon completion of the course, students will be able to**

- Design PCM systems
- Design and implement base band transmission schemes
- Design and implement band pass signaling schemes
- Analyze the spectral characteristics of band pass signaling schemes and their noise performance
- Design error control coding schemes

TEXT BOOK:

1. S. Haykin, "Digital Communications", John Wiley, 2005

REFERENCES:

1. B. Sklar, "Digital Communication Fundamentals and Applications", 2nd Edition, Pearson Education, 2009
2. B.P.Lathi, "Modern Digital and Analog Communication Systems" 3rd Edition, Oxford University Press 2007.
3. H P Hsu, Schaum Outline Series - "Analog and Digital Communications", TMH 2006
4. J.G Proakis, "Digital Communication", 4th Edition, Tata Mc Graw Hill Company, 2001.

Wani
PRINCIPAL

Adhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To understand the basic properties of signal & systems and the various methods of classification
- To learn Laplace Transform & Fourier transform and their properties
- To know Z transform & DTFT and their properties
- To characterize LTI systems in the Time domain and various Transform domains

UNIT I CLASSIFICATION OF SIGNALS AND SYSTEMS

Continuous time signals (CT signals) - Discrete time signals (DT signals) - Step, Ramp, Pulse, Impulse, Sinusoidal, Exponential, Classification of CT and DT signals - Periodic & Aperiodic signals, Deterministic & Random signals, Energy & Power signals - CT systems and DT systems- Classification of systems — Static & Dynamic, Linear & Nonlinear, Time-variant & Time-invariant, Causal & Noncausal, Stable & Unstable.

9

UNIT II ANALYSIS OF CONTINUOUS TIME SIGNALS

Fourier series analysis-spectrum of Continuous Time (CT) signals- Fourier and Laplace Transforms in CT Signal Analysis - Properties.

9

UNIT III LINEAR TIME INVARIANT- CONTINUOUS TIME SYSTEMS

Differential Equation-Block diagram representation-impulse response, convolution integrals-Fourier and Laplace transforms in Analysis of CT systems

9

UNIT IV ANALYSIS OF DISCRETE TIME SIGNALS

Baseband Sampling - DTFT – Properties of DTFT - Z Transform – Properties of Z Transform

9

UNIT V LINEAR TIME INVARIANT-DISCRETE TIME SYSTEMS

Difference Equations-Block diagram representation-Impulse response - Convolution sum- Discrete Fourier and Z Transform Analysis of Recursive & Non-Recursive systems

9

TOTAL (L:45+T:15): 60 PERIODS**OUTCOMES:**

Upon the completion of the course, students will be able to:

- Analyze the properties of signals & systems
- Apply Laplace transform, Fourier transform, Z transform and DTFT in signal analysis
- Analyze continuous time LTI systems using Fourier and Laplace Transforms
- Analyze discrete time LTI systems using Z transform and DTFT

TEXT BOOK:

1. Allan V.Oppenheim, S.Wilsky and S.H.Nawab, "Signals and Systems", Pearson, 2007.

REFERENCES:

1. B. P. Lathi, "Principles of Linear Systems and Signals", Second Edition, Oxford, 2009.
2. R.E.Zeimer, W.H.Tranter and R.D.Fannin, "Signals & Systems - Continuous and Discrete", Pearson, 2007.
3. John Alan Stuller, "An Introduction to Signals and Systems", Thomson, 2007.
4. M.J.Roberts, "Signals & Systems Analysis using Transform Methods & MATLAB", Tata McGrawHill, 2007.

Praveen
PRINCIPAL

Adhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Hallakurichi Taluk, Villupuram District



प्रसार भारती
PRASAR BHARATI



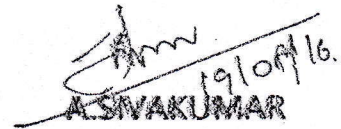
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ALL INDIA RADIO: KODAIKANAL

No. KDL/AIR/FM/11(9)/2016-17

Dated: 19.08.2016

TO WHOMSOEVER IT MAY CONCERN

This is to certify those 48 Students and six faculty members of Idhaya Engineering College for Women, Chinnasalem. Visited this organization on 19.08.2016


A. SIVAKUMAR

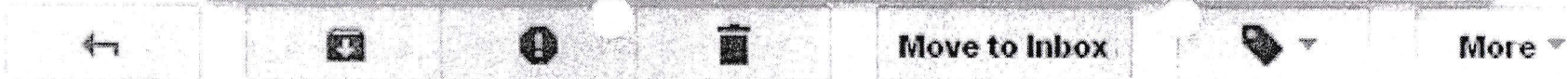
ASSISTANT DIRECTOR (E)


Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201. KALLAKURICHI DT.



प्रसार भारती | PRASAR BHARATI
भारत का लोक सेवा प्रसारक | INDIA'S PUBLIC SERVICE BROADCASTER

ALL INDIA RADIO, ANANDAGIRI 4th STREET, KODAIKANAL 624 101.
24542-245209[D/R], 243443[SD], 245208[SE], 242412[C/R], Email: airfmkodai@gmail.com



AIR Koda

AIR Kodaikanal <airfmkodaikanal@rediffmail.com>

7/25/16



Add to cir

to me



Sir,

As per the recent instruction from AIR, resources cell, New Delhi, fee is to be charged from the students of technical institutes coming for industrial visit to AIR, installations. The fee is fixed by the resources cell at the rate of **Rs.115/- [Rs.100/- plus 15% service tax]** per student per center. The fee shall be paid by students in the form of DD in favour of **Prasar Bharati, New Delhi. Payable at New Delhi** During the visit, the in-charge of group would be responsible for the discipline of the students and no unruly/mischievous activity would be permitted inside the campus.

After receiving the payment, the date will be confirmed, Industrial visit is not permitted during Saturdays, Sundays and other holidays.

regards,
A.Sivakumar
Assistant Director [E]

R. Guramani
Dr.R.GURUMANI,M.E.,Ph.D.,M.B.A.,M.ISTE.,F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
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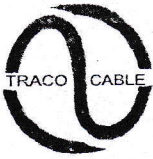
From: karthikeyan vadivel <karthikeyaniecw@gmail.com>
Sent: Mon, 25 Jul 2016 12:51:05
To: airfmkodaikanal@rediffmail.com
Subject: permission letter reg Industrial Visit

ട്രാക്കോ കേബിൾ കമ്പനി ലിമിറ്റഡ്

(ഒരു കേരള സർക്കാർ സ്ഥാപനം)

TRACO CABLE COMPANY LIMITED

(A Kerala Government Company)



IRIMPANAM, TRIPUNITHURA, Dist. ERNAKULAM, PIN: 682 309
Phones: 0484 2780937, 2780237, 2785672, Fax: 0484 2780937

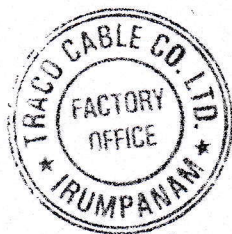
No. P&A/TRG/832

Irimpanam,
12.08.2016

CERTIFICATE

This is to certify that 90 Nos. of Final year B.E. Electrical & Electronics Engineering and Electronics & Communication Engineering Students along with 7 faculty members of Idhaya Engineering College for women, Chinnasalem, Villupuram, Tamil Nadu – 606 201 have undergone a Factory visit in this Institution on 12.08.2016 .A.N.

For TRACO CABLE COMPANY LIMITED



[Signature]
UNIT HEAD

[Signature]
**Dr.R.GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.II
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201. KALLAKURICHI DT.**

Regd. Office ; XXXIX/5465, 4th Floor, KSHB Office Complex, Panampilly Nagar, Kochi - 682 036, Kerala
Phones: 0484 2314847, 2314864, 2311851 & 2320472 Fax 91-484 2312744
E-mail : mail@tracocable.com, Web : www.tracocable.com

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Dear Sir / Madam,

Permission Granted to visit on Radio Astronomy Centre on 05-08-2016.

Enclosed our granted permission letters in the attachment file.

Please send your Industrial Visit request to the following email address

racvisit@gmail.com

on your Institution letter head, to get permission

Regards,

D. Ravikumar, Scientific Officer - D

Post Box No. 8

Radio Astronomy Centre (RAC) NCRA TIFR

Phone (Office) : 0423 2244880 / 888

Udhagamandalam - 643 001

The Nilgiris TamilNadu

Ravi
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., MISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT

OBJECTIVES:

- To give insight of the radiation phenomena.
- To give a thorough understanding of the radiation characteristics of different types of antennas
- To create awareness about the different types of propagation of radio waves at different frequencies

UNIT I FUNDAMENTALS OF RADIATION

Definition of antenna parameters – Gain, Directivity, Effective aperture, Radiation Resistance, Band width, Beam width, Input Impedance. Matching — Baluns, Polarization mismatch, Antenna noise temperature, Radiation from oscillating dipole, Half wave dipole. Folded dipole, Yagi array.

9

UNIT II APERTURE AND SLOT ANTENNAS

Radiation from rectangular apertures, Uniform and Tapered aperture, Horn antenna, Reflector antenna, Aperture blockage, Feeding structures, Slot antennas, Microstrip antennas — Radiation mechanism — Application, Numerical tool for antenna analysis

9

UNIT III ANTENNA ARRAYS

N element linear array, Pattern multiplication, Broadside and End fire array — Concept of Phased arrays, Adaptive array, Basic principle of antenna Synthesis-Binomial array

9

UNIT IV SPECIAL ANTENNAS

Principle of frequency independent antennas –Spiral antenna, Helical antenna, Log periodic. Modern antennas-Reconfigurable antenna, Active antenna, Dielectric antennas, Electronic band gap structure and applications, Antenna Measurements-Test Ranges, Measurement of Gain, Radiation pattern, Polarization, VSWR

9

UNIT V PROPAGATION OF RADIO WAVES

Modes of propagation, Structure of atmosphere, Ground wave propagation, Tropospheric propagation, Duct propagation, Troposcatter propagation, Flat earth and Curved earth concept Sky wave propagation — Virtual height, critical frequency, Maximum usable frequency — Skip distance, Fading, Multi hop propagation

9

**TOTAL: 45
PERIODS**

OUTCOMES:**Upon completion of the course, students will be able to:**

- Explain the various types of antennas and wave propagation.
- Write about the radiation from a current element.
- Analyze the antenna arrays, aperture antennas and special antennas such as frequency independent and broad band

TEXT BOOK:

1. John D Kraus, "Antennas for all Applications", 3rd Edition, Mc Graw Hill, 2005.

REFERENCES:

1. Edward C.Jordan and Keith G.Balmain "Electromagnetic Waves and Radiating Systems" PrenticeHall of India, 2006
2. R.E.Collin, "Antennas and Radiowave Propagation", Mc Graw Hill 1985.
3. Constantine.A.Balanis "Antenna Theory Analysis and Design", Wiley Student Edition, 2006.
4. Rajeswari Chatterjee, "Antenna Theory and Practice" Revised Second Edition New Age International Publishers, 2006.
5. S. Drabowitch, "Modern Antennas" Second Edition, Springer Publications, 2007.
6. Robert S.Elliott "Antenna Theory and Design" Wiley Student Edition, 2006.
7. H.Sizun "Radio Wave Propagation for Telecommunication Applications", First Indian Reprint, Springer Publications, 2007.

Amey
PRINCIPAL
Adhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District



**ANDROID BASED HAND
GESTURE TO VOICE
CONVERSION
FOR SPEECH IMPAIRED**



A PROJECT REPORT

Submitted by

ANUSUYA.M

621113106004

AROCKIA INNOCENTIA MARY.Y

621113106005

BHARATHI.S

621113106007

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

In

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "ANDROID BASED HAND GESTURE TO VOICE CONVERSION FOR SPEECH IMPAIRED" is the bonafide work of "M.ANUSUYA, Y.AROCKIA INNOCENTIA MARY, S.BHARATHI" who carried out the project work under my supervision.


SIGNATURE

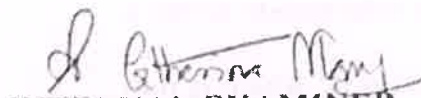
Mrs.P.POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT

Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem - 606 201.


SIGNATURE

Ms.K.SATHIYA, M.E.,
SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem - 606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Electromyography (EMG) signals are becoming increasingly important in many applications, including clinical/ biomedical, prosthesis or rehabilitation devices, human machine interactions and more. EMG is the electromyography, is a technique for evaluating and recording the electrical activity produced by human muscles. The main objective of the project is to measure the activities and properties of muscles by attaching surface electrodes when they are injured or occurrences of skin variations with the help of EMG. In that project consists of sensor networks, electrode plates, ARDUINO microcontroller, and database server. An electrode plates are attached with the skin human. The EMG signal is pass to the human skin through electrodes. The microcontroller is attached with the EMG sensor network. In that the data will be in analog form. Then the values are transmitted into the webserver using Wi-Fi module in database manner. We create the PHP script page due to the Wi-Fi module. In that page will be displayed the muscle activities in graphical manner. Finally the results displayed in graphical manner using WAMPSEVER software application.

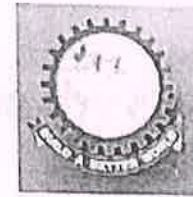

PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-606222
Kallakurichi Taluk, Villupuram District

1-203-1



**EVALUATION OF USER
MUSCLE ACTIVITIES USING
SENSOR NETWORK FROM
EMG SIGNAL BASED ON IOT**



A PROJECT REPORT

Submitted by

SASIKALA.A

621113106050

SASIKALA.S

621113106051

UDHAYABANU.S

621113106068

In partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI - 600 025

APRIL 2017

[Signature]
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606211
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI - 600 025

BONAFIDE CERTIFICATE

Certified that this project report "EVALUATION OF USER MUSCLE ACTIVITIES USING SENSOR NETWORK FROM ELECTRO MYOGRAPHIC SIGNALS BASED ON INTERNET OF THINGS" is the bonafide work of "SASIKALA.A, SASIKALA.S, UDHAYABANU.S" who carried out the project work under my supervision.


SIGNATURE

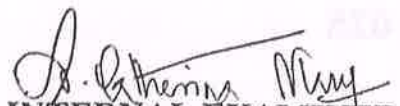
Mrs.P.POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT


Department of ECE,
Idhaya Engineering College
For women,
Chinnasalem - 606 201.


SIGNATURE

Mrs.S.DHANALAKSHMI, M.E.,
SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
For women,
Chinnasalem - 606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Raspberry pi is a revolutionary credit card sized embedded computer using which many projects that were earlier not possible or were not practical can be implemented. This is because Raspberry pi uses embedded Operating system, using which many programs and applications can be created that are not easily possible on conventional embedded systems. At the same time the Raspberry pi is low cost, low power and small. Hence, can be used for many projects. Here, automatic number plate scanning will be implemented using a combination of various technologies like embedded operating system, image processing and number plate recognition. The project can be used in many applications like real time number plate details about the vehicle. The project can also be used in applications like gathering the address of the particular vehicle. A Raspberry pi board connected to a embedded camera module is used, using which a picture of the vehicle is take automatically. This image is then transferred to the web server using Apache server, this information can be recovered from the particular IP address.



**AUTOMATIC WEED DETECTION
AND SMART HERBICIDE
SPRAYER AND ROBOT FOR
CORN FIELD**



A PROJECT REPORT

Submitted by

SHINY CHRISTIYA S.A

621113106057

SREEMATHIJ

621112106063

TAMILMANIS

621113106066

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI-600 025

APRIL 2017

Principals
PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-60621,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certificate that this project report "AUTOMATIC WEED DETECTION AND SMART HERBICIDE SPRAYER ROBOT FOR CORN FIELD" is the bonafide work of "SHINY CHRISTIYA.S.A , SREEMATHI.J and TAMILMANI.S" Who carried out the project work under my supervision.


SIGNATURE

**Mrs.P.POOVIZHI,M.E.,
HEAD OF THE DEPARTMENT**


Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.


SIGNATURE

**MS.G.VASANTHI,M.E.,
SUPERVISOR**

Assistant Professor,
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Industrial safety is one of the main aspects of industry specially mining industry. In the mining industry safety is a very vital factor. To avoid loss of material and damaging of human health, protection system as well as faithful communication system is necessary inside the underground mines. To increase both safety and productivity in mines, a reliable communication must be established between workers, moving in the mine, and a fixed base station. Inside mines, the wired communication system is not so effective, because of wires can be damaged inside mines. In this project we are going to monitor the Mine parameters like abnormal gas, temperature, humidity and vibration sensor to avoid the harmful gas, high temperature, abnormal humidity and vibration attacking the Mine workers. In this project to avoid loss of material and damaging of human health in mine workers because of using text to voice converter. The text to voice converter gives continues information inside the mine workers. The observed information can be updated to the control section.



**PROTECTION SYSTEM FOR
UNDERGROUND MINE
WORKERS**



A PROJECT REPORT

Submitted by

SANDHIYA .V

621113106049

SATHIYA .M

621113106052

SIVASANKARI.M

621113106061

REVATHI. R

621113106301

in partial fulfillment for the award of degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI-600 025

APRIL 2017.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "PROTECTION SYSTEM FOR UNDERGROUND MINE WORKERS" is the bonafide work of **SANDHIYA.V, SATHIYA.M SIVASANKARIM, REVATHI.R** who carried out of the project work under my supervision.



SIGNATURE

Mrs.P.POOVIZHI, M.E.,

HEAD OF THE DEPARTMENT

Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.

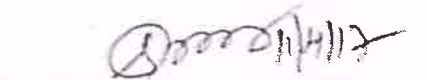

INTERNAL EXAMINER


SIGNATURE

Sr.J.CATHERINA MARY, M.E.,

SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

The aim of the project is to study the power line communication (PLC) system in an overhead Low Voltage (LV) power network and control the home appliances and energy management by using Power Line Communication (PLC). Power line communication (PLC) carries data on a conductor that is also used simultaneously for AC electric power transmission or electric power distribution to consumers. A wide range of power line communication technologies are needed for different applications, ranging from home automation to Internet access. A simple home automation system using Power Line Communication (PLC) is convenient for people with disabilities and elderly to control lamps and other home appliances. The computer operates as a host station, connecting to the PLC modem serially using Recommended Standard 232 (RS232) and a transceiver MAX232. User will automate the home appliance based on the Graphical User Interface (GUI) by Sending Command from the Master PC. The GUI is designed using the Visual Basic 6.0.


PRINCIPAL

Idhaya Engineering College for Women,
Nainarpataym Road, CHINNASALEM-60624,
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- In this course, the MOS circuit realization of the various building blocks that is common to any microprocessor or digital VLSI circuit is studied.
- Architectural choices and performance tradeoffs involved in designing and realizing the circuits in CMOS technology are discussed.
- The main focus in this course is on the transistor circuit level design and realization for digital operation and the issues involved as well as the topics covered are quite distinct from those encountered in courses on CMOS Analog IC design.

UNIT I MOS TRANSISTOR PRINCIPLE

NMOS and PMOS transistors, Process parameters for MOS and CMOS, Electrical properties of CMOS circuits and device modeling, Scaling principles and fundamental limits, CMOS inverter scaling, propagation delays, Stick diagram, Layout diagrams

9

UNIT II COMBINATIONAL LOGIC CIRCUITS

Examples of Combinational Logic Design, Elmore's constant, Pass transistor Logic, Transmission gates, static and dynamic CMOS design, Power dissipation – Low power design principles

9

UNIT III SEQUENTIAL LOGIC CIRCUITS

Static and Dynamic Latches and Registers, Timing issues, pipelines, clock strategies, Memory architecture and memory control circuits, Low power memory circuits, Synchronous and Asynchronous design

9

UNIT IV DESIGNING ARITHMETIC BUILDING BLOCKS

Data path circuits, Architectures for ripple carry adders, carry look ahead adders, High speed adders, accumulators, Multipliers, dividers, Barrel shifters, speed and area tradeoff

9

UNIT V IMPLEMENTATION STRATEGIES

Full custom and Semi custom design, Standard cell design and cell libraries, FPGA building block architectures, FPGA interconnect routing procedures.

9

TOTAL: 45 PERIODS**OUTCOMES:****Upon completion of the course, students should**

- Explain the basic CMOS circuits and the CMOS process technology.
- Discuss the techniques of chip design using programmable devices.
- Model the digital system using Hardware Description Language.

TEXTBOOKS:

1. Jan Rabaey, Anantha Chandrakasan, B.Nikolic, "Digital Integrated Circuits: A Design Perspective", Second Edition, Prentice Hall of India, 2003.
2. M.J. Smith, "Application Specific Integrated Circuits", Addison Wesley, 1997

REFERENCES:

1. N.Weste, K.Eshraghian, "Principles of CMOS VLSI Design", Second Edition, Addison Wesley 1993.
2. R.Jacob Baker, Harry W.LI., David E.Boyce, "CMOS Circuit Design, Layout and Simulation", Prentice Hall of India 2005.
3. A.Pucknell, Kamran Eshraghian, "BASIC VLSI Design", Third Edition, Prentice Hall of India, 2007.

Arave
PRINCIPAL
Sri Dhanya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-6062
Kallakurichi Taluk, Villupuram District



**WIRELESS POWER TRANSFER
VIA STRONGLY COUPLED
MAGNETIC RESONANCES**



A PROJECT REPORT

Submitted by

KEERTHANA DEVL.D 621113106021

KRITHIKA.D 621113106023

MEENA.V 621113106031

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

Meena
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600201
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "WIRELESS POWER TRANSFER VIA STRONGLY COUPLED MAGNETIC RESONANCES" is the bonafide work of "D.KEERTHANA DEVI, D.KRITHIKA, V.MEENA" who carried out the project work under my supervision.



SIGNATURE

**Mrs. P.POOVIZHI., M.E.,
HEAD OF THE DEPARTMENT**

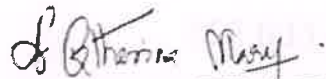
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.



SIGNATURE

**Mrs. P.NATHIYA., M.E.,
SUPERVISOR**

Assistant Professor,
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.



INTERNAL EXAMINER



EXTERNAL EXAMINER



PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ABSTRACT

There are several systems implemented for security level enhancement for cash boxes like key, finger print scanner, GSM, Bluetooth etc. After such implementation the use of systems in real time is quite difficult. Here we create a real time cash box with RFID control. RFID card types which can be used as the ID Cards so that whenever an authorized person tries to open the cash box they have to show the card as well as use the key so that unauthorized person don't use the box. System is very efficient and bears zero error chances and it's readily usable for security purpose.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
hallakurichi Taluk, Villupuram District



**IOT BASED SMART SECURITY
AND MONITORING DEVICES
FOR AGRICULTURE**



A PROJECT REPORT

Submitted by

PRIYA.S

621113106041

UMAMAGESHWARI.R

621113106069

VIRGINIYA.X

621113106071

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017


PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-6062.
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "**IOT BASED SMART SECURITY AND MONITORING DEVICES FOR AGRICULTURE**" is the bonafide work of "**S.PRIYA, R.UMAMAGESHWARI, X.VIRGINIYA**" who carried out the project work under my supervision.


SIGNATURE

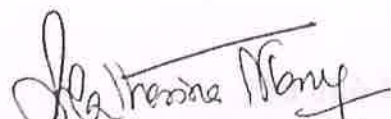
**Mrs. P. POOVIZHI, ME.,
HEAD OF THE DEPARTMENT**


Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.



SIGNATURE
**Ms. T. RADHA, M.E.,
SUPERVISOR**

Assistant Professor,
Department of ECE,
Idhaya Engineering College
for Women,
Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

In the modern world, every supermarket and hypermarket employee shopping baskets and shopping trolley in order to aid customers to select and store the products which they intend to purchase and waiting for the billing in the counter. In previous, using RFID technology and bar code scanner the products were sensed and billed. In order to reduce the time in billing counter an super market the intelligent shopping basket is going to be designed.

It uses mobile camera module to allow user to self- checkout and pay the bill in the billing counter. By using this method, the camera senses the product easily and the information sends to the billing counter in a fast manner. The LCD is also attached to the trolley used to display the total billing amount during the time of purchasing. So customer can aware about the total bill. Buzzer is used to indicate the product is added into the billing counter.

OBJECTIVES:

- To inculcate understanding of the basics required for circuit representation of RF networks.
- To deal with the issues in the design of microwave amplifier.
- To instill knowledge on the properties of various microwave components.
- To deal with the microwave generation and microwave measurement techniques

UNIT I TWO PORT NETWORK THEORY

9

Review of Low frequency parameters: Impedance, Admittance, Hybrid and ABCD parameters, Different types of interconnection of Two port networks, High Frequency parameters, Formulation of S parameters, Properties of S parameters, Reciprocal and lossless Network, Transmission matrix, RF behavior of Resistors, Capacitors and Inductors.

UNIT II RF AMPLIFIERS AND MATCHING NETWORKS

9

Characteristics of Amplifiers, Amplifier power relations, Stability considerations, Stabilization Methods, Noise Figure, Constant VSWR, Broadband, High power and Multistage Amplifiers, Impedance matching using discrete components, Two component matching Networks, Frequency response and quality factor, T and Pi Matching Networks, Microstrip Line Matching Networks.

UNIT III PASSIVE AND ACTIVE MICROWAVE DEVICES

9

Terminations, Attenuators, Phase shifters, Directional couplers, Hybrid Junctions, Power dividers, Circulator, Isolator, Impedance matching devices: Tuning screw, Stub and quarter wave transformers. Crystal and Schottky diode detector and mixers, PIN diode switch, Gunn diode oscillator, IMPATT diode oscillator and amplifier, Varactor diode, Introduction to MIC.

UNIT IV MICROWAVE GENERATION

9

Review of conventional vacuum Triodes, Tetrodes and Pentodes, High frequency effects in vacuum Tubes, Theory and application of Two cavity Klystron Amplifier, Reflex Klystron oscillator, Traveling wave tube amplifier, Magnetron oscillator using Cylindrical, Linear, Coaxial Voltage tunable Magnetrons, Backward wave Crossed field amplifier and oscillator.

UNIT V MICROWAVE MEASUREMENTS

9

Measuring Instruments : Principle of operation and application of VSWR meter, Power meter, Spectrum analyzer, Network analyzer, Measurement of Impedance, Frequency, Power, VSWR, Q- factor, Dielectric constant, Scattering coefficients, Attenuation, S-parameters.

TOTAL: 45 PERIODS**OUTCOMES:****Upon completion of the course, students will be able to:**

- Explain the active & passive microwave devices & components used in Microwave communication systems.
- Analyze the multi-port RF networks and RF transistor amplifiers.
- Generate Microwave signals and design microwave amplifiers.
- Measure and analyze Microwave signal and parameters.

TEXT BOOKS:

1. Reinhold Ludwig and Gene Bogdanov, "RF Circuit Design: Theory and Applications", Pearson Education Inc., 2011
2. Robert E Colin, "Foundations for Microwave Engineering", John Wiley & Sons Inc, 2005

REFERENCES:

1. David M. Pozar, "Microwave Engineering", Wiley India (P) Ltd, New Delhi, 2008.
2. Thomas H Lee, "Planar Microwave Engineering: A Practical Guide to Theory, Measurements and Circuits", Cambridge University Press, 2004.
3. Mathew M Radmanesh, "RF and Microwave Electronics", Prentice Hall, 2000.
4. Annapurna Das and Sisir K Das, "Microwave Engineering", Tata Mc Graw Hill Publishing Company Ltd, New Delhi, 2005.

Principals
PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASELEM-60620
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To Facilitate the knowledge about optical fiber sources and transmission techniques
- To Enrich the idea of optical fiber networks algorithm such as SONET/SDH and optical CDMA.
- To Explore the trends of optical fiber measurement systems.

UNIT I INTRODUCTION TO OPTICAL FIBERS

9

Evolution of fiber optic system- Element of an Optical Fiber Transmission link-- Total internal reflection-Acceptance angle –Numerical aperture — Skew rays Ray Optics-Optical Fiber Modes and Configurations -Mode theory of Circular Wave guides- Overview of Modes- Key Modal concepts- Linearly Polarized Modes -Single Mode Fibers-Graded Index fiber structure.

UNIT II SIGNAL DEGRADATION OPTICAL FIBERS

9

Attenuation - Absorption losses, Scattering losses, Bending Losses, Core and Cladding losses, Signal Distortion in Optical Wave guides- Information Capacity determination -Group Delay-Material Dispersion, Wave guide Dispersion, Signal distortion in SM fibers- Polarization Mode dispersion, Intermodal dispersion, Pulse Broadening in GI fibers-Mode Coupling -Design Optimization of SM fibers- RI profile and cut-off wavelength.

UNIT III FIBER OPTICAL SOURCES AND COUPLING

9

Direct and indirect Band gap materials-LED structures -Light source materials -Quantum efficiency and LED power, Modulation of a LED, lasers Diodes-Modes and Threshold condition -Rate equations
-External Quantum efficiency -Resonant frequencies -Laser Diodes, Temperature effects, Introduction to Quantum laser, Fiber amplifiers- Power Launching and coupling, Lencing schemes, Fiber -to- Fiber joints, Fiber splicing-Signal to Noise ratio , Detector response time.

UNIT IV FIBER OPTIC RECEIVER AND MEASUREMENTS

9

Fundamental receiver operation, Pre amplifiers, Error sources – Receiver Configuration– Probability of Error – Quantum limit.Fiber Attenuation measurements- Dispersion measurements – Fiber Refractive index profile measurements – Fiber cut- off Wave length Measurements – Fiber Numerical Aperture Measurements – Fiber diameter measurements.

UNIT V OPTICAL NETWORKS AND SYSTEM TRANSMISSION

9

Basic Networks – SONET / SDH – Broadcast – and –select WDM Networks –Wavelength Routed Networks – Non linear effects on Network performance –Link Power budget -Rise time budget- Noise Effects on System Performance-Operational Principles of WDM Performance of WDM + EDFA system – Solutions – Optical CDMA – Ultra High Capacity Networks.

TOTAL: 45 PERIODS**OUTCOMES:****Upon completion of the course, students will be able to:**

- Discuss the various optical fiber modes, configurations and various signal degradation factors associated with optical fiber.
- Explain the various optical sources and optical detectors and their use in the optical communication system.
- Analyze the digital transmission and its associated parameters on system performance.

TEXT BOOKS:

1. Gerd Keiser, "Optical Fiber Communication" Mc Graw -Hill International, 4th Edition., 2010.
2. John M. Senior , "Optical Fiber Communication", Second Edition, Pearson Education, 2007.

REFERENCES:

1. Ramaswami, Sivarajan and Sasaki "Optical Networks", Morgan Kaufmann, 2009.
2. J.Senior, "Optical Communication, Principles and Practice", Prentice Hall of India, 3rd Edition, 2008.
3. J.Gower, "Optical Communication System", Prentice Hall of India, 2001

M. S. S. S.
PRINCIPAL

Adhaya Engineering College for Women,
Nairarpalaym Road, CHINNASALEM-60620,
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

The student should be made to:

- Learn digital image fundamentals.
- Be exposed to simple image processing techniques.
- Be familiar with image compression and segmentation techniques.
- Learn to represent image in form of features.

UNIT I DIGITAL IMAGE FUNDAMENTALS

8

Introduction – Origin – Steps in Digital Image Processing – Components – Elements of Visual Perception – Image Sensing and Acquisition – Image Sampling and Quantization – Relationships between pixels - color models.

UNIT II IMAGE ENHANCEMENT

10

Spatial Domain: Gray level transformations – Histogram processing – Basics of Spatial Filtering– Smoothing and Sharpening
Spatial Filtering – Frequency Domain: Introduction to Fourier Transform
– Smoothing and Sharpening frequency domain filters – Ideal, Butterworth and Gaussian filters.

UNIT III IMAGE RESTORATION AND SEGMENTATION

9

Noise models – Mean Filters – Order Statistics – Adaptive filters – Band reject Filters – Band pass Filters – Notch Filters – Optimum Notch Filtering – Inverse Filtering – Wiener filtering
Segmentation: Detection of Discontinuities–Edge Linking and Boundary detection – Region based segmentation- Morphological processing- erosion and dilation.

UNIT IV WAVELETS AND IMAGE COMPRESSION

9

Wavelets – Subband coding - Multiresolution expansions - **Compression:** Fundamentals – Image Compression models – Error Free Compression – Variable Length Coding – Bit-Plane Coding – Lossless Predictive Coding – Lossy Compression – Lossy Predictive Coding – Compression Standards.

UNIT V IMAGE REPRESENTATION AND RECOGNITION

9

Boundary representation – Chain Code – Polygonal approximation, signature, boundary segments –Boundary description – Shape number – Fourier Descriptor, moments- Regional Descriptors – Topological feature, Texture - Patterns and Pattern classes - Recognition based on matching.

TOTAL: 45 PERIODS**OUTCOMES:**

Upon successful completion of this course, students will be able to:

- Discuss digital image fundamentals.
- Apply image enhancement and restoration techniques.
- Use image compression and segmentation Techniques.
- Represent features of images.

TEXT BOOK:

1. Rafael C. Gonzales, Richard E. Woods, "Digital Image Processing", Third Edition, Pearson Education, 2010.

REFERENCES:

1. Rafael C. Gonzalez, Richard E. Woods, Steven L. Eddins, "Digital Image Processing Using MATLAB", Third Edition Tata Mc Graw Hill Pvt. Ltd., 2011.
2. Anil Jain K. "Fundamentals of Digital Image Processing", PHI Learning Pvt. Ltd., 2011.
3. William K Pratt, "Digital Image Processing", John Willey, 2002.
4. Malay K. Pakhira, "Digital Image Processing and Pattern Recognition", First Edition, PHI Learning Pvt. Ltd., 2011.
5. <http://eeweb.poly.edu/~onur/lectures/lectures.html>
<http://www.caen.uiowa.edu/~dip/LECTURE/lecture.html>

Wani
PRINCIPAL

Adhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

The student should be made to:

- Understand the micro-architectural design of processors
- Learn about the various techniques used to obtain performance improvement and powersavings in current processors

UNIT I FUNDAMENTALS OF COMPUTER DESIGN

9

Review of Fundamentals of CPU, Memory and IO – Trends in technology, power, energy and cost, Dependability - Performance Evaluation

UNIT II INSTRUCTION LEVEL PARALLELISM

9

ILP concepts – Pipelining overview - Compiler Techniques for Exposing ILP – Dynamic Branch Prediction – Dynamic Scheduling – Multiple instruction Issue – Hardware Based Speculation – Static scheduling - Multi-threading - Limitations of ILP – Case Studies.

UNIT III DATA-LEVEL PARALLELISM

9

Vector architecture – SIMD extensions – Graphics Processing units – Loop level parallelism.

UNIT IV THREAD LEVEL PARALLELISM

9

Symmetric and Distributed Shared Memory Architectures – Performance Issues – Synchronization – Models of Memory Consistency – Case studies: Intel i7 Processor, SMT & CMP Processors

UNIT V MEMORY AND I/O

9

Cache Performance – Reducing Cache Miss Penalty and Miss Rate – Reducing Hit Time – Main Memory and Performance – Memory Technology. Types of Storage Devices – Buses – RAID – Reliability, Availability and Dependability – I/O Performance Measures.

TOTAL: 45 PERIODS**OUTCOMES:**

At the end of the course, the student should be able to:

- Evaluate performance of different architectures with respect to various parameters
- Analyze performance of different ILP techniques
- Identify cache and memory related issues in multi-processors

TEXT BOOK:

1. John L Hennessey and David A Patterson, "Computer Architecture A Quantitative Approach", Morgan Kaufmann/ Elsevier, Fifth Edition, 2012.

REFERENCES:

1. Kai Hwang and Faye Briggs, "Computer Architecture and Parallel Processing", Mc Graw-Hill International Edition, 2000.
2. Sima D, Fountain T and Kacsuk P, "Advanced Computer Architectures: A Design Space Approach", Addison Wesley, 2000.

Weni
PRINCIPAL

rdhaya Engineering College for Women
Nainarparaym Road, CHINNASALEM-606201
kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To understand the basics of solid state physics.
- To understand the basics of display devices.
- To understand the optical detection devices.
- To understand the design of optoelectronic integrated circuits.

UNIT I ELEMENTS OF LIGHT AND SOLID STATE PHYSICS

9

Wave nature of light, Polarization, Interference, Diffraction, Light Source, review of Quantum Mechanical concept, Review of Solid State Physics, Review of Semiconductor Physics and Semiconductor Junction Device.

UNIT II DISPLAY DEVICES AND LASERS

9

Introduction, Photo Luminescence, Cathode Luminescence, Electro Luminescence, Injection Luminescence, Injection Luminescence, LED, Plasma Display, Liquid Crystal Displays, Numeric Displays, Laser Emission, Absorption, Radiation, Population Inversion, Optical Feedback, Threshold condition, Laser Modes, Classes of Lasers, Mode Locking, laser applications.

UNIT III OPTICAL DETECTION DEVICES

9

Photo detector, Thermal detector, Photo Devices, Photo Conductors, Photo diodes, Detector Performance.

UNIT IV OPTOELECTRONIC MODULATOR

9

Introduction, Analog and Digital Modulation, Electro-optic modulators, Magneto Optic Devices, Acoustoptic devices, Optical, Switching and Logic Devices.

UNIT V OPTOELECTRONIC INTEGRATED CIRCUITS

9

Introduction, hybrid and Monolithic Integration, Application of Opto Electronic Integrated Circuits, Integrated transmitters and Receivers, Guided wave devices.

TOTAL: 45 PERIODS**OUTCOMES:**

Upon Completion of the course, the students will be able to

- To design display devices.
- To design optoelectronic detection devices and modulators.
- To design optoelectronic integrated circuits.

TEXTBOOKS:

1. Pallab Bhattacharya "Semiconductor Opto Electronic Devices", Prentice Hall of India Pvt., Ltd., New Delhi, 2006.
2. Jasprit Singh, "Opto Electronics – As Introduction to Materials and Devices", Mc Graw-Hill International Edition, 1998

REFERENCES:

1. S C Gupta, Opto Electronic Devices and Systems, Prentice Hal of India, 2005.
2. J. Wilson and J.Haukes, "Opto Electronics – An Introduction", Prentice Hall, 1995

Principals
PRINCIPAL

rdhaya Engineering College for Women,
Nainarpalaym Road, CHINNAsALEM-69620
kallakurichi Taluk, Villupuram District

OBJECTIVES:

The student should be made to:

- Know the characteristic of wireless channel
- Learn the various cellular architectures
- Understand the concepts behind various digital signaling schemes for fading channels
- Be familiar the various multipath mitigation techniques
- Understand the various multiple antenna systems

UNIT I WIRELESS CHANNELS

9

Large scale path loss – Path loss models: Free Space and Two-Ray models -Link Budget design –Small scale fading- Parameters of mobile multipath channels – Time dispersion parameters- Coherence bandwidth – Doppler spread & Coherence time, Fading due to Multipath time delay spread – flat fading – frequency selective fading – Fading due to Doppler spread – fast fading – slow fading.

UNIT II CELLULAR ARCHITECTURE

9

Multiple Access techniques - FDMA, TDMA, CDMA – Capacity calculations–Cellular concept- Frequency reuse - channel assignment- hand off- interference & system capacity- trunking & grade of service – Coverage and capacity improvement.

UNIT III DIGITAL SIGNALING FOR FADING CHANNELS

9

Structure of a wireless communication link, Principles of Offset-QPSK, p/4-DQPSK, Minimum Shift Keying, Gaussian Minimum Shift Keying, Error performance in fading channels, OFDM principle –Cyclic prefix, Windowing, PAPR.

UNIT IV MULTIPATH MITIGATION TECHNIQUES

9

Equalisation – Adaptive equalization, Linear and Non-Linear equalization, Zero forcing and LMS Algorithms. Diversity – Micro and Macrodiversity, Diversity combining techniques, Error probability in fading channels with diversity reception, Rake receiver,

UNIT V MULTIPLE ANTENNA TECHNIQUES

9

MIMO systems – spatial multiplexing -System model -Pre-coding - Beam forming - transmitter diversity, receiver diversity- Channel state information-capacity in fading and non-fading channels.

TOTAL: 45 PERIODS**OUTCOMES:**

At the end of the course, the student should be able to:

- Characterize wireless channels
- Design and implement various signaling schemes for fading channels
- Design a cellular system
- Compare multipath mitigation techniques and analyze their performance
- Design and implement systems with transmit/receive diversity and MIMO systems and analyze their performance

TEXTBOOKS:

1. Rappaport, T.S., “Wireless communications”, Second Edition, Pearson Education, 2010.
2. Andreas.F. Molisch, “Wireless Communications”, John Wiley – India, 2006.

REFERENCES:

1. David Tse and Pramod Viswanath, “Fundamentals of Wireless Communication”, Cambridge University Press, 2005.
2. Upena Dalal, “Wireless Communication”, Oxford University Press, 2009.
3. Van Nee, R. and Ramji Prasad, “OFDM for wireless multimedia communications”, ArtechHouse, 2000.

Green

PRINCIPAL
Chinnasa Engineering College for Women
Mairapalayam Road, CHINNASALESHWAR
Kallakurichi Taluk, Villupuram District
TAMIL NADU

OBJECTIVES:

- To study about Wireless networks, protocol stack and standards.
- To study about fundamentals of 3G Services, its protocols and applications.
- To study about evolution of 4G Networks, its architecture and applications.

UNIT I WIRELESS LAN 9

Introduction-WLAN technologies: Infrared, UHF narrowband, spread spectrum -IEEE802.11: System architecture, protocol architecture, physical layer, MAC layer, 802.11b, 802.11a – Hiper LAN: WATM, BRAN, HiperLAN2 – Bluetooth: Architecture, Radio Layer, Baseband layer, Link manager Protocol, security - IEEE802.16-WIMAX: Physical layer, MAC, Spectrum allocation for WIMAX

UNIT II MOBILE NETWORK LAYER 9

Introduction - Mobile IP: IP packet delivery, Agent discovery, tunneling and encapsulation, IPV6- Network layer in the internet- Mobile IP session initiation protocol - mobile ad-hoc network: Routing, Destination Sequence distance vector, Dynamic source routing

UNIT III MOBILE TRANSPORT LAYER 9

TCP enhancements for wireless protocols - Traditional TCP: Congestion control, fast retransmit/fast recovery, Implications of mobility - Classical TCP improvements: Indirect TCP, Snooping TCP, Mobile TCP, Time out freezing, Selective retransmission, Transaction oriented TCP - TCP over 3G wireless networks.

UNIT IV WIRELESS WIDE AREA NETWORK 9

Overview of UTMS Terrestrial Radio access network-UMTS Core network Architecture: 3G-MSC, 3G- SGSN, 3G-GGSN, SMS-GMSC/SMS-IWMSC, Firewall, DNS/DHCP-High speed Downlink packet access (HSDPA)- LTE network architecture and protocol.

UNIT V 4G NETWORKS 9

Introduction — 4G vision — 4G features and challenges - Applications of 4G — 4G Technologies: Multicarrier Modulation, Smart antenna techniques, OFDM-MIMO systems, Adaptive Modulation and coding with time slot scheduler, Cognitive Radio.

TOTAL: 45 PERIODS**OUTCOMES:**

Upon completion of the course, the students will be able to

- Conversant with the latest 3G/4G and WiMAX networks and its architecture.
- Design and implement wireless network environment for any application using latest wireless protocols and standards.
- Implement different type of applications for smart phones and mobile devices with latest network strategies.

TEXT BOOKS:

1. Jochen Schiller, "Mobile Communications", Second Edition, Pearson Education 2012.(Unit I,II,III)
2. Vijay Garg, "Wireless Communications and networking", First Edition, Elsevier 2007.(Unit IV,V)

REFERENCES:

1. Erik Dahlman, Stefan Parkvall, Johan Skold and Per Beming, "3G Evolution HSPA and LTE for Mobile Broadband", Second Edition, Academic Press, 2008.
2. Anurag Kumar, D.Manjunath, Joy kuri, "Wireless Networking", First Edition, Elsevier 2011.
3. Simon Haykin, Michael Moher, David Koilpillai, "Modern Wireless Communications", First Edition, Pearson Education 2013

[Signature]
PRINCIPAL

idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-605226
Kallakurichi Taluk Villupuram District

P6 50



**DIGITAL ENERGY MANAGEMENT
FOR HOUSES AND SMALL
INDUSTRIES BASED ON PLC
SYSTEM**



A PROJECT REPORT

Submitted by

BAKKIYALAKSHMI.T

621113106006

KALPANA.V

621113106020

NITHIYA.R

621113106036

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

meeni

PRINCIPAL

**Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600 025
Kallakurichi Taluk, Villupuram District**

ANNA UNIVERSITY: CHENNAI 600 025

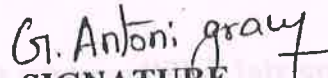
BONAFIDE CERTIFICATE

Certified that this project report "**DIGITAL ENERGY MANEGEMENT FOR HOUSES AND SMALL INDUSTRIES BASED ON PLC SYSTEM**" is the bonafide work of "**T.BAKKIYALAKSHM,V.KALPANA,R.NITHYA**" who carried out the project work under my supervision.


SIGNATURE


Mrs.P.POOVIZHI.,M.E.
HEAD OF THE DEPARTMENT

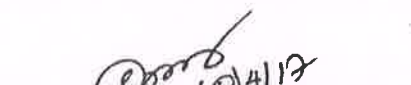
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.


SIGNATURE

Ms.G.ANTONIGRACY.,M.E.,
SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Unconsciousness is a state of unawareness of self and environment of those mental activities by which people are made aware of themselves and their environment, coupled with a diminished responsiveness to environmental stimuli. Smart sensors are mostly used in aeronautical, computer and for gesture recognition in biomedical application. This system designed and developed a reliable, energy efficient for sending alert message to the concern person when person in coma. The system used smart sensors like flex sensor, MEMS body sensor and eye blink sensor. Whenever person moves any finger, any eye lid and tilt the body towards right or left side, the flex sensor, eye blink sensor and MEMS sensor detects the movement respectively, and alert to the concern person through GSM and also we can update the information of the patient in system through serial port.



**MONITORING COMATOSE PATIENT
USING GSM WITH SENSORS**



A PROJECT REPORT

Submitted by

ANGEL VINITHA.A

621113106003

GOMATHI.G

621113106015

JANANI.R

621113106016

MANGANL.K

621113106028

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "**MONITORING, CONTROL**

PATIENT USING GSM WITH SENSORS" is the bonafide work of

ANGEL VISITHA A. GOMATHI, JASASIR, MAM, 69136

who carried out the project work under my supervision

SIGNATURE

Mrs. P. POOVIZHI, M.E.,

HEAD OF THE DEPARTMENT

Department of ECE,
Idhaya Engineering College
for Women,
Chinnasaalem-606 201

SIGNATURE

Sr. CATHERINA MARY, M.E.,

SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
for Women,
Chinnasaalem-606 201

INTERNAL EXAMINER

EXTERNAL EXAMINER

PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-6062,
Kallakurichi Taluk, Villupuram District

ABSTRACT

Embedded system is a fast growing technology in various fields like industrial automation, home appliances, automobiles, aeronautics etc. Embedded technology uses PC or a controller to do the specific task and the programming is done using assembly language programming or embedded C/assembly programming.

This project is a system designed to control a military gun remotely using Android. A soldier on the watch tower specifically can be replaced by Bluetooth controlled gun using android mobile. At the top of a watchtower, a gun will be mounted and its movements will be controlled from a remote control room using android mobile. Camera installed on-board the gun will give us the visuals on the monitor. Since the soldier is not operating the gun directly, security will be maintained even at heavy firing. Thus this project reduces death risk of soldiers.


PRINCIPAL

P655.



**AUTOMATIC VIDEO
SURVEILLANCE FOR THEFT
DETECTION IN ATM MACHINE**



A PROJECT REPORT

Submitted by

JAYASREE.P

621113106018

MUTHU LAKSHMI.T

621113106033

NANDHINI.M

621113106035

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

Meevi
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI-600 025


BONAFIDE CERTIFICATE

Certified that this project report "**AUTOMATIC VIDEO SURVILLANCE FOR THEFT DETECTION IN ATM MACHINES**" is the bonafide work of, "**P.JAYASREE, M.NANDHINI, T.MUTHULAKSHMI**" who carried out the project work under my supervision.


SIGNATURE

Mrs.P.POOVIZHI,M.E.,
HEAD OF THE DEPARTMENT

Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem- 606 201


SIGNATURE

Ms.J.RANJITH MARIYAL,M.E.,
SUPERVISOR

Assistant Professor,

Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem- 606 201


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
kallakurichi Taluk, Villupuram District

ABSTRACT

Colorectal cancer is the third most common cancer in both men and women. Computed Tomography (CT) and Colonography is a valid technique for detecting and screening colorectal cancers. In order to accomplish an effective way to identify colon cancer at an early stage, digital images of colon polyps have been investigated. The proposed work has Neural Network for diagnosis of cancer. The proposed method performs cancer detection by acquiring histopathological images and analysing it using the MATRIX laboratory software from Math works along with image processing techniques based on feature extraction, which determines the cancer with less complexity and produce results in faster response time. The histopathological images of colon lesions are pre-processed. Then we go for feature extraction by Gray level Co-occurrence Matrix (GLCM) and Histogram. Features describing like energy, entropy mean, and variance typically characterize the segmented candidates. Such features will serve as input for the classification system. Neural Network performs classification. The experimental results shows that these features allow the accurate detection and retrieve the database without the need of specialized assistant to interpret the test results.

P665



**DIAGNOSIS OF COLON
CANCER USING
NEURAL NETWORK**



A PROJECT REPORT

Submitted by

OOVIYA.M

621113106037

REBEKAH ADLINE.T

621113106047

SRIRAJESHWARI.P

621113106064

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

Manoj
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "**DIAGNOSIS OF COLON CANCER USING NEURAL NETWORK**" is the bonafide work of "**OOVIYA.M, REBEKAH ADLINE.T, SRI RAJESHWARI.P**" who carried out the project work under my supervision.


SIGNATURE

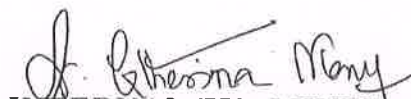
Mrs.P.POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT

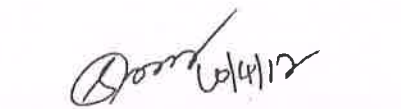
Department of ECE,
Idhaya engineering college
for women,
Chinnasalem-606 201.


SIGNATURE

Sr.A.JENITTA, M.E., (PH.D.),
SUPERVISOR

Assistant professor,
Department of ECE,
Idhaya engineering college
for women,
Chinnasalem-606 201.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-60620,
Kallakurichi Taluk, Villupuram District

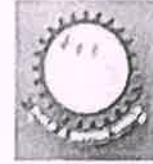
ABSTRACT

Industrial safety is one of the main aspects of industry specially mining industry. In the mining industry safety is a very vital factor. To avoid loss of material and damaging of human health, protection system as well as faithful communication system is necessary inside the underground mines. To increase both safety and productivity in mines, a reliable communication must be established between workers, moving in the mine, and a fixed base station. Inside mines, the wired communication system is not so effective, because of wires can be damaged inside mines. In this project we are going to monitor the Mine parameters like abnormal gas, temperature, humidity and vibration sensor to avoid the harmful gas, high temperature, abnormal humidity and vibration attacking the Mine workers. In this project to avoid loss of material and damaging of human health in mine workers because of using text to voice converter. The text to voice converter gives continues information inside the mine workers. The observed information can be updated to the control section.

1658



**AUTOMATIC NUMBER PLATE
SCANNING USING
RASPBERRY PI**



A PROJECT REPORT

Submitted by

PRIYA.G

621113106040

RAMYA.J

621113106043

BENAZIR BEGUM.A

621113106701

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI-600 025

APRIL 2017

Mani
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60626
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "AUTOMATIC NUMBER PLATE SCANNING USING RASPBERRY PI TECHNOLOGY" is the bonafide work of "**PRIYA.G, RAMYA.J, BENAZIR BEGUM.A**" who carried out the project work under my supervision.


SIGNATURE

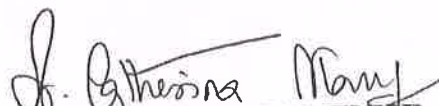
Mrs.P.POOVIZHI,M.E.,
HEAD OF THE DEPARTMENT

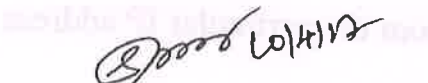
Department Of ECE,
Idhaya Engineering College
For women,
Chinnasalem-606 201


SIGNATURE

Ms.A. JOSEPHINE SUGAN PRIYA,M.E.,
SUPERVISOR

Assistant Professor,
Department Of ECE,
Idhaya Engineering College
For women,
Chinnasalem-606 201


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-606,
Kallakurichi Taluk, Villupuram District

ABSTRACT

ATMs are predominantly used all over the world. Maintaining the security of an ATM fleet is one of the most technically challenging areas. To ensure the most effective protection against these types of threats, must implement a comprehensive, security program that includes hardware, software and services designed to protect against all breaches today and in the future. The idea of our project is to develop the prevention of theft of the ATM card and to control the usage of the ATM card by unauthorized person. Conditional security is provided with protocol data unit. The additional feature of our project is that no transaction can be done without the knowledge of the respective card holder for the cause that NFC transactions are being implemented. In our paper, monitor the location of the ATM usage, time taken for the user to accessing the ATM machine, sequence of events processed by the user and expected amount of withdrawal by the user. All these four factors are verified for the authentication purpose of the user along with password. If any of the above said, parameter are differing and then the One Time Password is generated to the User's Mobile number for further more secure authentication system.


PRINCIPAL



**AUTOMATIC VIDEO
SURVEILLANCE FOR THEFT
DETECTION IN ATM MACHINE**



A PROJECT REPORT

Submitted by

JAYASREEL P

621113106018

MUTHU LAKSHMI T

621113106033

NANDHINI M

621113106035

in partial fulfillment for the award of the degree

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2017

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PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY: CHENNAI-600 025


BONAFIDE CERTIFICATE

Certified that this project report "AUTOMATIC VIDEO SURVILLANCE FOR THEFT DETECTION IN ATM MACHINES" is the bonafide work of, **P.JAYASREE, M.NANDHINI, T.MUTHULAKSHMI** who carried out the project work under my supervision.


SIGNATURE

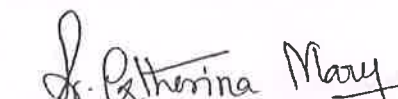
Mrs.P.POOVIZHI,M.E.,
HEAD OF THE DEPARTMENT

Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem- 606 201


SIGNATURE

Ms.J.RANJITH MARIYAL,M.E.,
SUPERVISOR

Assistant Professor,
Department of ECE,
Idhaya Engineering College
For Women,
Chinnasalem- 606 201


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Colorectal cancer is the third most common cancer in both men and women. Computed Tomography (CT) and Colonography is a valid technique for detecting and screening colorectal cancers. In order to accomplish an effective way to identify colon cancer at an early stage, digital images of colon polyps have been investigated. The proposed work has Neural Network for diagnosis of cancer. The proposed method performs cancer detection by acquiring histopathological images and analysing it using the MATRIX laboratory software from Math works along with image processing techniques based on feature extraction, which determines the cancer with less complexity and produce results in faster response time. The histopathological images of colon lesions are pre-processed. Then we go for feature extraction by Gray level Co-occurrence Matrix (GLCM) and Histogram. Features describing like energy, entropy mean, and variance typically characterize the segmented candidates. Such features will serve as input for the classification system. Neural Network performs classification. The experimental results shows that these features allow the accurate detection and retrieve the database without the need of specialized assistant to interpret the test results.

OBJECTIVES:**The student should be made to:**

- Develop an understanding and awareness of how issues such as content, information architecture, motion, sound, design, and technology merge to form effective and compelling interactive experiences for a wide range of audiences and end users.
- Be familiar with various software programs used in the creation and implementation of multi-media (interactive, motion/animation, presentation, etc.).
- Be aware of current issues relative between new emerging electronic technologies and graphic design (i.e. social, cultural, cognitive, etc). understand the relationship between critical analysis and the practical application of design.
- Appreciate the importance of technical ability and creativity within design practice.

UNIT I OUTPUT PRIMITIVES

9

Basic – Line – Curve and ellipse drawing algorithms – Examples – Applications - Attributes – Two- Dimensional geometric transformations – Two-Dimensional clipping and viewing – Input techniques.

UNIT II THREE-DIMENSIONAL CONCEPTS

9

Three-Dimensional object representations – Three-Dimensional geometric and modeling transformations – Three-Dimensional viewing – Hidden surface elimination

– Color models – Virtual reality - Animation.

UNIT III MULTIMEDIA SYSTEMS DESIGN

9

Multimedia basics – Multimedia applications – Multimedia system architecture – Evolving technologies for multimedia – Defining objects for multimedia systems – Multimedia data interface standards – Multimedia databases.

UNIT IV MULTIMEDIA FILE HANDLING

9

Compression and decompression – Data and file format standards – Multimedia I/O technologies – Digital voice and audio – Video image and animation – Full motion video – Storage and retrieval technologies.

UNIT V HYPERMEDIA

9

Multimedia authoring and user interface – Hypermedia messaging – Mobile messaging – Hypermedia message component – Creating hypermedia message – Integrated multimedia message standards – Integrated document management – Distributed multimedia systems.

TOTAL: 45 PERIODS**OUTCOMES:****Upon completion of the course, the student should be able to:**

- Effectively and creatively solve a wide range of graphic design problems
- Form effective and compelling interactive experiences for a wide range of audiences.
- Use various software programs used in the creation and implementation of multi-media (interactive, motion/animation, presentation, etc.).
- Discuss issues related to emerging electronic technologies and graphic design

TEXT BOOKS:

1. Donald Hearn and M. Pauline Baker, "Computer Graphics C Version", Pearson Education, 2003.
2. Andleigh, P. K and Kiran Thakrar, "Multimedia Systems and Design", PHI, 2003.

REFERENCES:

1. Judith Jeffcoate, "Multimedia in practice: Technology and Applications", PHI, 1998.
2. Foley, Vandam, Feiner and Huges, "Computer Graphics: Principles and Practice", 2nd Edition, Pearson Education, 2003



PRINCIPAL

Idhaya Engineering College for Women
Mainarpalayam Road, CHINNASALEM-606201
Kattakurichi Taluk, Villupuram District



p669



**A DISTRIBUTED MOBILE CLOUD
COMPUTING MODEL FOR SECURE
BIGDATA**

A PROJECT REPORT

Submitted by

MAHALAKSHMI.R

621113205007

RIZWANA.A.K

621113205009

SIVASHANKARIS

621113205011

SOUNDARYA.K

621113205013

in the partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

IN

INFORMATION TECHNOLOGY

IDHAYA ENGINEERING COLLEGE FOR WOMEN

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ANNA UNIVERSITY::CHENNAI-600 025

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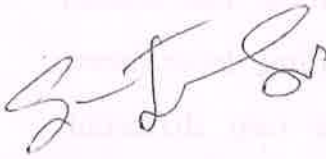
[Signature]
PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalaym Road, CHINNASALEM-60626,
Kallakurichi Tatak, Villupuram District

ANNA UNIVERSITY::CHENNAI-600 025

BONAFIDE CERTIFICATE

Certified that this project report “**A DISTRIBUTED MOBILE CLOUD COMPUTING MODEL FOR SECURE BIGDATA**” is the bonafide work of “**R.MAHALAKSHMI, A.K.RIZWANA, S.SIVASHANKARI, K.SOUNDARYA**” who carried out the project work under my supervision.



SIGNATURE

Mr.S.JAYASUNDAR M.E.,(Ph.d),MBA
HEAD OF THE DEPARTMENT
Department of IT,
Idhaya Engineering College for Women,
Chinnasalem-606 201.
Villupuram Dt.

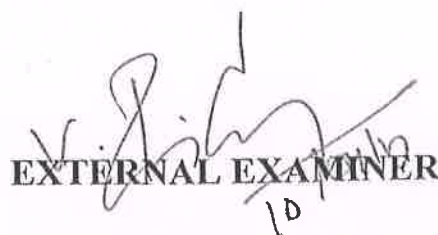


SIGNATURE

Ms.G.STEPHANI VIANNAM.E.,
SUPERVISOR
Department of IT,
Idhaya Engineering College for Women,
Chinnasalem-606 201.
Villupuram Dt.



INTERNAL EXAMINER



EXTERNAL EXAMINER



PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-6062
Hallakurichi Taluk, Villupuram District

ABSTRACT

In earlier works, to utilizing a centralized broker-node to perform task scheduling for the resource augmentation of a large number of mobile devices.

Then the task scheduler model focused on energy optimization was proposed for the centralized task scheduling problem. This model extends the optimization process by including an economic element to it. Thus, we propose an energy and monetary cost-aware mathematical task scheduler model. Compared to the previous model, this model, can allow mobile devices to offload multiple tasks to cloud resources. The results are more thorough and more aspects of task offloading have been analyzed. For instance, the model is evaluated under two different resource augmentation environments for mobile cloud computing: a local private cloud and public clouds. More precisely, the task scheduling problem is optimally solved to minimize: (i) the total energy consumption when applied to a local private cloud, and (ii) the total energy consumption and monetary cost when applied to public clouds. Our proposed model at the centralized broker-node finds optimal solutions for task assignment problem, and provides a significant reduction in the total costs compared with the task assignment by the centralized scheduler without optimization.

OBJECTIVES:**The student should be made to:**

- Understand the technologies used in Web Programming.
- Know the importance of object oriented aspects of Scripting.
- Understand creating database connectivity using JDBC.
- Learn the concepts of web based application using sockets.

UNIT I SCRIPTING.

9

Web page Designing using HTML, Scripting basics- Client side and server side scripting. Java Script- Object, names, literals, operators and expressions- statements and features- events - windows - documents - frames - data types - built-in functions- Browser object model - Verifying forms.-HTML5- CSS3- HTML 5 canvas - Web site creation using tools.

UNIT II JAVA

9

Introduction to object oriented programming-Features of Java – Data types, variables and arrays – Operators – Control statements – Classes and Methods – Inheritance. Packages and Interfaces – Exception Handling – Multithreaded Programming – Input/Output – Files – Utility Classes – String Handling.

UNIT III JDBC

9

JDBC Overview – JDBC implementation – Connection class – Statements - Catching Database Results, handling database Queries. Networking– InetAddress class – URL class- TCP sockets - UDP sockets, Java Beans –RMI.

UNIT IV APPLETS

9

Java applets- Life cycle of an applet – Adding images to an applet – Adding sound to an applet. Passing parameters to an applet. Event Handling. Introducing AWT: Working with Windows Graphics and Text. Using AWT Controls, Layout Managers and Menus. Servlet – life cycle of a servlet. The Servlet API, Handling HTTP Request and Response, using Cookies, Session Tracking. Introduction to JSP.

UNIT V XML AND WEB SERVICES

9

Xml – Introduction-Form Navigation-XML Documents- XSL – XSLT- Web services-UDDI-WSDL-Java web services – Web resources.

TOTAL (L:45+T:15): 60 PERIODS**OUTCOMES:****Upon Completion of the course, the students will be able to**

- Design web pages.
- Use technologies of Web Programming.
- Apply object oriented aspects to Scripting.
- Create databases with connectivity using JDBC.
- Build web based application using sockets.

TEXT BOOKS:

1. Harvey Deitel, Abbey Deitel, Internet and World Wide Web: How To Program 5th Edition.
2. Herbert Schildt, Java - The Complete Reference, 7th Edition. Tata McGraw- Hill Edition.
3. Michael Morrison XML Unleashed Tech media SAMS.

REFERENCES:

1. John Pollock, Javascript - A Beginners Guide, 3rd Edition – Tata McGraw-Hill Edition.
2. Keyur Shah, Gateway to Java Programmer Sun Certification, Tata McGraw Hill, 2002.



PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60621
Kallakurichi Taluk, Villupuram District



p669



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COMPUTING MODEL FOR SECURE
BIGDATA**

A PROJECT REPORT

Submitted by

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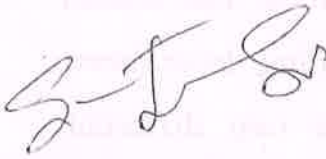
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PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalayam Road, CHINNASALEM-60620,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY::CHENNAI-600 025

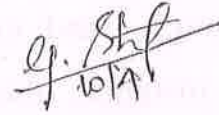
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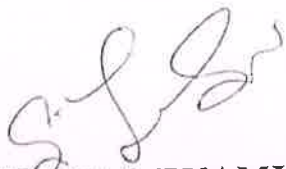
SIGNATURE

Mr.S.JAYASUNDAR M.E.,(Ph.d),MBA
HEAD OF THE DEPARTMENT
Department of IT,
Idhaya Engineering College for Women,
Chinnasalem-606 201.
Villupuram Dt.

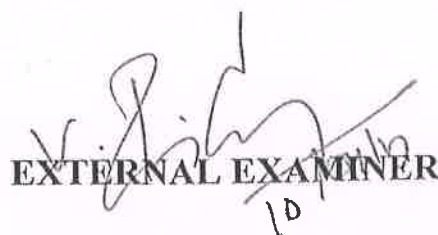


SIGNATURE

Ms.G.STEPHANI VIANNAM.E.,
SUPERVISOR
Department of IT,
Idhaya Engineering College for Women,
Chinnasalem-606 201.
Villupuram Dt.



INTERNAL EXAMINER



EXTERNAL EXAMINER



PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-6062
Kallakurichi Taluk, Villupuram District

ABSTRACT

In earlier works, to utilizing a centralized broker-node to perform task scheduling for the resource augmentation of a large number of mobile devices.

Then the task scheduler model focused on energy optimization was proposed for the centralized task scheduling problem. This model extends the optimization process by including an economic element to it. Thus, we propose an energy and monetary cost-aware mathematical task scheduler model. Compared to the previous model, this model, can allow mobile devices to offload multiple tasks to cloud resources. The results are more thorough and more aspects of task offloading have been analyzed. For instance, the model is evaluated under two different resource augmentation environments for mobile cloud computing: a local private cloud and public clouds. More precisely, the task scheduling problem is optimally solved to minimize: (i) the total energy consumption when applied to a local private cloud, and (ii) the total energy consumption and monetary cost when applied to public clouds. Our proposed model at the centralized broker-node finds optimal solutions for task assignment problem, and provides a significant reduction in the total costs compared with the task assignment by the centralized scheduler without optimization.

OBJECTIVES:

- Understand software architectural requirements and drivers
- Be exposed to architectural styles and views
- Be familiar with architectures for emerging technologies

UNIT I INTRODUCTION AND ARCHITECTURAL DRIVERS

9

Introduction – What is software architecture? – Standard Definitions – Architectural structures – Influence of software architecture on organization-both business and technical – Architecture Business Cycle- Introduction – Functional requirements – Technical constraints – Quality Attributes.

UNIT II QUALITY ATTRIBUTE WORKSHOP

9

Quality Attribute Workshop – Documenting Quality Attributes – Six part scenarios – Case studies.

UNIT III ARCHITECTURAL VIEWS

9

Introduction – Standard Definitions for views – Structures and views - Representing views-available notations – Standard views – 4+1 view of RUP, Siemens 4 views, SEI's perspectives and views – Case studies

UNIT IV ARCHITECTURAL STYLES

9

Introduction – Data flow styles – Call-return styles – Shared Information styles - Event styles – Casestudies for each style.

UNIT V DOCUMENTING THE ARCHITECTURE

9

Good practices – Documenting the Views using UML – Merits and Demerits of using visual languages - Need for formal languages - Architectural Description Languages – ACME – Case studies. Special topics: SOA and Web services – Cloud Computing – Adaptive structures.

TOTAL: 45 PERIODS**OUTCOMES:**

Upon Completion of the course, the students will be able to

- Explain influence of software architecture on business and technical activities
- Identify key architectural structures
- Use styles and views to specify architecture
- Design document for a given architecture

TEXT BOOKS:

1. Len Bass, Paul Clements, and Rick Kazman, "Software Architectures Principles and Practices", 2nd Edition, Addison-Wesley, 2003.
2. Anthony J Lattanze, "Architecting Software Intensive System. A Practitioner's Guide", Auerbach Publications, 2010.

REFERENCES:

- Paul Clements, Felix Bachmann, Len Bass, David Garlan, James Ivers, Reed Little, Paulo Merson, Robert Nord, and Judith Stafford, "Documenting Software Architectures. Views and Beyond", 2nd Edition, Addison-Wesley, 2010.
- Paul Clements, Rick Kazman, and Mark Klein, "Evaluating software architectures: Methods and case studies. Addison-Wesley, 2001.
- Rajkumar Buyya, James Broberg, and Andrzej Goscinski, "Cloud Computing. Principles and Paradigms", John Wiley & Sons, 2011
- Mark Hansen, "SOA Using Java Web Services", Prentice Hall, 2007
- David Garlan, Bradley Schmerl, and Shang-Wen Cheng, "Software Architecture-Based Self- Adaptation," 31-56. Mieso K Denko, Laurence Tianruo Yang, and Yan Zang (eds.), "Autonomic Computing and Networking". Springer Verlag, 2009

Manoj
 PRINCIPAL
 Vidhya Engineering College for Women,
 Vainarpalaym Road, CHINNASALEM-600020
 Kallakurichi Taluk, Villupuram District



**MAP REDUCE BASED CLOUD STORAGE
BATCH AUDITING**



A PROJECT REPORT

Submitted by

A.AAFRIN

621113205001

P.PRIYANGA

621113205008

D.SNEKHA

621113205012

S.MOURIYA

621113205702

in the partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

IN

INFORMATION TECHNOLOGY

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY::CHENNAI-600 025

APRIL 2017

Principals

PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-606202,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY::CHENNAI-600 025

BONAFIDE CERTIFICATE

Certified that this project report "MAP REDUCE BASED CLOUD STORAGE BATCH AUDITING" is the bonafide work of "A.AAFRIN,P.PRIYANGA,D.SNEKHA,S.MOURIYA" who carried out the project work under my supervision.


SIGNATURE

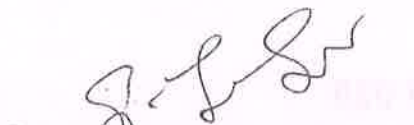
Mr.S.JAYASUNDAR ME.,(Ph.d),MBA
HEAD OF THE DEPARTMENT

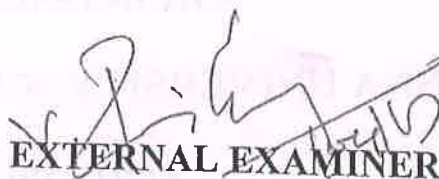
Department of IT,
Idhaya Engineering College For Women,
Chinnasalem-606 201,
Villupuram Dt.


SIGNATURE

Mrs.N.SUMITHA .,ME.,
SUPERVISOR

Department of IT,
Idhaya Engineering College For Women,
Chinnasalem-606 201,
Villupuram Dt.


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalayam Road, CHINNASALEM-606,
Kallakurichi Taluk, Villupuram District.

ABSTRACT

Cloud Storage is a new kind of network storage technology. It is developed from Cloud Computing, which has been envisioned as the next-generation architecture of IT enterprise. Cloud Storage is very popular for its quick, cheap and convenient services. However, it also brings new and challenging security problems towards users' outsourced data. One major problem is to verify the integrity of data at semi-trusted server. Since the arrival of the era of Big Data, a batch auditing method is urgently needed. But the existing batch auditing scheme is very inefficient for the verification of invalid responses from Cloud Service Provider. In order to solve this problem, this paper adopts the computing framework of MapReduce. The MapReduce batch auditing scheme computes the multiple invalid verification tasks parallelly. Experiment results show the performance of MapReduce batch auditing scheme at the end of this paper. Based on this, it can be concluded that the batch auditing scheme of MapReduce has better availability and higher efficiency than existing ones.


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OBJECTIVES:

- To expose students with the basics of managing the information
- To explore the various aspects of database design and modelling,
- To examine the basic issues in information governance and information integration
- To understand the overview of information architecture.

UNIT I DATABASE MODELLING, MANAGEMENT AND DEVELOPMENT

9

Database design and modelling - Business Rules and Relationship; Java database Connectivity (JDBC), Database connection Manager, Stored Procedures. Trends in Big Data systems including NoSQL - Hadoop HDFS, MapReduce, Hive, and enhancements.

UNIT II DATA SECURITY AND PRIVACY

9

Program Security, Malicious code and controls against threats; OS level protection; Security — Firewalls, Network Security Intrusion detection systems. Data Privacy principles. Data Privacy Laws and compliance.

UNIT III INFORMATION GOVERNANCE

9

Master Data Management (MDM) – Overview, Need for MDM, Privacy, regulatory requirements and compliance. Data Governance – Synchronization and data quality management.

UNIT IV INFORMATION ARCHITECTURE

9

Principles of Information architecture and framework, Organizing information, Navigation systems and Labelling systems, Conceptual design, Granularity of Content.

UNIT V INFORMATION LIFECYCLE MANAGEMENT

9

Data retention policies; Confidential and Sensitive data handling, lifecycle management costs. Archive data using Hadoop; Testing and delivering big data applications for performance and functionality; Challenges with data administration;

TOTAL: 45 PERIODS**OUTCOMES:****At the end of the course the students will be able to:**

- Cover core relational database topics including logical and physical design and modeling
- Design and implement a complex information system that meets regulatory requirements; define and manage an organization's key master data entities
- Design, Create and maintain data warehouses.
- Learn recent advances in NOSQL , Big Data and related tools.

TEXT BOOKS:

1. Alex Berson, Larry Dubov MASTER DATA MANAGEMENT AND DATA GOVERNANCE, 2/E, Tata McGraw Hill, 2011
2. Security in Computing, 4/E, Charles P. Pfleeger, Shari Lawrence Pfleeger, Prentice Hall; 2006
3. Information Architecture for the World Wide Web; Peter Morville, Louis Rosenfeld ; O'ReillyMedia; 1998

REFERENCES:

1. Jeffrey A. Hoffer, Heikki Topi, V Ramesh - MODERN DATABASE MANAGEMENT, 10 Edition, PEARSON, 2012
2. <http://nosql-database.org/> Next Gen databases that are distributed, open source and scalable.
3. <http://ibm.com/big-data> - Four dimensions of big data and other ebooks on Big Data Analytics
4. Inside Cyber Warfare: Mapping the Cyber Underworld- Jeffrey Carr, O'Reilly Media; Second Edition 2011

PRINCIPAL

idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606
kallakurichi Taluk, Villupuram District

OBJECTIVES:

The student should be made to:

- Be familiar with the concepts of data warehouse and data mining.
- Be acquainted with the tools and techniques used for Knowledge Discovery in Databases.

UNIT I DATA WAREHOUSING

9

Data warehousing Components – Building a Data warehouse – Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools – Metadata.

UNIT II BUSINESS ANALYSIS

9

Reporting and Query tools and Applications – Tool Categories – The Need for Applications – Cognos Impromptu – Online Analytical Processing (OLAP) – Need – Multidimensional Data Model – OLAP Guidelines – Multidimensional versus Multirelational OLAP – Categories of Tools – OLAP Tools and the Internet.

UNIT III DATA MINING

9

Introduction – Data – Types of Data – Data Mining Functionalities – Interestingness of Patterns – Classification of Data Mining Systems – Data Mining Task Primitives – Integration of a Data Mining System with a Data Warehouse – Issues – Data Preprocessing.

UNIT IV ASSOCIATION RULE MINING AND CLASSIFICATION

9

Mining Frequent Patterns, Associations and Correlations – Mining Methods – Mining various Kinds of Association Rules – Correlation Analysis – Constraint Based Association Mining – Classification and Prediction - Basic Concepts - Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction.

UNIT V CLUSTERING AND TRENDS IN DATA MINING

9

Cluster Analysis - Types of Data – Categorization of Major Clustering Methods – K-means – Partitioning Methods – Hierarchical Methods - Density-Based Methods – Grid Based Methods – Model-Based Clustering Methods – Clustering High Dimensional Data - Constraint – Based Cluster Analysis – Outlier Analysis – Data Mining Applications.

TOTAL: 45 PERIODS**OUTCOMES:**

After completing this course, the student will be able to:

- Apply data mining techniques and methods to large data sets.
- Use data mining tools.
- Compare and contrast the various classifiers.

TEXT BOOKS:

1. Alex Berson and Stephen J. Smith, "Data Warehousing, Data Mining and OLAP", Tata McGraw – Hill Edition, Thirteenth Reprint 2008.
2. Jiawei Han and Micheline Kamber, "Data Mining Concepts and Techniques", Third Edition, Elsevier, 2012.

REFERENCES:

1. Pang-Ning Tan, Michael Steinbach and Vipin Kumar, "Introduction to Data Mining", Person Education, 2007.
2. K.P. Soman, Shyam Diwakar and V. Aja, "Insight into Data Mining Theory and Practice", Eastern Economy Edition, Prentice Hall of India, 2006.
3. G. K. Gupta, "Introduction to Data Mining with Case Studies", Eastern Economy Edition, Prentice Hall of India, 2006.
4. Daniel T. Larose, "Data Mining Methods and Models", Wiley-Interscience, 2006.

Mervi
PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalayam Road, CHINNASALEM-608206
Kallakurichi Taluk, Villupuram District



**DETECTING THE ANOMALY AND
COMMUNITY USER BASED ON THE
BOTNET ATTACK**



A PROJECT REPORT

Submitted by

KALARANJANI.C

621113205006

SANTHIYA.K

621113205010

YUVASRI.S

621113205015

in the partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

IN

INFORMATION TECHNOLOGY

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY::CHENNAI-600 025

APRIL 2017


PRINCIPAL

**Idhaya Engineering College for Women,
Vainarpatayam Road, CHINNASALEM-60626,
Kallakurichi Taluk, Villupuram District**

ANNA UNIVERSITY::CHENNAI-600 025

BONAFIDE CERTIFICATE

Certified that this project report “**DETECTING THE ANOMALY AND COMMUNITY USER BASED ON THE BOTNET ATTACK**” is the bonafide work of “**C.KALARANJANI, K.SANTHIYA, S.YUVASRI**” who carried out the project work under my supervision.




SIGNATURE

Mr.S.JAYASUNDAR M.E.,[Ph.D],MBA,
HEAD OF THE DEPARTMENT
Department of IT,
Idhaya Engineering College For Women,
Chinnasalem-606 201,
Villupuram Dt.

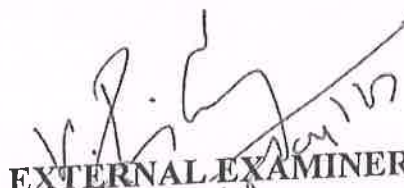


SIGNATURE

Mr.A.JOSEPH SELVA KUMAR M.E.,
SUPERVISOR
Department of IT,
Idhaya Engineering College For Women,
Chinnasalem-606 201,
Villupuram Dt.



INTERNAL EXAMINER



EXTERNAL EXAMINER



PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ABSTRACT

To introduce a novel two-stage approach for the important cyber-security problem of detecting the presence of a botnet and identifying the compromised nodes (the bots), ideally before the botnet becomes active. The first stage detects anomalies by leveraging large deviations of an empirical distribution. That proposes two approaches to create the empirical distribution: a flow-based approach estimating the histogram of quantized flows, and a graph-based approach estimating the degree distribution of node interaction graphs, encompassing both Erdős-Rényi graphs and scale-free graphs. The second stage detects the bots using ideas from social network community detection in a graph that captures correlations of interactions among nodes over time. Community detection is done by maximizing a modularity measure in this graph. The modularity maximization problem is non-convex. Those propose a convex relaxation, an effective randomization algorithm, and establish sharp bounds on the sub optimality gap. Applying the method to real-world botnet traffic and compare its performance with other methods.

OBJECTIVES:**The student should be made to:**

- Learn XML fundamentals.
- Be exposed to build applications based on XML.
- Understand the key principles behind SOA.
- Be familiar with the web services technology elements for realizing SOA.
- Learn the various web service standards.

UNIT I	INTRODUCTION TO XML	9
XML document structure – Well formed and valid documents – Namespaces – DTD – XML Schema – X-Files.		
UNIT II	BUILDING XML- BASED APPLICATIONS	9
Parsing XML – using DOM, SAX – XML Transformation and XSL – XSL Formatting – Modeling Databases in XML.		
UNIT III	SERVICE ORIENTED ARCHITECTURE	9
Characteristics of SOA, Comparing SOA with Client-Server and Distributed architectures – Benefits of SOA -- Principles of Service orientation – Service layers.		
UNIT IV	WEB SERVICES	9
Service descriptions – WSDL – Messaging with SOAP – Service discovery – UDDI – MessageExchange Patterns – Orchestration – Choreography – WS Transactions.		
UNIT V	BUILDING SOA-BASED APPLICATIONS	9
Service Oriented Analysis and Design – Service Modeling – Design standards and guidelines --Composition – WS-BPEL – WS-Coordination – WS-Policy – WS-Security – SOA support in J2EE.		

TOTAL: 45 PERIODS**OUTCOMES:****Upon successful completion of this course, students will be able to:**

- Build applications based on XML.
- Develop web services using technology elements.
- Build SOA-based applications for intra-enterprise and inter-enterprise applications.

TEXTBOOKS:

1. Ron Schmelzer et al. "XML and Web Services", Pearson Education, 2002
2. Thomas Erl, "Service Oriented Architecture: Concepts, Technology, and Design", Pearson Education, 2005.

REFERENCES:

1. Frank P.Coyle, "XML, Web Services and the Data Revolution", Pearson Education, 2002.
2. Eric Newcomer, Greg Lomow, "Understanding SOA with Web Services", Pearson Education, 2005.
3. Sandeep Chatterjee and James Webber, "Developing Enterprise Web Services: An Architect's Guide", Prentice Hall, 2004.
4. James McGovern, Sameer Tyagi, Michael E.Stevens, Sunil Mathew, "Java Web. Services Architecture", Morgan Kaufmann Publishers, 2003.

Anwar
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606006
Kallakurichi Taluk, Villupuram District

OBJECTIVES:**The student should be made to:**

- Learn the security issues network layer and transport layer.
- Be exposed to security issues of the application layer.
- Learn computer forensics.
- Be familiar with forensics tools.
- Learn to analyze and validate forensics data.

UNIT I NETWORK LAYER SECURITY & TRANSPORT LAYER SECURITY

9

IPSec Protocol - IP Authentication Header - IP ESP - Key Management Protocol for IPSec. Transport Layer Security: SSL protocol, Cryptographic Computations – TLS Protocol.

UNIT II E-MAIL SECURITY & FIREWALLS

9

PGP - S/MIME - Internet Firewalls for Trusted System: Roles of Firewalls — Firewall related terminology- Types of Firewalls - Firewall designs - SET for E-Commerce Transactions.

UNIT III INTRODUCTION TO COMPUTER FORENSICS

9

Introduction to Traditional Computer Crime, Traditional problems associated with Computer Crime, Introduction to Identity Theft & Identity Fraud. Types of CF techniques - Incident and incident response methodology - Forensic duplication and investigation. Preparation for IR: Creating response tool kit and IR team. - Forensics Technology and Systems - Understanding Computer Investigation — Data Acquisition.

UNIT IV EVIDENCE COLLECTION AND FORENSICS TOOLS

9

Processing Crime and Incident Scenes — Working with Windows and DOS Systems. Current Computer Forensics Tools: Software/ Hardware Tools.

UNIT V ANALYSIS AND VALIDATION

9

Validating Forensics Data – Data Hiding Techniques – Performing Remote Acquisition – Network Forensics – Email Investigations – Cell Phone and Mobile Devices Forensics.

TOTAL: 45 PERIODS**OUTCOMES:****Upon completion of the course, the student should be able to:**

- Discuss the security issues network layer and transport layer.
- Apply security principles in the application layer.
- Explain computer forensics.
- Use forensics tools.
- Analyze and validate forensics data.

TEXT BOOKS:

1. Man Young Rhee, "Internet Security: Cryptographic Principles", "Algorithms and Protocols", Wiley Publications, 2003.
2. Nelson, Phillips, Enfinger, Steuart, "Computer Forensics and Investigations", Cengage Learning, India Edition, 2008.

REFERENCES:

1. John R. Vacca, "Computer Forensics", Cengage Learning, 2005
2. Richard E. Smith, "Internet Cryptography", 3rd Edition Pearson Education, 2008.
3. Marjie T. Britz, "Computer Forensics and Cyber Crime": An Introduction", 3rd Edition, PrenticeHall, 2013.

Principals
PRINCIPAL

Adhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District



ONLINE DOCTOR APP ON ANDROID



A PROJECT REPORT

Submitted by

DHIVYA.S

621113205003

JAYAPRIYA.G

621113205005

VIDHYA.T

621113205014

in the partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

IN

INFORMATION TECHNOLOGY

IDHAYA ENGINEERING COLLEGE FOR WOMEN

CHINNASALEM

ANNA UNIVERSITY::CHENNAI-600 025

APRIL 2017

Mene
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606707
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY::CHENNAI-600 025

BONAFIDE CERTIFICATE

Certified that this project report **“ONLINE DOCTOR APP ON ANDROID”** is the bonafide work **S.DHIVYA,G.JAYAPRIYA,T.VIDHYA** who carried out the project work under my supervision.



SIGNATURE

Mr.S.JAYASUNDAR M.E(phd),MBA.,

HEAD OF THE DEPARTMENT

Department of IT,
Idhaya Engineering College For Women,
Chinnasalem-606 201,
Villupuram Dt.

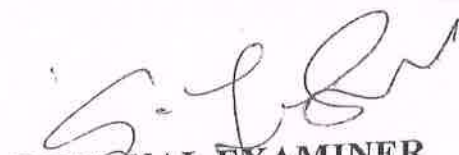


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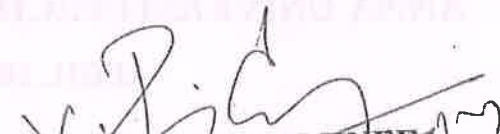
Mr.A.GEORGREAROKIARAJM.E.,

SUPERVISOR

Department of IT,
Idhaya Engineering College For Women,
Chinnasalem-606 201,
Villupuram Dt.



INTERNAL EXAMINER



EXTERNAL EXAMINER

ABSTRACT

Health Care Application is more convenient by facilitating patient to 1) grant access to their complete health records from anywhere at any time 2) avoid repeated tests. People usually go to the health care centres nearby their residence & their information is secured in the local database of the health centre. However, patient may in need to go different healthcare centre for various reasons such as 1) Unavailability of services on particular centre on holidays 2) need for specialized care at specialized centre 3) travelling away from residential areas. In this situation, the doctors of particular hospital cannot access health records of a patient stored in some other hospitals. Mobile Computing is a technology that allows the users to use the applications from anywhere at anytime. Now, Our software has the ability to give every patient unique id and store the information of them in db. The Health Care Application in individual can be entered by using a user id and password. It can be accessible by either patient or any doctor, but only doctors can add / modify the data. The data can be retrieved easily. The interface is user-Friendly. The data is secured for personal use.

OBJECTIVES:

- To understand antenna radiation and its parameters.
- To enhance the student knowledge in the area of various antenna design.
- To design mono pole, dipole and patch antenna and to impart the knowledge about modern antennas.

UNIT I ANTENNA FUNDAMENTALS 9

Wave equations, radiation pattern, HPBW, FNBW, gain and directivity, polarization, equivalent circuit, radiation resistance, Radiation integrals, Radiation from surface and line current distributions — dipole, monopole, loop antenna, Antenna parameters, Image theory; Induction, reciprocity theorem, Balance to unbalance transformer, Introduction to numerical techniques.

UNIT II RADIATION FROM APERTURES 9

Field equivalence principle, Radiation from Rectangular and Circular apertures, Uniform aperture, distribution on an infinite ground plane; Slot antenna; Horn antenna; Reflector antenna, aperture blockage, design considerations.

UNIT III ARRAYS 9

Introduction-General structure of phased array, linear array theory, variation of gain as a function of pointing direction, effects of phase quantization, frequency scanned arrays, analog beamforming matrices-Active modules, digital beam forming, MEMS technology in phased arrays-Retrodirective and self phased arrays.

UNIT IV MICRO STRIP ANTENNA 9

Radiation mechanism from patch; Excitation techniques; Microstrip dipole; Rectangular patch, Circular patch, and Ring antenna — radiation analysis from transmission line model, cavity model; input impedance of rectangular and circular patch antenna; Microstrip array and feed network; Applications of microstrip array antenna.

UNIT V SPECIAL ANTENNAS AND MEASUREMENTS 9

Mobile phone antenna, base station, hand set antenna, UWB antenna, PIFA, Vivaldi antenna, Antenna for automobiles, Broadband antenna, antenna factor, Gain, impedance and radiation pattern measurements, Test sites and anechoic chamber.

TOTAL : 45 PERIODS

OUTCOMES:

- Ability to understand antenna concepts
- Ability to design antenna for various applications
- Knowledge of modern antenna design

REFERENCES:

1. Balanis, A. "Antenna Theory Analysis and Design", John Wiley and Sons, New York, 1982.
2. Hubregt, J. Visser "Antenna Theory and Applications" 1st Edition, John Wiley & Sons Ltd, New York, 2012.
3. S. Drabowitch et. al., "Modern Antennas", 2nd Edition Springer science business Media, Inc. 2005
4. Xavier Begaud, "Ultra Wide Band Antennas", 1st Edition, ISTE Ltd and John Wiley & Sons Ltd, New York, 2013.
5. Zhijun Zhang "Antenna Design for Mobile Devices" 1st Edition, John Wiley & Sons (Asia) Ltd, New York, 2011.

OBJECTIVES:

- To understand the basics of signal-space analysis and digital transmission.
- To understand the coherent and noncoherent receivers and its impact on different channel characteristics.
- To understand the different Equalizers
- To understand the different block coded and convolutional coded digital communications systems.
- To understand the basics of Multicarrier and Multiuser Communications.

UNIT I COHERENT AND NON-COHERENT COMMUNICATION 9

Coherent receivers – Optimum receivers in WGN – IQ modulation & demodulation – Noncoherent receivers in random phase channels; MFSK receivers – Rayleigh and Rician channels – Partially coherent receivers – DPSK; M-PSK; M-DPSK-BER Performance Analysis. Carrier Synchronization-Bit synchronization.

UNIT II EQUALIZATION TECHNIQUES 9

Band Limited Channels- ISI – Nyquist Criterion- Controlled ISI-Partial Response signals- Equalization algorithms – Viterbi Algorithm – Linear equalizer – Decision feedback equalization – Adaptive Equalization algorithms.

UNIT III BLOCK CODED DIGITAL COMMUNICATION 9

Architecture and performance – Binary block codes; Orthogonal; Biorthogonal; Transorthogonal – Shannon's channel coding theorem; Channel capacity; Matched filter; Concepts of Spread spectrum communication – Coded BPSK and DPSK demodulators– Linear block codes; Hamming; Golay; Cyclic; BCH ; Reed – Solomon codes. Space time block codes.

UNIT IV CONVOLUTIONAL CODED DIGITAL COMMUNICATION 9

Representation of codes using Polynomial, State diagram, Tree diagram, and Trellis diagram –Decoding techniques using Maximum likelihood, Viterbi algorithm, Sequential and Threshold methods – Error probability performance for BPSK and Viterbi algorithm, Turbo Coding.

UNIT V MULTICARRIER AND MULTIUSER COMMUNICATIONS 9

Single Vs multicarrier modulation, orthogonal frequency division multiplexing (OFDM), Modulation and demodulation in an OFDM system, An FFT algorithmic implementation of an OFDM system, Bit and power allocation in multicarrier modulation, Peak-to-average ratio in multicarrier modulation. Introduction to CDMA systems, multiuser detection in CDMA systems – optimum multiuser receiver, suboptimum detectors, successive interference cancellation.

TOTAL : 45 PERIODS

OUTCOMES:**Upon Completion of the course, the students will be able to:**

- Develop the ability to understand the concepts of signal space analysis for coherent and non-coherent receivers.
- Conceptually appreciate different Equalization techniques
- Possess knowledge on different block codes and convolutional codes.
- Comprehend the generation of OFDM signals and the techniques of multiuser detection.

REFERENCES:

1. Bernard Sklar, "Digital Communications", second edition, Pearson Education, 2001.
2. John G. Proakis, "Digital Communication", Fifth Edition, Mc Graw Hill Publication, 2008.
3. M.K.Simon, S.M.Hinedi and W.C.Lindsey, "Digital communication techniques; Signal Design and Detection", Prentice Hall of India, New Delhi, 1995.
4. Richard Van Nee & Ramjee Prasad, "OFDM for Multimedia Communications" Artech House Publication, 2001.
5. Stephen G. Wilson, "Digital Modulation and Coding", First Indian Reprint, Pearson Education, 2003.
6. Simon Haykin, "Digital communications", John Wiley and sons, 1998.
7. Theodore S.Rappaport, "Wireless Communications", 2nd edition, Pearson Education, 2002.

OBJECTIVES:

- The student comprehends mathematical description and modelling of discrete time random signals.
- The student is conversant with important theorems and random signal processing algorithms.
- The student learns relevant figures of merit such as power, energy, bias and consistency.
- The student is familiar with estimation, prediction, filtering, multirate concepts and techniques.

UNIT I DISCRETE RANDOM SIGNAL PROCESSING 9+6

Discrete random processes – Ensemble averages – Wide sense stationary process – Properties - Ergodic process – Sample mean & variance - Auto-correlation and Auto-correlation matrices- Properties – White noise process – Wiener Khitchine relation - Power spectral density – Filtering random process – Spectral Factorization Theorem – Special types of Random Processes – AR, MA, ARMA Processes – Yule-Walker equations.

UNIT II SPECTRUM ESTIMATION 9+6

Bias and Consistency of estimators - Non-Parametric methods – Periodogram – Modified Periodogram – Barlett's method – Welch's method – Blackman-Tukey method – Parametric methods – AR, MA and ARMA spectrum estimation - Performance analysis of estimators.

UNIT III SIGNAL MODELING AND OPTIMUM FILTERS 9+6

Introduction- Least square method – Pade approximation – Prony's method – Levinson Recursion – Lattice filter - FIR Wiener filter – Filtering – Linear Prediction – Non Causal and Causal IIR Wiener Filter – Mean square error – Discrete Kalman filter.

UNIT IV ADAPTIVE FILTERS 9+6

FIR Adaptive filters - Newton's steepest descent method – Widrow Hoff LMS Adaptive algorithm – Convergence – Normalized LMS – Applications – Noise cancellation - channel equalization – echo canceller – Adaptive Recursive Filters - RLS adaptive algorithm – Exponentially weighted RLS- sliding window RLS.

UNIT V MULTIRATE SIGNAL PROCESSING 9+6

Decimation - Interpolation – Sampling Rate conversion by a rational factor I/D – Multistage implementation of sampling rate conversion – Polyphase filter structures – Applications of multirate signal processing.

TOTAL 45+30: 75 PERIODS**OUTCOMES:**

- Formulate time domain and frequency domain description of Wide Sense Stationary process in terms of matrix algebra and relate to linear algebra concepts.
- State W-K theorem, spectral factorization theorem, spectrum estimation, bias and consistency of estimators.
- Wiener filtering, LMS algorithms, Levinson recursion algorithm, applications of adaptive filters
- Decimation, interpolation, Sampling rate conversion, Applications of multirate signal processing

REFERENCES:

1. John G. Proakis, Dimitris G. Manolakis, "Digital Signal Processing", Prentice Hall of India, New Delhi, 2005.
2. Monson H. Hayes, "Statistical Digital Signal Processing and Modeling", John Wiley and Sons Inc., New York, 2006.
3. P. P. Vaidyanathan, "Multirate Systems and Filter Banks", Prentice Hall, 1992.
4. S. Kay, "Modern spectrum Estimation theory and application", Prentice Hall, Englewood Cliffs, NJ 1988.
5. Simon Haykin, "Adaptive Filter Theory", Prentice Hall, Englewood Cliffs, NJ 1986.
6. Sophocles J. Orfanidis, "Optimum Signal Processing", McGraw-Hill, 2000.

12696

**A MODERN APPROACH FOR MOTION
DETECTION AND RESPONSIVE CONTROL OF
APPLIANCE USING MATLAB**

A THESIS

Submitted by

G.ANANDHI

in partial fulfillment for the award of the degree

of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

[Signature]
PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalayam Road, CHINNASALEM-60623,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled **"A MODERN APPROACH FOR MOTION DETECTION AND RESPONSIVE CONTROL OF APPLIANCE USING MATLAB"** is the bonafide work of **G.ANANDHI**

(621115403002) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs.P.POOVIZHI M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mrs.S.DHANALAKSHMI M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.6.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Vairarapalayam Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District.

ABSTRACT

Motion tracking is a major issue in security field whether it is Indian Borders, banks, offices, institutions etc. Security is always maximum concerned. To maintain security deploy security guards but with them human errors are most common as they cannot be available on a place every time. Hardware sensor based systems are very costly and maximum lasts for few years only. It can be used on a single place. Main aim is plan to create motion detection system using software. MATLAB is best tool to do this kind of operation due to its highly efficient and accurate nature. It simply transforms our computers into Motion detection security system as well as the visitor alert system. It deal with the concept of motion tracking using cameras in real time and its reporting on Smart Phones using Internet and additionally we implement hardware Arduino based system to control gate mechanism. If it detects any motion using cameras it automatically speaks whatever we have typed in command like "Principal is busy right now come after some time". Background subtraction algorithms is used for detect moving object to increase response. The same code can be copied to large number of computers or laptops to act them as security systems without investing a rupee. Experimental results showed that the proposed method is more robust in nature as it can avoid the noise in motion detection due to camera flicker and useful to reduce the number of false positive alarms. The tool used is MATLAB which is efficient enough to track the human with its boundary condition.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606211
Kallakurichi Taluk, Villupuram District

10693

**MINIMIZING END-TO-END DELAY BY USING
ADVANCED- SCRP FOR URBAN VEHICULAR
AD-HOC NETWORKS**

A THESIS

Submitted by

R.SUGANYA

In partial fulfillment for the award of the degree of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Mene
PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-60624
Kattahurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

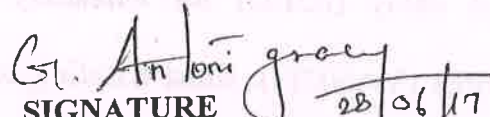
BONAFIDE CERTIFICATE

Certified that this thesis titled "**MINIMIZING END-TO-END DELAY BY USING ADVANCED-SCRIP FOR URBAN VEHICULAR AD-HOC NETWORKS**" is the bonafide work of **R.SUGANYA** (621115403017) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs. P.POOVIZHI,M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,

Chinnasalem-606 201.


SIGNATURE 28/06/17

Ms.G.ANTONI GRACY,M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,

Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28-06-2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

In ad-hoc network the issue of selecting routing paths with minimum end-to-end delay (E2ED) for nonsafety applications in urban vehicular ad hoc networks (VANETs). Most Existing schemes aim at reducing E2ED via greedy-based techniques (i.e., shortest path, connectivity, or number of hops), which make them prone to the *local maximum* problem and to data congestion, leading to higher E2ED. As a solution, we propose SCRP, which is a distributed routing protocol that computes E2ED for the entire routing path before sending data messages. To do so, SCRP builds stable backbones on road segments and connects them at intersections via bridge nodes. These nodes assign weights to road segments based on the collected information of delay and connectivity. Routes with the lowest aggregated weights are selected to forward data packets. Simulation results show that SCRP outperforms some of the well-known protocols


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalayam Road, CHINNASALEM-600
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To study about advanced wireless network, LTE, 4G and Evolutions from LTE to LTE.
- To study about wireless IP architecture, Packet Data Protocol and LTE network architecture.
- To study about adaptive link layer, hybrid ARQ and graphs routing protocol.
- To study about mobility management, cellular network, and micro cellular networks

UNIT I	INTRODUCTION	9
Introduction to 1G/2G/3G/4G Terminology. Evolution of Public Mobile Services -Motivation for IP Based Wireless Networks -Requirements and Targets for Long Term Evolution (LTE) - Technologies for LTE- 4G Advanced Features and Roadmap Evolutions from LTE to LTE- A - Wireless Standards. Network Model-Network Connectivity-Wireless Network Design with Small World Properties		
UNIT II	WIRELESS IP NETWORK ARCHITECTURES	9
3GPP Packet Data Networks - Network Architecture - Packet Data Protocol (PDP) Context -Configuring PDP Addresses on Mobile Stations - Accessing IP Networks through PS Domain – LTE network Architecture - Roaming Architecture- Protocol Architecture- Bearer Establishment Procedure -Inter-Working with other RATs.		
UNIT III	ADAPTIVE LINK AND NETWORK LAYER	9
Link Layer Capacity of Adaptive Air Interfaces-Adaptive Transmission in Ad Hoc Networks- Adaptive Hybrid ARQ Schemes for Wireless Links-Stochastic Learning Link Layer Protocol- Infrared Link Access Protocol-Graphs and Routing Protocols-Graph Theory-Routing with Topology Aggregation-Network and Aggregation Models		
UNIT IV	MOBILITY MANAGEMENT	9
Cellular Networks-Cellular Systems with Prioritized Handoff-Cell Residing Time Distribution-Mobility Prediction in Pico- and Micro-Cellular Networks		
UNIT V	QUALITY OF SERVICE	9
QoS Challenges in Wireless IP Networks - QoS in 3GPP - QoS Architecture, Management and Classes -QoS Attributes - Management of End-to-End IP QoS - EPS Bearers and QoS in LTE networks.		

TOTAL :45 PERIODS**OUTCOMES:**

- Familiar with the latest 4G networks and LTE
- Understand about the wireless IP architecture and LTE network architecture.
- Familiar with the adaptive link layer and network layer graphs and protocol.
- Understand about the mobility management and cellular network.
- Understand about the wireless sensor network architecture and its concept.

REFERENCES:

1. Ayman ElNashar, Mohamed El-saidny, Mahmoud Sherif, "Design, Deployment and Performance of 4G-LTE Networks: A Practical Approach", John Wiley & Sons, 2014.
2. Crosspoint Boulevard, "Wireless and Mobile All-IP Networks", Wiley Publication, 2005.
3. Jyh-Cheng Chen and Tao Zhang, "IP-Based Next-Generation Wireless Networks Systems, Architectures, and Protocols", John Wiley & Sons, Inc. Publication, 2006.
4. Minoru Etoh, "Next Generation Mobile Systems 3G and Beyond," Wiley Publications, 2005.
5. Savo Glisic, "advanced wireless networks-technology and business models", Third Edition, John Wiley & Sons, Ltd, 2016
6. Savo Glisic, "Advanced Wireless Networks-4G Technologies", John Wiley & Sons, Ltd, 2006.
7. Stefania Sesia, Issam Toufik and Matthew Baker, "LTE – The UMTS Long Term Evolution From Theory to Practice", John Wiley & Sons, Inc. Publication, Second Edition, 2011.

OBJECTIVES:

- To understand the image fundamentals.
- To understand the various image segmentation techniques.
- To extract features for image analysis.
- To introduce the concepts of image registration and image fusion.
- To illustrate 3D image visualization.

UNIT I FUNDAMENTALS OF DIGITAL IMAGE PROCESSING

9

Elements of visual perception, brightness, contrast, hue, saturation, mach band effect, 2D image transforms-DFT, DCT, KLT,SVD. Image enhancement in spatial and frequency domain, Review of Morphological image processing.

UNIT II SEGMENTATION

9

Edge detection, Thresholding, Region growing, Fuzzy clustering, Watershed algorithm, Active contour models, Texture feature based segmentation, Graph based segmentation, Wavelet based Segmentation - Applications of image segmentation.

UNIT III FEATURE EXTRACTION

9

First and second order edge detection operators, Phase congruency, Localized feature extraction - detecting image curvature, shape features, Hough transform, shape skeletonization, Boundary descriptors, Moments, Texture descriptors- Autocorrelation, Co-occurrence features, Runlength features, Fractal model based features, Gabor filter, wavelet features.

UNIT IV REGISTRATION AND IMAGE FUSION

9

Registration - Preprocessing, Feature selection - points, lines, regions and templates Feature correspondence - Point pattern matching, Line matching, Region matching, Template matching. Transformation functions - Similarity transformation and Affine Transformation. Resampling — Nearest Neighbour and Cubic Splines. Image Fusion - Overview of image fusion, pixel fusion, wavelet based fusion - region based fusion.

UNIT V 3D IMAGE VISUALIZATION

9

Sources of 3D Data sets, Slicing the Data set, Arbitrary section planes, The use of color, Volumetric display, Stereo Viewing, Ray tracing, Reflection, Surfaces, Multiple connected surfaces, Image processing in 3D, Measurements on 3D images.

TOTAL: 45 PERIODS**OUTCOMES:****Upon Completion of the course, the students will be able to**

- Explain the fundamentals digital image processing.
- Describe image various segmentation and feature extraction techniques for image analysis.
- Discuss the concepts of image registration and fusion.
- Explain 3D image visualization.

REFERENCES:

1. Ardeshir Goshtasby, "2D and 3D Image registration for Medical, Remote Sensing and Industrial Applications", John Wiley and Sons, 2005.
2. Anil K. Jain, Fundamentals of Digital Image Processing', Pearson Education, Inc., 2002.
3. John C. Russ, "The Image Processing Handbook", CRC Press, 2007.
4. Mark Nixon, Alberto Aguado, "Feature Extraction and Image Processing", Academic Press, 2008.
5. Rafael C. Gonzalez, Richard E. Woods, Digital Image Processing', Pearson, Education, Inc., Second Edition, 2004.
6. Rick S. Blum, Zheng Liu, "Multisensor image fusion and its Applications", Taylor & Francis, 2006.

OBJECTIVES:

- To understand the basic principles of digital communication techniques.
- To gain knowledge about receivers for AWGN channel and Fading channels.
- To understand the concepts of synchronization and adaptive equalization techniques.

UNIT I REVIEW OF DIGITAL COMMUNICATION TECHNIQUES 9
Base band communication; signal space representation, linear and nonlinear modulation techniques, Error tracking and Spectral characteristics of digital modulation.

UNIT II OPTIMUM RECEIVERS FOR AWGN CHANNEL 9
Correlation demodulator, matched filter, maximum likelihood sequence detector, optimum receiver for CPM signals, optimum receivers for signals with random phase in AWGN channel, envelope detection of M-ary orthogonal signals and correlated binary signals.

UNIT III RECEIVERS FOR FADING CHANNELS 9
Characterization of fading multiple channels, statistical models, flat and frequency selective fading, diversity technique, parameter synchronization for flat fading channels, digital signaling over a frequency selective and slowly fading channel, coded waveform for fading channel.

UNIT IV SYNCHRONIZATION TECHNIQUES 9
Carrier and signal synchronization, carrier phase estimation-PLL, Decision directed loops, symbol timing estimation, maximum likelihood and non-decision directed timing estimation, joint estimation.

UNIT V ADAPTIVE EQUALIZATION 9
Zero forcing algorithm, LMS algorithm, adaptive decision-feedback equalizer and Equalization of Trellis-coded signals. Kalman algorithm, blind equalizers and stochastic gradient algorithm.

TOTAL: 45 PERIODS

OUTCOMES:

Upon Completion of the course, the students will be able to

- Apply basic principles of digital communication techniques.
- Discuss on receivers for AWGN & Fading channel
- Describe various synchronization techniques.
- Design adaptive equalization algorithms to satisfy the evolving demands in digital communication.

REFERENCES:

1. Heinrich Meyer, Mare Moeneclacy, Stefan.A.Fechtel, " Digital communication receivers ", VolI & Vol II, John Wiley, New York, 1997.
2. H.Meyr & G.Ascheid, Synchronization in Digital Communications, John Wiley, 1990
3. John.G.Proakis, "Digital communication "4th Edition, McGraw-Hill, New York, 2001.
4. R.G. Gallager, "Principles of Digital Communication", Newyork, Cambridge University Press,2008
5. Simon Marvin, "Digital communication over fading channel; An unified approach toperformance Analysis ", John Wiley, New York, 2000.
6. U.Mengali & A.N.D'Andrea, Synchronization Techniques for Digital Receivers, Kluwer, 1997.

**BIOMEDICAL PWSN BASED FALL
DETECTION AND HEALTHCARE
MONITORING FOR OLD AGE PEOPLE**

A THESIS

Submitted by

R.MAHESHWARI

in partial fulfillment for the award of the degree of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

M. S. S. S.
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600...
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled **"BIOMEDICAL PWSN BASED FALL DETECTION AND HEALTHCARE MONITORING FOR OLD AGE PEOPLE"** is the bonafide work of **MAHESHWARI.R (621115403007)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs.P.POOVIZHI M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Sr.J.CATHERINA MARY M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.06.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-606201,
Kallakurichi Taluk, Villupuram District

ABSTRACT

Biomedical Personal Area Wireless Sensor Network (BPWSN), enabling concurrent fall detection and Health care monitoring, is presented and described. Fall of patients and aged people is a serious issue. These kinds of falls may become fatal if unnoticed in time. The proposed architecture is intended for indoor applications as a potential ambient assisted living (AAL) technology. This trend is causing a growing need for long-term health monitoring within the home environment. Shortage of nursery homes, increasing personal care costs, and privacy preference motivate the senior's wish to stay longer at home. However, this does not come without obvious risks, especially when living alone. In fact, a lot of people suffer from Chronic Health conditions, including heart disease, lung disorders, diabetes, sleep disorders, and somnambulism. In particular, sleep disorders are recognized as detrimental to both physical and mental health, and affect the population on a large and growing scale. Technologies available for find the problem of Blood pressure, human body temperature and fall detection etc. Experimental results, conducted in a real room setting with human subjects, demonstrate the need for a wireless sensor network for the targeted application.

**A MODERN APPROACH FOR MOTION
DETECTION AND RESPONSIVE CONTROL OF
APPLIANCE USING MATLAB**

A THESIS

Submitted by

G.ANANDHI

in partial fulfillment for the award of the degree

of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

[Signature]
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606206
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "**A MODERN APPROACH FOR MOTION DETECTION AND RESPONSIVE CONTROL OF APPLIANCE USING MATLAB**" is the bonafide work of **G.ANANDHI** (621115403002) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs.P.POOVIZHI M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mrs.S.DHANALAKSHMI M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.6.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Motion tracking is a major issue in security field whether it is Indian Borders, banks, offices, institutions etc. Security is always maximum concerned. To maintain security deploy security guards but with them human errors are most common as they cannot be available on a place every time. Hardware sensor based systems are very costly and maximum lasts for few years only. It can be used on a single place. Main aim is plan to create motion detection system using software. MATLAB is best tool to do this kind of operation due to its highly efficient and accurate nature. It simply transforms our computers into Motion detection security system as well as the visitor alert system. It deal with the concept of motion tracking using cameras in real time and its reporting on Smart Phones using Internet and additionally we implement hardware Arduino based system to control gate mechanism. If it detects any motion using cameras it automatically speaks whatever we have typed in command like "Principal is busy right now come after some time". Background subtraction algorithms is used for detect moving object to increase response. The same code can be copied to large number of computers or laptops to act them as security systems without investing a rupee. Experimental results showed that the proposed method is more robust in nature as it can avoid the noise in motion detection due to camera flicker and useful to reduce the number of false positive alarms. The tool used is MATLAB which is efficient enough to track the human with its boundary condition.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606204
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

The students should be made to be

- Learn M2M developments and satellite applications
- Understand Satellite Communication In Ipv6 Environment

UNIT I OVERVIEW OF SATELLITE COMMUNICATION

9

Overview of satellite communication and orbital mechanics Link budget Parameters, Link budget calculations, Auxiliary Equations, Performance Calculations.

UNIT II M2M DEVELOPMENTS AND SATELLITE APPLICATIONS

9

Overview of the Internet of Things and M2M- M2M Applications Examples and Satellite Support- Satellite Roles Context and Applications- Antennas for Satellite M2M Applications- M2M Market Opportunities for Satellite Operators- Ultra HD Video/TV and Satellite Implications- High Throughput Satellites (HTS) and Ka/Ku Spot Beam Technologies- Aeronautical, Maritime and other Mobility Services.

UNIT III SATELLITE COMMUNICATION IN IPV6 ENVIRONMENT

9

Overview of IPv6 and its benefits for Satellite Networks - Migration and Coexistence--Implementation scenarios and support- Preparations for IPv6 in Satellite communication- Satellite specific Protocol issues in IPv6 — Impact of IPv6 on Satellite Network architecture and services-Detailed transitional plan- IPv6 demonstration over satellites - Key results and recommendations.

UNIT IV SATELLITE NAVIGATION AND GLOBAL POSITIONING SYSTEM

9

Over view of Radio and Satellite Navigation, GPS Principles, Signal model and Codes, Satellite Signal Acquisition, Mathematical model of GPS observables, Methods of processing GPS data , GPS Receiver Operation and Differential GPS, IRNSS, GAGAN, GLONASS and Galileo.

UNIT V DEEP SPACE NETWORKS AND INTER PLANETARY MISSIONS

9

Introduction — Functional description - Design procedure and performance criterion-Mars exploration Rover- Mission and space craft summary-Telecommunication subsystem overview-Ground Subsystem-Telecom subsystem and Link performance Telecom subsystem Hardware and software Chandrayaan-1 Mission - Mission and space craft summary-Telecommunication subsystem overview- Ground Subsystem-Telecom subsystem and Link performance. Mangalyaan Mission - Mission and space craft summary-Telecommunication subsystem overview- Ground Subsystem-Telecom subsystem and Link performance.

OUTCOMES:

At the end of this course, the student should be able to:

- Discuss satellite navigation and global positioning system
- Outline deep space networks and inter planetary missions

REFERENCES:

1. Adimurthy.V," Concept design and planning of India's first interplanetary mission" CurrentScience, VOL. 109, NO. 6, 1054 25 SEPTEMBER 2015.
2. Anil K. Maini, Varsha Agrawal, 'Satellite Technology: Principles and Applications', Third Edition,Wiley, 2014.
3. Daniel Minoli' "Innovations in Satellite Communication and Satellite Technology" Wiley, 2015
4. Daniel Minoli, "Satellite Systems Engineering in an IPv6 Environment", CRC Press, FirstEdition, 2009.
5. Hofmann-Wellenhof B., Lichtenegger H., and Elmar Wasle, "Global Navigational SatelliteSystems" Springer-Verlag, 2008.
6. Jim Taylor, " Deep Space Communications" John Wiley & Sons, 2016.
7. Louis J. Ippolito, Jr. "Satellite Communications Systems Engineering: Atmospheric Effects,Satellite Link Design and System Performance", Second Edition, 2017
8. <http://www.isro.gov.in/pslv-c25-mars-orbiter-mission>
9. https://en.wikipedia.org/wiki/Mars_Orbiter_Mission
10. <https://en.wikipedia.org/wiki/Chandrayaan-1>

**REFLEXIVE SPOTTING OF DEEP VEIN THROMBOSIS
IN THE FEMORAL NERVE BASED ON MULTIPLE
FEATURE EXTRACTION AND CLASSIFICATION
TECNIQUES**

A THESIS

Submitted by

A.AMALA

in partial fulfilment for the award of the degree of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

[Signature]
PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this thesis titled "REFLEXIVE SPOTTING OF DEEP VEIN THROMBOSIS IN THE FEMORAL NERVE BASED ON MULTIPLE FEATURE EXTRACTION AND CLASSIFICATION TECHNIQUES" is the bonafide work of A.AMALA (621115403001) who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

[Handwritten Signature]
SIGNATURE

Mrs. P.POOVIZHI,M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

[Handwritten Signature]
SIGNATURE

Sr.A.JENITTA,M.E.,(Ph.D)
SUPERVISOR,
Vice principal,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.06.2017

[Handwritten Signature]
INTERNAL EXAMINER

[Handwritten Signature]
EXTERNAL EXAMINER

[Handwritten Signature]
PRINCIPAL
Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

The fast development in the medical field leads us to retrieve an automatic and accurate scanned image from various parts of the body. The goal is to create an automatic real-time spotting of thrombosis in the femoral nerve. A nerve that provides skin on the upper thigh and inner leg of the thigh region is known as femoral nerve. It is the main nerve that extends the knee muscles. The damage of these nerves affects the walking ability of a human. In this work we present real-time methods for identifying and reconstructing the femoral nerve block and registering a model of the surrounding anatomy to the ultrasound (US) images. The thrombosis detected by segmenting an image with active contour method and extracting features using shape based geometric boundary descriptors and texture based local pattern descriptor. Local binary pattern (LBP) used to extract the textural information from the given image and Local mesh pattern (LMeP) used to extract the textural and shape information from the given image. By enforcing Random Forest (RF) classifier model, the severity of the thrombus is automatically classified as benign or malignant. The classifiers performance were studied and compared in terms of accuracy, precision sensitivity and specificity.


PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalaym Road, CHINNASALEM-606204,
Kallakurichi Taluk, Villupuram District

**RFID BASED INTELLIGENT BOOK FINDER
USING ULTRA HIGH FREQUENCY SENSOR**

A THESIS

Submitted by

M.NITHYA

in partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

COMMUNICATION SYSTEMS



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Principals
PRINCIPAL

**Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606 004
hallakurichi Taluk, Villupuram District**

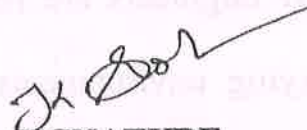
ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "RFID BASED INTELLIGENT BOOK FINDER USING ULTRA HIGH FREQUENCY SENSOR" is the bonafide work of **M. NITHYA** (621115403011) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs.P.POOVIZHI M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mrs.K.SOLAIYAMMAL M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.06.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Locating items rapidly and accurately has become a crucial part of our modern library. Accurate locating not only saves time and money but also reduces waste, as products do not get lost along supply chains. One promising indoor tracking method is provided by radio-frequency identification (RFID) technology. The main benefit of RFID technology is the ability to inventory items simultaneously and rapidly without the requirement of line of sight to the target. Because RFID tags are attached to various objects and are used in different environments, RFID engineers are required to design RFID tags that operate reliably within varying environments and medium materials. The books are equipped with RFID tag and can be located using a hand-held RFID reader device. In addition to locating the books, the system keeps the book inventory up to date.

Mani
PRINCIPAL

Idhaya Engineering College for Women
Jainarapaaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

The students should be made to understand:

- Optical system components like optical amplifiers, wavelength converters.
- Up-to-date survey of development in Optical Network Architectures.
- Packet switching.
- Network design perspectives.
- Different Optical Network management techniques and functions.

UNIT I

9

Introduction to Optical Networks: Telecommunications Networks Architecture, Services, circuit switching and packet switching. Optical Networks: Multiplexing Techniques, Second generation Optical Networks, Optical Packet Switching, Transmission Basics: Wavelength, frequencies, and channel spacing, Wavelength standards, Optical power and loss, Network Evolution, Nonlinear Effects: Self-phase Modulation, Cross-phase Modulation, Four Wave mixing, Solitons. Components: Couplers, Isolators and Circulators, Multiplexers and Filters, Optical Amplifiers, Transmitters, Detectors, Switches, Wavelength Converters.

UNIT II

9

Transmission System Engineering: System Model, Power Penalty, Transmitter, Receiver, Optical Amplifiers, Crosstalk, Dispersion, Wavelength Stabilization, Overall Design Considerations. Optical Internets: Migration to IP optical networking, IP and Optical backbone, IP Routing table, MPLS and optical cross connect table, Protocol stack Alternatives, Internetworking SS7 and Legacy Transport, Internet transport network protocol stack.

UNIT III

9

SONET, SDH and Optical Transport Networks (OTNs): SONET and SDH: SONET multiplexing hierarchy. Frame structure, Functional Component, problem detection, concatenation. Architecture of Optical Transport Networks (OTNs): Digital wrapper, in-band and out-of-band control signalling. Importance of Multiplexing and multiplexing hierarchies, SONET multiplexing hierarchies, SDH multiplexing hierarchies, New Optical Transport, OTN layered Model, Generic Framing Procedure (GFP)

UNIT IV

9

WDM, Network topologies, MPLS and Optical Networks: WDM: WDM operation, Dense Wavelength Division Multiplexing (DWDM), Erbium-doped Fiber (EDF), WDM amplifiers, Add-Drop Multiplexers, Wavelength Continuity Property, Higher dispersion for DWDM, Tunable DWDM Lasers.

UNIT V

9

Network topologies and protection schemes: Robust networks, Line and path protection switching, Types of topology, Point to point topology, bi-directional line-switched ring (BLSR), meshed topology, Passive optical networks, Metro optical networks 28 MPLS and Optical Networks: IS label switching, Forwarding equivalence class (FEC), Types of MPLS nodes, Label distribution and binding, label swapping and traffic forwarding, MPLS support of Virtual Private Networks (VPN), MPLS traffic engineering, Multi protocol Lambda switching (MPIS).

TOTAL : 45 PERIODS**OUTCOMES:**

At the end of the course, the student should be able to:

- Design and Analyze Network Components
- Assess and Evaluate optical networks

REFERENCES:

1. Rajiv Ramaswami and Kumar Sivarajan, "Optical Networks – Practical Perspective", 3rd Edition, Morgan - Kaufmann Publishers.
2. Optical Networks, Third Generation Transport Systems, Uyles Black, Pearson.

OBJECTIVES:

The students should be made to:

- Understand Concepts of MIMO diversity and spatial multiplexing.
- Learn Massive MIMO system
- Know millimeter wave communication

UNIT I INFORMATION THEORETIC ASPECTS OF MIMO

10

Review of SISO fading communication channels, MIMO Channel models, Classical i.i.d. and extended channels, Frequency selective and correlated channels models, Capacity of MIMO channels, Ergodic and outage capacity, capacity bounds and influence of channel properties on the capacity.

UNIT II MIMO DIVERSITY AND SPATIAL MULTIPLEXING

10

Sources and types of diversity, analysis under Rayleigh fading, Diversity and channel knowledge. Alamouti space time code. MIMO spatial multiplexing: Space time receivers, ML, ZF, MMSE and Sphere decoding, BLAST receivers and Diversity multiplexing trade - off.

UNIT III MASSIVE MIMO SYSTEM

9

Introduction - MIMO for LTE, capacity of massive MIMO, Pilot Design for massive MIMO, Resource allocation and transceivers design, Base band and RF implementation, Channel Models.

UNIT IV MILLIMETER WAVE COMMUNICATION

8

Spectrum regulation, Channel propagation, Hardware technology for mmW systems, architecture and mobility, Beam forming techniques, Beam finding, Physical layer techniques - Duplex scheme and Transmission Scheme.

UNIT V SOFTWARE DEFINED RADIO AND COGNITIVE RADIO

8

SDR - Definition, Origin, key characteristic, hardware and software architecture, waveforms. Cognitive Radio - Definitions, Cognitive theories, architectures, Cognitive radio as self controlling system, Ontology based cognitive radio.

OUTCOMES:

At the end of the course, the student should be able to:

- Analyze MIMO system.
- Discuss millimeter wave communication.
- Demonstrate software defined radio and cognitive radio.

REFERENCES:

1. David Tse and Pramod Viswanath, "Fundamentals of Wireless Communication", Cambridge University Press 2005.
2. Hamid Jafarkhani, "Space - Time Coding: Theory and Practices", Cambridge University Press 2005.
3. Mischa Dohler, Jose F. Monserrat Afif Osseiran " 5G Mobile and Wireless Communication Technology", Cambridge University Press 2016.
4. Mieczyslaw M Kokar, Lezek Lechowicz, "Cognitive Radio Interoperability through Waveform Reconfiguration" ARTECH House 2016.

OBJECTIVES:

- To understand the fundamentals of RF design and Microwave integrated circuits.
- To understand the various components of RF system for Wireless Communications.
- To know the basic techniques needed for analysis of RF systems.

UNIT I	CMOS PHYSICS, TRANSCEIVER SPECIFICATIONS AND ARCHITECTURES	9
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CMOS: Introduction to MOSFET Physics, Noise: Thermal, shot, flicker, popcorn noise, transceiver Specifications: Two port Noise theory, Noise Figure, THD, IP2, IP3, Sensitivity, SFDR, Phase noise. Transceiver Architectures: Receiver: Homodyne, Heterodyne, Image reject, Low IF Architectures, Transmitter: Direct up conversion, Two step up conversion schemes.

UNIT II	IMPEDANCE MATCHING AND AMPLIFIERS	9
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Review of S-parameters and Smith chart, Passive IC components, Impedance matching networks, Amplifiers: Common Gate, Common Source Amplifiers, OC Time constants in bandwidth estimation and enhancement, High frequency amplifier design, Low Noise Amplifiers: Power match and Noise match, Single ended and Differential schemes.

UNIT III	FEEDBACK SYSTEMS AND POWER AMPLIFIERS	9
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Feedback Systems: Stability of feedback systems: Gain and phase margin, Root-locus techniques, Time and Frequency domain considerations, Compensation Power Amplifiers: General model — Class A, AB, B, C, D, E and F amplifiers, Linearization Techniques, Efficiency boosting techniques, ACPR metric, Design considerations

UNIT IV	RF FILTER, OSCILLATOR, MIXER	9
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Overview-basic resonator and filter configuration, special filter realizations, filter implementation. Basic oscillator model, high frequency oscillator configuration, basic characteristics of mixers, phase locked loops, RF directional couplers, hybrid couplers, detector and demodulator circuits.

UNIT V	MIC COMPONENTS	9
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Introduction to MICs, Fabrication Technology, Advantages and applications, MIC components- Micro strip components, Coplanar circuits: Transistors, switches, active filters. Coplanar microwave amplifiers: LNA design and Medium power amplifiers.

TOTAL : 45 PERIODS

OUTCOMES:

- Capability to design RF circuits.
- To be able to analyze RF circuits.

REFERENCES:

1. B.Razavi, "RF Microelectronics", Pearson Education, 1997.
2. Ingo Wolff, "Coplanar Microwave Integrated circuits", John Wiley and sons, New Jersey, 2006.
3. F. Lee, "Design of CMOS RF Integrated Circuits", Cambridge, 2004.

**AUTOMATIC POWER BACKUP SYSTEM
FOR QUAD POWER SOURCES AND REAL**

TIME REPORTING

A THESIS

Submitted by

A.MAYEEL

in partial fulfilment for the award of the degree

of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Principa
PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalayam Road, CHINNASALEM-60624,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "AUTOMATIC POWER BACKUP SYSTEM FOR QUAD POWER SOURCES AND REAL TIME REPORTING" is the bonafide work of **A.MAYEEL** (621115403008) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs. P. POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mrs. S. DHANALAKSHMI M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.06.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

The demand for electricity is increasing every day and frequent power cut is causing many problems in various areas like industries, hospitals and houses. An alternative arrangement for power source switching is thus desirable. An uninterrupted automatic power changers are easily available for two sources but with developing power generation systems like solar power, wind power and generators etc. There is no system to switch over three or four power systems. I work here to create an automatic system of switching over four different power sources as the power supply goes missing the system automatically changes over next available power source. The main objective of this project is to provide uninterrupted power supply to a load and real time reporting. It selects the supply source automatically from any available one out of 4 such as: mains, generator, and inverter and solar in the absence of power supply. For real time reporting LCD interface is used. It provides current status like which source is used.



PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

**AUTOMATED IMAGE CHARACTER
RECOGNITION BASED TEXT DETECTION AND
TRACKING SYSTEM**

A THESIS

Submitted by

P.JULIE SHARMILA

in partial fulfillment for the award of the degree

of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Principals
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606204
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "AUTOMATED IMAGE CHARACTER RECOGNITION BASED TEXT DETECTION AND TRACKING SYSTEM" is the bonafide work of **JULIE SHARMILA.P** (621115403005) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs.P.POOVIZHI M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mrs.P.POOVIZHI M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.06.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women,
Mainpalayam Road, CHINNASALEM-60620,
Kallakurichi Taluk, Villupuram District

ABSTRACT

OCR (Optical Character Recognition) System works in the domain of Natural Language Processing and Image Processing. This is used to convert all the text information that is present in image form, to text format. Text is one of the most influential inventions of Humanity. The fertile and precise information incorporated in text is very useful in a wide range of applications that are computer-vision based, and hence text detection, Tracking and recognition in natural scenes (e.g: traffic sign boards, license plate, Hoardings and videos etc) have become important and active research topics in computer vision and document analysis. This survey paper presents a review of various state-of-the-art techniques proposed for different processes (i.e. detection, Tracking, localization, extraction, etc) of text information processing in Images. Literature review can further serve as a good reference for researchers in the areas of scene text detection, Tracking and recognition. The aim is to introduce the researchers to the latest trends in this area and to serve as a resource for developers who wish to integrate such solutions into their own work. Here MSER technique is preferred to detect the text.


PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-60626
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

The students should be made to be familiar with:

- The basics of EMI
- EMI sources.
- EMI problems.
- Solution methods in PCB.
- Measurements techniques for emission.
- Measurement techniques for immunity.

UNIT I BASIC THEORY

9

Introduction to EMI and EMC, Intra and inter system EMI, Elements of Interference, Sources and Victims of EMI, Conducted and Radiated EMI emission and susceptibility, Case Histories, Radiation hazards to humans, Various issues of EMC, EMC Testing categories EMC Engineering Application.

UNIT II COUPLING MECHANISM

9

Electromagnetic field sources and Coupling paths, Coupling via the supply network, Common mode coupling, Differential mode coupling, Impedance coupling, Inductive and Capacitive coupling, Radioactive coupling, Ground loop coupling, Cable related emissions and coupling, Transient sources, Automotive transients.

UNIT III EMI MITIGATION TECHNIQUES

9

Working principle of Shielding and Murphy's Law, LF Magnetic shielding, Apertures and shielding effectiveness, Choice of Materials for H, E, and free space fields, Gasketing and sealing, PCB Level shielding, Principle of Grounding, Isolated grounds, Grounding strategies for Large systems, Grounding for mixed signal systems, Filter types and operation, Surge protection devices, Transient Protection.

UNIT IV STANDARD AND REGULATION

9

Need for Standards, Generic/General Standards for Residential and Industrial environment, Basic Standards, Product Standards, National and International EMI Standardizing Organizations; IEC, ANSI, FCC, AS/NZS, CISPR, BSI, CENELEC, ACEC. Electro Magnetic Emission and susceptibility standards and specifications, MIL461E Standards.

UNIT V EMI TEST METHODS AND INSTRUMENTATION

9

Fundamental considerations, EMI Shielding effectiveness tests, Open field test, TEM cell for immunity test, Shielded chamber, Shielded anechoic chamber, EMI test receivers, Spectrum analyzer, EMI test wave simulators, EMI coupling networks, Line impedance stabilization networks, Feed through capacitors, Antennas, Current probes, MIL -STD test methods, Civilian STD test methods.

OUTCOMES:

At the end of this course, the student should be able to:

- Identify Standards
- Compare EMI test methods
- Discuss EMI mitigation techniques

REFERENCES:

1. Bernhard Keiser, "Principles of Electromagnetic Compatibility", 3rd Ed, Artech house, Norwood, 1986.
2. Clayton Paul, "Introduction to Electromagnetic Compatibility", Wiley Interscience, 2006.
3. Daryl Gerke and William Kimmel, "EDN's Designer's Guide to Electromagnetic Compatibility", Elsevier Science & Technology Books, 2002
4. Dr Kenneth L Kaiser, "The Electromagnetic Compatibility Handbook", CRC Press 2005.
5. Electromagnetic Compatibility by Norman Violette, Published by Springer, 2013
6. Electromagnetic Interference and Compatibility: Electrical noise and EMI specifications Volume 1 of A Handbook Series on

Electromagnetic Interference and Compatibility, Donald R. J. White Publisher-Don white consultants Original from the University of Michigan Digitized 6 Dec 2007

7. Henry W. Ott, "Electromagnetic Compatibility Engineering", John Wiley & Sons Inc, Newyork,2009
8. V Prasad Kodali, "Engineering Electromagnetic Compatibility", IEEE Press, Newyork, 2001.
9. W Scott Bennett, "Control and Measurement of Unintentional Electromagnetic Radiation", JohnWiley & Sons Inc., (Wiley Interscience Series) 1997.

CU5301

MILLIMETER WAVE COMMUNICATIONS

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OBJECTIVES:

- To understand the fundamentals of Millimeter wave devices and circuits.
- To understand the various components of Millimeter wave Communications system.
- To know the antenna design at Millimeter wave frequencies.

UNIT I INTRODUCTION 9

Millimeter wave characteristics- millimeter wave wireless, implementation challenges, Radio wave propagation for mm wave: Large scale propagation channel effects, small scale channel effects, Outdoor and Indoor channel models, Emerging applications of millimeter wave communications.

UNIT II MM WAVE DEVICES AND CIRCUITS 9

Millimeter wave generation and amplification: Peniotrons, Ubitrons, Gyrotrons and Free electron lasers. HEMT, models for mm wave Transistors, transistor configurations, Analog mm wave components: Amplifiers, Mixers, VCO, PLL. Metrics for analog mm wave devices, Consumption factor theory, Trends and architectures for mm wave wireless, ADC's and DAC's.

UNIT III MM WAVE COMMUNICATION SYSTEMS 9

Modulations for millimeter wave communications: OOK, PSK, FSK, QAM, OFDM, Millimeter wave link budget, Transceiver architecture, Transceiver without mixer, Receiver without Oscillator, Millimeter wave calibration, production and manufacture, Millimeter wave design considerations.

UNIT IV MM WAVE MIMO SYSTEMS 9

Massive MIMO Communications, Spatial diversity of Antenna Arrays, Multiple Antennas, Multiple Transceivers, Noise coupling in MIMO system, Potential benefits for mm wave systems, Spatial, Temporal and Frequency diversity, Dynamic spatial, frequency and modulation allocation.

UNIT V ANTENNAS FOR MM WAVE SYSTEMS 9

Antenna beamwidth, polarization, advanced beam steering and beam forming, mm wave design consideration, On-chip and In package mm wave antennas, Techniques to improve gain of on-chip antennas, Implementation for mm wave in adaptive antenna arrays, Device to Device communications over 5G systems, Design techniques of 5G mobile.

TOTAL : 45 PERIODS

OUTCOMES:

- Ability to understand Millimeter devices and circuits
- Ability to design antenna for Millimeter wave frequencies
- Knowledge of Millimeter wave technology

REFERENCES:

1. K.C. Huang, Z. Wang, "Millimeter Wave Communication Systems", Wiley-IEEE Press, March 2011.
2. Robert W. Heath, Robert C. Daniel, James N. Theodore S. Rappaport, Murdock, "Millimeter Wave Wireless Communication", Prentice Hall, 2014.
3. Xiang, W; Zheng, K; Shen, X.S; "5G Mobile Communications: Springer, 2016.

Ramesh
Dr.R.GURUMANI, M.E., Ph.D., M.B.A., M.ITE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201. KALLAKURICHI DT.

**AN EFFICIENT APPROACH TOWARDS TIDAL
POWER PRODUCTION USING VERTICAL
PLANAR MOTION**

A THESIS

Submitted by

R.RANI UMA MAHESWARI

in partial fulfillment for the award of the degree

of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600211
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "AN EFFICIENT APPROACH TOWARDS TIDAL POWER PRODUCTION USING VERTICAL PLANAR MOTION" is the bonafide work of **RANI UMA MAHESWARI.R** (621115403014) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs.P.POOVIZHI M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mrs.S.DHANALAKSHMI M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.06.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-606201,
Kallakurichi Taluk, Villupuram District.

ABSTRACT

In power production, the tidal energy plays a vital role. This paper deals with the new initiative method to produce energy with latest innovation and cheaper cost. The waves with high force, hits the piston which then pushes the vertical plate. The plate is connected with the dynamo with the help of the shaft to make the motion easy. As the force of the waves gets increased, the dynamo gets rotated and so the power is generated.

The power generated from the dynamo is the dc power and this is been stored in the battery. The stored power is then converted as the ac power using the inverter with the help of the transistor 2N3055 which itself also acts as a power booster in order to boost up the power that is generated. As the dc power is converted to the ac power this can be used to run a load.



MEMORANDUM OF UNDERSTANDING

COMPARATIVE

DEPARTMENT OF THE WOMEN

DEPARTMENT OF THE WOMEN

DEPARTMENT OF THE WOMEN

DEPARTMENT

[Handwritten Signature]

PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-60820,
Kallakurichi Taluk, Villupuram District

**ENERGY MANAGEMENT AND PRESENCE
DETECTION SMART HOMES UTILIZING GSM
ENABLED SMART PHONE**

A THESIS

Submitted by

M.DIVYA

in partial fulfillment for the award of the degree of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

[Signature]
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalayam Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this thesis titled “**ENERGY MANAGEMENT AND PRESENCE DETECTION SMART HOMES UTILIZING GSM ENABLED SMART PHONE**” is the bonafide work of **DIVYA.M (621115403004)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.



SIGNATURE

Mrs.P.POOVIZHI M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Sr.CATHERINA MARY M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.06.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women,
Vainarpalayam Road, CHINNASALEM-6062,
Kallakurichi Taluk, Villupuram District

ABSTRACT

Recently, many researches and industries are developing smart home applications. In a smart home, electric devices like plugs, lights, TVs can have the capability of wireless communications. Users are allowed to control these devices by smart phones through wireless links. However, we observe that the current control schemes are not user friendly. More specifically, users need to switch between APPs to control different kinds of controllable devices or need to traverse a long device list to find the target one. In this paper, we propose schemes to achieve the control fashion that when a user raises her smart phone to point to a device, the phone's screen automatically pops out on the control panel of the device, and then the user can enter control commands directly. We evaluate the proposed schemes by simulations and real implementation, and the results demonstrate the effectiveness of our designs.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606
Kallakurichi Taluk, Villupuram District.

OBJECTIVES:

- To understand the fundamentals of Internet of Things
- To learn about the basics of IOT protocols
- To build a small low cost embedded system using Raspberry Pi.
- To apply the concept of Internet of Things in the real world scenario.

UNIT I INTRODUCTION TO IoT 9

Internet of Things - Physical Design- Logical Design- IoT Enabling Technologies - IoT Levels & Deployment Templates - Domain Specific IoTs - IoT and M2M - IoT System Management with NETCONF-YANG- IoT Platforms Design Methodology

UNIT II IoT ARCHITECTURE 9

M2M high-level ETSI architecture - IETF architecture for IoT - OGC architecture - IoT reference model - Domain model - information model - functional model - communication model - IoT reference architecture

UNIT III IoT PROTOCOLS 9

Protocol Standardization for IoT – Efforts – M2M and WSN Protocols – SCADA and RFID Protocols – Unified Data Standards – Protocols – IEEE 802.15.4 – BACNet Protocol – Modbus– Zigbee Architecture – Network layer – 6LowPAN - CoAP - Security

UNIT IV BUILDING IoT WITH RASPBERRY PI & ARDUINO 9

Building IOT with RASPBERRY PI- IoT Systems - Logical Design using Python – IoT Physical Devices & Endpoints - IoT Device - Building blocks -Raspberry Pi -Board - Linux on Raspberry Pi - RaspberryPi Interfaces -Programming Raspberry Pi with Python - Other IoT Platforms - Arduino.

UNIT V CASE STUDIES AND REAL-WORLD APPLICATIONS 9

Real world design constraints - Applications - Asset management, Industrial automation, smart grid, Commercial building automation, Smart cities - participatory sensing - Data Analytics for IoT –Software & Management Tools for IoT Cloud Storage Models & Communication APIs - Cloud for IoT - Amazon Web Services for IoT.

TOTAL : 45 PERIODS**OUTCOMES:**

Upon completion of the course, the student should be able to:

- Analyze various protocols for IoT
- Develop web services to access/control IoT devices.
- Design a portable IoT using Rasperry Pi
- Deploy an IoT application and connect to the cloud.
- Analyze applications of IoT in real time scenario

REFERENCES:

1. Arshdeep Bahga, Vijay Madiseti, "Internet of Things – A hands-on approach",Universities Press, 2015
2. Dieter Uckelmann, Mark Harrison, Michahelles, Florian (Eds), "Architecting the Internet of Things", Springer, 2011.
3. Honbo Zhou, "The Internet of Things in the Cloud: A Middleware Perspective", CRC Press, 2012.
4. Jan Ho` ller, Vlasios Tsiatsis , Catherine Mulligan, Stamatis , Karnouskos, Stefan Avesand. David Boyle, "From Machine-to-Machine to the Internet of Things - Introduction to a New Age of Intelligence", Elsevier, 2014.
5. Olivier Hersent, David Boswarthick, Omar Elloumi , "The Internet of Things – Key applications and Protocols", Wiley, 2012.

OBJECTIVES:

- To give fundamental concepts related to broadband access technologies.
- To understand the current and emerging wired and wireless access technologies.
- To acquire knowledge about cable modems and fiber access technologies.
- To have an exposure to different systems standards for next generation broadband access networks.

UNIT I	REVIEW OF ACCESS TECHNOLOGIES	5
Phone-Line modem, cable-access, ISDN, Emerging Broad band Technologies, Cable DSL, Fiber and Wireless, Standards for access network.		
UNIT II	DIGITAL SUBSCRIBER LINES	10
Asymmetric Digital subscriber lines (ADSL) — Rate Adaptive subscriber line (RADSL)-ISDN Digital subscriber line (IDSL) - High bit rate DSL (HDSL)-Single line DSL (SDSL) - very high bit rate DSL (VDSL) - Standards for XDSL & Comparison.		
UNIT III	CABLE MODEM	10
Cable Modem, DOCSIS – Physical Cabling, Dual Modem Operation, Hub Restriction, Upstream Operation – Downstream operation – Access control – framing Security sub layer – Data link layer – LLC & Higher layers – ATM centric VS IP – centric cable modem.		
UNIT IV	FIBER ACCESS TECHNOLOGIES	10
Optical Fiber in access networks, Architecture and Technologies- Hybrid fiber — Coax (HFC) system, Switched Digital Video (SDV) — Passive optical networks (PON) — FTTX (FTTH, FTTB, FTTC, FTT cab) comparison, Broadband PON, Gigabit-Capable PON.		
UNIT V	BROAD BAND WIRELESS	10
Fixed Wireless, Direct Broadcast Satellite (DBS), Multi channel multi point distribution services (MMDS), Local multi point distribution services (LMDS), and Wideband integrated Digital Interactive Services (WIDIS), Mobile Wireless 3G — IMT 2000, Introduction to LTE-A.		

TOTAL : 45 PERIODS**OUTCOMES:**

- To able to design systems meeting out the requirements of the recent standards.
- To meet out the industry requirements for man power in next generation networks.
- To be able to contribute towards the enhancement of the existing wireless technologies.

REFERENCES:

1. Dennis J. Rauschmayer, "ADSL/VDSL Principles: A Practical and Precise Study of Asymmetric Digital Subscriber Lines and Very High Speed Digital Subscriber Lines", Macmillan Technology Series, 1998.
2. Gilbert Held, "Next Generation Modems: A Professional Guide to DSL and Cable Modems", John Wiley & Sons, 2000.
3. Leonid G. Kazovsky, Ning Cheng, Wei-Tao Shaw, David Gutierrez, Shing-Wa Wong, "Broadband Optical Access Networks", John Wiley and Sons, New Jersey, 2011.
4. Martin P. Clarke, "Wireless Access Network: Fixed Wireless Access and WLL Network Design and Operation", John Wiley & Sons 2000.
5. Niel Ransom and Albert A. Azzam, "Broadband Access Technologies: ADSL, VDSL Cable Modem, Fiber and LMDS", McGraw Hill, 1999.
6. Sassan Ahmadi, "LTE-Advanced – A practical systems approach to understanding the 3GPP LTE Releases 10 and 11 radio access technologies", Elsevier, 2014.
7. Walter J Woralski, "ADSL and DSL Technologies", McGraw Hill Computer Communication Series, Second Edition Oct 2001.
8. William Webb, "Introduction to Wireless Local Loop Broadband and Narrow Band System", Mobile Communication Series, Artech House Publishers, Second Edition 2000.

**A SMART WASTE MANAGEMENT AND
MONITORING SYSTEM USING AUTOMATIC
UNLOADING ROBOT**

A THESIS

Submitted by

L.NITHYA

in partial fulfillment for the award of the degree of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING
ANNA UNIVERSITY, CHENNAI**

JUNE 2017

N. Nithya
PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-606201,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "A SMART WASTE MANAGEMENT AND MONITORING SYSTEM USING AUTOMATIC UNLOADING ROBOT" is the bonafide work of **L. NITHYA** (621115403010) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs.P.POOVIZHI M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mr.M.MAHESH M.Tech.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28-06-2017


INTERNAL EXAMINER


EXTERNAL EXAMINER

PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalaym Road, CHINNASALEM-60620,
Kallakurichi Taluk, Villupuram District

ABSTRACT

In our city, dustbins placed at public places are overflowing. It creates unhygienic conditions for the people. Also it creates ugliness to that place. At the same time bad smell is also spread. Nowadays, there are number of techniques which are purposefully used are being build up for well management of garbage or solid waste. We are going to implement a project called A Smart Waste Management and Monitoring System with automatic Unloading Robot to avoid situations of this type. To give a brief description, at the public places, the sensors are placed in the common garbage bins. When the garbage reaches the level of the sensor, then that indication will be given to PIC microcontroller. Robot used to collect the wastes after reaching high wastage level. To move the robot from garbage area and unload the wastage by Using DC Motor. The outcome of this method is efficient and intelligent and can be used to automate any solid waste bin management process.

Mani

PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606
hallakurichi Taluk, Villupuram Distric.

P694

**REAL TIME URBAN BUS NAVIGATION AND
ACCIDENT DETECTION BASED ON
GPS-GSM**

A THESIS

Submitted by

K.SANTHIYA

in partial fulfillment for the award of the degree of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Principi
PRINCIPAL
Idhaya Engineering College for Women
Vainarpataym Road, CHINNASALEM-600
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "REAL TIME URBAN BUS NAVIGATION AND ACCIDENT DETECTION BASED ON GPS-GSM" is the bonafide work of **SANTHIYA.K (621115403016)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs.P.POOVIZHI M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mrs.S.DHANALAKSHMI M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28-06-2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-6062,
Kallakurichi Taluk, Villupuram District

ABSTRACT

A public traffic system mainly depends on driver's manual operation, which will inevitably encounter many problems such as punctuality of the bus's arrival on bus station. The main problem in the current scenario is the tracking of an organization buses while moving on a highway is a crucial task. A person patiently waiting for the bus may need to enquire about the position of current location of the bus. Mobile phones based bus tracking system provides a solution to this problem which helps anyone to know the location of the bus without calling or disturbing the person travelling in that bus. It also consists of accident detection system in which the vibration sensor has been used in order to detect the occurrence of the accident and once if the accidents occur then the message will be given to the system. It will track the location of the bus where it met with accident and immediately delivers the message about the accident to the emergency services such as ambulance and concerned people without time delay. System based on GPS and GSM technology, to improve the operation efficiency of bus monitoring system and realizes intelligent transportation system. The UBN system based on GPS and GSM technology for real time bus navigation, arrival time prediction and accident detection.

Prerna
PRINCIPAL

Shri. J. S. S. Engineering College for Women
Vainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District.

**FOOT INJURY DETECTION USING
K-MEANS CLUSTERING**

A THESIS

Submitted by

R.RAMYA

in partial fulfillment for the award of the degree

of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017


PRINCIPAL

Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-60624
Kallakurichi Taluk, Villupuram District

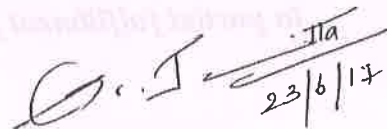
ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this thesis titled "FOOT INJURY DETECTION USING K-MEANS CLUSTERING" is the bonafide work of **RAMYA.R** (621115403013) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.



SIGNATURE

Mrs.P.POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Sr.A.JENITTA, M.E., (Ph.D)
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.06.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Diabetic foot ulcer is a major complication of diabetes mellitus and probably the major component of the diabetic foot. Its significant transcendence is related to a higher incidence and amputation percentage as well as deaths. The attending physician fills out a questionnaire based on its support instrumental measurements and its own. The aforementioned questionnaire will provide the foundation for diagnose that also depends on the criteria and the consultant's experience. This paper aims to become the first link to optimize the diabetic's foot evaluation through the introduction of digital image Processing techniques. The foot ulcer detected by using morphological operation and K-means clustering. Patient wound image is processing under different steps such as pre-processing RGB to Gray conversion, Segmentation, K-means clustering algorithm, foot line and boundary detection, color segmentation, healing status. Healing status is depending on red, yellow, black color evolution model. Foot ulcer image used to convert gray scale image by using Gabor filter. The filtered image is further processed by the morphological operations like erosion and dilation methods. K-means clustering will be used to extract the precise ulcer image without skin tones from the given input image. Also the comparison between K-means clustering and mean shift segmentation will be evaluated. It is possible that the implementation of this algorithm to a series of trial images will be provided positive results for wound and location detection.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60621
Kallakurichi Taluk, Villupuram District

WIRELESS TRAIN CONTROL SYSTEM USING LIFI

ATHESIS

Submitted by

M.MOHANA PRIYA

In partial fulfilment for the award of the degree

Of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Principa
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

D 705


ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "WIRELESS TRAIN CONTROL SYSTEM USING LIFI" is the bonafide work of **M.MOHANA PRIYA (621115403009)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


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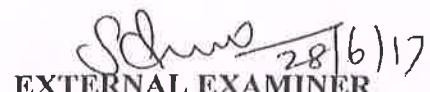
Mrs. P.POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Ms. S.IMAYA, M.Tech.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28/06/2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Communications Based Train Control (CBTC) provides positive train separation, over speed protection, and protection for roadway workers. Current system designs do not include trust management systems to provide support for security, rendering CBTC communications vulnerable to malactors. Traditional train control methods and the architecture of CBTC systems are studied to determine specific vulnerabilities of CBTC systems and the associated system security requirements. The security requirement is used to derive an appropriate trust management system. Existing work on safe cross domain dispatch operations has not considered the impact of these trust management systems on allowable traffic delays and system velocity or related them to train dynamics. A relationship between train dynamics and trust management delay is presented to allow engineering estimates of the practicality of potential trust management systems to support rail operations while preventing collisions. An algorithm for the safe and secure scheduling of trains through the interchange point between is provided. The algorithm supports positive train separation under a worst-case traffic scenario, allowing for safe and secure scheduling while reducing traffic delays. The approach presented is illustrated by an example, and is independent of the specific security management, CBTC, and dispatch systems.


PRINCIPAL
Sadhya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

**COMBINING DATA HIDING AND BIOMETRICS
METHOD USING FACE AND FINGER PRINT IMAGES**

A THESIS

Submitted by

N.REKHA

in partial fulfilment for the award of the degree of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017


PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalayam Road, CHINNASALEM-606206
Sallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "COMBINING DATA HIDING AND BIOMETRICS METHOD USING FACE AND FINGER PRINT IMAGES" is the bonafide work of **N.REKHA** (6211154030015) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE


Mrs. P. POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.



SIGNATURE

Ms. J. RANJITH MARIYAL, M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28. 06. 2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

In wireless communications sensitive information is frequently exchanged, requiring remote authentication. Remote authentication involves the submission of encrypted information, along with visual and audio cues (facial images/videos, human voice etc). Nevertheless, Trojan horse and other attacks can cause serious problems, especially in cases of remote examinations (in remote studying) or interviewing (for personnel hiring). This paper proposes a robust authentication mechanism based on semantic segmentation, encryption and data hiding. Assuming that user X wants to be remotely authenticated, initially X's video object (VO) is automatically segmented, using a head and- body detector. Next, one of X's biometric signals is encrypted by Arnold Transform. Afterwards the encrypted signal is inserted to the most significant wavelet coefficients of the VO, using its Qualified Significant Wavelet Trees (QSWTs). QSWTs provide both invisibility and significant resistance against lossy transmission and compression, conditions that are typical in wireless networks. Finally, the Inverse Discrete Wavelet Transform (IDWT) is applied to provide the stego-object (SO).


PRINCIPAL

Idnaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

**MULTIPLIERLESS HIGH PERFORMANCE FFT
COMPUTATION**

A THESIS

Submitted by

U.MAHESHWARI

in partial fulfilment for the award of the degree of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING
ANNA UNIVERSITY, CHENNAI**

JUNE 2017

M. Maheshwari
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "MULTIPLIERLESS HIGH PERFORMANCE FFT COMPUTATION" is the bonafide work of **U.MAHESHWARI (621115403006)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

Mrs. P.POOVIZHI, M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mrs. S.DHANALAKSHMI, M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.6.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalaym Road, CHINNASALEM-60620,
Kallakurichi Taluk, Villupuram District

ABSTRACT

A propose approach to implement multiplierless unity-gain single-delay feedback fast Fourier transforms (FFTs). Previous methods achieve unity-gain FFTs by using either complex multipliers or nonunity-gain rotators with additional scaling compensation. In this brief proposes unity-gain FFTs without compensation circuits, even when using nonunity-gain rotators. This is achieved by a joint design of rotators, so that the entire FFT is scaled by a power of two, which is then shifted to unity. This reduces the amount of hardware resources of the FFT architecture, while having high accuracy in the calculations. The proposed approach can be applied to any FFT size, and various designs for different FFT sizes are presented.

Mansi
PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-606205
Kallakurichi Taluk, Villupuram District

PORTABLE CAMERA BASED IDENTIFICATION SYSTEM FOR VISUALLY IMPAIRED PEOPLE

A THESIS

Submitted by

R.CHENTHAMIL ROJA

in partial fulfilment for the award of the degree of

**MASTER OF ENGINEERING IN
COMMUNICATION SYSTEMS**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN
CHINNASALEM**

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Mani
PRINCIPAL

Idhaya Engineering College for Women
Mainarpalayam Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled “PORTABLE CAMERA BASED IDENTIFICATION SYSTEM FOR VISUALLY IMPAIRED PEOPLE” is the bonafide work of **R.CHENTHAMIL ROJA** (621115403003) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE

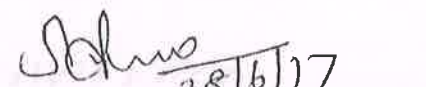
Mrs. P.POOVIZHI,M.E.,
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mrs. P.POOVIZHI, M.E.,
SUPERVISOR,
Assistant Professor,
Department of Electronics &
Communication Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 28.06.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalayam Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

The system that provides security, guidance and independence to the visually impaired people is called assistive aid system. In this system reformative work for developing an assistive aid system for visually impaired people was done. This system act as an identification system and text navigator that are capable of assist or guide people with vision loss, ranging from partially sighted to totally blind, by means of sound commands. This system involves the sequential operations of color identification, currency denomination and recognition, obstacle detection, reading newspapers and books. Here the text navigator system and identification systems are integrated into the single chip which is represented as Raspberry pi ARM11 (BCM2836). This Raspberry pi has 900MHz of high speed and accuracy. The text navigator system is used to captures an alphabetic and numeric letters by using a camera module as an image object and convert to text file using Optical Character Recognition (OCR) engine then convey that text file information using the speaker. This identification system and text navigator system are specifically designed for visually impaired people, so they can easily use this device without anyone's help.



PRINCIPAL

Idhaya Engineering College for women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To understand the usage of algorithms in computing.
- To learn and use hierarchical data structures and its operations
- To learn the usage of graphs and its applications.
- To select and design data structures and algorithms that is appropriate for problems.
- To study about NP Completeness of problems.

UNIT I ROLE OF ALGORITHMS IN COMPUTING

12

Algorithms – Algorithms as a Technology- Insertion Sort – Analyzing Algorithms – Designing Algorithms- Growth of Functions: Asymptotic Notation – Standard Notations and Common Functions- Recurrences: The Substitution Method – The Recursion-Tree Method

UNIT II HIERARCHICAL DATA STRUCTURES

12

Binary Search Trees: Basics – Querying a Binary search tree – Insertion and Deletion- Red-Black trees: Properties of Red-Black Trees – Rotations – Insertion – Deletion -B-Trees: Definition of B-trees – Basic operations on B-Trees – Deleting a key from a B-Tree- Fibonacci Heaps: structure – Mergeable-heap operations- Decreasing a key and deleting a node-Bounding the maximum degree.

UNIT III GRAPHS

12

Elementary Graph Algorithms: Representations of Graphs – Breadth-First Search – Depth-First Search – Topological Sort – Strongly Connected Components- Minimum Spanning Trees: Growing a Minimum Spanning Tree – Kruskal and Prim- Single-Source Shortest Paths: The Bellman-Ford algorithm – Single-Source Shortest paths in Directed Acyclic Graphs – Dijkstra's Algorithm; All-Pairs Shortest Paths: Shortest Paths and Matrix Multiplication – The Floyd- Warshall Algorithm;

UNIT IV ALGORITHM DESIGN TECHNIQUES

12

Dynamic Programming: Matrix-Chain Multiplication – Elements of Dynamic Programming – Longest Common Subsequence- Greedy Algorithms: An Activity-Selection Problem – Elements of the Greedy Strategy- Huffman Codes.

UNIT V NP COMPLETE AND NP HARD

12

NP-Completeness: Polynomial Time – Polynomial-Time Verification – NP- Completeness and Reducibility – NP-Completeness Proofs – NP-Complete Problems

TOTAL: 60 PERIODS**OUTCOMES:**

Upon the completion of the course the students should be able to:

- Design data structures and algorithms to solve computing problems
- Design algorithms using graph structure and various string matching algorithms to solve real-life problems
- Apply suitable design strategy for problem solving

REFERENCES:

1. Alfred V. Aho, John E. Hopcroft, Jeffrey D. Ullman, —Data Structures and Algorithms!, Pearson Education, Reprint 2006.
2. Robert Sedgwick and Kevin Wayne, —ALGORITHMS!, Fourth Edition, Pearson Education.
3. S.Sridhar, |Design and Analysis of Algorithms!, First Edition, Oxford University Press. 2014
4. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein, —Introduction to Algorithms!, Third Edition, Prentice-Hall, 2011.

Ramesh
Dr.R.GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

OBJECTIVES:

- To introduce the students to the recent trends in the field of Computer Architecture and identify performance related parameters.
- To learn the different multiprocessor issues.
- To expose the different types of multicore architectures.
- To understand the design of the memory hierarchy.

UNIT I	FUNDAMENTALS OF COMPUTER DESIGN AND ILP	9
Fundamentals of Computer Design – Measuring and Reporting Performance – Instruction Level Parallelism and its Exploitation – Concepts and Challenges – Exposing ILP - Advanced Branch Prediction - Dynamic Scheduling - Hardware-Based Speculation - Exploiting ILP - Instruction Delivery and Speculation - Limitations of ILP - Multithreading		
UNIT II	MEMORY HIERARCHY DESIGN	9
Introduction – Optimizations of Cache Performance – Memory Technology and Optimizations – Protection: Virtual Memory and Virtual Machines – Design of Memory Hierarchies – Case Studies.		
UNIT III	MULTIPROCESSOR ISSUES	9
Introduction- Centralized, Symmetric and Distributed Shared Memory Architectures – Cache Coherence Issues – Performance Issues – Synchronization – Models of Memory Consistency – Case Study-Interconnection Networks – Buses, Crossbar and Multi-stage Interconnection Networks		
UNIT IV	MULTICORE ARCHITECTURES	9
Homogeneous and Heterogeneous Multi-core Architectures – Intel Multicore Architectures – SUN CMP architecture – IBM Cell Architecture. Introduction to Warehouse-scale computers- Architectures- Physical Infrastructure and Costs- Cloud Computing – Case Study- Google Warehouse-Scale Computer.		
UNIT V	VECTOR, SIMD AND GPU ARCHITECTURES	9
Introduction-Vector Architecture – SIMD Extensions for Multimedia – Graphics Processing Units – Case Studies – GPGPU Computing – Detecting and Enhancing Loop Level Parallelism-Case Studies.		
TOTAL :		45 PERIODS


OUTCOMES:

Upon completion of this course, the students should be able to:

- Identify the limitations of ILP.
- Discuss the issues related to multiprocessing and suggest solutions
- Point out the salient features of different multicore architectures and how they exploit parallelism.
- Discuss the various techniques used for optimising the cache performance
- Design hierarchical memory system
- Point out how data level parallelism is exploited in architectures

REFERENCES:

1. Darryl Gove, —Multicore Application Programming: For Windows, Linux, and Oracle Solaris, Pearson, 2011
2. David B. Kirk, Wen-mei W. Hwu, —Programming Massively Parallel Processors, Morgan Kaufman, 2010
3. David E. Culler, Jaswinder Pal Singh, —Parallel computing architecture : A hardware/software approach, Morgan Kaufmann /Elsevier Publishers, 1999
4. John L. Hennessy and David A. Patterson, —Computer Architecture – A Quantitative Approach, Morgan Kaufmann / Elsevier, 5th edition, 2012.
5. Kai Hwang and Zhi. Wei Xu, —Scalable Parallel Computing, Tata McGraw Hill, New Delhi, 2003


DR. GURUMANI, M.E., Ph.D., M.B.A., M.I.S.TE., F.I.E.
PRINCIPAL
IDRANAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-600 021 KAMLAKURICHI D.T.

OBJECTIVES :

- To be able to read and understand sample open source programs and header files.
- To learn how the processes are implemented in linux.
- To understand the implementation of the Linux file system.
- To study Linux memory management data structures and algorithms.
- To acquire the knowledge in the implementation of interprocess communication.
- To understand how program execution happens in Linux.

UNIT I	INTRODUCTION	9
Basic Operating System Concepts - Overview of Unix File System - Files - Links - Types - Inodes - Access Rights - System Calls - Overview of Unix Kernels - Model - Implementation - Reentrant Kernels - Address Space - Synchronization - Interprocess Communication - Process Management - Memory Management - Device Drivers.		
UNIT II	PROCESSES	9
Processes, Lightweight Processes, and Threads - Process Descriptor - State - Identifying a Process - Relationships among processes - Organization - Resource Limits - Creating Processes - System Calls - Kernel Threads - Destroying Processes - Termination - Removal.		
UNIT III	FILE SYSTEM	9
The Virtual File System (VFS) - Role - File Model - System Calls - Data Structures - Super Block, Inode, File, dentry Objects - dentry Cache - Files Associated with a Process - Filesystem Types - Special Filesystems - Filesystem Type Registration - Filesystem Handling - Namespaces - Mounting - Unmounting - Implementation of VFS System Calls.		
UNIT IV	MEMORY MANAGEMENT	9
Page frame management - page descriptors - non-uniform memory access - memory zones - reserved page frames - zoned page frame allocator - kernel mappings - buddy system algorithm - page frame cache - zone allocator.		
UNIT V	PROCESS COMMUNICATION AND PROGRAM EXECUTION	9
Process Communication - Pipes - Usage - Data Structures - Creating and Destroying a Pipe - Reading From and Writing into a Pipe. Program Execution - Executable Files - Process Credentials - Command-Line Arguments and Shell Environment - Libraries - Program Segments and Process Memory Regions - Execution tracing - Executable Formats - Execution Domains - The exec Functions		

TOTAL: 45 PERIODS**OUTCOMES:****At the end of this course, the students should be able to:**

- To explain the functionality of a large software system by reading its source.
- To revise any algorithm present in a system.
- To design a new algorithm to replace an existing one.
- To appropriately modify and use the data structures of the linux kernel for a different software system.

REFERENCES:

1. Daniel P. Bovet and Marco Cesati, "Understanding the Linux Kernel", 3rd Edition, O'Reilly Publications, 2005.
2. Harold Abelson, Gerald Jay Sussman and Julie Sussman, —Structure and Interpretation of Computer Programs, Second Edition, Universities Press, 2013.
3. Maurice J. Bach, —The Design of the Unix Operating System 1st Edition Pearson Education, 2003.
4. Michael Beck, Harald Bohme, Mirko Dziadzka, Ulrich Kunitz, Robert Magnus, Dirk Verworner, —Linux Kernel Internals, 2nd Edition, Addison-Wesley, 1998.
5. Robert Love, —Linux Kernel Development, 3rd Edition, Addison-Wesley, 2010.

Gurmani

Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

**BEST EFFORT SERVICE TO PROVIDE
ULTRA-LOW-LATENCY GUARANTEED-RATE**

A THESIS

Submitted by

M.PUNITHA

(Register No: 621115405009)

in partial fulfillment for the award of the degree of

**MASTER OF ENGINEERING
IN
COMPUTER SCIENCE AND ENGINEERING**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

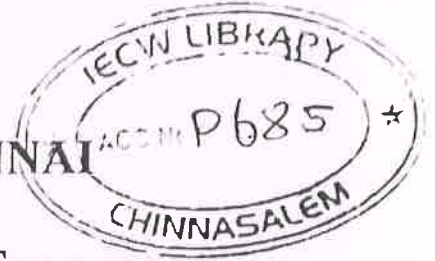
ANNA UNIVERSITY, CHENNAI

JUNE 2017

Principal
PRINCIPAL

Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-606,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

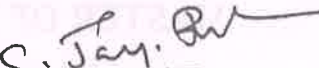


BONAFIDE CERTIFICATE

Certified that this Thesis titled "BEST EFFORT SERVICE TO PROVIDE ULTRA-LOW-LATENCY GUARANTEED-RATE" is the bonafide work of **M.PUNITHA** (Register No: 621115405009) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

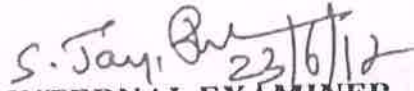

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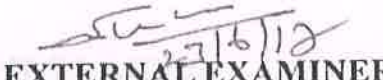
Mr. S. JAYAPRAKASH M.E.,(Ph.D)
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Computer Science and
Engineering
IdhayaEngg. College for Women,
Chinnasalem-606 201.


SIGNATURE

Mr. S. JAYAPRAKASH M.E.,(Ph.D)
SUPERVISOR,
Assistant Professor,
Department of Computer Science and
Engineering
IdhayaEngg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 23.06.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ABSTRACT

An Enhanced- Internet network that provides ultra-low-latency guaranteed-rate (GR) communications for Cloud Services is proposed. The network supports two traffic classes, the Smooth and Best-Effort classes. Smooth traffic flows receive low-jitter GR service over virtual-circuit-switched (VCS) connections with negligible buffering and queuing delays, up to 100% link utilizations, deterministic end-to-end quality-of-service (QoS) guarantees, and improved energy efficiency. End-to-end delays are effectively reduced to the fiber "time of flight." A new router scheduling problem called the Bounded Normalized-Jitter integer-programming problem is formulated. A fast polynomial-time approximate solution is presented, allowing TDM-based router schedules to be computed in microseconds. We establish that all admissible traffic demands in any packet-switched network can be simultaneously satisfied with GR-VCS connections, with minimal buffering. Each router can use two periodic TDM-based schedules to support GR-VCS connections, which are updated automatically when the router's traffic rate matrix changes. The design of a Silicon-Photonics all-optical packet switch with minimal buffering is presented. The Enhanced-Internet can: 1) reduce router buffer requirements by factors of ≥ 1000 ; 2) increase the Internet's aggregate capacity; 3) lower the Internet's capital and operating costs; and 4) lower greenhouse gas emissions through improved energy efficiency.



PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60626
Kallakurichi Taluk, Villupuram District

P187

702112A

**DETECTION OF STEGO FROM MOTION VECTOR
PATTERNS USING STEGANALYSIS**

A THESIS

Submitted by

SOUNDARYA. R

Register No: 621115405016

In partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING



IDHAYA ENGINEERING COLLEGE FOR WOMEN,

DEPARTMENT OF COMPUTER SCIENCE AND

ENGINEERING

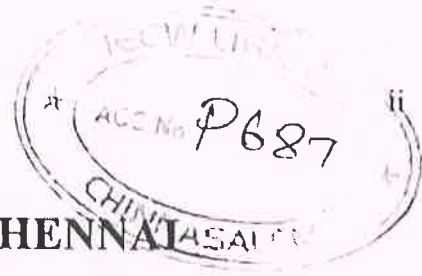
CHINNASALEM-606201

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Neeraj
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalayam Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District



ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Report titled "DETECTION OF STEGO FROM MOTION VECTOR PATTERNS USING STEGANALYSIS" is the bonafide work of **SOUNDARYA.R** (Reg No 621115405016) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

S. Jay. Pr
SIGNATURE

Mr.S.JAYAPRAKASH,M.E.,(Ph.D)
Head of the Department,
Department of Computer Science
and Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606201

S. Jay. Pr
SIGNATURE

Mr.S.JAYAPRAKASH,M.E.,(Ph.D)
Head of the Department,
Department of Computer Science
and Engineering,
Idhaya Engg.College for Women,
Chinnasalem-606201

Project phase-II Viva voce submitted on .23.06.2017...

S. Jay. Pr 23/6/17
INTERNAL EXAMINER

S. Jay. Pr 23/6/17
EXTERNAL EXAMINER

Praveen
PRINCIPAL

Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-6062
Kallakurichi Taluk, Villupuram District

ABSTRACT

Currently, Internet and digital media are getting more and more popular. So, requirement of secure transmission of data also increased. When the data size and the variety of ways to embed message are considered, video has advantages over others. Despite these advantages of video, until lately, majority of steganalysis researches has focused on images because of its popularity, ease of implementation and ease of sharing them on the Internet. However, by escalation of number of Internet users and advancements in networking infrastructures the number of videos shared online has increased significantly. This explosive growth of online video makes it an appealing channel for covert communication using steganography. The proposed steganalysis method has a substantially superior detection accuracy of the embedded secret message in the video. The improvement in detection accuracy lies in several novel approaches introduced in this paper. The temporal correlation of close and distant frames are incorporated and filters up to 5th order are used in the system. In this paper, I propose a novel MV steganalysis method by forming a rich model which is a result of many diverse high-pass filters. The filters can capture different types of dependencies among MVs in a wide spatio-temporal range. In this way, a more descriptive model of MV patterns is constructed. There is a strong correlation between temporally and spatially neighbouring MVs. By using this fact, a method is introduced to allow us to apply the filter to both spatial and temporal MV domain. Test results also showed that phase modifying stego methods are more secure than LSB based ones unless MV region is divided into insufficient number of regions.

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PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM
Kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To understand Software Engineering Lifecycle Models
- To do project management and cost estimation
- To gain knowledge of the System Analysis and Design concepts.
- To understand software testing approaches
- To be familiar with DevOps practices

UNIT I	INTRODUCTION	9
Software engineering concepts – Development activities – Software lifecycle models - Classical waterfall - Iterative waterfall – Prototyping – Evolutionary - Spiral – Software project management – Project planning – Estimation – Scheduling – Risk management – Software configuration management.		
UNIT II	SOFTWARE REQUIREMENT SPECIFICATION	9
Requirement analysis and specification – Requirements gathering and analysis – Software Requirement Specification – Formal system specification – Finite State Machines – Petrinets – Object modelling using UML – Use case Model – Class diagrams – Interaction diagrams – Activity diagrams – State chart diagrams – Functional modelling – Data Flow Diagram.		
UNIT III	ARCHITECTURE AND DESIGN	9
Software design – Design process – Design concepts – Coupling – Cohesion – Functional independence – Design patterns – Model-view-controller – Publish-subscribe – Adapter – Command – Strategy – Observer – Proxy – Facade – Architectural styles – Layered - Client-server - Tiered - Pipe and filter.- User interface design		
UNIT IV	TESTING	9
Testing – Unit testing – Black box testing– White box testing – Integration and System testing– Regression testing – Debugging - Program analysis – Symbolic execution – Model Checking		
UNIT V	DEVOPS	9
DevOps: Motivation-Cloud as a platform-Operations- Deployment Pipeline: Overall Architecture- Building and Testing- Deployment- Case study: Migrating to Microservices.		
TOTAL:		45 PERIODS

OUTCOMES:

At the end of this course, the students will be able to:

- Understand the advantages of various Software Development Lifecycle Models
- Gain knowledge on project management approaches as well as cost and schedule estimation strategies
- Perform formal analysis on specifications
- Use UML diagrams for analysis and design
- Architect and design using architectural styles and design patterns
- Understand software testing approaches
- Understand the advantages of DevOps practices

REFERENCES:

1. Bernd Bruegge, Alan H Dutoit, Object-Oriented Software Engineering, 2nd edition, Pearson Education, 2004.
2. Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli, Fundamentals of Software Engineering, 2nd edition, PHI Learning Pvt. Ltd., 2010.
3. Craig Larman, Applying UML and Patterns, 3rd ed, Pearson Education, 2005.
4. Len Bass, Ingo Weber and Liming Zhu, —DevOps: A Software Architect's Perspective, Pearson Education, 2016
5. Rajib Mall, Fundamentals of Software Engineering, 3rd edition, PHI Learning Pvt. Ltd., 2009.
6. Stephen Schach, Software Engineering 7th ed, McGraw-Hill, 2007.

Manvi
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT

OBJECTIVES:

- To introduce students to the basic concepts and techniques of Machine Learning.
- To have a thorough understanding of the Supervised and Unsupervised learning techniques
- To study the various probability based learning techniques
- To understand graphical models of machine learning algorithms

UNIT I INTRODUCTION 9

Learning – Types of Machine Learning – Supervised Learning – The Brain and the Neuron – Design a Learning System – Perspectives and Issues in Machine Learning – Concept Learning Task – Concept Learning as Search – Finding a Maximally Specific Hypothesis – Version Spaces and the Candidate Elimination Algorithm – Linear Discriminants – Perceptron – Linear Separability – Linear Regression.

UNIT II LINEAR MODELS 9

Multi-layer Perceptron – Going Forwards – Going Backwards: Back Propagation Error – Multi-layer Perceptron in Practice – Examples of using the MLP – Overview – Deriving Back- Propagation – Radial Basis Functions and Splines – Concepts – RBF Network – Curse of Dimensionality – Interpolations and Basis Functions – Support Vector Machines.

UNIT III TREE AND PROBABILISTIC MODELS 9

Learning with Trees – Decision Trees – Constructing Decision Trees – Classification and Regression Trees – Ensemble Learning – Boosting – Bagging – Different ways to Combine Classifiers – Probability and Learning – Data into Probabilities – Basic Statistics – Gaussian Mixture Models – Nearest Neighbor Methods – Unsupervised Learning – K means Algorithms – Vector Quantization – Self Organizing Feature Map

UNIT IV DIMENSIONALITY REDUCTION AND EVOLUTIONARY MODELS 9

Dimensionality Reduction – Linear Discriminant Analysis – Principal Component Analysis – Factor Analysis – Independent Component Analysis – Locally Linear Embedding – Isomap – Least Squares Optimization – Evolutionary Learning – Genetic algorithms – Genetic Offspring: - Genetic Operators – Using Genetic Algorithms – Reinforcement Learning – Overview – Getting Lost Example – Markov Decision Process

UNIT V GRAPHICAL MODELS 9

Markov Chain Monte Carlo Methods – Sampling – Proposal Distribution – Markov Chain Monte Carlo – Graphical Models – Bayesian Networks – Markov Random Fields – Hidden Markov Models – Tracking Methods

TOTAL: 45 PERIODS**OUTCOMES:**

Upon completion of this course, the students will be able to:

- Distinguish between, supervised, unsupervised and semi-supervised learning
- Apply the appropriate machine learning strategy for any given problem
- Suggest supervised, unsupervised or semi-supervised learning algorithms for any given problem
- Design systems that uses the appropriate graph models of machine learning
- Modify existing machine learning algorithms to improve classification efficiency

REFERENCES:

- 1 Ethem Alpaydin, —Introduction to Machine Learning 3e (Adaptive Computation and Machine Learning Series)l, Third Edition, MIT Press, 2014
- 2 Jason Bell, —Machine learning – Hands on for Developers and Technical Professionalsl, First Edition, Wiley, 2014
- 3 Peter Flach, —Machine Learning: The Art and Science of Algorithms that Make Sense of Data, First Edition, Cambridge University Press, 2012.
- 4 Stephen Marsland, —Machine Learning — An Algorithmic Perspective, Second Edition, Chapman and Hall/CRC Machine Learning and Pattern Recognition Series, 2014.
- 5 Tom M Mitchell, —Machine Learningl, First Edition, McGraw Hill Education, 2013.

Mansi
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

OBJECTIVES:

- To understand the principles required for network design
- To explore various technologies in the wireless domain
- To study about 3G and 4G cellular networks
- To understand the paradigm of Software defined networks

UNIT I NETWORK DESIGN

10

Advanced multiplexing – Code Division Multiplexing, DWDM and OFDM – Shared media networks – Switched networks – End to end semantics – Connectionless, Connection oriented, Wireless Scenarios – Applications, Quality of Service – End to end level and network level solutions. LAN cabling topologies – Ethernet Switches, Routers, Firewalls and L3 switches – Remote Access Technologies and Devices – Modems and DSLs – SLIP and PPP – Core networks, and distribution networks.

UNIT II WIRELESS NETWORKS

9

IEEE802.16 and WiMAX – Security – Advanced 802.16 Functionalities – Mobile WiMAX -802.16e – Network Infrastructure – WLAN – Configuration – Management Operation – Security – IEEE 802.11e and WMM – QoS Comparison of WLAN and UMTS – Bluetooth – Protocol Stack – Security – Profiles

UNIT III CELLULAR NETWORKS

9

GSM – Mobility Management and call control – GPRS – Network Elements – Radio Resource Management – Mobility Management and Session Management – Small Screen Web Browsing over GPRS and EDGE – MMS over GPRS – UMTS – Channel Structure on the Air Interface – UTRAN – Core and Radio Network Mobility Management – UMTS Security

UNIT IV 4G NETWORKS

9

LTE – Network Architecture and Interfaces – FDD Air Interface and Radio Networks – Scheduling – Mobility Management and Power Optimization – LTE Security Architecture – Interconnection with UMTS and GSM – LTE Advanced (3GPP Release 10) – 4G Networks and Composite Radio Environment – Protocol Boosters – Hybrid 4G Wireless Networks Protocols – Green Wireless Networks – Physical Layer and Multiple Access – Channel Modelling for 4G – Introduction to 5G

UNIT V SOFTWARE DEFINED NETWORKS

9

Introduction – Centralized and Distributed Control and Data Planes – Open Flow – SDN Controllers – General Concepts – VLANs – NVGRE – Open Flow – Network Overlays – Types – Virtualization – Data Plane – I/O – Design of SDN Framework

TOTAL : 45 PERIODS**OUTCOMES:**

Upon completion of this course, the students should be able to

- Identify the components required for designing a network
- Design a network at a high-level using different networking technologies
- Analyze the various protocols of wireless and cellular networks
- Discuss the features of 4G and 5G networks
- Experiment with software defined networks

REFERENCES:

1. Erik Dahlman, Stefan Parkvall, Johan Skold, 4G: LTE/LTE-Advanced for Mobile Broadband, Academic Press, 2013.
2. Jonathan Rodriguez, —Fundamentals of 5G Mobile Networks, Wiley, 2015.
3. Larry Peterson and Bruce Davie, —Computer Networks: A Systems Approach, 5th edition, Morgan Kaufman, 2011
4. Martin Sauter, "From GSM to LTE, An Introduction to Mobile Networks and Mobile Broadband", Wiley, 2014.
5. Martin Sauter, —Beyond 3G - Bringing Networks, Terminals and the Web Together: LTE, WiMAX, IMS, 4G Devices and the Mobile Web 2.0, Wiley, 2009.
6. Naveen Chilamkurti, Sherali Zeadally, Hakima Chaouchi, —Next-Generation Wireless Technologies, Springer, 2013.
7. Paul Goransson, Chuck Black, —Software Defined Networks: A Comprehensive Approach, Morgan Kaufman, 2014.

meeni
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

P676

**RECONFIGURABLE ARCHITECTURE BASED ON
TRIGGERED INSTRUCTION FOR CONTROL-
INTENSIVE KERNELS**

THESIS

Submitted by

I.SABRINA BEGUM

(Register No:621115405013)

in partial fulfilment for the award of the degree of

**MASTER OF ENGINEERING
IN
Computer Science and Engineering**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN
CHINNASALEM
DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

M. S. S. S.
PRINCIPAL
Idhaya Engineering College for Women,
Vainarpalayam Road, CHINNASALEM-606211,
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Report titled “**RECONFIGURABLE ARCHITECTURE BASED ON TRIGGERED INSTRUCTION FOR CONTROL-INTENSIVE KERNELS**” is the bonafide work of **I.SABRINA**

BEGUM(621115405013) who carried out the work under my supervision.

Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.



SIGNATURE

Mr.S.JAYAPRAKASH.,M.E.,(Ph.D)

AP/ Head of the Department,
Computer Science and Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606201

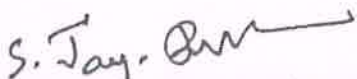


SIGNATURE

Mr.R.GOVINDAN.,M.E.,

Assistant Professor ,
Computer Science and Engineering
Idhaya Engg. College for women,
Chinnasalem-606201

Submitted for the Project Phase **I**viva voice held on 23.6.2017



INTERNAL EXAMINAR



EXTERNAL EXAMINAR



PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Coarse-Grained Reconfigurable Architectures (CGRAs), which provide high performance, low power and flexibility, is viewed as a promising trend for computing. CGRAs are mostly employed to process compute-intensive kernels because of their inefficiency for control flows. Various methods have been proposed to alleviate this problem, and triggered instruction is one of the state-of-the-art techniques. In this paper, a reconfigurable architecture called Triggered-Long-Instruction Architecture (TLIA) is proposed to enhance the triggered instructions with parallel condition method. In the proposed architecture, triggered instruction set is employed on processing elements (PEs). In this way, over-serialized execution and branch instructions are both eliminated. In the meanwhile, each PE has an improved data-path with three ALUs which is inspired by the parallel condition method. In this way, the amount of parallelism inside each control flow is increased by paralleling predicate computations and predicated operations. Moreover, multiple triggered instructions, which may have internal control dependence, can be executed on PEs in parallel. The strategy of issuing instructions is implemented in hardware, and verified by FPGA. Experimental results show that the performance is improved by 20.9 to 140.0 percent, the area is reduced by 24.5 percent, and the power is reduced by 32.5 percent over the equivalent Triggered Instruction Architecture (TIA).


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606.
kallakurichi Taluk, Villupuram District

**A SURVEY ON PROFIT MAXIMIZATION FOR
CLOUD USERS USING DOUBLE QUALITY OF
GUARANTEED SCHEME**

A THESIS

Submitted by

M.SARANYA

(Register NO:621115405014)

In partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING



IDHAYA ENGINEERING COLLEGE FOR WOMEN,

CHINNASALEM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ANNA UNIVERSITY, CHENNAI

JUNE 2017

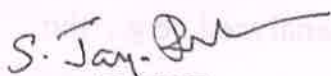
Mene
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this thesis that "A SURVEY ON PROFIT MAXIMIZATION FOR CLOUD USERS USING DOUBLE QUALITY GUARANTEED SCHEME" is the bonafide work of **SARANYA.M(621115405014)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work report here in does not from part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.



SIGNATURE

Mr.S.JAYAPRAKASH, M.E., (Ph.D)

HEAD OF THE DEPARTMENT,

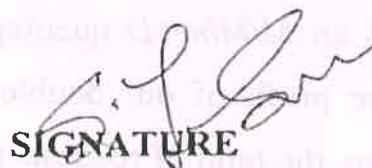
Assistant professor,

Department of computer science and

Engineering

Idhaya Engg College for women,

Chinnasalem - 606 201.



SIGNATURE

Mr.S.JAYASUNDAR, M.E., (Ph.D)

SUPERVISOR,

Assistant professor,

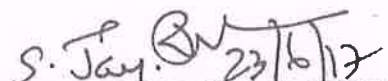
Department of Information

Technology

Idhaya Engg College for women,

Chinnasalem - 606 201.

Submitted for the project phase II viva voce held on 23.06.2017



INTERNAL EXAMINER



EXTERNAL EXAMINER



PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalayam Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

As an effective and efficient way to provide computing resources and services to customers on demand, cloud computing has become more and more popular. From cloud service providers' perspective, profit is one of the most important considerations, and it is mainly determined by the configuration of a cloud service platform under given market demand. However, a single long-term renting scheme is usually adopted to configure a cloud platform, which cannot guarantee the service quality but leads to serious resource waste. In this paper, a double resource renting scheme is designed firstly in which short-term renting and long-term renting are combined aiming at the existing issues. This double renting scheme can effectively guarantee the quality of service of all requests and reduce the resource waste greatly. Secondly, a service system is considered as an $M/M/m+D$ queuing model and the performance indicators that affect the profit of our double renting scheme are analyzed, e.g., the average charge, the ratio of requests that need temporary servers, and so forth. Thirdly, a profit maximization problem is formulated for the double renting scheme and the optimized configuration of a cloud platform is obtained by solving the profit maximization problem. Finally, a series of calculations are conducted to compare the profit of our proposed scheme with that of the single renting scheme. The results show that our scheme can not only guarantee the service quality of all requests, but also obtain more profit than the latter.


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
hallakurichi Taluk, Villupuram District

OBJECTIVES:

- To learn the core fundamentals of system and web security concepts
- To have through understanding in the security concepts related to networks
- To deploy the security essentials in IT Sector
- To be exposed to the concepts of Cyber Security and encryption Concepts
- To perform a detailed study of Privacy and Storage security and related Issues.

UNIT I SYSTEM SECURITY 9

Building a secure organization- A Cryptography primer- detecting system Intrusion- Preventing system Intrusion- Fault tolerance and Resilience in cloud computing environments- Security web applications, services and servers.

UNIT II NETWORK SECURITY 9

Internet Security - Botnet Problem- Intranet security- Local Area Network Security - Wireless Network Security - Wireless Sensor Network Security- Cellular Network Security- Optical Network Security- Optical wireless Security.

UNIT III SECURITY MANEGEMENT 9

Information security essentials for IT Managers- Security Management System - Policy Driven System Management- IT Security - Online Identity and User Management System - Intrusion and Detection and Prevention System.

UNIT IV CYBER SECURITY AND CRYPTOGRAPHY 9

Cyber Forensics- Cyber Forensics and Incidence Response - Security e-Discovery -Network Forensics - Data Encryption- Satellite Encryption - Password based authenticated Key establishment Protocols.

UNIT V PRIVACY AND STORAGE SECURITY 9

Privacy on the Internet - Privacy Enhancing Technologies - Personal privacy Policies -Detection of Conflicts in security policies- privacy and security in environment monitoring systems. Storage Area Network Security - Storage Area Network Security Devices - Riskmanagement - Physical Security Essentials.

TOTAL : 45 PERIODS

OUTCOMES:**Upon completion of this course the students should be able to**

- Understand the core fundamentals of system security
- Apply the security concepts related to networks in wired and wireless scenario
- Implement and Manage the security essentials in IT Sector
- Able to explain the concepts of Cyber Security and encryption Concepts
- Able to attain a through knowledge in the area of Privacy and Storage security and related Issues.

REFERENCES:

1. John R.Vacca, Computer and Information Security Handbook, Second Edition, Elsevier2013.
2. Michael E. Whitman, Herbert J. Mattord, Principal of Information Security, FourthEdition, Cengage Learning, 2012.
3. Richard E.Smith, Elementary Information Security, Second Edition, Jones and BartlettLearning, 2016

Guramani
Dr.R.GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

OBJECTIVES:

- To understand the fundamentals of Internet of Things
- To learn about the basics of IOT protocols
- To build a small low cost embedded system using Raspberry Pi.
- To apply the concept of Internet of Things in the real world scenario.

UNIT I INTRODUCTION TO IoT

9

Internet of Things - Physical Design- Logical Design- IoT Enabling Technologies - IoT Levels & Deployment Templates - Domain Specific IoTs - IoT and M2M - IoT System Management with NETCONF-YANG- IoT Platforms Design Methodology

UNIT II IoT ARCHITECTURE

9

M2M high-level ETSI architecture - IETF architecture for IoT - OGC architecture - IoT reference model - Domain model - information model - functional model - communication model - IoT reference architecture

UNIT III IoT PROTOCOLS

9

Protocol Standardization for IoT — Efforts — M2M and WSN Protocols — SCADA and RFID Protocols — Unified Data Standards — Protocols — IEEE 802.15.4 — BACNet Protocol — Modbus— Zigbee Architecture — Network layer — 6LoWPAN - CoAP - Security

UNIT IV BUILDING IoT WITH RASPBERRY PI & ARDUINO

9

Building IOT with RASPBERRY PI- IoT Systems - Logical Design using Python — IoT Physical Devices & Endpoints - IoT Device -Building blocks -Raspberry Pi -Board - Linux on Raspberry Pi - Raspberry Pi Interfaces -Programming Raspberry Pi with Python - Other IoT Platforms - Arduino.

UNIT V CASE STUDIES AND REAL-WORLD APPLICATIONS

9

Real world design constraints - Applications - Asset management, Industrial automation, smartgrid, Commercial building automation, Smart cities - participatory sensing - Data Analytics for IoT
— Software & Management Tools for IoT Cloud Storage Models & Communication APIs- Cloud for IoT - Amazon Web Services for IoT.

TOTAL : 45 PERIODS**OUTCOMES:**

Upon completion of this course, the students should be able to:

- Analyze various protocols for IoT
- Develop web services to access/control IoT devices.
- Design a portable IoT using Raspberry Pi
- Deploy an IoT application and connect to the cloud.
- Analyze applications of IoT in real time scenario

REFERENCES:

1. Arshdeep Bahga, Vijay Madiseti, —Internet of Things – A hands-on approach, Universities Press, 2015
2. Dieter Uckelmann, Mark Harrison, Michahelles, Florian (Eds), —Architecting the Internet of Things, Springer, 2011.
3. Honbo Zhou, —The Internet of Things in the Cloud: A Middleware Perspective, CRC Press, 2012.
4. Jan Hoeller, Vlasios Tsiatsis, Catherine Mulligan, Stamatis, Karnouskos, Stefan Avesand, David Boyle, "From Machine-to-Machine to the Internet of Things - Introduction to a New Age of Intelligence", Elsevier, 2014.
5. Olivier Hersent, David Boswarthick, Omar Elloumi, —The Internet of Things – Key applications and Protocols, Wiley, 2012

Renu
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI D.

OBJECTIVES:

- To understand the competitive advantages of big data analytics
- To understand the big data frameworks
- To learn data analysis methods
- To learn stream computing
- To gain knowledge on Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data analytics

UNIT I INTRODUCTION TO BIG DATA

7

Big Data – Definition, Characteristic Features – Big Data Applications - Big Data vs Traditional Data - Risks of Big Data - Structure of Big Data - Challenges of Conventional Systems - Web Data – Evolution of Analytic Scalability - Evolution of Analytic Processes, Tools and methods - Analysis vs Reporting - Modern Data Analytic Tools.

UNIT II HADOOP FRAMEWORK

9

Distributed File Systems - Large-Scale File System Organization – HDFS concepts - MapReduce Execution, Algorithms using MapReduce, Matrix-Vector Multiplication – Hadoop YARN

UNIT III DATA ANALYSIS

13

Statistical Methods: Regression modelling, Multivariate Analysis - Classification: SVM & Kernel Methods - Rule Mining - Cluster Analysis, Types of Data in Cluster Analysis, Partitioning Methods, Hierarchical Methods, Density Based Methods, Grid Based Methods, Model Based Clustering Methods, Clustering High Dimensional Data - Predictive Analytics – Data analysis using R.

UNIT IV MINING DATA STREAMS

7

Streams: Concepts – Stream Data Model and Architecture - Sampling data in a stream - Mining Data Streams and Mining Time-series data - Real Time Analytics Platform (RTAP) Applications - Case Studies - Real Time Sentiment Analysis, Stock Market Predictions.

UNIT V BIG DATA FRAMEWORKS

9

Introduction to NoSQL – Aggregate Data Models – Hbase: Data Model and Implementations – Hbase Clients – Examples – .Cassandra: Data Model – Examples – Cassandra Clients – Hadoop Integration. Pig – Grunt – Pig Data Model – Pig Latin – developing and testing Pig Latin scripts. Hive – Data Types and File Formats – HiveQL Data Definition – HiveQL Data Manipulation – HiveQL Queries

TOTAL: 45 PERIODS**OUTCOMES:**

At the end of this course, the students will be able to:

- Understand how to leverage the insights from big data analytics
- Analyze data by utilizing various statistical and data mining approaches
- Perform analytics on real-time streaming data
- Understand the various NoSql alternative database models

REFERENCES:

1. Bill Franks, —Taming the Big Data Tidal Wave: Finding Opportunities in Huge DataStreams with Advanced Analytics, Wiley and SAS Business Series, 2012.
2. David Loshin, "Big Data Analytics: From Strategic Planning to Enterprise Integration with Tools, Techniques, NoSQL, and Graph", 2013.
3. Michael Berthold, David J. Hand, —Intelligent Data Analysis, Springer, Second Edition, 2007.
4. Michael Minelli, Michelle Chambers, and Ambiga Dhiraj, "Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses", Wiley, 2013.
5. P. J. Sadalage and M. Fowler, "NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence", Addison-Wesley Professional, 2012.
6. Richard Cotton, "Learning R – A Step-by-step Function Guide to Data Analysis, , O'ReillyMedia, 2013

Ramani
Dr.R.GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

12679

**MULTI CHANNEL IMAGE DENOISING IN
SPECTRAL COMPONENT USING LOCAL
DISTRIBUTION**

PHASE II REPORT

Submitted by

N.REENA

(Register No: 621115405012)

in partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

Computer Science and Engineering



IDHAYA ENGINEERING COLLEGE FOR WOMEN,

CHINNASALEM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Reena
PRINCIPAL

Idhaya Engineering College for Women,
Vainarpalayam Road, CHINNASALEM-606024,
Kallakurichi Taluk, Villupuram District.

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "MULTI CHANNEL IMAGE DENOISING IN SPECTRAL COMPONENT USING LOCAL DISTRIBUTION" is the bonafide work of **N.REENA**

(Register No: 621115405012) who carried out the work under my supervision.

Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


SIGNATURE


SIGNATURE

Mr. S. JAYAPRAKASH M.E.,(Ph.D) Mrs. S.JEEVA M.E.,

HEAD OF THE DEPARTMENT, SUPERVISOR,

Assistant Professor,

Assistant Professor,

Department of Computer Science and
Engineering,

Department of Computer Science
and Engineering,

Idhaya Engg. College for Women,

Idhaya Engg. College for Women,

Chinnasalem-606 201.

Chinnasalem-606 201.

Submitted for the Project Phase I viva voce held on 23.06.2017

INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

We propose a method for local spectral component decomposition based on the line feature of local distribution. Our aim is to reduce noise on multi-channel images by exploiting the linear correlation in the spectral domain of a local region. We first calculate a linear feature over the spectral components of an M -channel image, which we call the spectral line, and then, using the line, we decompose the image into three components: a single M -channel image and two gray-scale images. By virtue of the decomposition, the noise is concentrated on the two images, and thus our algorithm needs to denoise only the two grayscale images, regardless of the number of the channels. As a result, image deterioration due to the imbalance of the spectral component correlation can be avoided. a single M -channel image and two gray-scale images. By virtue of the decomposition, the noise is concentrated on the two images, and thus our algorithm needs to denoise only the two grayscale images, regardless of the number of the channels. As a result, image deterioration due to the imbalance of the spectral component correlation can be avoided. The experiment shows that our method improves image quality with less deterioration while preserving vivid contrast. Our method is especially effective for hyperspectral images. The experimental results demonstrate that our proposed method can compete with the other state-of-the-art denoising methods.


PRINCIPAL
Sadhya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-6062
Kallakurichi Taluk, Villupuram District

P689

**CLOUD GAMING PROPOSES GPU/CPU HYBRID
CLUSTERS ON USER LEVEL VIRTUALIZATION**

A THESIS

Submitted by

A.KALAISELVI

(Register No: 621115405003)

in partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING



IDHAYA ENGINEERING COLLEGE FOR WOMEN,

CHINNASALEM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Principals
PRINCIPAL

**Idhaya Engineering College for Women,
Nainarpalayam Road, CHINNASALEM-60624
Kallakurichi Taluk, Villupuram District**



ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Report titled "CLOUD GAMING PROPOSES GPU/CPU HYBRID CLUSTER ON THE USER LEVEL VIRTUALIZATION" is the bonafide work of A.KALAISELVI (621115405003) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

S. Jay. Pr. SIGNATURE

Sr. C. Jansi Sophia Mary SIGNATURE

Mr. S. JAYAPRAKASH, M.E., (Ph.D) AP/Head of the Department, Computer Science and Engineering, Idhaya Engineering College For Women, Chinnasalem-606 201.

Sr. C.JANSI SOPHIA MARY, M.E., Assistant Professor, Computer Science and Engineering, Idhaya Engineering College For Women, Chinnasalem-606 201.

Submitted for the project Phase II viva voce held on 23.06.2017

S. Jay. Pr. 23/6/17 INTERNAL EXAMINER

Sr. C. Jansi Sophia Mary 23/6/17 EXTERNAL EXAMINER

PRINCIPAL Idhaya Engineering College for Women Mainarpalaym Road, CHINNASALEM-60624 Malakurichi Taluk, Villupuram District

ABSTRACT

Many believe the future of gaming lies in the cloud, namely Cloud Gaming, which renders an interactive gaming application in the cloud and streams the scenes as a video sequence to the player over Internet. This paper proposes GCloud, a GPU/CPU hybrid cluster for cloud gaming based on the user-level virtualization technology. Specially, we present a performance model to analyze the server-capacity and games' resource-consumptions, which categorizes games into two types: CPU-critical and memory io critical. Consequently, several scheduling strategies have been proposed to improve the resource utilization and compared with others. Simulation tests show that both of the First-Fit-like and the Best-Fit-like strategies outperform the other(s); especially they are near optimal in the batch processing mode. Other test results indicate that GCloud is efficient: An off-the-shelf PC can support five high-end video-games run at the same time. In addition, the average per-frame processing delay is 8-19 ms under different image resolutions, which outperforms other similar solutions.


PRINCIPAL

rdhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606204
kallakurichi Taluk, Villupuram District

OBJECTIVES:

- To understand the concepts of virtualization and virtual machines
- To gain expertise in server, network and storage virtualization.
- To understand and deploy practical virtualization solutions and enterprise solutions
- To gain knowledge on the concept of virtualization that is fundamental to cloud computing
- To understand the various issues in cloud computing
- To be able to set up a private cloud
- To understand the security issues in the grid and the cloud environment

UNIT I VIRTUALIZATION 9

Basics of Virtual Machines - Process Virtual Machines – System Virtual Machines –Emulation – Interpretation – Binary Translation - Taxonomy of Virtual Machines. Virtualization –Management Virtualization – Hardware Maximization – Architectures – Virtualization Management – StorageVirtualization – Network Virtualization

UNIT II VIRTUALIZATION INFRASTRUCTURE 9

Comprehensive Analysis – Resource Pool – Testing Environment –Server Virtualization – VirtualWorkloads– Provision Virtual Machines– Desktop Virtualization – Application Virtualization - Implementation levels of virtualization – virtualization structure – virtualization of CPU, Memory and I/O devices – virtual clusters and Resource Management – Virtualization for data center automation.

UNIT III CLOUD PLATFORM ARCHITECTURE 9

Cloud deployment models: public, private, hybrid, community – Categories of cloud computing: Everything as a service: Infrastructure, platform, software- A Generic Cloud Architecture Design – Layered cloud Architectural Development – Virtualization Support and Disaster Recovery – Architectural Design Challenges - Public Cloud Platforms : GAE,AWS – Inter-cloud ResourceManagement

UNIT IV PROGRAMMING MODEL 9

Introduction to Hadoop Framework - Mapreduce, Input splitting, map and reduce functions, specifying input and output parameters, configuring and running a job –Developing Map Reduce Applications - Design of Hadoop file system –Setting up Hadoop Cluster - Cloud Software Environments -Eucalyptus, Open Nebula, Open Stack, Nimbus

UNIT V CLOUD SECURITY 9

Cloud Infrastructure security: network, host and application level – aspects of data security, provider data and its security, Identity and access management architecture, IAM practices in the cloud, SaaS, PaaS, IaaS availability in the cloud - Key privacy issues in the cloud –Cloud Security and Trust Management

TOTAL : 45 PERIODS**OUTCOMES:**

Upon completion of this course, the students should be able to:

- Employ the concepts of storage virtualization, network virtualization and its management
- Apply the concept of virtualization in the cloud computing
- Identify the architecture, infrastructure and delivery models of cloud computing
- Develop services using Cloud computing
- Apply the security models in the cloud environment

REFERENCES:

1. Danielle Ruest, Nelson Ruest, —Virtualization: A Beginner's Guidel, McGraw-Hill OsborneMedia, 2009.
2. Jim Smith, Ravi Nair , "Virtual Machines: Versatile Platforms for Systems and Processes",Elsevier/Morgan Kaufmann, 2005
3. John W.Rittinghouse and James F.Ransome, "Cloud Computing: Implementation, Management, and Security", CRC Press, 2010.
4. Kai Hwang, Geoffrey C Fox, Jack G Dongarra, "Distributed and Cloud Computing, From Parallel Processing to the Internet of Things", Morgan Kaufmann Publishers, 2012.

Ravi
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI BT,

OBJECTIVES:

- To understand the basics of information retrieval with pertinence to modeling, query operations and indexing
- To get an understanding of machine learning techniques for text classification and clustering.
- To understand the various applications of information retrieval giving emphasis to multimedia IR, web search
- To understand the concepts of digital libraries

UNIT I INTRODUCTION: MOTIVATION 9

Basic Concepts – Practical Issues - Retrieval Process – Architecture - Boolean Retrieval – Retrieval Evaluation – Open Source IR Systems–History of Web Search – Web Characteristics–The impact of the web on IR —IR Versus Web Search–Components of a Search engine

UNIT II MODELING 9

Taxonomy and Characterization of IR Models – Boolean Model – Vector Model - Term Weighting – Scoring and Ranking – Language Models – Set Theoretic Models - Probabilistic Models –Algebraic Models – Structured Text Retrieval Models – Models for Browsing

UNIT III INDEXING 9

Static and Dynamic Inverted Indices – Index Construction and Index Compression. Searching - Sequential Searching and Pattern Matching. Query Operations -Query Languages – Query Processing - Relevance Feedback and Query Expansion - Automatic Local and Global Analysis – Measuring Effectiveness and Efficiency

UNIT IV CLASSIFICATION AND CLUSTERING 9

Text Classification and Naïve Bayes – Vector Space Classification – Support vector machines and Machine learning on documents. Flat Clustering – Hierarchical Clustering –Matrix decompositions and latent semantic indexing – Fusion and Meta learning

UNIT V SEARCHING THE WEB 9

Searching the Web –Structure of the Web –IR and web search – Static and Dynamic Ranking – Web Crawling and Indexing – Link Analysis - XML Retrieval Multimedia IR: Models and Languages – Indexing and Searching Parallel and Distributed IR – Digital Libraries

TOTAL : 45 PERIODS**OUTCOMES:**

Upon completion of this course, the students should be able to:

- Build an Information Retrieval system using the available tools.
- Identify and design the various components of an Information Retrieval system.
- Apply machine learning techniques to text classification and clustering which is used for efficient Information Retrieval.
- Design an efficient search engine and analyze the Web content structure.

REFERENCES:

1. Christopher D. Manning, Prabhakar Raghavan, Hinrich Schütze, —Introduction to Information Retrieval, Cambridge University Press, First South Asian Edition, 2008.
2. Implementing and Evaluating Search Engines, The MIT Press, Cambridge, Massachusetts London, England, 2010
3. Ricardo Baeza — Yates, Berthier Ribeiro — Neto, —Modern Information Retrieval: The concepts and Technology behind Search (ACM Press Books), Second Edition, 2011.
4. Stefan Buttcher, Charles L. A. Clarke, Gordon V. Cormack, —Information Retrieval

Ramani
Dr.R.GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

OBJECTIVES:

- To understand the need, design approaches for software architecture to bridge the dynamic requirements and implementation.
- To learn the design principles and to apply for large scale systems
- To design architectures for distributed heterogeneous systems environment through brokerage interaction
- To build design knowledge on service oriented and model driven architectures and the aspect oriented architecture.
- To develop appropriate architectures for various Case studies like semantic web services, supply chain cloud services.

UNIT I

10

Introduction to Software Architecture-Bridging Requirements and Implementation, Design Guidelines, Software Quality attributes. Software Architecture Design Space. Agile Approach to Software Architecture Design, Models for Software Architecture Description Languages (ADL).

UNIT II

8

Object-Oriented Paradigm -Design Principles. Data-Centered Software Architecture: Repository Architecture, Blackboard Architecture. Hierarchical Architecture Main-Subroutine, Master-Slave, Layered, Virtual Machine. Interaction-Oriented Software Architectures: Model-View-Controller(MVC), Presentation-Abstraction-Control (PAC).

UNIT III

9

Distributed Architecture: Client-Server, Middleware, Multi-tiers, Broker Architecture — MOM, CORBA Message Broker Architecture- Service-Oriented Architecture (SOA), SOAP, UDDI, SOA Implementation in Web Services, Grid/cloud Service Computing. Heterogeneous Architecture- Methodology of Architecture Decision, Quality Attributes.

UNIT IV

9

Architecture of User Interfaces containers, case study-web service. Product Line Architectures - methodologies, processes and tools. Software Reuse and Product Lines -Product Line Analysis, Design and implementation, configuration Models. Model Driven Architectures (MDA) –why MDA- Model transformation and software architecture, SOA and MDA. Eclipse modeling framework.

UNIT V

9

Aspect Oriented Architectures- AOP in UML, AOP tools, Architectural aspects and middleware Selection of Architectures, Evaluation of Architecture Designs, Case Study: Online Computer Vendor, order processing, manufacture & shipping – inventory, supply chain cloud service Management, semantic web services

TOTAL : 45 PERIODS**OUTCOMES:**

Upon completion of this course, the students should be able to:

- Understand the need of software architecture for sustainable dynamic systems.
- Have a sound knowledge on design principles and to apply for large scale systems
- Design architectures for distributed heterogeneous systems
- Have good knowledge on service oriented and model driven architectures and the aspect oriented architecture.
- Have a working knowledge to develop appropriate architectures through various case studies.

REFERENCES :

1. Essentials of software Architecture , Ion Gorton, Second Edition, Springer-verlag, 2011
2. Software Architecture Design Illuminated, Kai Qian Jones and Bartlett Publishers Canada, 2010

R. Guramani
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

**MULTI KEYWORD RANKED SEARCH BASED
ON HIERARCHICAL CLUSTERING INDEX**

A THESIS

Submitted by

V.LALITHA

(Register No: 621115405005)

in partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

Computer Science and Engineering



IDHAYA ENGINEERING COLLEGE FOR WOMEN,

CHINNASALEM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Principal
PRINCIPAL

Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-600260
Kallakurichi Taluk, Villupuram District


ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "MULTI KEYWORD RANKED SEARCH BASED ON HIERARCHICAL CLUSTERING INDEX" is the bonafide work of **V.LALITHA** (Register No: 621115405005) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

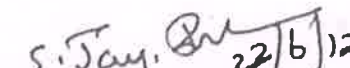

SIGNATURE

Mr.S.JAYAPRAKASH, M.E., (Ph.D)
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Computer Science
and Engineering,
Idhaya Engg.College for Women,
Chinnasalem-606201.


SIGNATURE

Mrs.K.GANDHIMATHI, M.E.,
SUPERVISOR,
Assistant Professor,
Department of Computer Science
and Engineering,
Idhaya Engg.College for Women,
Chinnasalem-606201.

Submitted for the Project Phase II viva voce held on 23-06-17


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL

Idhaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-606201
hallakurichi Taluk, Villupuram District

ABSTRACT

Cloud data owners prefer to outsource documents in an encrypted form for the purpose of privacy preserving. Therefore it is essential to develop efficient and reliable ciphertext search techniques. One challenge is that the relationship between documents will be normally concealed in the process of encryption, which will lead to significant search accuracy performance degradation. Also the volume of data in data centers has experienced a dramatic growth. This will make it even more challenging to design ciphertext search schemes that can provide efficient and reliable online information retrieval on large volume of encrypted data. In this paper, a hierarchical clustering method is proposed to support more search semantics and also to meet the demand for fast ciphertext search within a big data environment. The proposed hierarchical approach clusters the documents based on the minimum relevance threshold, and then partitions the resulting clusters into sub-clusters until the constraint on the maximum size of cluster is reached. In the search phase, this approach can reach a linear computational complexity against an exponential size increase of document collection. In order to verify the authenticity of search results, a structure called minimum hash sub-tree is designed in this paper. Experiments have been conducted using the collection set built from the IEEE Xplore. The results show that with a sharp increase of documents in the dataset the search time of the proposed method increases linearly whereas the search time of the traditional method increases exponentially. Furthermore, the proposed method has an advantage over the traditional method in the rank privacy and relevance of retrieved documents.

D682

EFFICIENT MEASURE STRENGTH SDN

NETWORKS BY FINGER PRINTING

A THESIS

Submitted by

P.SATHYA

(Register No: 621115405015)

in partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING



IDHAYA ENGINEERING COLLEGE FOR WOMEN,

CHINNASALEM

**DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING**

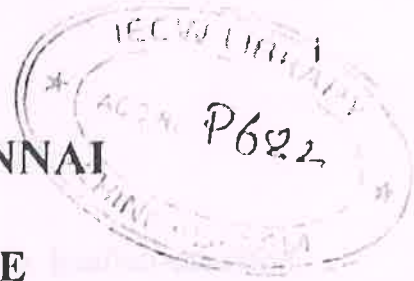
ANNA UNIVERSITY, CHENNAI

JUNE 2017

[Signature]
PRINCIPAL

**Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM
Kallakurichi Taluk, Villupuram District**

ANNA UNIVERSITY, CHENNAI



BONAFIDE CERTIFICATE

Certified that this Report titled "EFFICIENT MEASURE STRENGTH SDN NETWORKS BY FINGER PRINTING" is the bonafide work of P.SATHYA (621115405015) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

S. Jay. Pr. SIGNATURE

For Anye SIGNATURE

Mr. S.JAYAPRAKASH., M.E., (Ph.D) AP/Head of the Department, Computer Science and Engineering, Idhaya Engineering College For Women, Chinnasalem-606 201.

Mrs.P.MOHANAVALLI., M.E., Assistant Professor, Computer Science and Engineering, Idhaya Engineering College For Women, Chinnasalem-606 201.

Submitted for the project Phase II viva voce held on 23.6.17

S. Jay. Pr. 23/6/17 INTERNAL EXAMINER

23/6/17 EXTERNAL EXAMINER

PRINCIPAL Idhaya Engineering College for Women Chinnasalem-606201 Valluvar Engineering Board, Chinnasalem-606201 Kallakurichi Taluk, Tirupuram District.

ABSTRACT

Software-defined networking (SDN) eases network management by centralizing the control plane and separating it from the data plane. The separation of planes in SDN, however, introduces new vulnerabilities in SDN networks, since the difference in processing packets at each plane allows an adversary to fingerprint the network's packet-forwarding logic. In this project study the feasibility of fingerprinting the controller-switch interactions by a remote adversary, whose aim is to acquire knowledge about specific flow rules that are installed at the switches. This knowledge empowers the adversary with a better understanding of the network's packet-forwarding logic and exposes the network to a number of threats. In this paper, we collect measurements from hosts located across the globe using a realistic SDN network comprising of OpenFlow hardware and software switches. We show that, by leveraging information from the RTT and packet-pair dispersion of the exchanged packets, fingerprinting attacks on SDN networks succeed with overwhelming probability. We additionally show that these attacks are not restricted to active adversaries, but can also be mounted by passive adversaries that only monitor traffic exchanged with the SDN network. Finally, we discuss the implications of these attacks on the security of SDN networks, and we present and evaluate an efficient countermeasure to strengthen SDN networks against fingerprinting. Our results demonstrate the effectiveness of our countermeasure in deterring fingerprinting attacks on SDN networks.

Meen
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

**IMPROVING QUALITY OF MR IMAGES CAUSED BY
GHOSTING AND NOISE**

A THESIS

Submitted by

C.MADHUBALA

(Register No: 621115405006)

in partial fulfillment for the award of the degree of

**MASTER OF ENGINEERING
IN
COMPUTER SCIENCE AND ENGINEERING**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

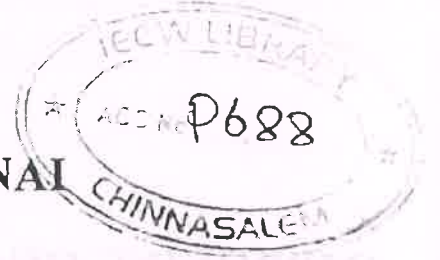
ANNA UNIVERSITY, CHENNAI

JUNE 2017

[Signature]
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60620
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI



BONAFIDE CERTIFICATE

Certified that this Thesis titled "IMPROVING QUALITY OF MR IMAGES CAUSED BY GHOSTING AND NOISE" is the bonafide work of **C.MADHUBALA** (Register No: 621115405006) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

S. Jay. Pr
SIGNATURE

Mr. S. JAYAPRAKASH M.E.,(Ph.D)
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Computer Science and
Engineering
Idhaya Engg. College for Women,
Chinnasaalem-606 201.

S. Jay. Pr
SIGNATURE

Mr. S. JAYAPRAKASH M.E.,(Ph.D)
SUPERVISOR,
Assistant Professor,
Department of Computer Science and
Engineering
Idhaya Engg. College for Women,
Chinnasaalem-606 201.

Submitted for the Project Phase II viva voce held on 23.06.2017

S. Jay. Pr 23/6/17
INTERNAL EXAMINER

Su 23/6/17
EXTERNAL EXAMINER

Mee
PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Hallakurichi Taluk, Villupuram District

ABSTRACT

Magnetic resonance (MR) imaging is vulnerable to a variety of artifacts, which potentially degrade the perceived quality of MR images and, consequently, may cause inefficient and/or inaccurate diagnosis. In general, these artifacts can be classified as structured or unstructured depending on the correlation of the artifact with the original content. In addition, the artifact can be white or colored depending on the flatness of the frequency spectrum of the artifact. In current MR imaging applications, design choices allow one type of artifact to be traded off with another type of artifact. Hence, to support these design choices, the relative impact of structured versus unstructured or colored versus white artifacts on perceived image quality needs to be known. To this end, we conducted two subjective experiments. Clinical application specialists rated the quality of MR images, distorted with different types of artifacts at various levels of degradation. The results demonstrate that unstructured artifacts deteriorate quality less than structured artifacts, while colored artifacts preserve quality better than white artifacts.

Neeraj
PRINCIPAL

ACHIEVING SECURITY ON SECURED DATA

IN NETWORK SECURITY

A THESIS

Submitted by

G.KANIMOZHI

(Register No: 621115405004)

in partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING



IDHAYA ENGINEERING COLLEGE FOR WOMEN,

CHINNASALEM

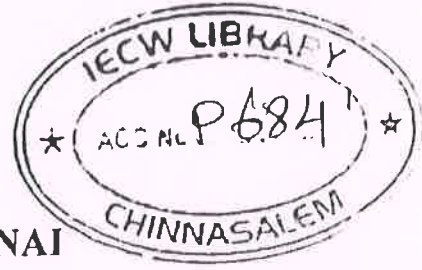
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ANNA UNIVERSITY, CHENNAI

JUNE 2017

M. S. S.
PRINCIPAL

**Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District**



ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled "ACHIEVING SECURITY ON SECURED DATA IN NETWORK SECURITY" is the bonafide work of G.KANIMOZHI (621115405004) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

S. Jay. Prakash
SIGNATURE

Mr. S. JAYAPRAKASH M.E., (Ph.D)
AP/Head of the Department,
Computer Science and Engineering,
Idhaya Engineering College For Women,
Chinnasalem-606 201.

P. Sumitha
SIGNATURE

MRS.N.SUMITHA M.E.,
Assistant Professor,
Computer Science and Engineering,
Idhaya Engineering College For Women,
Chinnasalem-606 201.

Submitted for the project Phase II viva voce held on 23.06.17

S. Jay. Prakash
INTERNAL EXAMINER

External Examiner
EXTERNAL EXAMINER

Principal
Idhaya Engineering College for Women
Vainarpalayam Road, CHINNASALEM-60624
Kallakurichi Taluk, Villupuram District

ABSTRACT

The leak of sensitive data on computer systems poses a serious threat to organizational security. Statistics show that the lack of proper encryption on files and communications due to human errors is one of the leading causes of data loss. Organizations need tools to identify the exposure of sensitive data by screening the content in storage and transmission, i.e., to detect sensitive information being stored or transmitted in the clear. However, detecting the exposure of sensitive information is challenging due to data transformation in the content. Transformations (such as insertion and deletion) result in highly unpredictable leak patterns. In this paper, we utilize sequence alignment techniques for detecting complex data-leak patterns. Our algorithm is designed for detecting long and inexact sensitive data patterns. This detection is paired with a comparable sampling algorithm, which allows one to compare the similarity of two separately sampled sequences. Our system achieves good detection accuracy in recognizing transformed leaks. We implement a parallelized version of our algorithms in graphics processing unit that achieves high analysis throughput. We demonstrate the high multithreading scalability of our data leak detection method required by a sizable organization.

OBJECTIVES:

- To understand the basics of testing, test planning & design and test team organization
- To study the various types of test in the life cycle of the software product.
- To build design concepts for system testing and execution
- To learn the software quality assurance ,metrics, defect prevention techniques
- To learn the techniques for quality assurance and applying for applications.

UNIT I SOFTWARE TESTING - CONCEPTS, ISSUES, AND TECHNIQUES

9

Quality Revolution, Verification and Validation, Failure, Error, Fault, and Defect, Objectives of Testing, Testing Activities, Test Case Selection White-Box and Black ,test Planning and design, Test Tools and Automation, . Power of Test. Test Team Organization and Management-Test Groups, Software Quality Assurance Group ,System Test Team Hierarchy, Team Building.

UNIT II SYSTEM TESTING

9

System Testing - System Integration Techniques-Incremental, Top Down Bottom Up Sandwich and Big Bang, Software and Hardware Integration, Hardware Design Verification Tests, Hardware and Software Compatibility Matrix Test Plan for System Integration. Built- in Testing. functional testing - Testing a Function in Context. Boundary Value Analysis, Decision Tables. acceptance testing - Selection of Acceptance Criteria, Acceptance Test Plan, Test Execution Test. software reliability - Fault and Failure, Factors Influencing Software, Reliability Models

UNIT III SYSTEM TEST CATEGORIES

10

System test categories Taxonomy of System Tests, Interface Tests Functionality Tests. GUI Tests, Security Tests Feature Tests, Robustness Tests, Boundary Value Tests Power Cycling Tests Interoperability Tests, Scalability Tests, Stress Tests, Load and Stability Tests, Reliability Tests, Regression Tests, Regulatory Tests. Test Generation from FSM models- State-Oriented Model. Finite-State Machine Transition Tour Method, Testing with State Verification. Test Architectures-Local, distributed, Coordinated, Remote. system test design- Test Design Factors Requirement Identification, modeling a Test Design Process Test Design Preparedness, Metrics, Test Case Design Effectiveness. system test execution- Modeling Defects, Metrics for Monitoring Test Execution .Defect Reports, Defect Causal Analysis, Beta testing, measuring Test Effectiveness.

UNIT IV SOFTWARE QUALITY

8

Software quality - People's Quality Expectations, Frameworks and ISO-9126, McCall's Quality Factors and Criteria — Relationship. Quality Metrics. Quality Characteristics ISO 9000:2000 Software Quality Standard. Maturity models- Test Process Improvement ,Testing Maturity Model.

UNIT V SOFTWARE QUALITY ASSURANCE

9

Quality Assurance - Root Cause Analysis, modeling, technologies, standards and methodologies for defect prevention. Fault Tolerance and Failure Containment - Safety Assurance and Damage Control, Hazard analysis using fault-trees and event-trees. Comparing Quality Assurance Techniques and Activities. QA Monitoring and Measurement, Risk Identification for Quantifiable Quality Improvement. Case Study: FSM-Based Testing of Web-Based Applications.

TOTAL :45 PERIODS**OUTCOMES:**

Upon completion of this course, the students should be able to

- Perform functional and nonfunctional tests in the life cycle of the software product.
- Understand system testing and test execution process.
- Identify defect prevention techniques and software quality assurance metrics.
- Apply techniques of quality assurance for typical applications.

REFERENCES:

1. Software Testing And Quality Assurance-Theory and Practice, Kshirasagar NakPriyadarshi Tripathy, John Wiley & Sons Inc,2008
2. Software Quality Engineering: Testing, Quality Assurance, and Quantifiable Improvement, Jeff Tian, John Wiley & Sons, Inc., Hoboken, New Jersey. 2005.
3. Software Quality Assurance - From Theory to Implementation, Daniel Galin, Pearson Education Ltd UK, 2004

Mani
Dr. R. GURUMANI, M.E., PH.D., M.B.A., M.ISTE., F.I.E.
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT.

OBJECTIVES:

- To understand the architecture of embedded processor, microcontroller and peripheral devices.
- To interface memory and peripherals with embedded systems.
- To study the embedded network environment.
- To understand challenges in Real time operating systems.
- To study, analyze and design applications on embedded systems.

UNIT I EMBEDDED PROCESSORS 9
Embedded Computers - Characteristics of Embedded Computing Applications - Challenges in Embedded Computing System Design - Embedded System Design Process- Formalism for System Design - Structural Description - Behavioural Description - ARM Processor - Intel ATOM Processor.

UNIT II EMBEDDED COMPUTING PLATFORM 9
CPU Bus Configuration - Memory Devices and Interfacing - Input/Output Devices and Interfacing -System Design - Development and Debugging – Emulator – Simulator - JTAG Design Example –Alarm Clock - Analysis and Optimization of Performance - Power and Program Size.

UNIT III EMBEDDED NETWORK ENVIRONMENT 9
Distributed Embedded Architecture - Hardware And Software Architectures - Networks for Embedded Systems - I2C - CAN Bus - SHARC Link Supports — Ethernet — Myrinet — Internet - Network-based Design - Communication Analysis - System Performance Analysis - Hardware Platform Design - Allocation and Scheduling - Design Example - Elevator Controller.

UNIT IV REAL-TIME CHARACTERISTICS 9
Clock Driven Approach - Weighted Round Robin Approach - Priority Driven Approach - Dynamic versus Static Systems - Effective Release Times and Deadlines - Optimality of the Earliest Deadline First (EDF) Algorithm - Challenges in Validating Timing Constraints in Priority Driven Systems - Off-Line versus On-Line Scheduling.

UNIT V SYSTEM DESIGN TECHNIQUES 9
Design Methodologies - Requirement Analysis — Specification - System Analysis and Architecture Design - Quality Assurance - Design Examples - Telephone PBX - Ink jet printer - Personal Digital Assistants - Set-Top Boxes.

TOTAL: 45 PERIODS**OUTCOME:****Upon completion of the course, the students should be able to**

- Understand different architectures of embedded processor, microcontroller and peripheral devices. Interface memory and peripherals with embedded systems.
- Work with embedded network environment.
- Understand challenges in Real time operating systems.
- Design and analyze applications on embedded systems.

REFERENCES:

1. Adrian McEwen, Hakim Cassimally, "Designing the Internet of Things" Wiley Publication, First edition, 2013
2. Andrew N Sloss, D. Symes, C. Wright, I Arm system developers guidel, MorganKauffman/Elsevier, 2006.
3. Arshdeep Bahga, Vijay Madiseti, " Internet of Things: A Hands-on-Approach" VPT First Edition, 2014
4. C. M. Krishna and K. G. Shin, —Real-Time Systems I, McGraw-Hill, 1997
5. Frank Vahid and Tony Givargis, —Embedded System Design: A Unified Hardware/Software Introduction I, John Wiley & Sons.
6. Jane.W.S. Liu, —Real-Time systems I, Pearson Education Asia.
7. Michael J. Pont, —Embedded CI, Pearson Education , 2007.
8. Muhammad Ali Mazidi , Sarmad Naimi , Sepehr Naimi, "The AVR Microcontroller and Embedded Systems: Using Assembly and C" Pearson Education, First edition, 2014
9. Steve Heath, —Embedded System Design I, Elsevier, 2005
10. Wayne Wolf, —Computers as Components: Principles of Embedded Computer System Design I, Elsevier, 2006

Ramani
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI DT,

OBJECTIVES:

- Understand system requirements for mobile applications.
- Generate suitable design using specific mobile development frameworks.
- Generate mobile application design.
- Implement the design using specific mobile development frameworks.
- Deploy the mobile applications in marketplace for distribution.

UNIT I INTRODUCTION 5

Introduction to mobile applications – Embedded systems - Market and business drivers for mobile applications – Publishing and delivery of mobile applications – Requirements gathering and validation for mobile applications.

UNIT II BASIC DESIGN 8

Introduction – Basics of embedded systems design – Embedded OS - Design constraints for mobile applications, both hardware and software related – Architecting mobile applications – User interfaces for mobile applications – touch events and gestures – Achieving quality constraints – performance, usability, security, availability and modifiability.

UNIT III ADVANCED DESIGN 8

Designing applications with multimedia and web access capabilities – Integration with GPS and social media networking applications – Accessing applications hosted in a cloud computing environment – Design patterns for mobile applications.

UNIT IV ANDROID 12

Introduction – Establishing the development environment – Android architecture – Activities and views – Interacting with UI – Persisting data using SQLite – Packaging and deployment – Interaction with server side applications – Using Google Maps, GPS and Wifi – Integration with social media applications.

UNIT V IOS 12

Introduction to Objective C – iOS features – UI implementation – Touch frameworks – Data persistence using Core Data and SQLite – Location aware applications using Core Location and Map Kit – Integrating calendar and address book with social media application – Using Wifi - iPhone marketplace.

TOTAL :45 PERIODS**OUTCOMES:**

Upon completion of the course, the students should be able to:

- Describe the requirements for mobile applications.
- Explain the challenges in mobile application design and development.
- Implement the design using Android SDK.
- Implement the design using Objective C and iOS.
- Deploy mobile applications in Android and iPhone marketplace for distribution.

REFERENCES:

1. Charlie Collins, Michael Galpin and Matthias Kappler, —Android in PracticeI, DreamTech 2012.
2. David Mark, Jack Nutting, Jeff LaMarche and Frederic Olsson, —Beginning iOS 6Development: Exploring the iOS SDKI, Apress, 2013.
3. <http://developer.android.com/develop/index.html>.
4. James Dovey and Ash Furrow, —Beginning Objective C, Apress, 2012.
5. Jeff McWherter and Scott Gowell, "Professional Mobile Application Development", Wrox, 2012.
6. Reto Meier, —PProfessional android DevelopmentI, Wiley-India Edition, 2012.

Mano
Dr. R. GURUMANI, M.E., Ph.D., M.B.A., M.ISTE., F.I.E.,
PRINCIPAL
IDHAYA ENGG. COLLEGE FOR WOMEN
CHINNASALEM-606 201, KALLAKURICHI D

p683

**A NOVEL APPROACH TO AUTHENTICATE THE
PERSON USING EAR SHAPE BIOMETRIC**

A THESIS

Submitted by

A.MONICA

(Register No: 621115405007)

in partial fulfillment for the award of the degree of

**MASTER OF ENGINEERING
IN
COMPUTER SCIENCE AND ENGINEERING**



**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

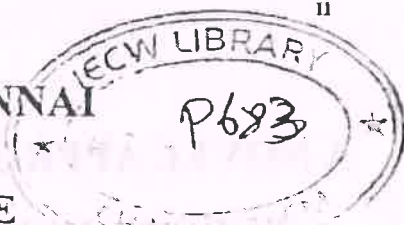
ANNA UNIVERSITY, CHENNAI

JUNE 2017

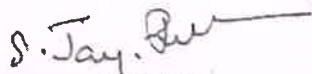
Monica
ANNA UNIVERSITY
Idhaya Engineering College for women
Nainarpalaym Road, CHINNASALEM-606206
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

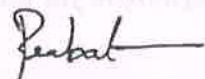
BONAFIDE CERTIFICATE



Certified that this Report titled "A NOVEL APPROACH TO AUTHENTICATE THE PERSON USING EAR SHAPE BIOMETRIC" is the bonafide work Of **A.MONICA** (Reg No 621115405007) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

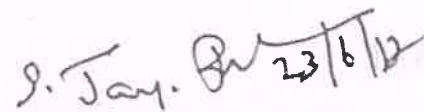

SIGNATURE


Mr.S.JAYAPRAKASH,M.E.,(Ph.D)
Head of the Department,
Department of Computer Science
and Engineering,
Idhaya Engg. College for Women,
Chinnasalem-606201


SIGNATURE

Mr.S.PRABAKARAN,M.E.,
Assistant Professor,
Department of Computer Science
and Engineering,
Idhaya Engg.College for Women,
Chinnasalem-606201

Project Viva voce submitted on 23.06.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women,
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Biometrics is the science of identifying or verifying the identity of a person based on physiological or behavioral characteristics. The ear is unique and permanent as the appearance of ear does not change over the human life. The outer ear shape has been recognized as a valuable means for personal identification by criminal investigators. Ear recognition especially interesting for smart surveillance tasks and forensic image analysis. Biometric identification methods have proved to be very efficient, more natural and easy for users than traditional methods of human identification. Biometric authentication systems are essentially pattern recognition systems, the physiological characteristics being fingerprint, DNA and iris recognition. One of the current trends in biometric human identification is the development of new emerging modalities. This thesis proposes a novel recognition methodology of biometrics named as ear authentication. The preprocessing stage the gray scale values generated from the original image. The generated gray scale values are then passed to canny edge detection technique for the purpose of edge detection. The output of the image of edge detection process is used to increase the intensity values of the original image. The extraction of features of ear authentication using Speeded Up Robust Features (SURF).


PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

P672

**A SURVEYING ISSUES REPORTS TO RELEVANT FILES
USING A RANKING MODEL**

PHASE II REPORT

Submitted by

P.NATHIYA

(Register NO:621115405008)

In partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

Computer science and engineering



IDHAYA ENGINEERING COLLEGE FOR WOMEN,

CHINNASALEM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ANNA UNIVERSITY, CHENNAI

JUNE 2017

M. S. S. S.
PRINCIPAL
Idhaya Engineering College for Women,
Vainarpalaym Road, CHINNASALEM-606204
Kallakurichi Taluk, Villupuram District

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this thesis that "A SURVEYING ISSUES REPORTS TO RELEVANT FILES USING A RANKING MODEL" is the bonafide work of **P.NATHIYA**(621115405008) who carried out the work under my supervision. Certified further that to the best of my knowledge the work report here in does not from part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

S. Jay. Prakash

SIGNATURE

Mr.S.JAYAPRAKASH, M.E., (ph.D)

HEAD OF THE DEPARTMENT,

Assistant professor,

Department of computer science and
Engineering

Idhaya Engg. College for women,

Chinnasalem-606 201.

S. Jay. Prakash

SIGNATURE

Sr. AROCKIA JAYA M.E.

SUPERVISOR,

Assistant professor,

Department of Computer science and
Engineering

Idhaya Engg. College for women,

Chinnasalem-606 201.

Submitted for the project phase I viva voce held on 23-6-2017

S. Jay. Prakash
23/6/17

INTERNAL EXAMINER

S. Jay. Prakash
23/6/17

EXTERNAL EXAMINER

Meeni
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

When a new bug report is received, developers usually need to reproduce the bug and perform code reviews to find the cause, a process that can be tedious and time consuming. A tool for ranking all the source files with respect to how likely they are to contain the cause of the bug would enable developers to narrow down their search and improve productivity. This paper introduces an adaptive ranking approach that leverages project knowledge through functional decomposition of source code, API descriptions of library components, the bug-fixing history, the code change history, and the file dependency graph. Given a bug report, the ranking score of each source file is computed as a weighted combination of an array of features, where the weights are trained automatically on previously solved bug reports using a learning-to-rank technique. We evaluate the ranking system on six large scale open source Java projects, using the before-fix version of the project for every bug report. The experimental results show that the learning-to-rank approach outperforms three recent state-of-the-art methods. In particular, our method makes correct recommendations within the top 10 ranked source files for over 70 percent of the bug reports in the Eclipse Platform and Tomcat projects.


PRINCIPAL
Anaya Engineering College for Women
Vainarpalaym Road, CHINNASALEM-60620
hallakurichi Taluk, Villupuram District

**IDENTIFICATION OF RUMOR SPREADING
PLATFORM IN MICROBLOGGING SYSTEMS**

A THESIS

Submitted by

S.SUGANYA

(Register No: 621115405017)

in partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING



IDHAYA ENGINEERING COLLEGE FOR WOMEN,

CHINNASALEM

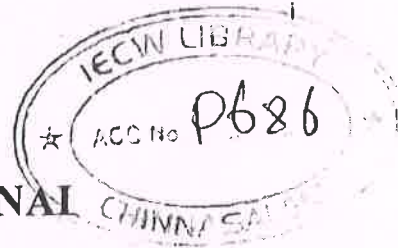
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ANNA UNIVERSITY, CHENNAI

JUNE 2017

Suganya
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606206
Hallakurichi Taluk, Villupuram District



ANNA UNIVERSITY , CHENNAI

BONAFIDE CERTIFICATE

Certified that this Report titled "IDENTIFICATION OF RUMOR SPREADING PLATFORM IN MICROBLOGGING SYSTEMS" is the bonafide work of S.SUGANYA (621115405017) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

S. Jay. Prk SIGNATURE

P. Sumathi SIGNATURE

Mr. S.JAYAPRAKASH., M.E., (Ph.D) AP/Head of the Department, Computer Science and Engineering, Idhaya Engineering College For Women, Chinnasalem-606 201.

Mrs. P. SUMATHI., M .E., Assistant Professor, Computer Science and Engineering, Idhaya Engineering College For Women, Chinnasalem-606 201.

Submitted for the project Phase II viva voce held on 23.6.2017

S. Jay. Prk 23/6/17 INTERNAL EXAMINER

23/6/17 EXTERNAL EXAMINER

PRINCIPAL Idhaya Engineering College for Women Nainarpalaym Road, CHINNASALEM-60620 Kallakurichi Taluk, Villupuram District

ABSTRACT

In recent years, microblog systems such as Twitter and Sina Weibo have averaged multimillion active users. On the other hand, the microblog system has become a new means of rumor-spreading platform. In this project investigate the machine-learning-based rumor identification approaches. It observed that feature design and selection has a stronger impact on the rumor identification accuracy than the selection of machine-learning algorithms. Meanwhile, the rumor publishers' behavior may diverge from normal users', and a rumor post may have different responses from a normal post. However, mass behavior on rumor posts has not been explored adequately. Hence, it investigate rumor identification schemes by applying five new features based on users' behaviors, and combine the new features with the existing well-proved effective user behavior-based features, such as followers' comments and reposting, to predict whether a microblog post is a rumor. Experiment results on real-world data from Sina Weibo demonstrate the efficacy and efficiency of our proposed method and features. From the experiments, conclude that the rumor detection based on mass behaviors is more effective than the detection based on microblogs' inherent features.


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-600,
Kallakurichi Taluk, Villupuram District

**AUTHORIZED DATA DEDUPLICATION IN HYBRID
CLOUD COMPUTING**

PHASE II REPORT

Submitted by

S.RAMYA

(Register No: 621115405011)

in partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

Computer Science and Engineering

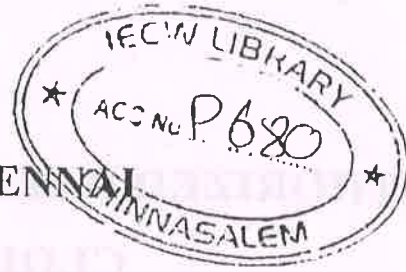


**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017


PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District



ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled **“AUTHORIZED DATA DEDUPLICATION IN HYBRID CLOUD COMPUTING”** is the bonafide work of **S.RAMYA** (Register No: 621115405011) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

S. Jay. B.
SIGNATURE

Mr. S. JAYAPRAKASH M.E.,(Ph.D)
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Computer Science and
Engineering
Idhaya Engg. College for Women,
Chinnasalem-606 201.

A. George Rockiaraj
SIGNATURE

Mr.A.GEORGEAROCKIARAJ,M.E.,
SUPERVISOR,
Assistant Professor,
Department of Information Technology
Idhaya Engg. College for Women,
Chinnasalem-606 201.

Submitted for the Project Phase II viva voce held on 23.06.2017

S. Jay. B.
INTERNAL EXAMINER
23/6/17

A. George Rockiaraj
EXTERNAL EXAMINER
23/6/17

M. S. S.
PRINCIPAL
Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District

ABSTRACT

Data de-duplication is one of important data compression techniques for eliminating duplicate copies of repeating data, and has been widely used in cloud storage to reduce the amount of storage space and save bandwidth. To protect the confidentiality of sensitive data while sustaining de duplication, the convergent encryption technique has been proposed to encrypt the data before outsourcing. To better protect data security, this paper makes the first attempt to formally address the problem of authorized data de duplication. Different from traditional de duplication systems, the differential privileges of users are further considered in duplicate check besides the data itself. De duplication constructions supporting authorized duplicate check in hybrid cloud architecture. Security analysis demonstrates that our scheme is secure in terms of the definitions specified in the proposed security model.



[Handwritten Signature]
PRINCIPAL

Anna Engineering College for Women
Nainarpalaym Road, CHINNASALEM-60624,
Kallakurichi Taluk, Villupuram District

D681

EMBEDDING DATA AND IMAGE WITH LOSSLESS AND REVERSIBLE TECHNIQUES

PHASE II REPORT

Submitted by

V.VINCY

(Register No: 621115405018)

in partial fulfillment for the award of the degree of

MASTER OF ENGINEERING

IN

Computer Science and Engineering



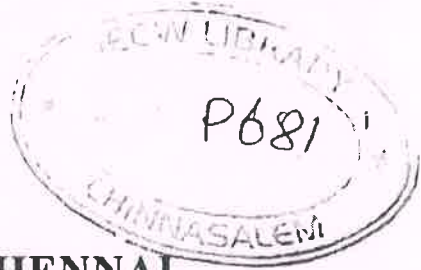
**IDHAYA ENGINEERING COLLEGE FOR WOMEN,
CHINNASALEM
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

ANNA UNIVERSITY, CHENNAI

JUNE 2017

M. V. Vincy
PRINCIPAL

**Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District**



ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this Thesis titled **“EMBEDDING DATA AND IMAGE WITH LOSSLESS AND REVERSIBLE TECHNIQUES”** is the bonafide work of **V.VINCY**

(Register No: 621115405018) who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

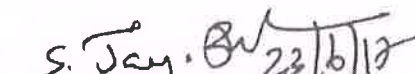

SIGNATURE

Mr. S. JAYAPRAKASH M.E.,(Ph.D)
HEAD OF THE DEPARTMENT,
Assistant Professor,
Department of Computer Science and
Engineering
Idhaya Engg. College for Women,
Chinnasaalem-606 201.



SIGNATURE

Mrs. R.GEETHA M.E.,
SUPERVISOR,
Assistant Professor,
Department of Information Technology
Idhaya Engg. College for Women,
Chinnasaalem-606 201.

Submitted for the Project Phase II viva voce held on 23.6.2017


INTERNAL EXAMINER


EXTERNAL EXAMINER


PRINCIPAL
Idhaya Engineering College for Women,
Vainarpalaym Road, CHINNASALEM-606201,
kallakurichi Taluk, Villupuram District

ABSTRACT

This paper proposes a lossless, a reversible, and a combined data hiding schemes for ciphertext images encrypted by public key cryptosystems with probabilistic and homomorphic properties. In the lossless scheme, the ciphertext pixels are replaced with new values to embed the additional data into several LSB-planes of ciphertext pixels by multi-layer wet paper coding. Then, the embedded data can be directly extracted from the encrypted domain, and the data embedding operation does not affect the decryption of original plaintext image. In the reversible scheme, a preprocessing is employed to shrink the image histogram before image encryption, so that the modification on encrypted images for data embedding will not cause any pixel oversaturation in plaintext domain. Although a slight distortion is introduced, the embedded data can be extracted and the original image can be recovered from the directly decrypted image. Due to the compatibility between the lossless and reversible schemes, the data embedding operations in the two manners can be simultaneously performed in an encrypted image. With the combined technique, a receiver may extract a part of embedded data before decryption, and extract another part of embedded data and recover the original plaintext image after decryption.

M. S. S.
PRINCIPAL

Idhaya Engineering College for Women
Nainarpalaym Road, CHINNASALEM-606201
Kallakurichi Taluk, Villupuram District