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ACADEMIC YEAR 2017-18

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A Modern Approach for Motion Detection & Responsive Control of Appliance using MATLAB

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Abstract

Motion tracking is a major issue in security field whether it is borders, banks, offices and institutions etc. Security is always maximum concerned. To maintain security we deploy security guards but with them human errors are most common as they cannot be available on a place all the time. Hardware sensor based systems are very costly and maximum lasts for few years only. It can be placed on single place. This paper proposes to create motion detection system using software. It deals with the concept of motion tracking using cameras in real time. It is designed to create a visitor identification system in which motion is detected MATLAB system reads predefined message.

Keywords: Frame extraction, Graphical User Interface, Motion Detection, Motion identification

I. INTRODUCTION

A webcam is a video camera that feeds or streams its image in real time to or through a computer to computer network. When captured by the computer, the video stream may be saved, viewed or sent on to other networks via systems such as internet, and email as an attachment. When sent to remote location, the video stream may be saved, viewed or on sent there. Unlike an IP camera (which connects using Ethernet or Wi-Fi), a web camera is generally connected by a USB cable, or similar cable, or built into computer hardware, such as laptops. The term webcam may also be used in its original sense of a video camera connected to the web continuously for an indefinite time, rather than for a particular session, generally supplying a view for anyone who visits its web page over the internet. It is used at places such as institutions, offices, banks etc.

A webcam is used for motion detection. It is used for identifies a person. Motion Detection is usually a software-based monitoring algorithm which, when it detects motions will signal the surveillance camera to begin capturing the event. It is also as called activity detection. An advanced motion detection surveillance system can analyze the type of motion to see if it warrants an alarm. Motion detection is the process of detecting a change in the position of an object related to its surroundings or a change in the surroundings relative to an object. Motion detection can be achieved by either mechanical or electronic methods.

II. EXISTING SYSTEM

Several motion detection schemes were researched in recent years but a motion detection scheme with such broad application is not tried out yet. Nobody even tried yet to do some responsive work to assemble embedded hardware with MATLAB based motion detection.

A. Disadvantage of Existing System

- Only motion detection was possible.
- It was not accurate as video input was only used.
- Real time video acquisition and tracking was not checked with audio alert system.

III. PROPOSED SYSTEM

The main objective of this paper is to create and Automatic Visitor Information System with voice Announcement. And also to create a motion detection system interfacing with hardware opening closing from remote location to check the system working in real time. Android application is used for listen the audio see the video and control the gate from remote location. It is kept in the principal room of the institution. MATLAB is the best tool to do this kind of operation due to its highly efficient and accurate nature. It simply transforms our computers into Motion detection system. It deals with the concept of motion tracking using cameras in real time. It is used for a security system using MATLAB. If it detects any motion using cameras it automatically speaks whatever we have typed in command like "principal is available or principal is busy " like that the predefined message. The same audio will run simultaneously on the mobile phone connected with the internet to the computer. We can even see the

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Image Retrieval Based on Local Mesh Vector Co-occurrence Pattern for Medical Diagnosis from MRI Brain Images

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Received: 31 March 2017 / Accepted: 14 August 2017
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Abstract In modern health-care, for evidence-based diagnosis, there is a requirement for an efficient image retrieval approach to retrieve the cases of interest that have similar characteristics from the large image databases. This paper presents a feature extraction approach that aims at extracting texture features present in the medical images using Local Pattern Descriptor (LPD) and Gray-level Co-occurrence Matrix (GLCM). As a main contribution, a novel local pattern named Local Mesh Vector Co-occurrence Pattern (LMVCoP) has been proposed by concatenating the Local Mesh Co-occurrence Pattern (LMCoP) and the Local Vector Co-occurrence Pattern (LVCoP). The fusion of GLCM with the Local Mesh Pattern (LMeP) and the Local Vector Pattern (LVP) produces LMCoP and LVCoP respectively. The LMVCoP method has been investigated on the Open Access Series of Imaging Studies (OASIS): a Magnetic Resonance Imaging (MRI) brain image database. LMVCoP descriptor achieves 87.57% of ARP and 53.21% of ARR which are higher than the existing methods of LTCoP, PVEP, LBDP, LMeP and LVP. The LMVCoP method enhances the retrieval results of LMeP/LVP from 81.36%/83.52% to 87.57% in terms of ARP on OASIS MRI brain database.

Keywords Image processing · MRI brain images · Medical diagnosis · Texture based image retrieval · Local mesh vector co-occurrence pattern

Introduction

Every day massive amount of medical images is acquired and preserved as databases in health care centers for future references, disease diagnostics and for proper treatment. Physician uses these large medical image data as the modern frontier of the medical field and improves the quality of medical treatment. Many referring physicians also show a great interest for direct access to medical image data and to discuss with their hospital colleagues by retrieving the required image immediately and have the chance to confer the case collaboratively with other specialists for successful decision making. Healthy people also show interest to have a master medical check up periodically which increases the accumulation of medical images in the hospitals. Hence, there is a need to find the most clinically relevant images in response to specific information required. Content-Based Image Retrieval (CBIR) focused to follow a line of investigation to fulfill this requirement. Where CBIR is a well-known technology used to organize an image database by their features (contents) and to search it according to the requirement. Ultimately, the Content-Based Medical Image Retrieval (CBMIR) attracts extensive attention in the research community by its significant clinical benefits and the pace of its research is still rising.

Duncan and Ayache listed out four important challenges should be faced while analysing medical images [1]. They are: (1) addressing the biological problems, (2) Characterizing different imaging modalities, (3) identifying proper techniques

This article is part of the Topical Collection on *Image & Signal Processing*

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Overview of Architecture and Softwarization in 5G Technology

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ABSTRACT

5G is the fifth-generation wireless broadband technology based on the IEEE802.11ac standard. An important goal of 5G is to erase the differences between wireline and wireless networking to accommodate the growing mobility of network users. A 5G network will be able to handle 10,000 times more call and data traffic than the current 3G or 4G network. The signal technology of 5G has also been improved for greater coverage as well as spectral and signaling efficiency. These improvements stand to further enable changes like pervasive computing and the Internet of Things (IoT).

Keywords: 5G aggregator, 5G nanocore, network softwarization

I. INTRODUCTION

5G continues to generate buzz and grab the efforts and the attention of many of us in the Communications Technology Industry. Huawei, a major player in the Chinese mobile market, believes 5G will provide speeds 100x faster than 4G LTE offers. 5G also increases network expandability up to hundreds of thousands of connections. Low-band 5G uses frequencies from 600 MHz.^{[1] [2]} Millimeter wave 5G offers higher capacity than 4G and lower latency.^[3] As of 2017, development of 5G is being led by several companies, including Samsung, Intel, Qualcomm, Nokia, Huawei, Ericsson, ZTE and others.^[4]

5G TECHNOLOGY CHALLENGES

"Cellular standards are enormously complex. It takes a huge amount of time to work," said Sundeep Rangan, associate professor at NYU Wireless, an academic research center at New York University's Polytechnic School of Engineering in Brooklyn.

Rangan has been researching 5G technology and prototypes at NYU Wireless with industry partners including National Instruments, Samsung and Intel.

"Right now, most of the focus has been on technology, moving cellular standard design to high-frequency bands," Rangan said.

High-frequency bands have shorter wavelengths and are not typically considered viable for cellular networks. But Rangan said low-band spectrum is constrained and becoming expensive. Research and testing has focused on deploying 5G on spectrum above 30 GHz, known as millimeter wave.

The lack of a business case to drive innovation is another issue facing 5G. When 4G was under development, was a driver for faster standardization of 4G, Rangan said. But 5G does not have a competing standard under development to drive further innovation.

"Not all technology we think will be part of 5G are ready," he said. Technology like network functions virtualization can support 5G, but other technology like millimeter wave requires more research. The first step will be determining the Third Generation Partnership Project (3GPP) requirements for a new generation of wireless



SECURITY ATTACKS IN FOG COMPUTING- BASIC CONCEPTS AND CHALLENGES

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ABSTRACT

Fog computing is a new paradigm that extends the Cloud platform model by providing computing resources on the edges of a network. It can be described as a cloud-like platform having similar data, computation, storage and application services, but is fundamentally different in that it is decentralized. In addition, Fog systems are capable of processing large amounts of data locally, operate on-premise, are fully portable, and can be installed on heterogeneous hardware. These features make the Fog platform highly suitable for time and location-sensitive applications. For example, Internet of Things (IoT) devices are required to quickly process a large amount of data. This wide range of functionality driven applications intensifies many security issues regarding data, virtualization, segregation, network, malware and monitoring. This paper gives an insight of the existing security attacks that prevail in fog computing. This paper also determines the impact of those security issues and possible solutions, providing future security-relevant directions to those responsible for designing, developing, and maintaining Fog systems.

Keywords: Fog computing, Security threats, Internet of things, Performance, Wireless security, Malware protection

1. INTRODUCTION

Fog computing is a decentralized computing architecture whereby data is processed and stored between the source

of origin and a cloud infrastructure. This results in the minimization of data transmission overheads, and subsequently, improves the performance of computing in Cloud platforms by reducing the requirement to process

and store large volumes of superfluous data. The Fog computing paradigm is largely motivated by a continuous increase in Internet of Things (IoT) devices, where an ever increasing amount of data (with respect to volume, variety, and velocity [1]) is generated from an ever expanding array of devices. IoT devices provide rich functionality, such as connectivity and the development of new functionality is often data motivated. These devices need computing resources to process the acquired data; however, fast decision processes are also required to maintain a high-level of functionality. This can present scalability and reliability issues when utilizing a standard client-server architecture, where data is sensed by the client and processed by the server. If a server was to become overloaded in traditional client-server architecture, then many devices could be rendered unusable. The Fog paradigm aims to provide a scalable decentralized solution for this issue. This is achieved by creating a new hierarchically distributed and local platform between the Cloud system and end-user devices [2], as shown in Fig.

1. This platform is capable of filtering, aggregating, processing, analyzing and transmitting data, and will result in saving time and communication resources. This new paradigm is named *Fog computing*, initially and formally introduced by Cisco [3]. Cloud computing

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Standard Plane Detection by Ultrasound Using a Composite Neural Network Framework

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Abstract—Ultrasound (US) imaging is a widely used screening tool for obstetric examination and diagnosis. Accurate acquisition of fetal standard planes with key anatomical structures is very crucial for substantial biometric measurement and diagnosis. However, the standard plane acquisition is a labor-intensive task and requires operator equipped with a thorough knowledge of fetal anatomy. Therefore, automatic approaches are highly demanded in clinical practice to alleviate the workload and boost the examination efficiency. The automatic detection of standard planes from US videos remains a challenging problem due to the high intra-class and low inter-class variations of standard planes, and the relatively low image quality. Unlike previous studies which were specifically designed for individual anatomical standard planes, respectively, we present a general framework for the automatic identification of different standard planes from US videos. Distinct from conventional way that devises hand-crafted visual features for detection, our framework explores in- and between-plane feature learning with a novel composite framework of the convolutional and recurrent neural networks. To further address the issue of limited training data, a multitask learning framework is implemented to exploit common knowledge across detection tasks of distinctive standard planes for the augmentation of feature learning. Extensive experiments have been conducted on hundreds of US fetus videos to corroborate the better efficacy of the proposed framework on the difficult standard plane detection problem.

Index Terms—Convolutional neural network (CNN), deep learning, knowledge transfer, recurrent neural network (RNN), standard plane, ultrasound (US).

I. INTRODUCTION

ULTRASOUND (US) is a widely used obstetric examination tool for its advantages of low cost, mobility, and the capability of real time imaging [1], [2]. In general, the clinical obstetric US examination involves the procedures of manual scanning, standard plane selection, biometric measurement, and diagnosis [3]. Particularly, the accurate acquisition and selection of the US planes that can clearly depict the key anatomic structures of fetus is very crucial for the subsequent biometric measurement and diagnosis. For example, the prebirth weight of baby can be estimated from the US measurements of head circumference, biparietal diameter, abdominal circumference, and femur length. Therefore, the selection of US planes that can depict the corresponding organs with good quality will be very important for the accurate estimation of fetus weight [4], [5]. In terms of diagnostic purpose, the US views that can visualize the detailed facial and cardiac structures of fetus deem to be very important for the timely prenatal diagnosis of facial dysmorphism and congenital heart diseases. These US planes that can depict key anatomic structures clearly for either biometric measurement or disease diagnosis are generally recommended by professional organizations for the standard fetal US examination and are often denoted as US standard planes [6]–[9].

In clinical practice, the US standard plane is commonly acquired by hand with laborious maneuver of the probe for searching the desirable view that can concurrently present the key

anatomical structures, see Fig. 1. Specifically, three standard planes: 1) fetal abdominal standard plane (FASP); 2) fetal face axial standard plane (FFASP); and 3) fetal four-chamber view standard plane (FFVSP) of heart are shown in Fig. 1. The FFASP is determined with the presence of three key organs of: 1) nose bone; 2) lens; and 3) eyes in the US view, whereas the FASP is expected to include stomach bubble (SB), umbilical vein (UV), and spine (SP). The definition of FFVSP is the US plane that can clearly visualize five key cardiac structures of: 1) left atrium; 2) right atrium; 3) left ventricle; 4) right ventricle; and 5) descending aorta in the same image. The FASP can be used for the estimation of fetal weight, while the FFASP and FFVSP can be informative for the diagnosis of facial dysmorphism and congenital heart diseases, respectively.

Since the clinically needed US standard planes can be very diverse and the overall number of planes can be several dozens for a thorough examination [10], it usually takes around tens of minutes or more to acquire and define the US standard planes, even for a very experienced obstetrician. Therefore, the selection of necessary US standard planes can be one of the most time consuming procedure in the obstetric examination. On the other aspect, the process of acquisition and selection of the correct US standard planes requires the operator being proficient in maternal and fetal anatomy and highly depends on operator's experience. As a consequence, it would be very challenging for an inexperienced operator or novice to fulfill the whole task of US standard plane acquisition. Meanwhile, since the standard plane acquisition is a knowledge-intensive task and required planes are very diverse, the learning curve of this procedure can be very long [11]. In such a case, the man-power shortage can be expected in highly populated regions as the training of a ready operator for the US fetal examination can be costly and take a long time. Motivated by the aforementioned issues, the computerized scheme with automatic plane detection and selection capability will be highly welcome to alleviate the routinely obstetric workload [12] and address the issues of medical manpower shortage on underserved populations and areas [11]. The computer-aided scheme can also help to facilitate the training of medical novices with computerized feedback from a score-based quality control system [13].

The topic of computer-aided US frame detection and selection is relatively new and has recently received more and more attention in these years [8], [12], [14]–[18]. The computerized scheme can help to lower down the operator dependency in US scanning and improve the efficiency of post-processing procedures with automatic mechanisms. Kwitt *et al.* [11] developed a template-based method equipped with dynamic texture model to retrieve frames containing key structures from US video. The efficacy of the template-based method was merely verified in phantom studies, and hence, the



IMPACT OF SECURITY ISSUES WITH REFERENCE TO JAJODIA-DOGAN MODEL

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ABSTRACT

Nowadays a Database security has become an important issue in technical world. The main objective of database security is to forbid unnecessary information exposure and modification data while ensuring the availability of the needed services. A numbers of security methods have been created for protecting the databases. Many security models have been developed based on different security aspects of database. All of these security methods are useful only when the database management system is designed and developing for protecting the database. Recently the growth of web application with database at its backend Secure Database Management System is more essential than only a Secure Database. Therefore this paper highlight on the Threats, Security Methods and Vulnerabilities in Database Management System with the help of survey performed on the field of secure databases.

Keywords

Vulnerability, threats, security methods, DBMS

1. INTRODUCTION

These days including the invention of internet technology securing database is a needed aspect in today's world. Individually we use database every day unknowingly when we browse on internet. The information we get on the web page is the consequences of query accomplished by the webpage to the database it is connected. Hence indirectly via the webpage we are connected to different databases. The web pages are open for any anonymous person in the world or we can say the databases are indirectly opened for everyone. As we know data in the database is the most valuable asset which can be the source of information. All the information cannot be revealed for everyone. Hence many security tools have been devised to protect the database. As the database is accessible via web pages security should be implemented in database management system (DBMS). Looking towards the implementation this paper focus on Vulnerabilities in Database Management System (VDBMS), Threats in Database Management System (TDBMS) and Security Methods in Database Management System (SMDBMS).

Rest of the paper is organized as follows: section II provides overview of recent trends in database protection, section III, IV and V are devoted to VDBMS, TDBMS and SMDBMS.

Section VI deals with the summary of above section in a tabular format and section VII deals with the conclusion.

2. PROTECTED DATABASE

There are many ways of securing the database. These ways are based on different aspects of securing the database. Different aspects with traditional approaches from different researchers view are summarized below: Confidentiality, Integrity and Availability (CIA) in Database Management System

As mentioned in [1] a complete solution to data security must fulfilled the following three requirements Confidentiality, Integrity, Availability (CIA): these entire factors can gained in database using following ways:

Confidentiality

Means to the protection of data against unauthorized disclosure can be achieved using access control mechanism. It is already further enhanced by the use of encryption techniques is applied to data when being stored on secondary storage or transmitted on a Network.

Integrity

Means to the prevention of unauthorized and improper data modification and can be achieved in combination of access control mechanism by semantic integrity constraints.

Availability

Means to the prevention and recovery from hardware and software errors and from malicious data access denials making the database system inaccessible. The data that are available on the Web can be powered by the use of techniques protecting against denial-of-service attacks and such as the ones based on machine learning techniques.

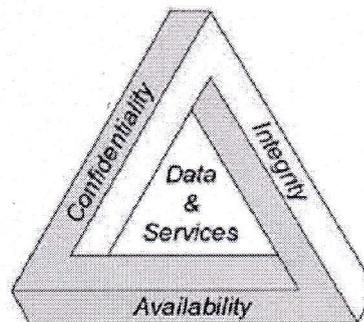


Fig. 1 CIA Triad



AN EFFICIENT ALGORITHM FOR SECURE LOGGING MECHANISM IN CLOUD BASED SERVICES

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Abstract: In this study, a stack of three level security, the security mechanism are proposed on top of Secure Socket Layer (SSL) Virtual Private Network (VPN) with Elliptic Curve Cryptography (ECC) applied for XML web services in cloud computing and the authentication of user that avoid the privacy risk in VPN. It provides a secure logging mechanism. The connection is established seamlessly when the user connects VPN on the cloud ensuring data security and privacy of users. On the existing SSL based VPN, ECC encryption enhances the security level of user's private

data to create an encrypted key that is difficult to decrypt and thereby making it difficult to hack the network. Same digital ECC key is being archived by the web services component. By this mechanism, the security of data transmission from the VPN client to the server is assured. The server's data processing speed is effectively upgraded. This technique is analyzed and compared with the existing scheme. The process is more reliable and rapid based on the outcome of the groundwork.

Key words: ECC, SSL, VPN, XML, web services, cloud computing

1. INTRODUCTION

Cloud computing plays a major role by providing simple way to access resources like servers, storage, databases and a vast set of application services, secure communication is a significant need to perform high end data transfers. The profit and savings of cloud computing are wanted by many firms. Web service provides a consistent, enforceable security and strategy despite of where or how the end-user exploits the internet. In the existing scheme to launch the SSL based VPN, providing customized security for data packets. VPN server web service application is used by the client. The VPN client dynamically loads the XML based web services safety measures to provide incorporated safety measures.

The proposed system provides secure usage of cloud computing frame work based on web services protection intended to provide a high level design of the SSL VPN. This concept surpasses the protection level of the VPN that supports the connection of Peer to Peer (P2P) network via. ECC. The cloud computing framework offers a high level of confidentiality, safety and privacy for PaaS and IaaS which have security concerns initially. It secures web services and established network applications, same set of keys are being utilized by the VPN and web service. The XML based concurrent features create a lot of challenges when it comes in implementing security for web service through the internet, especially in cloud network. To meet the needs of web services protection, many hard works has

freshly been made (Hashizume et al., 2013; Deshmukh et al., 2013) are worth mentioning.

The cloud service provider is unable to track user activities and transfers data effectively within cloud environment in this framework, a new concept is introduced, that is, i.e., generating logs for every activity of the user. In additional, we provide a secure logging system for upholding the logs thus shielding the confidentiality of users and integrity of logs. Liability can be a key to tackle such issues. Methods that promote accountability and audit ability of CSPs, logs generate is very crucial in cloud environment, cloud users can alter the generated logs. They can restructure the entries as well add some fake log entries. File-centric logging mechanism accounts all the entry happening on VM's and data transfer taking place between the VM's and external users. A secure logging scheme is provided which enable the user to check whether the logs provided by cloud service providers are not tampered.

Most vital characteristic of this content are ECC ANSI X9.62 (Deshmukh et al., 2013) is utilized for the private cloud VPN establishment this security system will provide advanced threats to defeat known and unknown threats. Provides fortification throughout the performance. Hence, better visibility and control offered. Cloud web services are established with the same ECC digital key. Secure logging mechanism for safeguarding of logs and track the user's activity details by the CSP.



PREVENTION OF ZOMBIES ATTACKS IN DISTRIBUTED NETWORKS USING DYNAMIC PATH IDENTIFIER

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ABSTRACT:

The PIDs used in existing approaches are static, which makes it easy for attackers to launch distributed denial-of service (DDoS) flooding attacks. To address this issue, in this paper, we present the design, implementation, and evaluation of D-PID, a framework that uses PIDs negotiated between neighboring domains as inter-domain routing objects. In DPID, the PID of an inter-domain path connecting two domains is kept secret and changes dynamically. We describe in detail how neighboring domains negotiate PIDs, how to maintain ongoing communications when PIDs change.

Keywords: Inter-domain routing, security, distributed denial-of-service (DDoS) attacks, path identifiers.

1. INTRODUCTION

Denial-of-service (DDoS) flooding attacks are very harmful to the Internet. In a DDoS attack, the attacker uses widely distributed zombies to send a large amount of traffic to the target system, thus preventing legitimate users from accessing to network resources. Many approaches have been proposed in order to prevent DDoS flooding attacks, including network ingress filtering, IP trace back, capability-based designs, and shut-up messages.

At the same time, in recent years there are increasing interests in using path identifiers PIDs that identify paths between network entities as inter-domain routing objects, since doing this not only helps addressing the routing scalability and multi-path routing issues, but also can facilitate the innovation and adoption of different routing architectures. Luo *et al* proposed an information-centric internet architecture called CoLoR that also uses PIDs as inter-domain routing objects in order to enable the innovation and adoption of new routing architectures.

There are two different use cases of PIDs in the aforementioned approaches. In the first case, the PIDs are globally advertised. As a result, an end user knows the PID(s) toward any node in the network. Accordingly, attackers can launch DDoS flooding attacks as they do in the current Internet. In the second case, conversely, PIDs are only known by the network and are secret to end users. In the latter case, the network adopts an information-centric approach where an end user (*i.e.*, a content provider) knows the PID(s) toward a destination (*i.e.*, a content consumer) only when the destination sends a content request message to the end user. After knowing the PID(s), the end user sends packets of the content to the destination by encapsulating the PID(s) into the packet headers. Routers in the network then forward the packets to the destination based on the PIDs. It seems that keeping PIDs secret to end users makes it difficult for attackers to launch DDoS flooding attacks since they do not know the PIDs in the network. However, keeping PIDs secret to end users is not enough for preventing DDoS flooding attacks if PIDs are static. For example, Antikainen *et al* argued that an adversary can construct novel zFilters (*i.e.*, PIDs) based on existing ones and even obtain the link identifiers through reverse-engineering, thus launching DDoS flooding attacks .attacks by learning PIDs if they are static.

To address this issue, in this paper, we present the design, implementation and evaluation of a dynamic PID (D-PID) mechanism. In D-PID, two adjacent domains periodically update the PIDs between them and install the new PIDs into the data plane for packet forwarding. Even if the attacker obtains the PIDs to its target and sends the malicious packets successfully, these PIDs will become invalid after a certain period and the subsequent attacking packets will be discarded by the network. Moreover, if the attacker tries to obtain the new PIDs and keep a DDoS flooding attack going, it not only significantly increases the attacking cost but also makes it easy to detect the attacker.



DETECTING DISEASES IN VARIOUS PLANTS USING DIGITAL IMAGE PROCESSING WITH REGION BASED SEGMENTATION

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ABSTRACT--Agriculture is the most important sector of Indian Economy. Indian agriculture sector accounts for 18 per cent of India's gross domestic product (GDP) and provides employment to 50% of the countries workforce. India is the world's largest producer of pulses, rice, wheat, spices and spice products. In early days, the detection of plant diseases was done manually by the expertise person in that field. This requires large amount of work and processing time. To overcome the conflict of detecting diseases in plants we use digital image processing, in this approach we use the following sequence of steps like image acquisition, image pre-processing, image segmentation, feature extraction and classification. In the above steps the particular focus is upon image segmentation, based on edge and region detection. Segmentation is first performed on the triangulation using graph cuts. Our method favors segmentations that pass through more vectorized line segments. Finally, the obtained segmentation on the triangulation is projected on to the original image and region boundaries are refined to achieve pixel accuracy. Experimental results show that the two level approaches can achieve accurate edge localization, better spatial coherence and improved efficiency.

Keywords— Segmentation, Region based, Edge based, Image acquisition, Feature extraction.

I. INTRODUCTION

With a majority of its population living in villages, rural poverty is a major problem in India. The disparity between the urban and rural incomes is also on the rise. This leads to migration to urban areas resulting in urban blight as well. Therefore addressing the problem of rural poverty assumes urgency. The major way of income in rural population is agriculture. The major disadvantage in agriculture is diseases that affect plants.

To overcome this conflict tremendous measure has to be taken to detect diseases and to analyze them and find

their preventive measures in limited time. Even though human sight and perception are used, sometimes they may lead to unconditional result that may lead to error. To overcome this drawback, digital image processing technique can be used which a subcategory of digital signal is processing. Basically digital image processing uses computer algorithms to perform image processing on digital images.

II. BASIC STEPS FOR DETECTION PROCESS

The basic steps for detection process are Image Acquisition, Image Pre-Processing, Image Segmentation, Threshold based, Edge based, Region based, Feature Extraction in image, Detection and Classification of plant disease.

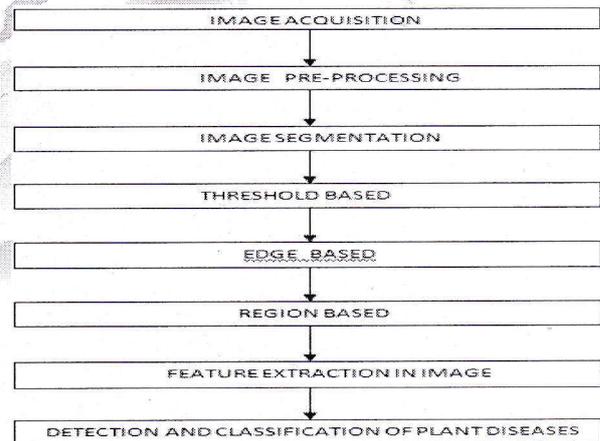


Fig.1 Basic steps for plant disease detection and classification

A. IMAGE ACQUISITION

The first stage of any vision system is the image acquisition stage. After the image has been obtained, various methods of processing can be applied to the image to perform the many different vision tasks required today.



A FAST PANORAMA STITCHING METHOD OF IMAGE SEQUENCE

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Abstract—The traditional image stitching result based on the SIFT feature points extraction, to a certain extent, has distortion errors. The panorama, especially, would get more seriously distorted when compositing a panoramic result using a long image sequence. To achieve the goal of creating a high-quality panorama, the improved algorithm is proposed, including altering the way of selecting the reference image and putting forward a method that can compute the transformation matrix for any image of the sequence to align with the reference image in the same coordinate space. Additionally, the improved stitching method dynamically selects the next input image based on the number of SIFT matching points. Compared with the traditional stitching process, the improved method increases the number of matching feature points and reduces SIFT feature detection area of the reference image. The experimental results show that the improved method can not only accelerate the efficiency of image stitching processing, but also reduce the panoramic distortion errors, and finally a pleasing panoramic result has been obtained.

Index Terms—Image stitching, Scale Invariant Feature Transform, multi-view panorama, Structure from motion, image alignment, Random sample consensus.

I. INTRODUCTION

Image stitching is the process of combining multiple photographic images with overlapping fields of view to produce a segmented panorama or high-resolution image. It is also known as image mosaics [1]. Most common approaches of image stitching require exact overlaps between images and identical exposures to produce seamless results. In addition of using image stitching in computer vision and computer graphics applications, there are some digital cameras can stitch their photos internally. On the other hand, the human visual system has a field of view of around 135×200 degrees, but a typical camera has a field of view of only 35×50 degrees. Therefore, panoramic image mosaics works by taking lots of pictures from an ordinary camera and stitching them together to form a composite image with a much larger field of view.

The image stitching can be divided into three main components: calibration, image registration, and blending. The goal of camera calibration is to produce an estimate of the extrinsic and intrinsic camera parameters. During the image registration, multi-images are compared to find the translations that can be used for the alignment of images. After registration, these images are merged (blended) together to form a single image. Image calibration aims to minimize differences between an ideal lens model and the camera-lens combination that was used. These differences are resulted from optical defects such as distortions and exposure differences between images. Intrinsic and extrinsic camera parameters are recovered in order to reconstruct the 3D structure of a scene from the pixel coordinates of its image points. Extrinsic camera parameters define the location and orientation of the camera reference frame with respect to a known world reference frame. Intrinsic camera parameters link the pixel coordinates of an image point with the corresponding coordinates in the camera reference frame. Image registration is the core of a mosaics procedure. Its purpose is to create geometric correspondence between images that can compare images and apply other steps appropriately. Image registration is defined as the process of aligning two or more images which are captured from different point of perspectives. Image blending is processed to make the transition from one image to another image smoother. So, the joint between two images can be removed. Blending is applied across the stitch so that the stitching would be seamless. There are two popular ways of blending the images. One is called alpha "feathering" blending, which takes weighted average of two images. Another popular approach is Gaussian pyramid. This method essentially merges the images at different frequency bands and filters them accordingly.

The use of image stitching in real time applications is considered as a challenging field for image processing experts. It has wide applications in the field of video conferencing, video matting, video stabilization, 3D image reconstruction, video summarization, video compression, satellite imaging, and several medical applications. The applications of image stitching were extended to additional applications, such as video compression and video indexing. Another important application of panoramic image stitching is the localization systems. It is a highly accurate real-time outdoor localization system



Implementation of 32nm FINFET Dynamic Comparator for Flash type ADC

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Abstract-- In order to reduce the circuit complexity and area, the simple arrangement of the dynamic comparator is designed. Power consumption is the important parameter in VLSI circuits. To reduce the power consumption of the circuit many methods are proposed in the past. A FINFET comparator using dynamic latch, suitable for high-speed Analog-to-Digital Converter (ADC) with high speed and low power dissipation is presented. This design is planned to be proposed in Flash type ADC. This circuit combines the good features of the resistive isolating comparator and the differential current sensing comparator. The design has been carried out in LT SPICE and HSPICE using 32nm FINFET technology. The Simulation results are verified with supply voltages of 1.6V, 1.8V and 2.0V respectively. In Existing result shows that the power is least dissipated in 1.6V which is 0.7899 mW, but it has the longest propagation delay of 0.715 ns. In contrast, the 2.0V supply produced 1.471 mW and a shorter delay of 0.550 ns.

Index Terms— Dynamic latch comparator, Flash ADC, FINFET, differential current sensing comparator.

I. INTRODUCTION

The term FinFET explain a non-planar, double-gate electronic transistor engineered on associate SOI substrate. The distinctive feature of the FinFET is that the conducting channel is wrapped by a slender semiconductor "fin" that forms the body of the device and the fin thickness determines the effective channel length of the device [1]. A FINFET structure has been shown in fig.1 which depicts the gate and channel arrangements between source and drain in FinFETs. A number of material can be used to from substrate and channel. Here, Indium-Gallium-Arsenide to form p-type substrate FinFETs were introduced to overcome the Short Channel Effects(SCE) and they are having some distinct characters that makes it different from earlier FETs.

The essential building block of many analog circuits is the comparator, especially in Analog to Digital converters. Its interface between digital and analog domain often defines the resolution and speed of the entire ADC. There are many proposed topologies on how the technology should be distributed which aim to minimize the power consumption and maximize the data transfer [2].

Now a day's mostly we are using Analog-to-Digital Converter (ADC) and Digital-to-Analog Converter (DAC)

circuits because of the need to translate analog signal to digital signal and vice versa. A comparator plays a basic role in most electronic applications. Due to the large number of comparisons in some ADC structures, such as flash ADCs, the speed and the power consumption of the comparator have important influences on the performance of ADC [3]. High speed ADC is the key component in the area of analog and/or digital interface with the increasing demands for a high speed ADC. At the same time, the speed of the comparator is the main factor to the speed of the ADC [4]. A high speed ADC is very critical in some digital system and with the requirement to prolong the battery life of the system; a comparator with low power consumption is needed. There are many types of ADC available nowadays, example like Flash ADC, Sigma Delta ADC, dual slope converter an successive approximation converter. There is a trade-off between speed and resolution, for which literature has presented different techniques to enhance the performance of a comparator.

One of the more advanced ADC technology is the Sigma Delta ADC or $\Delta\Sigma$. Sigma Delta is one of the analog to digital converters which are ideally for converting signals over a wide range of frequencies from direct current to several megahertz with a very high resolution results. This paper proposes and demonstrates the analysis and design of a dynamic latch comparator. Its design pursues a high resolution at a considerable speed by optimizing the design of the amplifier and the latch. The proposed preamplifier extensively decreases the effects of the offset voltage errors due to device mismatch. Also, the topology isolates the latch and the input nodes. This prevents any trouble due to the kickback noise. The proposed latch is designed to achieve the lowest time constant limited by our topology using the study presented in [9] [10]. The signal path between the preamplifier and latch is controlled by transmission gates which as shown in [11] provide an additional gain at the output signal of the amplifier due to the charge insertion phenomenon.

The Analog to Digital Converter(ADC) converts the mean of an analog voltage into the mean of an analog pulse frequency and counts the pulses in a known interval so that the pulse count separated by the interval gives an perfect digital representation of the mean analog voltage during the interval. This intermission can be chosen to give any desired resolution



Medical Image Fusion with Extended Fuzzy Switching Median Filter

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Abstract—The main objective of this paper is to detect and filter the impulse noises in digital images of any kind like SAR-Images, Medical-Images and natural-Images. Various standalone filters, combined filters and user defined filters are discussed in the earlier studies for impulse noise removal. In the existing system FSMF is applied for removing impulse noises. The basic functionality of the existing system used the single-threshold as well as two-threshold values of the image for fuzzy computation. Since, it is concentrating mainly on the corrupted pixels it is not possible to remove the noise completely. To overcome this problem and make accuracy in noise removal the existing system is extended and introduced EFSMF-[Extended Fuzzy Switching Median Filter]by including speckle noise removal after (Set Portioning Hierarchical Tree (SPHIT) division on the image. The noise removal and image correction made two times in an image. The performance evaluation of EFSMF is obtained and verified with comparing the results with the FSMF results.

Keywords: Median Filter, Noise Removal, Image Enhancement, Fuzzy.

I. INTRODUCTION

Image processing is guiding human to take perfect decision about the human body, natural disasters, satellite reports etc. Various image processing techniques are available for different image processing methods like edge detection, cropping image, image acquisition, energy point detection, image comparison, image segmentation and so on. Before start the image processing methods, it is necessary to clean the image and enhance the image.

One of the main methods for cleaning the image is noise removal. In this study some of the literatures are reviewed for image processing methods. Krishnan Nallaperumal et al. [2] utilized multi-scale morphological method combined with watershed method for image segmentation. Watershed segmentation method generally intakes image gradient values as input parameters for segmentation. Kalpana Saini et al. [3] proposed a three step procedure for segmenting an ultrasound images such as general, clinical application based and ultra-sound image

based segmentation. S.Saheb basha et al. [4] applied morphological operations with fuzzy 'c' algorithm to detect breast cancer in mammogram images automatically. Kimmi Verma et al. [5] discussed briefly about the information about MRI brain tumor detection and segmentation. M.Joseph Prakash et al. [6] enhanced the texture of the image and then segmented the image. Waseem Khan et al. [7] discussed about image retrieval by comparing the segmented objects from the database images. Mrs.Sujatha.K et al [8] proposed Fuzzy-C-Means combined with Binary operations for image clustering and segmenting. Leela G A et al [9] applied morphological techniques for segmenting MRI brain tumor. Walita narkbuakaew et al. [10] discussed about various segmentation methods for CT-liver images.

The main contribution of our work is to

- Divide the image using SPIHT
- Apply fuzzification
- Remove noise using Speckle noise removal method.

In Existing system FSMF [1] carryout a step of procedures such dividing image into 5 x 5, compute the impulse noises in each pixels by neighborhood analysis and finally apply weighted median filter for removing the noise with fuzzy logic. Dividing the image as 5 x 5 in small size image accurately is difficult in 256 x 256 sized images and large size image.

Impulsive Noise is one of the noises occurs in images is Impulsive noise affect the image at the time of image-acquisition, image-transmission and image-storage. The image containing impulse noise is represented as:

$$x_{i,j} = \begin{cases} N_{i,j}, & \text{with } p \\ Y_{i,j}, & \text{with } 1-p \end{cases} \quad (1)$$

Where Y_{ij} and N_{ij} indicates the gray level of the original image and noise substituting for the original gray scale value at pixel location (i,j) respectively.

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WIRELESS POWER TRANSMISSION IN WIRELESS SENSOR NETWORK USING INDUCTIVE COUPLING

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Abstract— The number of wireless sensor network deployments for real life applications has rapidly increased. Still, the energy problem remains one of the major barriers somehow preventing the complete exploitation of this technology. Sensor nodes are typically powered by batteries with a limited lifetime and, even when additional energy can be harvested from the external environment (e.g., through solar cells or piezo-electric mechanisms), it remains a limited resource to be consumed judiciously. All sensors present in wireless sensor network are battery operated devices which have limited battery power. After the deployment of sensor devices it is impossible to replace each and every battery present in the network. To make wireless sensor network always active, a wireless power transmission method is used. Wireless power transfer is nothing but transferring the power from source to destination without use of wires. Why we are going to wireless power transfer (WPT) it provide reliable power transmission and low maintenance cost. There are 3 major types of wireless power transfer are Short range (Inductive coupling), Medium range (Resonant coupling), long range (Microwave power transfer). It is cheap and efficient. The faults which are occurred by the wired transmission can be avoided by this wireless transfer. It is eco-friendly which is the major necessity today. Also we can avoid the problem of e-waste. Just imagine the future with wireless electricity, where there will be no need of cables and transmission lines. In this paper we are considering about the wireless power transmission using inductive coupling method.

Keywords- Wireless Sensor Network (WSN), Inductive coupling, Microwave power transmission, Resonance, Tesla theory, Wireless Power Transmission.

I. INTRODUCTION

A sensor network is comprised of a number of low-power devices with sensing and computing capability. In many sensor network systems, the power supply for the network nodes is usually a deplorable power source, such as batteries. Wireless Power Transmission (WPT) is the efficient transmission of electric power from one point to another through vacuum or an atmosphere without the use of wire or any other substance. This can be used for applications where either an instantaneous amount or a continuous delivery of

energy is needed, but where conventional wires are unaffordable, inconvenient, expensive, hazardous, unwanted or impossible. The power can be transmitted using Inductive coupling for short range, Resonant Induction for mid-range and Electromagnetic wave power transfer for high range. WPT is a technology that can transport power to locations, which are otherwise not possible or impractical to reach. Charging low power devices and eventually mid power devices by means of inductive coupling could be the next big thing.

The objective of this project is to design and construct a method to transmit wireless electrical power through space and charge a designated low power device. The system will work by using resonant coils to transmit power from an AC line to a resistive load. Investigation of various geometrical and physical form factors evaluated in order to increase coupling between transmitter and receiver. A success in doing so would eliminate the use of cables in the charging process thus making it simpler and easier to charge a low power device. It would also ensure the safety of the device since it would eliminate the risk of short circuit. The objective also includes the prospect of charging multiple low power devices simultaneously using a single source which would use a single power outlet.

II. WIRELESS SENSOR NETWORK

Wireless Sensor Networks (WSNs) can be defined as a self-configured and infrastructure less wireless networks to monitor physical or environmental conditions, such as temperature, sound, vibration, pressure, motion or pollutants and to cooperatively pass their data through the network to a main location or sink where the data can be observed and analysed. A sink or base station acts like an interface between users and the network. One can retrieve required information from the network by injecting queries and gathering results from the sink. Typically a wireless sensor network contains hundreds of thousands of sensor nodes. The sensor nodes can communicate among themselves using radio signals.

A wireless sensor node is equipped with sensing and computing devices, radio transceivers and power components. The individual nodes in a wireless sensor network (WSN) are



IoT TECHNOLOGY, CHALLENGES AND APPLICATION IN AGRICULTURE- A SURVEY

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Abstract-There is a vast enhancement in technologies, different tools and techniques are available in agriculture sector. To improve efficiency, productivity, global market and to reduce human intervention, time and cost there is a need to divert towards new technology named Internet of Things. IoT is the network of devices to transfer the information without human involvement. Hence, to gain high productivity, IoT works in energy with agriculture to obtain smart farming. This paper gives a survey on role of IoT in agriculture that leads to smart farming.

Key Words: Internet Of Things, Challenges, Technology, Applications And Smart Farming.

I. INTRODUCTION

An overview of the Internet of Things (IOT) with emphasis on enabling technologies, protocols and application issues. The Internet of things (IOT) is the inter-networking of physical devices, vehicles (also referred to as "connected devices" and "smart devices"), buildings, and other items embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data. The IOT Mainly uses the connectivity of devices system and services that beyond the machine to machine communication. Internet of thing defined the IOT as the infrastructure of the information society.

II. TECHNOLOGIES INVOLVED

There are several technologies that can be used to implement the concept of Internet of Things. In this paper, we discussed the following technologies, Radio Frequency Identification, GPS, Machine-to-Machine, Vehicle-to-Vehicle Communication, RFID Reader, and Internet Protocol.

A) RFID

The RFID is a unique identity of object or person wirelessly using radio waves in the form of numbers. RFID technology plays an important role in IOT for solving identification issues. RFID system is composed of one or more reader and several RFID tags. Tags uses radio-frequency

electromagnetic fields to transfer data attached to an object. The tags contain electronically stored information. Passive tags collect energy from a nearby RFID reader's interrogating radio waves. The RFID device serves the same purpose as a bar code or a magnetic strip on the back of a credit card or ATM card; it provides a unique identifier for that object. And, just as a bar code or magnetic strip must be scanned to get the information, the RFID device must be scanned to retrieve the identifying information.

B) RFID Reader

A radio frequency identification reader (RFID reader) is a device used to gather information from an RFID tag, which is used to track individual objects. Radio waves are used to transfer data from the tag to a reader. The RFID tag it must be within the range of an RFID reader, which ranges from 3 to 300 feet.

C) Internet Protocol (IP)

Internet Protocol (IP) is the primary network protocol used on the Internet. The two versions of Internet Protocol (IP) are in use: IPv4 and IPv6. Each version defines an IP address differently. There are five classes of available IP ranges in IPv4: Class A, Class B, Class C, Class D and Class E, while only A, B, and C are commonly used.

D) Wireless Fidelity (Wi-Fi)

Wireless Fidelity (Wi-Fi) is a networking technology that allows computers and other devices to communicate over a wireless signal. Wi-Fi is a technology for wireless local area networking with devices based on the IEEE 802.11 standards. Devices that can use Wi-Fi technology include personal computers, video-game consoles, smart phones, digital cameras, tablet computers, digital audio players and modern printers. Wi-Fi compatible devices can connect to the Internet via a WLAN network and a wireless access point.

e) Machine to machine communication (M2M)



Android Mobile Phone Finger Print Sensor Recognition Based Car Lock System by Using Wifi Technology

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Abstract: The use of vehicle is a must for everyone. In the same way, safeguarding the vehicle against theft is also very essential. Impediment of vehicle theft can be done remotely by an authorized person. Wireless with Embedded computing technology is an emergent field used in all the areas. This automotive security system is designed using embedded system. In addition to this system various technologies are used namely Wi-Fi and android mobile Fingerprint Recognition. The survey mainly emphasizes on major approaches for automatic person identification, namely fingerprint recognition and various existing vehicle security system. The security system can be implemented using Microcontroller. Making use of advanced technologies like biometric systems protected digital locks is the demand of the time. Using biometric systems for security lays more emphasis not on what all you know about the security of the place but who you are with respect to the place. In juxtaposition with the normal lock and key system, the advantages of Biometric security systems are umpteen, but the biometric security system alone cannot provide us with a pragmatic security system. In this project, elaborate the idea of using a Biometric Protected System for the security of a place, viz. car.

Keyword- authentication scheme, smart card, biometric, elliptical curve cryptosystem

I INTRODUCTION

Wireless, is the transfer of information or power between two or more points that are not connected by an electrical conductor. The most common wireless technologies use radio waves. It encompasses various types of fixed, mobile, and portable applications, including two-way radios, cellular telephones, personal digital assistants (PDAs), and wireless networking [1].

A. Embedded System

Embedded System is a small computer system that is generally hidden inside equipment [machine, electrical appliances, or electronic gadget] to increase the intelligence of the equipment for better or more efficient functionality. This kind of system always involves both the software and the hardware co-development. Embedded Systems are often easier understood in terms of Smart devices, intelligent or

automated equipment. Hence Embedded System can be defined as follows:

- It is embedding or inserting human intelligence by means of software into a Microcontroller chip and designing hardware for the purpose.
- It is a combination of software and hardware with automatic working without user interface.
- It performs specific functions in host systems like satellites, remote controllers, televisions, robotics, ATMs, pagers, laser printers, missile launch systems, etc.

B. Applications Of Embedded System

It includes aerospace/defines systems, telecommunication equipment and switches, mobile computing, broadcast, auto motives, industrial process control and monitoring, medical electronics, consumer electronics, etc.

Main hardware components of an embedded system are microprocessor or micro controller, and supporting ICs. The combination of micro-controller and ICs are application specific. Commonly used microprocessors are, Motorola 680XX series, IBM PowerPC series processors, MIPS processors, Intel 386 and compatible CPUs, ARM processors, Sun SPARC series, etc.

Embedded systems need memory for storing programs and data, and usually programs are stored in ROM or EPROM. Often these systems have a serial port network interface, I/O interface for interacting with sensors and actuators in the case of process controlling systems [2] [3].

II BASIC CONCEPTS OF AUTOMATIC SECURITY SYSTEM

The block diagram of electronic lock using android mobile fingerprint [1] recognition system is a process of verifying the fingerprint image to open the electronic locking car is shown in fig 1.



A NOVEL CONTROL TOPOLOGY FOR DC-DC BOOST CONVERTER USING SOFT COMPUTING TECHNIQUES

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Abstract— In this manuscript a novel control topology of DC-DC boost converter using Model predictive control technique is used incorporated with kalman filter to determine about the variation in load a continuous and discrete time model of the converter for both voltage and current controller is modeled. The discrete switched mathematical model of the convert which serves as prediction model for MPC captures all operating mode of the Inductor current making it suitable for operation both in Continuous conduction mode(CCM) and Discontinuous conduction mode (DCM) hence the converter state can be predicted for the whole operating regime. For both MPC control schemes the converter switch is directly manipulated in order to meet the control objective. More over controller are augmented by load estimation scheme namely discrete time switched kalman filter is added to estimate converter states and to provide off free tracking of the output voltage due to tis integration action despite changes in the load in the way robustness of the controller is ensured when the converter operates under un nominal condition is simulated in this manuscript.

Keywords ----Boost converter, Model predictive control, Kalman filter, Continuous conduction mode, Discontinuous conduction mode etc...

I.INTRODUCTION

Over the past decades dc-dc conversion has matured into a ubiquitous technology, which is used in a wide variety of applications, including power supplies for computers, portable electronic devices, battery chargers, and dc motor drives. In their simplest form dc-dc converters comprise two semi conductor switches that are periodically

switched on and off, and a low-pass filter with an inductor and a capacitor. The filter is added top as the dc component of the input, and to remove the switching harmonics, and, thus, to produce at the output a dc voltage with a small ripple. Usually, out of the two switches only one is controllable, the other is dually operated.

However, more complex topologies have been introduced in the last years that use two bidirectional controllable switches Despite the fact that the switch-mode dc-dc conversion is a well-established technology, the problems associated with these applications and their closed-loop controlled performance still pose theoretical and practical challenges. An appropriate control strategy should achieve the regulation of the output voltage of the converter to a desired value despite changes in the input voltage and the load, since such variations are very common; in many cases the input voltage is unregulated, e.g. when a rectifier and a dc-dc converter are connected in cascade or the load is time-varying on linear. DC-DC converters are intrinsically difficult to control due to their switching behavior, constituting a (Continuous time) switched linear or hybrid system. In particular depending on the position of the switches and the value of the current, there are three different operating modes, each one is governed by different linear continuous time dynamical laws. furthermore the duty cycle is bounded between zero and one, while the current through the inductor cannot be negative finally other constraints such as upper limit on the current during start up for a soft start, can be imposed based on the above, it is evident that a controller should turn on and off the



FLYING PAV USING NOVEL STEERING CONCEPT

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ABSTRACT: It has become appallingly obvious that our technology has exceeded our humanity. -Albert Einstein. The Above Word describe about the technology development. The transportation is mostly depend upon the use of roads. Traffic Jams is very serious factor which waste our time, fuel and also giving trouble to emergency services like fire services, Ambulance , Police vehicles etc. When vehicles are fully stopped for periods of times, this is colloquially known as a traffic snarl-up. Traffic congestion can lead to drivers becoming frustrated and engaging in road rage. Our project has the pros of using the Vehicle in emergency and urgency times. For this we design a small extra Changes in the car to fly. It use three electric rotor motor with the hydraulic actuator. This Motor Fly upward first and then to front, right, left and turnings. Use of Battery it can fly up to more than three hour.

Keywords: Actuators, Electric motor, Traffic control, flyable car

I. INTRODUCTION

Today's cars has the following cons which affect our expectation. These are the some of cons the first and foremost factor is Traffic Jams is very serious factor which waste our time, fuel and also giving trouble to emergency services like fire services, Ambulance , Police vehicles etc. Accidents occur due to unskilled drives, over speed, drunk and drive etc. It also cannot used in Floods area, Natural disaster area, for crossing a river in non bridge constructed area. To over come this cons and give all cons into pros, our project will help. It doesn't have any traffic jam in air navigation and it can used in emergency situation, floods area and natural disaster area too. A company has announced of releasing flying car in 2015. But that car can accomplice maximum three members. Use a propeller for pull it and use lot of energy. Our project can capable of flying the entire car with whatever the maximum capability of the car and also provides the security to the passengers. We use a composite material to the weight of vehicle with same or more than the factor of safety of the actual vehicle. We are using current transportation systems such as Long-distance transportation & Short-Distance Transportation

Long-distance transportation:

High-Speed (Planes / Trains)
Specific Locations (Airport / Stations)
Expensive Infrastructure (ATC, Rails)

Short-Distance Transportation:

Door-To-Door Travel (Cars)
Relatively Slow (Traffic Jams)

Expensive Infrastructure (Roads, Bridges, ...)

1.1 Existing road traffic has big problems:

maintenance costs, peak loads, traffic jams, land usage

II. EXISTING SYSTEM

Lot of system has put forward by government to control traffic jam and avoid road accidents. Such as LASER guns, RADAR etc which are expensive. A company has going to launch which are similar to car. But it is accomplice on two to three members only. They are also having the following disadvantages, They are expensive.

They suggest major changes in automobile architecture Novel Human-Machine Interfaces

2.1 Make flying as easy as driving:

- Multisensory approach: provide additional information with
- fast and easily understandable cues
- vision
- vestibular
- haptics
- auditory
- Test Interfaces in simulators
- MPI CyberMotion Simulator
- DLR Flying Helicopter

III. PROPOSED SYSTEM

Flying car encompasses the following modules:

3.1 Actuator:

Actuator is a device which is operated by either hydraulic or pneumatic fluids. It can do heavy work with a small applied force. Here the actuator is used to pullout the wing like shaft first and another actuator turn the motor set to 90degree upward.

3.2 Composite Material:

It is the combination of two or more material which give the similar property of the material to be replaced. It is used in car to reduce the weight with more strength.

3.3 Electric Motor:

It is small in size but capable of do a heavy work with very good accuracy. It is used to lift the car vertically and move it horizontally with lifted height.

3.4 Microprocessor:

It is programmed to control the speed of motor by input from the motion sensor to turn the car.

3.5 Sensors:



Application Of Pulsed Electric Field In Inactivation Of Microbial Organisms

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Abstract Pulsed electric field treatment is used in various field in electrical aspects among the various uses inactivation of microorganism using PEF treatment has many advantages than conventional method of inactivating bacteria. This method helps to improve the shelf life of liquid food than usual heat pasteurizing technique. Its main aim is to inactivate the microorganisms present in food without affecting the physical and chemical nature of the food

Index terms: PEF-pulsed electric field, pasteurizing.

I Introduction

In traditional method of food preservation chemical additives and heat pasteurizing technique are used which decreases the bacterial growth in the food material. But using this method the nature of food material will be reduced in taste, colour and odour. Therefore in this paper we are using pulsed electric field treatment to reduce the bacterial growth in food and also to retain the nature of food after treatment. Inactivation effect of PEF on microorganism and enzyme has been extensively studied over the past few years. The extent of microbial destruction in PEF-treated juice has been reported to be related to several factors such as electric field strength, treatment time, pulse width, frequency, and polarity. Non-thermal food preservation methods have generated considerable interest in the food industry for their potential to offer an alternative to the traditional thermal processing methods. One of these non-thermal methods is Pulsed Electric Field (PEF) method. It involves the application of pulses of high voltage to liquid or semi-solid materials, placed between two electrodes at ambient, or slightly above ambient temperature. Many studies have been conducted to investigate the effect of different factors on the efficiency of applied PEF for microorganism inactivation. Among these factors are electric field

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vel, number of pulses, pulse width and type of microorganism. Most of the studies have been carried out using either buffer solutions or liquid food inoculated with known microorganisms.

An optimum combination of pulse magnitude and width is critical in inactivating microorganisms using PEF to achieve a high killing efficiency. Medium conductivity has significant influence on the inactivation of microorganisms. Heat pasteurization or sterilization of liquid foods is the traditional method used to inactivate spoilage microorganisms that might grow under conditions normally encountered in storage and the treated product has adverse affect in the color, flavor, taste and its nutritional value causing irreversible loss of fresh flavor, aroma and its texture with initiation of undesirable browning reactions [3].

Moreover, heat pasteurization is an energy intensive method. Due to these reasons, we go for non-thermal processing method such as high voltage pulsed electric field treatment which provides consumers with microbiologically safe and fresh quality foods without any loss of its quality and nutritional value [4].

There are several non-thermal pasteurization methods available in general. Among this High voltage pulsed electric field (PEF) treatment is the most promising non-thermal processing method that may radically change liquid food preservation technology [5].

This method is been developed to achieve sufficient microbial reduction without much affecting the quality of food preserved. Applying PEF technology to food preservation offers high quality fresh-like liquid foods with excellent flavor, nutritional value, and shelf-life. Since it preserves foods without using heat, foods treated this way retain their fresh aroma, taste, and appearance.

II POWER REQUIREMENTS



Virtual flux based reactive power compensation at the AC side of PWM rectifier using soft computing technique

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Abstract—This paper proposes a novel and simple direct power control of three-phase pulsewidth-modulated (PWM) rectifiers with constant switching frequency using space-vector modulation (DPC-SVM). The active and reactive powers are used as the pulse width modulated (PWM) control variables instead of the three-phase line currents being used. Moreover, line voltage sensors are replaced by a virtual flux estimator. The theoretical principle of this method is discussed. The steady-state and dynamic results of DPC-SVM that illustrate the operation and performance of the proposed system are presented. It is shown that DPC-SVM exhibits several features, such as a simple algorithm, good dynamic response, constant switching frequency, and particularly it provides sinusoidal line current when supply voltage is not ideal. Results have proven excellent performance and verify the validity of the proposed system.

Index Terms—Converter control, harmonics, power-factor correction, power quality, sensorless control.

I. INTRODUCTION

MOST three-phase rectifiers use a diode bridge circuit and a bulk storage capacitor. This has the advantages of being simple, robust, and low in cost. However, a diode rectifier results in only unidirectional power flow, low power factor, and high level of harmonic input currents. Therefore, a three-phase pulsewidth-modulated (PWM) rectifier (Fig. 1) is a more interesting solution for industrial application thanks to viable advantages such as:

- bidirectional power flow;
- low harmonic distortion of line current;
- regulation of input power factor to unity;
- adjustment and stabilization of dc-link voltage;
- reduced dc filter capacitor size.

PWM rectifiers were applied by most global companies (Siemens, ABB, and others) like an ac/dc/ac converter or a dc distributed power system. Development of control methods for PWM boost

rectifiers was possible thanks to advances in power semiconductor devices and digital signal processors, which allow fast operation and cost reduction. It offers possibilities for implementation of sophisticated control algorithms. Appropriate control can provide both the rectifier performance improvements and reduction of passive components. Various control strategies have been proposed in recent works on this type of PWM rectifier. A well-known method of indirect active and reactive power control is based on current vector orientation with respect to the line voltage vector [voltage-oriented control (VOC)]. VOC guarantees high dynamics and static performance via internal current control loops. However, the final configuration and performance of the VOC system largely depends on the quality of the applied current control strategy. Another less known method based on instantaneous direct active and reactive power control is called direct power control (DPC). Both strategies mentioned do not perform sinusoidal current when the line voltage is distorted. Only a DPC strategy based on virtual flux instead of the line voltage vector orientation, called VF-DPC, provides sinusoidal line current and lower harmonic distortion. However, among the well-known disadvantages of the VF-DPC scheme are

- variable switching frequency (difficulties of LC input filter design);



SOURCE OF LEARNING ENGLISH LANGUAGE

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ABSTRACT:

This paper explores the ways in which Language function as a source and as a meaningful context for teaching and learning English as source of language. It claims that literature is an authentic, stimulating and appealing material to the learners. Therefore, it encourages interaction, promotes language development and motivates learners in the process of learning. Traditionally it is taught as an academic subject without considering its potential in ESL/EFL classrooms. This paper argues that language can be used as an effective source for teaching English language and the target culture; furthermore, it is used as a natural context for integrating language skills and systems. This paper demonstrates how a language is used as a natural source or a material for developing English language and integrating the two language skills, grammar and vocabulary through communicative tasks and activities.

Keywords:

Language, authentic, source, language skills, Integration, culture

1.Introduction

The source of Learning English Language has been obtained from the various branches of Langua Franca. Language played an important role in English language. During the early 20th century however, literature gradually started losing its role in English language teaching because of the popularity of audiolingualism in 70s and Communicative Language Teaching after 80s. Recently due to the globalization, the focus of English language has changed from "the small scale production of scholarly elites to the mass production of Large numbers of functionally competent users of the language, Then came to be regarded as, at best, an irrelevant and, at worst, positively harmful" (Maley, 2001, p. 180). As a result, scholars are divided into

two groups: pro literature and anti- literature. Interestingly, there is an attempt to bring back language as the source of authentic material for teaching and learning English language.

This paper discusses how literature can be used as a natural source- material for learning English.

- To engage students cognitively, linguistically and culturally.
- To provide experience of the language use.
- To stimulate language use.
- To help learners discover language.
- To provide meaningful contexts.
- To practice language items.
- To provide opportunities for learning.
- To present language items.
- To help teachers prepare the lesson.
- To facilitate learning and understanding.
- To save time in teaching and learning.
- To transfer learning contents to the students.
- To make the lessons or concepts more concrete.

1.1 Developing language

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ABATEMENT TECHNIQUES FOR AIR POLLUTION

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Abstract- Air pollution is the introduction of chemicals, particulate matter (PM), or biological materials that cause harm or discomfort to humans and other living organisms, or cause damage to the natural environment. The substance that is solid, liquid or gas in the air that cause harm to humans and the environment is known as pollutants. These pollutants are classified into primary and secondary. This paper addressing sulphur dioxide, nitrogen oxides, carbon monoxide, carbon dioxide, volatile organic compounds, ammonia, odours, and radioactive pollutants as primary pollutants while particulate matter, ground level ozone and peroxyacetyl nitrate were mentioned as secondary pollutants. The effects of these Pollutants on health and the environment were also included. Air pollution can be removed physically using equipment such as cyclones, scrubbers, electrostatic precipitators and bag house filters for collecting the fine particulates.

Keywords: Air pollution, pollutants, abatement techniques.

I. INTRODUCTION

Air is an important natural resource providing the basis of life on earth. The air in the atmosphere provides oxygen to plants and animals by virtue of which they are able to live. It is therefore important to have good quality air for various activities. However, this is becoming increasingly difficult in view of large scale pollution caused by the industrialization of society, intensification of agriculture, introduction of motorized vehicles and explosion of the population. These activities generate primary and secondary air pollutants which substantially change the composition of air^[1]. Air pollution is a problem as old as history itself. Air pollution can be defined broadly as the introduction of chemicals, particulate matter, or biological materials into the atmosphere that cause harm or discomfort to humans or other living organisms, or cause damage to the natural environment or built environment. Primary pollutants are directly emitted from a process, such

carbon monoxide gas from a motor vehicle exhaust or sulfur dioxide released from industrial processes. Secondary pollutants such as ozone (O₃) and particulate matter (PM) are not emitted directly, but form in the air when primary pollutants react or interact. Air pollution statistics in urban areas are available from various sources by country or by city, but not compiled globally. Air pollution maps and monitoring information are available from various internet sources. It is essential that the hazardous impacts from environmental pollution are regularly reported and monitored. Of the various kinds of pollution, the air pollution has attracted high priority in respect of environmental regulation since the environmental damage due to such pollution mostly affects human well-being directly by way of adverse health effects on the population exposed to it. Air quality has deteriorated in most large cities in India, a situation driven by population growth, industrialization and increased vehicle use. Integrated air quality management (AQM), which is an evaluation and monitoring tool, is a challenge to carry out in most developing countries because of the lack of information on sources of air pollution and insufficient ambient air monitoring data that is available in the public domain (TERI 2009). Gas adsorption methods are used for odour control at various types of chemical-manufacturing and food-processing facilities in the recovery of a number of volatile solvents (e.g. benzene) and in the control of VOCs at industrial facilities. Again, incineration or combustion is a very rapid way to convert VOCs and other gaseous hydrocarbon pollutants to carbon dioxide and water (ICMA, 2007). On the other hand, airborne particles can be removed physically from a polluted airstream using equipment such as cyclones, scrubbers, electrostatic precipitators and bag house filters for collecting the fine particulates (ICMA, 2007). This review provides recent literature on the above equipment, sources of air pollution, effect of air pollution on health and environment and techniques for controlling air pollution. To determine the identity and tolerance level of chemical



AN POWERCOMPETENT ROUTING PROTOCOL WITH MAXIMUM LIFETIME IN MANET-SURVEY

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stract – An ad-hoc network is a collection of wireless mobile nodes dynamically forming a temporary network without the use of any preexisting network infrastructure or centralized administration. However, due to the absence of central infrastructure the devices in the ad-hoc network can move randomly gives rise to various kind of problems, such as routing and security. The nodes in ad- hoc networks are typically battery powered. The need for energy efficiency in MANETs requires power enhancement features. Power is one of the most important design criteria for ad-hoc networks as batteries provide limited working capacity to the mobile nodes. In order to facilitate communication within a mobile ad-hoc network, an efficient routing protocol is required to discover routes between mobile nodes Power failure of a mobile node not only affects the node itself but also its ability to forward packets on behalf of others and hence affects the overall network lifetime. Much research efforts have been devoted to develop energy aware routing protocols. In this paper surveys various approaches pursued for energy efficiency for different routing protocols an efficient algorithm, which maximizes the network lifetime by minimizing the power consumption during the source to destination routeestablishment.

Index Terms – MANET, Routing Protocols, Power Aware Route discovery, Energy Efficiency.

1. INTRODUCTION

A mobile ad-hoc network (MANET) is a self-configuring network of mobile nodes connected by wireless links, the union of which forms an arbitrary topology. The nodes are free to move randomly and organize themselves arbitrarily;

thus, the network's wireless topology changes rapidly and unpredictably.[1]

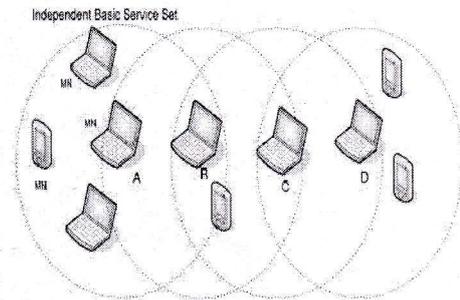


Figure 1. A scenario for a Mobile Wireless Ad Hoc

Network (MANET).

Figure 1, shows a typical example of a MANET. Suppose node

D is outside the range of node A's transmission range (the dotted circle around node A) and node A is outside the range of node D's transmission range. Therefore, these two nodes cannot directly communicate with each other. If nodes A and D wish to exchange a packet, nodes B and C act as routers and forward the packet on behalf of A and D, since B and C are intermediate nodes that are within the transmission range of A and D.

Mobile ad-hoc networks can turn the dream of getting connected "anywhere and at any time" into reality. Typical application examples include a disaster recovery or a military operation. Not bound to specific situations, these networks may equally show better performance in other places. As an example, we can imagine a group of peoples with laptops, in a business meeting at a place where



NANO TECHNOLOGY

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Abstract - Nanotechnology is gaining importance rapidly as a most powerful technology. Its immense potential promises the possibility of significant changes in near term future, once the most essential machines - called the Universal Assembler and the Nanocomputer are built. The present paper aims to reviews the previous work done and recent advancements in the field of nanotechnology. Today the products made using nanomaterials having general as well as special applications like treating cancer, phosgene detection, energy harvesting for self powerednanosystems, chip fabrication, batteries, aerospace materials etc. The research in the area of carbon nanotubes, nano-polymers, nano-vectors, nanocomposites, nano-crystals, nanoparticles, nanofibers, nanoclays, nanotubes, nanofilters, nanohorn, nanowires, nanosprings, nanorods etc. have been reported. Various risks involved in using nanotechnology are also discussed because it is believed that the most disruptive future changes may occur as a result of molecular manufacturing, an advanced form of nanotechnology.

Index Terms - Molecular Nanotechnology (MNT), Positional assembly, Molecular self-assembly, Carbon nanotubes (CNTs), Nanocomposites, Nanocrystals, nanocatalysts, nanofibers, nanorods, nanofilters, nanocontainers.

1. Introduction

The nanotechnology refers to a field of applied science and technology whose theme is the control of matter on the atomic and molecular scale, generally 100 nanometers or smaller, and the

fabrication of devices or materials that lie within that size range. In the future, "nanotechnology" will likely to include building machines and mechanisms with nanoscale dimensions, referred to these days as Molecular Nanotechnology (MNT). Molecular manufacturing basically emphasizes the use of precisely engineered, computer-controlled nanoscale tools to construct vast numbers of improved tools as well as products with vast numbers of precisely engineered nanoscale features. Recently, the Foresight Institute has suggested an alternate term to represent the original meaning of nanotechnology: Zettatechnology. At the most basic technical level, MNT is building, with intent and design, molecule by molecule, these twothings:

- Incredibly advanced and extremely capable nano- scale and micro-scale machines andcomputers,
- Ordinary size objects, using other incredibly small machines called assemblers or fabricators (found insidenanofactories)

MNT promises Not just new products but a new means of production; Manufacturing systems that make more manufacturing systems - exponential proliferation; Accelerated product



DIFFERENTIAL EPIDEMIC MODEL OF DENGUE VIRUS ATTACK IN HUMAN BODY

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Abstract

A differential Dengue Susceptible-Infectious-Removed-Susceptible (d-SIRS) epidemic model of DengueHaemorrhagic Fever (DHF) in human has been formulated latent period and time for self replication have been considered, stability of the result is stated in terms of the threshold parameters, We have derived an explicit formula for the reproductive

number and have shown that the Dengue-virus-infection-free equilibrium, whose component of the infective is zero is globally asymptotically stable if threshold number is less than 1, and unstable if it is greater than 1.

Keywords: Severe DHF compartment –d-SIRS epidemic model-self replication-temporary immunity, Dengue virus

1 Introduction

Dengue, the most prevalent mosquito-borne viral disease affecting humans, results in about 50-100 million cases of dengue fever and 250,000 to 500,000 cases of the more severe dengue hemorrhagic fever/dengue shock syndrome each year, with about 20,000 deaths. The research team detailed critical changes that take place as the virus is assembled and moves from the inner to the outer portions of its host cell before being secreted so that it can infect other cells. Virus particles are exposed to progressively less acidic conditions as they traverse this "secretory pathway," and this changing acidity plays a vital role in the maturation of the virus. The dengue virus moves through compartments inside the cell called the endoplasmic reticulum and the trans-Golgi network. While immature, virus particles are incapable of fusing with cell membranes, preventing them from infecting their own host cells and ensuring their maturation. Once mature, however, the virus particle is able to fuse to cell membranes, a trait that enables it to infect new host cells. As a virus particle matures along the pathway through the host cell, it changes the protein

structure, or "conformation," in its outer shell. The team mimicked the trans-Golgi network environment in test tubes, enabling them to study the virus's changing structure with increasing acidity.

There are several computational techniques that look to biology for inspiration. Some common examples evolutionary algorithms, immunological computation. Many researcher have taken to help of the biological model to understand the behaviour of spreading of virus in human body The action of virus attack can be studied by using epidemiological models for disease propagation^[1, 2, 3, 4, 5] based on the Kermack and McKendick SIR classical epidemic model^[6, 7, 8], The kind of approach was applied to d-virus propagation schemes [9] and modification of SIR models generated guides for infection prevention by using the concept of epidemiological threshold. Richard et al^[10] propose an improved SEI(Susceptible-exposed-infected) model to simulate virus propagation. However they do not show the length of latency and take into account the impact of anti-virus- Medicine. The model SEIR proposed by the authors^[11] assumes that recovery hosts have a permanent immunization period with a certain probability. Which is not consist wit real situationIn order to over- come limitation, Mishra and Saini^[12] present a SEIRS model with latent and temporary immune periods, which can reveal

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Ontology Based Efficient Multi Keyword Query Interface for Search Engines

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Abstract: Keyword search is an efficient data retrieval method for the WWW, largely because the simple and efficient nature of keyword processing allows a large amount of information to be searched with fast response. However, keyword search methods do not formally capture the clear meaning of a keyword query and fail to address the semantic relationships between keywords. As a result, the accuracy (precision and recall rate) is often unsatisfactory and the ranking algorithms fail to properly reflect the semantic relevance of keywords. Our research particularly focuses on increasing the accuracy of search results for multi-word search. We propose a statistical ontology-based semantic ranking algorithm based on sentence units and a new type of query interface including wildcards.

Key words: Wildcards, ranking, semantic, algorithm, query, address

INTRODUCTION

Presently the keyword searching is efficient in the searching methodology due its high efficiency. But it does not provide a semantic understanding of the keywords because it is difficult to find the exact meaning of the keyword without considering the semantic relations of the word or without knowing the full context of the sentence. At the same time the search results are not convincing. When a user is searching some information in the search engine if the information that is being searched is not highly ranked then the user may search the information again and again with a new query rather than clicking through the next pages. This happens because the existing ranking algorithms do not map the semantic relevance between the query and the web contents. In this study, we introduce a new query interface which keeps one or more tags between keywords or at the beginning or at the end of a query. This will allow search engines to return exactly what the user is searching in an efficient way. For example, if a user searches about the price of a car then the user has to place a query of price (tag), car. This new query interface calculates the frequency of occurrence of the keyword in the position of tag as relevant to actually what the user is looking for.

The main objective of the research is to increase the accuracy of search results measured by means of recall rate and precision. For this, we propose a new query interface having a tag and ontology based semantic ranking. In first phase, we provide high ranking to the keywords present in same sentence rather than the keywords in different sentences. While existing statistical

search algorithms such as N-gram (Rosenfeld, 2000) only consider sequences of adjacent keywords our approach is able to calculate sequences of non-adjacent keywords as well as adjacent keywords. In the second phase, we propose a query interface which considers the tag as an independent token of a search query to relate to what actually the user is searching. Unlike the existing information retrieval approaches such as proximity approaches, semantic and natural language assisted search approaches (Fernandez *et al.*, 2011; Ruiz-Casado *et al.*, 2007) statistical language modelling, query prediction and query answering our approach helps in improving information retrieval efficiently.

Literature review: The most important factors which current search engines, including Google, adopt to determine their ranking results for multi-keyword search are frequency and proximity (Jansen *et al.*, 2000). One of the main problems with the current ranking algorithm of multi-word search arises from the fact that its methodology calculates the relevance of keywords only by their proximity without considering whether they exist in the same sentence or not. For this reason, this method fails to consider the possibility that multiple neighbouring keywords have no relevance to each other for example when one word is placed at the end of the first sentence and the other in the beginning of the second sentence. Another problem is that even when multiple keywords are semantically closely relevant, if other words such as modifiers are inserted between them the current ranking methodology calculates their relevancy as low. The other problem is that this methodology cannot successfully recognize semantic differences between

A Survey On Profit Maximization For Cloud Users Using Double Quality Guaranteed Scheme

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Received 28 January 2017; Accepted 22 March 2017; Available online 28 April 2017

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ABSTRACT

Today's world cloud computing becoming so popular because of an effective and efficient way to provide computing resources and services to customers on demand. A cloud service providers view point 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. But traditional single resource renting scheme cannot guarantee the quality of all requests and also wastes a large amount of resources. To overcome that weakness use Double -Quality-Guaranteed (DQG) resource renting scheme this combines long-term renting with short-term renting. An M/M/m+D queuing model and the performance indicators plays important role for profit maximization. For security purpose we are using attribute based encryption scheme. The result shows guaranteed the service quality of all requests, security also obtain more profit.

KEYWORDS: Cloud computing, queuing model, SLA (service -level agreement), multiserver system, profit maximization, waiting time, guaranteed service quality.

INTRODUCTION

Now a days cloud computing is rapidly becoming an effective and efficient way of computing resources and computing services. Cloud provides dynamic resource pools, virtualization, and high availability. In the system every client needs to register initially to get access into the mechanism. Once logged in they can have the functionalities like File distribution request to server and Access request status. BSP (Business Service Provider) can access customer request which may be in distributed and provide approval based on the query, storage capacity and provide job scheduling for customer request on infrastructure storage area. Business Service Provider can assign the Infrastructure to the client which is based on the available renting space and Infrastructure Service Provider can review the request sent from the customer through BSP. Once the request reviewing process completed then it can be approved to provide renting space on Infrastructure cloud.

The cloud systems primarily focus on finding an effective resolution for the resource management. It is web based mostly computing wherever virtual shared servers provide infrastructure, platform, software, devices and other resources and hosting to customers on a pay -as-you-use basis.

In business ideas the profit is that the main issue to be exist within the field of the specific environment. Obviously, the requirement of profit maximization in cloud computing environment is needed. Today's the sixty billion servers are working in this world. Therefore the server required a large amount of power. Normally between the user and server has some agreement i.e., service level agreement. In this service level agreement,

ToCite ThisArticle: M. Saranya, Mr. S. Jayasundar., M.E.,(Ph.D)., A Survey On Profit Maximization For Cloud Users Using Double Quality Guaranteed Scheme. *Advances in Natural and Applied Sciences*. 11(6); Pages: 152-159

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SEARCH RANK FRAUD AND MALWARE DETECTION IN GOOGLE PLAY

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ABSTRACT

Fraudulent behaviors in Google Play, the most popular Android app market, fuel search rank abuse and malware proliferation. To identify malware, previous work has focused on app executable and permission analysis. In this paper, we introduce FairPlay, a novel system that discovers and leverages traces left behind by fraudsters, to detect both malware and apps subjected to search rank fraud. FairPlay correlates review activities and uniquely combines detected review relations with linguistic and behavioral signals gleaned from Google Play app data (87K apps, 2.9M reviews, and 2.4M reviewers, collected over half a year), in order to identify suspicious apps. FairPlay achieves over 95% accuracy in classifying gold standard datasets of malware, fraudulent and legitimate apps. We show that 75% of the identified malware apps engage in search rank fraud. FairPlay discovers hundreds of fraudulent apps that currently evade Google Bouncer's detection technology. FairPlay also helped the discovery of more than 1,000 reviews, reported for 193 apps that reveal a new type of "coercive" review campaign: users are harassed into writing positive reviews, and install and review other apps.

1. INTRODUCTION

The commercial success of Android app markets such as Google Play and the incentive model they offer to popular apps, make them appealing targets for fraudulent and malicious behaviors. Some fraudulent developers deceptively boost the search rank and popularity of their apps (e.g., through fake reviews and bogus installation counts), while malicious developers use app markets as a launch pad for their malware. The motivation for such behaviors is impact: app popularity surges translate into financial benefits and expedited malware proliferation. Fraudulent developers frequently exploit crowdsourcing sites (e.g., Freelancer, Fiverr, BestApp Promotion) to hire teams of willing workers to commit fraud collectively, emulating realistic, spontaneous activities from unrelated people (i.e., "crowdturfing"), see Figure 1 for an example. We call this behavior "search rank fraud".

In addition, the efforts of Android markets to identify and remove malware are not always successful. For instance, Google Play uses the Bouncer system to remove malware. Previous mobile malware detection work has focused on dynamic analysis of app executables as well as static analysis of code and permissions. However, recent Android malware analysis revealed that malware evolves quickly to bypass anti-virus tool.