Image Inpainting by using CDD Model for Image Restoration

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Abstract- Image inpainting or image retouching is the method of filling in or repairing the missing area of an image from the nearby pixels information by some algorithm. Its goal is to recover images with limited data loss and tries to obtain outputs of damaged area of an image in such a way that the recovered images look identical to original image. In our proposed method we will divide the damaged portion of image in the form of equal number of reference pixel according to their distribution property. Then by applying image inpainting based on CDD model we obtained an image whose quality is identical to cover image.

Keywords – CDD, partial Differential Equation, PSNR, SSIM

I. INTRODUCTION

The recent development in internet technologies has made digital media much easier for access. Security issues such as data protection , modification ,forgery, interception have also reached a new level in the internet world. All these factor affect an image by damaging it or modifying it up to certain level. So to avoid this several algorithm have been proposed out of which image inpainting is one method. The main aim of this process [2] is to fill the damaged or missing part of the image based on the information from neighboring areas in such a way that it cannot be found out by an unknown person. Its application includes recovery of ancient films, object elimination in digital images, compression etc. Image inpainting is usefull in application where any modification, damaged portion of an image is unacceptable. Typical example includes biomedical field, satellite system, radar system or any other security related institution. Various methods proposed till now show satisfactory recovery of original image from damaged portion. Figure 1 shows the typical arrangement of image inpainting scheme.

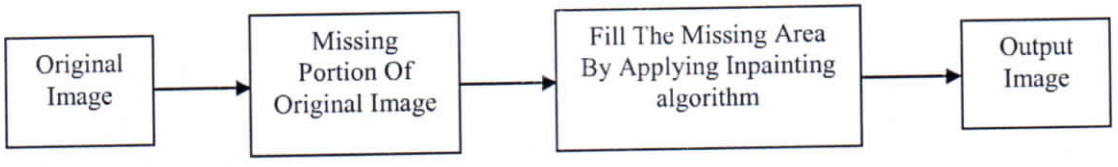

Figure 1: Basic Image Inpainting Process

The rest of the paper is organized as follows. Related work is given in section II. Proposed algorithm with embedding and extraction proceudre are explained in section III. Experimental results are presented in section IV. Concluding remarks are given in section V.

II. RELATED RESEARCH WORK

Lots of research works have been done in image inapainting. The word inpainting was first introduced by M. Bertalmio et al. in 2000 in relation with image restoration as shown in figure 2(a) and figure 2(b) [1]. They suggested that inpainting can be applied to recover damaged picture and also to remove unwanted objects. First of all diffusion based inpainting taken into consideration in which damaged region was filled by diffusing image information on

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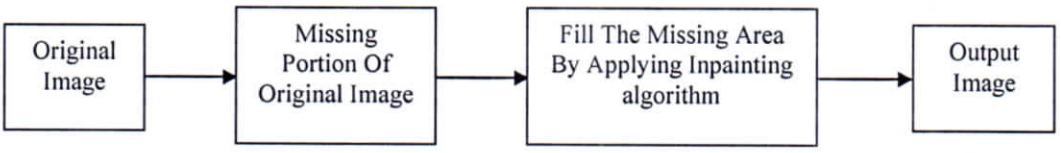

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Raspberry Pi Based Wearable RFID Tag Design for Medical Care

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Abstract: **With the upcoming aging society and emerging of some newly discovered chronic diseases, the demand of hospital nursing for elderly patients had been significantly increased. It is a critical issue for health worker to provide a comprehensive, proactive health care in hospital, especially for those disabled patients who are unable to speak or behave themselves. This study proposes an innovative wearable RFID tag which embedded body temperature monitoring sensor, and equipped with automatic identification and localization, real-time emergency notification for healthcare workers. Additionally operating with the intelligent backend system architecture this system can also provide immediate physician advice in case if emergency situation happens without doctors near the side. The result of the study provides a ubiquitous medical care throughout whole hospital, and the newly invented tag may bring a significant change to normal health care process especially in patient care.**

Keywords: **RFID tag; Medical Care; Patient Monitoring; Raspberry Pi; Wireless sensors.**

I. INTRODUCTION

Health In these years, the phenomenon of population ageing has been a serious problem in this modern world. According to the survey by United Nations, the proportion of population 60 years or older at 2000 is 10 percent, and keep rising in these years. As a consequence, health care for the elderly and the long-term care for the patients with chronic diseases will become as important issues for the family and whole society. Currently, the focus of emergency medical care management are the pre-hospital emergency medical services, the medical care management for general in-patient are seldom mentioned.

Almost every medical equipment in the hospital is an embedded system. This equipment's include diagnostic aids such as ECG, EEG, blood pressure measuring devices, X-ray scanners; equipment used in blood analysis, radiation, colonoscopy, endoscopy etc. Developments in medical electronics have paved way for more accurate diagnosis of diseases.

An Embedded System is a combination of computer hardware and software, and perhaps additional mechanical or other parts, designed to perform a specific function. A good example is the microwave oven. Almost every household has one, and tens of millions of them are used every day, but very few people realize that a processor and software are involved in the preparation of their lunch or dinner.

This is in direct contrast to the personal computer in the family room. It too is comprised of computer hardware and software and mechanical components (disk drives, for example). However, a personal computer is not designed to perform a specific function rather; it is able to do many different things. Many people use the term general-purpose computer to make this distinction clear. As shipped, a general-purpose computer is a blank slate; the manufacturer does not know what the customer will do wish it. One customer may use it for a network file server another may use it exclusively for playing games, and a third may use it to write the next great American novel.

Frequently, an embedded system is a component within some larger system. For example, modern cars and trucks contain many embedded systems. One embedded system controls the anti-lock brakes, other monitors and controls the vehicle's emissions, and a third displays information on the dashboard. In some cases, these embedded systems are connected by some sort of a communication network, but that is certainly not a requirement.

At the possible risk of confusing you, it is important to point out that a general-purpose computer is itself made up of numerous embedded systems. For example, my computer consists of a keyboard, mouse, video card, modem, hard drive, floppy drive, and sound card-each of which is an embedded system. Each of these devices contains a processor and software and is designed to perform a specific function. For example, the modem is designed to send and receive digital data over analog telephone line. That's it and all of the other devices can be summarized in a single sentence as well.

If an embedded system is designed well, the existence of the processor and software could be completely unnoticed by the user of the device. Such is the case for a microwave oven, VCR, or alarm clock. In some cases, it would even be possible to build an equivalent device that does not contain the processor and software. This could be done by

Object Recognition Using Sift on DM3730 Processor

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Abstract: **Stable local feature recognition and representation is really a fundamental element of many image registration and object recognition calculations. This paper examines the neighborhood image descriptor utilized by SIFT. The SIFT formula (Scale Invariant Feature Transform) is definitely a method for removing distinctive invariant features from images. It's been effectively put on a number of computer vision problems according to feature matching including object recognition, pose estimation, image retrieval and many more. Like SIFT, our descriptors encode the salient facets of the look gradient within the feature point's neighborhood Optical object recognition and pose estimation are extremely challenging tasks in automobiles given that they suffer from problems for example different sights of the object, various light conditions, surface glare, and noise brought on by image sensors. Presently available calculations for example SIFT can to some degree solve these complaints because they compute so known as point features that are invariant towards scaling and rotation. However, these calculations are computationally complex and need effective hardware to be able to operate instantly. In automotive programs and usually in the area of mobile products, limited processing power and also the interest in low electric batteries consumption play a huge role. Hence, adopting individuals sophisticated point feature calculations to mobile hardware is definitely an ambitious, but additionally necessary computer engineering task. However, in tangible-world programs there's still an excuse for improvement from the algorithm's sturdiness with regards to the correct matching of SIFT features. Within this work, we advise to make use of original SIFT formula to supply more reliable feature matching with regards to object recognition.**

Keywords: **Scale Invariant Feature Transform (SIFT) algorithm; Images matching; Optical object detection.**

I. INTRODUCTION

Local descriptors are generally employed in many real-world programs for example object recognition and image retrieval because they may be calculated efficiently, are resistant against partial occlusion, and therefore are relatively insensitive to alterations in point of view. There are two factors to presenting local descriptors during these programs. First, we have to localize the eye reason for position and scale. Typically, interest points are put at local peaks inside a scale-space search, and strained to preserve only individuals that will probably remain stable over changes. Second, we have to develop a description from the interest point ideally, this description ought to be distinctive, concise, and invariant over changes brought on by alterations in camera pose and lighting. As the localization and outline facets of interest point calculations are frequently designed together, the resolution to both of these troubles are independent [1]. Since their finest matching outcome was acquired while using SIFT descriptor, this paper concentrates on that formula and explores options to the local descriptor representation. The present object recognition calculations could be classified into two groups: global and native features calculations. Global features based calculations goal to do this, following the acquisition, the exam object is sequentially preprocessed and segmented. Then, the worldwide features are removed and lastly record features classification techniques are utilized. This type of formula is especially appropriate for recognition of homogeneous (texture less) objects, which may be easily segmented in the image background. As opposed to this, local features based calculations tend to be more appropriate for textured objects and therefore is better quality regarding versions in pose and illumination. Local features based calculations focus mainly around the so-known as key points. Within this context, the overall plan for object recognition usually involves three important stages:

Web of Things Based Smart Grid to Remotely Monitor and Control Renewable Energy Sources

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Abstract: **This paper describes a Smart Grid architecture implemented with the help of Web of Things .Web of Things comprise of a set of Web services provided on top of a number of Internet enabled Embedded devices .The Web browser on any computer can act as an interface to the services provided by these Web of Things. The Embedded devices are raspberry pi processor based devices with Ethernet capabilities. Real Time Operating System is used for process control on each of these embedded devices. The Web interfaces provide us real time information on each of the energy meters that are installed on site and communicate to the Embedded Internet devices using MODBUS communication protocol. Real Time energy source scheduling, energy source selection, power connection and disconnection are some of the services that are provided to an on-line authenticated user. .**

Keywords: **Smart Grid; Web of Things; Raspberry Pi; Real Time Operating System; Renewable energy sourses.**

I. INTRODUCTION

Use of Renewable Energy Sources in Household electrification has always been the most effective method to minimize the amount of carbon emissions that we contribute towards the cumulative carbon emissions of this planet earth. These carbon emissions have given rise to global warming due to depletion of the ozone layer. Use of alternatives like solar water heaters helps to reduce individual carbon emission footprint upon the environment. But the use of these alternatives is location and climate dependent.

The power grid supply to our homes still remains the primary source of energy for most of the Appliances in our homes. Also the reconfiguration of the electrical circuitry of the entire home is a cumbersome process for the end user.

If the users are provided with an inexpensive process to configure the power supply of their homes as per requirement, the use of generated renewable energy can be maximized. This would eventually put an impact on the total carbon emissions due to the generation process of power from non-renewable energy sources.

The Web of Things comprise of a number of Internet enabled Embedded devices which provide such an interface to the user by means of Web services. The end user can access this through a web browser of any computer with an Internet connection.

II. HARDWARE DESCRIPTION

Figure 1: Block Diagram of Proposed System

Renewable Resources:

Renewable resources are resources that are replenished by the environment over relatively short periods of time. This type of resource is much more desirable to use because often a resource renews so fast that it will have regenerated by the time you've used it up.

Think of this like the ice cube maker in your refrigerator. As you take some ice out, more ice gets made. If you take a lot of ice out, it takes a little more time to refill the bin but not a very long time at all. Even if you completely emptied the entire ice cube bin, it would probably only take a few hours to 'renew' and refill that ice bin for you. Renewable resources in the natural environment work the same way.

Solar energy is one such resource because the sun shines all the time. Imagine trying to harness all of the sun's energy before it ran out! Wind energy is another renewable resource. You can't stop the wind

Comparative Analysis of Different Types of Full Adders using 180nm and 90nm Technology

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ABSTRACT
The full adder circuit is the major cell in many processing Systems. The full adder is used to add the partial products of multipliers. Decreasing the number of transistor count in full adder can result in the less power consumption. In this paper different types of full adders has been implemented by using cadence virtuoso 180nm and 90nm technology this results decreasing the total power consumption of full adder.

Keywords
Full Adder, Adiabatic Logic, 28T, 20T, 14T, Half Adder

1. INTRODUCTION
Now a day's increase in the demand for high speed and low power VLSI applications such as processors. In order to achieve this multiplier are developed. Multipliers are used to multiply the two binary numbers. This multiplier will generate the partial products and these partial products are then added by the adder's mostly full adders. The 1-Bit full adder cell is the main building block for the multipliers. The full adder is consists of three inputs A, B, C_{in} and two outputs sum and carry. [1] The sum is given as SUM = A ex-or B ex-or C_{in} and carry is given as CARRY = AB + BC + CA. The block diagram of the full adder is given in figure1.

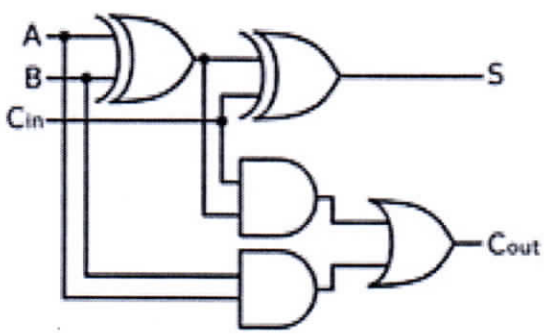

Fig 1: Full adder Block Diagram

The truth table for full adder is given in figure 2

A	B	C_{in}	SUM	CARRY
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

Fig 2: Truth table for Full adder

So, the main research is going on to reduce the transistor count of a full adder. There are many techniques has been introduced to reduce the number of transistors in full adder like Dynamic and domino Cmos logic, Gate Diffusion Input (GDI), Pass Transistor Logic (PTL).[2]

2. DIFFERENT TYPES OF FULL ADDERS
In this section discussed about different types of full adders. There are different types of full adders present like Conventional full adder with 46T, 28T, 20T, 14T, 8T and 6T.

2.1 Conventional 46 T Full adder
The conventional full adder is designed with two half adders and one OR gate. The half adder is again consists of one ex-or gate and one AND gate[3]. The block diagram of the conventional 46T full adder is shown in figure 3.

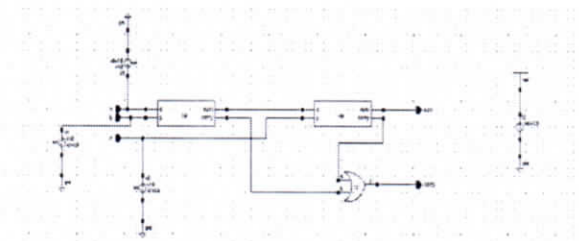

Fig 3: Conventional 46T Full adder

In this full adder, the number of transistors is 46. This type of full adder has high power consumption due to the more number of transistors. So, need to decrease the power consumption. In order to reduce the power consumption reduces the total number of transistors.

2.2 28 T Full Adder Circuit
In 28T full adder circuit used 28 transistors to perform the full adder function. This technique gives the low power consumption and less delay as compared to 46T full adder[4]. The block diagram for 28T full adder is given in figure 4.

Indian Journal of Science and Technology, Vol 9(8), DOI: 10.17485/ijst/2016/v9i8/83614, February 2016 ISSN (Print) : 0974-6846 ISSN (Online) : 0974-5645

Comparative Analysis of different Algorithm for Design of High-Speed Multiplier Accumulator Unit (MAC)

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Abstract

Background/Objectives: Power consumption is one of the important designsin many digital signal processing applications, the main building blocks of the processor is Multiplier-Accumulator (MAC) unit. **Methods/Statistical Analysis:** In the present work, the Baugh-Wooley multiplier is implemented for improving the performance of MAC unit. The Baugh wooley multiplier is faster than the other multipliers like Array multiplier, Wallace tree multiplier, Booth multiplier. The MAC unit using Baugh-Wooley multiplier is implemented using 180nm technology in cadence virtuoso. **Findings:** The speed of MAC unit using Wallace tree multiplier is 93.6MHz and with Baugh wooley multiplier is 99.1MHz. The power consumption of the MAC unit using Wallace tree multiplier is 2.265mW and with Baugh wooley multiplier is 4.628mW. The results show that the MAC unit using Baugh wooley multiplier is faster than the Wallace tree multiplier. **Application/Improvements:** MAC unit processors. In future, we can implement MAC unit using Baugh wooley multiplier withapipelining technique such that the total power consumption will be less.

Keywords: Accumulator, Baugh-Wooley Algorithm, High Speed, Low Power, Multipliers, Pipelining

1. Introduction

There has been high demand now a days for high speed but low power consuming devices. To achieve this Multiplier-Accumulator unit is needed[1]. The multiply-accumulate operation is the main user defined accelerator routine in digital signal processing architectures. It determines the speed of the overall system as it is critical path. To increase the performance of digital signal processing,we need a high-speed Multiplier-Accumulator unit for real-time applications[2,3]. The multiply accumulate unit performs the critical operations in many of the processing applications.

Low-power and high-speed circuitry are playing a crucial role for VLSI systems[4]. The main objective of this work is to investigate how to increase thespeed of multiplier and accumulator unit and suitable algorithms which are more efficiently suitable for implementation the high throughput signal processing algorithms and also to achieve the low power consumption[5]. This is because the speed and throughput rates are always been concerned with the digital signal processing systems. These MAC units become the essential building blocks for the applications as digital filtering, speech processing, video encoding and cellular phone in the digital signal processing. A variety of approaches to implementing the multiplication and addition of the MAC functions are possible. A conventional MAC unit is of the combination of themultiplier, adder and an accumulator that contains the sum of the previous consecutive products.

The MAC is designed using Baugh-Wooley multiplier. These applications include filtering, convolution and the inner products. The Baugh-Wooley multiplier is signed multiplier having the less delay[6]. The function of the MAC unit is used for high-speed filtering and other processing units typically for digital signal processing. The Mac unit designed by the multiplier and accumulator consists of the sum of the previous successive products. The MAC

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Hand Gesture Based Survelliance Robot Using Raspberry PI3

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Abstract: **In modern days robots have become an integral part of human life. Now a day's humans and robots need to coincide, it is important to evolve more natural and easy communication mechanisms for human machine interaction. The communication mechanism needs to be easier for humans than machines. Hence a mechanism has been developed that operates by processing the gesture commands signal. The prototype uses object tracking algorithm to understand the gesture commands.**

The Spybot is programmed to understand the gesture command signals and make route according to hand gestures, sensed by video camera operating within a short range. The gesture commands can be used for controlling the Spybot functions such as movement of the robot or other operations of robot silently that can be implemented by raspberry pi unit. By means of application, a Spybot that captures images from target places silently and sends the capture data to the host computer.

Keywords: **Hand gestures; RGB; OPEN CV; image processing; Spybot; Raspberry pi; object tracking algorithm.**

I. INTRODUCTION

This project composed of two types of interfaces:-

1. Human – PC Interface
2. PC – Robot Interface

Human – PC Interface

Noninvasive techniques for controlling are in high pace with the advancement of technology. A Webcam is connected to the PC. This webcam collects the data in the form of images and compute these data to get information. A person producing different gestures is captured by the webcam and PC process these images using various Image Processing algorithms. The processed images provide us the information what exactly the person want to direct through his gestures. Many works have already been done by Computer Vision experts that include Augmented Reality, Controlling PC mouse events through hand gestures that include selecting, opening, closing files. Both mouse and keyboard can replaced by virtual keyboard and mouse described by Tsang, W.-W.M which reduces hardware components of a PC.

PC – Robot Interface

Every Hand gesture signifies a pre-defined command .The gestures received by the PC are analyzed by the PC and the command corresponds to it is generated by the computer. In this case computer provides different directions to the robot for its movement. These commands are first transferred to the processor through serial communication. Then the processor transfers the data to the Robot through wireless communication using different communication modules.

a) Challenges

Real time Image/Video processing becomes a challenging task because it is highly environment dependent. The illumination of light highly affects the processing. Lack of proper lighting condition, focusing on mobile subjects, interferences in signals causes presence of various type of noise in the image which makes processing not only difficult but also slower.

Presence of complex background makes segmentation, a tiresome task for computation. A Computer having high processing speed is preferable for this purpose. However, now-a- days many stand-alone development boards like Beagle Board, ARM9, ARM11 are available which is compatible for porting Image processing projects on it and make portable Image Processing projects. In our project ARM 11 processor is being used.

In our project, we have considered Raspberry pi unit as our processing device and we have developed all our applications which are compatible to this unit.

b) Hardware Implementation

1) 2 Mega Pixels Video Resolution Webcam: For capturing the gestures produced by the user.
2) Wireless Webcam 2.4 GHz : For capturing the images while surveillance
3) Raspberry pi unit: For programming, communication and controlling the motor.

VLSI DESIGN OF NOVEL RAM USING PULSED LATCHES BASED SHIFT REGISTERS

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Abstract: - A technique is proposes a low-power and area-efficient shift register using pulsed latches. The area and power consumption are reduced by replacing flip-flops with pulsed latches. This method solves the timing problem between pulsed latches through the use of multiple non-overlap delayed pulsed clock signals instead of the conventional single pulsed clock signal. The shift register uses a small number of the pulsed clock signals by grouping the latches to several sub shifter registers and using additional temporary storage latches. A 256-bit shift register using pulsed latches was implemented using Verilog HDL. The proposed shift register saves area and power compared to the conventional shift register with flip-flops. In the proposed system RAM has been implemented using Pulsed latches by using 256 bit shift registers. In this process we consider the D latches by grouping this latches into sub shift registers and the output of this latches are passed to RAM as an input, with load value as 0. By using this process we can reduce the usage of number of components from 3% to 0% so that the RAM could be area and Power efficient.

Keywords*: Area-efficient, flip-flop, pulsed clock, pulsed latch, shift register,SRAM*

I. INTRODUCTION

Flip flops are the basic storage elements used extensively in all kinds of digital designs. As the feature size of CMOS technology process scaled down according to Moore's Law, designers are able to integrate many numbers of transistors onto the same die. The more transistors there will be more switching and more power dissipated in the form of heat or radiation. Heat is one of the phenomenon packaging challenges in this epoch, it is one of the main challenges of low power design methodologies and practices. Another driver of low power research is the reliability of the integrated circuit. More switching implies higher average current is expelled and therefore the probability of reliability issues occurring rises. We are moving from laptops to tablets and even smaller computing digital systems. With this profound trend continuing and without a match trending in battery life expectancy, the more low power issues will have to be addressed. The current trends will eventually mandate low power design automation on a very large scale to match the trends of power consumption of today's and future integrated chips. Power] consumption of Very Large Scale Integrated design is given by Generalized relation, $P = CV2f$ [1]. Since power is proportional to the square of the voltage as per the relation, voltage scaling is the most prominent way to reduce power dissipation. However, voltage scaling is results in threshold voltage scaling which bows to the exponential increase in leakage power.

Though several contributions have been made to the art of single edge triggered flip-flops, a need evidently occurs for a design that further improves the performance of single edge triggered flip flops patterns. The architecture of a shift register is quite simple. An N-bit shift register is composed of series connected N data flip-flops. The speed of the flip flop is less important than the area and power consumption because there is no circuit between flip-flips in the shift register. The smallest flip-flop is suitable for the shift register to reduce the area and power consumption. Recently, pulsed latches have replaced flip-flops in many applications, because a pulsed latch is much smaller than a flip flop. But the pulsed latch cannot be used in a shift register due to the timing problem between pulsed latches.

DOI 10.4010/2016.1428
ISSN 2321 3361 © 2016 IJESC

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Research Article

Volume 6 Issue No. 5

Zigbee Based Smart Authentication and Access Control System Using ARM7

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Abstract:
RF ID card is the unique identity which can be given to any person. In the entrance guard system, using the RFID card instead of M1 card will simplify the entrance guard system and also the system will be more efficiently managed. When using the RFID card as the identification tag in the hotel entrance guard system, we should access the real-time transmission of information between terminal and control center which is based on a way of authorized networking technology. Zigbee technology as a kind of Near Field Communication (NFC) technology has several important features to support multiple nodes which can meet the needs of entrance guard system. Thus, the proposed design uses the RFID card as identification signs, and Zigbee as information collection mechanism. The combination of Zigbee technology and the RFID card will satisfy the timeliness, safety and convenience requirements of the entrance guard system.

Keywords: RFID, Zigbee, Second generation ID card, Access control unit

I. INTRODUCTION

Radio frequency identification technology (RFID) is a non-contact automatic identification technology. It can identify target and get the relevant data information through radio frequency signal automatically. In general, a radio frequency identification unit can be divided into three parts which includes controller, base stations, and electronic tags. The controller is responsible for the management of the whole unit control, base stations achieve the communication with the electronic tags, and electronic tags store the information of markers. The second generation ID card is a kind of electronic label which is developed based on ISO14443B protocol, and the reading of internal information needs specific encryption module solution. However, if we only get the second generation ID card number, we don't need the special encryption module, and the ID number is also unique in the world, which is a reliable ID card as identification marks.

ZigBee is a kind of NFC technology, mainly suitable for automatic control and remote control. Zigbee can accommodate multiple nodes, with the advantages of low power consumption, low cost, and high reliability. Specifically, the node properties contribute to solving the problem of the connection between access control terminal and the Internet in entrance guard systems.

The proposed entrance guard system consists of PC Control software, transmission network, access terminal nodes. PC control software is responsible for the monitoring of the intelligent entrance guard system, which is the brain of the system. PC management software has many functions including the registration and management of employees, guest room, guest, and the monitoring of the entrance guard system, etc. Transmission network connects all the individual entrance guard units wirelessly. The coordinator node in the network receives orders and uploads information to access unit via a serial port and PC communication.

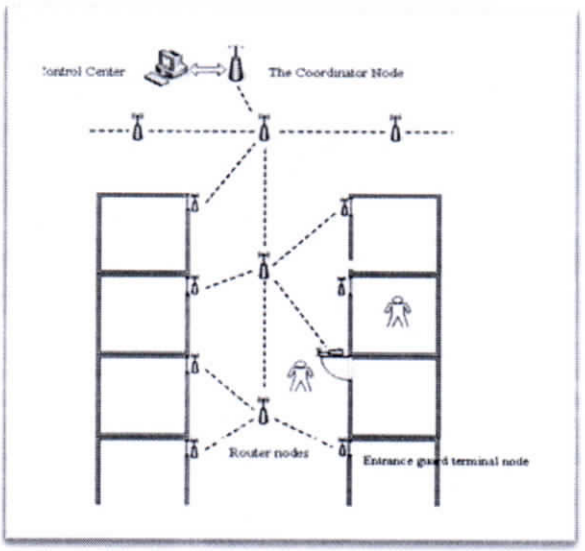

Figure: 1 Entrance guard system Architecture

Access terminal node is the end node of the transmission network, which realizes the basic entrance guard function. The architecture of the proposed entrance guard system is shown in figure 1. Entrance guard unit is a part of the entrance guard system. In this paper, we mainly focus on the design of access control unit.

The rest of the paper is organized as follows: Section II provides the hardware and subroutine design for reading the second generation ID card numbers.

DOI 10.4010/2016.1451
ISSN 2321 3361 © 2016 IJESC

IJESC

Research Article

Volume 6 Issue No. 5

Smart Home Automation System Using Raspberry Pi

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Abstract:
Smart home control device is an open-source Wi-Fi enable where all the appliances (light bulb, fan, ac etc.) are connected to the raspberry pi board, and this board is connected to the Wi-Fi by using Wi-Fi module. We give command to raspberry pi using our mobile phone through the ubidots account. This is very useful for the aged as well as for the physically challenged people, easy to be used for the long halls where no. of switches are more. In today's smart city life everything is automated. To switch ON the ac we need the remote control which we may forget where we had placed it the last time. To switch ON the fan and to increase the speed of the fan we have to do it manually. As we are using the smart phone which will always with us reduce the usage of remote control for controlling the home appliances. We are using ubidots account in which switches are placed which in turns controls the loads and act as our remote controller. We can use this in everyone's home, seminar halls, auditorium and long halls where no. of switches are more.

Keywords: Raspberry Pi, Relay Switches, ubidots, Thing box

I. INTRODUCTION

The internet of things (IOT) is the network of physical objects–devices, vehicles, buildings and other items embedded with electronics, software, sensors and network connectivity that enable these objects to collect and exchange data. The Internet of Things allows objects to be sensed and controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit. When IOT is augmented with sensors and actuators, the technology becomes an instance of the more general class of, cyber physical system which also encompasses technologies such as smart grids, smart homes, intelligent transportation and smart cities. Each thing is uniquely identifiable through its embedded computing system but is able to interoperate within the existing internet infrastructure. Experts estimate that the IOT will consist of almost 50 billion objects by 2020.

British entrepreneur Kevin Ashton first coined the term in 1999 while working at Auto-ID Labs (originally called Auto-ID centers, referring to a global network of objects connected to radio frequency detection, or RFID). Typically, IOT is expected to offer advanced connectivity of devices, systems, and services that goes beyond machine-to-machine (M2M) communications and covers a variety of protocols, domains, and applications. The interconnection of these embedded devices (including smart objects), is expected to usher in automation in nearly all fields, while also enabling advanced applications like a smart grid, and expanding to the areas such as smart cities.

"Things," in the IOT sense, can refer to a wide variety of devices such as health monitoring implants biochip transponders on farm animals, electric clams in coastal waters, automobiles with built-in sensors, DNA analysis devices for environmental/food/pathogen monitoring or field operation devices that assist firefighters in search and rescue operations. Legal scholars suggest to look at "Things" as an "inextricable mixture of hardware, software, data and service". These devices collect useful data with the help of various existing technologies and then autonomously flow the data between other devices. Current market examples include smart thermostat systems and washer/dryers that use Wi-Fi for remote monitoring. As well as the expansion of Internet-connected automation into a plethora of new application areas, IOT is also expected to generate large amounts of data from diverse locations, with the consequent necessity for quick aggregation of the data, and an increase in the need to index, store, and process such data more effectively. IOT is one of the platforms of today's Smart City, and Smart Energy Management Systems.

II. SYSTEM OVERVIEW

The purpose of hardware interface unit is all the electronic home appliances are connected to the raspberry pi board which is connected to the Wi-Fi by using Wi-Fi module. All the electronic appliances are operated and controlled through our smart phone or computer or tablet.

Raspberry PI 2 is interfaced with either PC or Mobile Phone by Using Web Protocol. Raspberry PI is connected to Electronic Switching System. By Using Electronic Switching System we control various electrical devices like Fan, Tube light etc.,

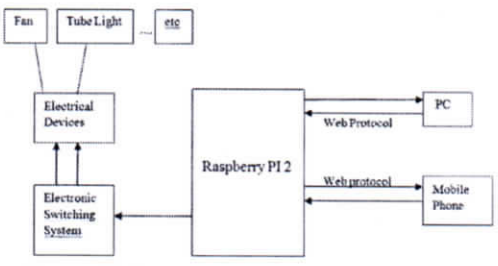

Figure: 1 SYSTEM OVERALL BLOCK DIAGRAM

A.RASPBERRY PI

The **Raspberry Pi** is a series of credit card–sized single-board computers developed in England, United Kingdom by the Raspberry Pi Foundation with the intent to promote the teaching of basic computer science in schools and developing countries. The original Raspberry Pi and Raspberry Pi 2 are manufactured in several board configurations through licensed manufacturing agreement swith Newark element14 (Premier Farnell), RS Components and Egoman. The hardware is the same across all manufacturers.

GLOBAL JOURNAL OF RESEARCHES IN ENGINEERING: F
ELECTRICAL AND ELECTRONICS ENGINEERING
Volume 16 Issue 6 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4596 & Print ISSN: 0975-5861

Cross Spectrum Switching in Mobility Scenario for Signaling Overhead Minimization in Het net

By Sudha Arvind & Dr.V.D.Mytri
Intu Hyderabad

Abstract- The issue of mobility concern in heterogeneous network is addressed in this paper. The coding approach of spectrum utilization and signal effort in user mobility in heterogeneous network is been made. New coding approach of spectrum utilization in concern with resource utilization and signaling overhead is focused. New approach of spectrum utility level is been made to overcome the issue of signaling overhead in spectrum utilization in Het Net. For achieving the objective of fairness in heterogeneous network under mobility constraint, multi objective coordination approach for optimal resource utilization is proposed. The resource utilization problem is defined by the effective spectrum utilization among network users minimizing the signaling overhead. The simulation observations developed shows an improvement in significant resource utilization in compare to conventional approaches.

Keywords: cross spectrum utilization, resource sharing, signaling overhead, spectrum allocation.

GJRE-F Classification: FOR Code: 090609

Strictly as per the compliance and regulations of :

Int. J. Advanced Networking and Applications
Volume: 07 Issue: 04 Pages: 2798-2804 (2016) ISSN: 0975-0290

A Cross Layer Weighted Link Optimization in Heterogeneous Mobile Network

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----------ABSTRACT----------
Due to the nature of various types of end-to-end mobile devices in heterogeneous network, congestion was one of the main problems in heterogeneous networks. This paper proposes a congestion aware routing approach based on the evaluation of weight value as a link cost index. The link cost evaluation considers the evaluation of buffer delay, data rate, MAC overhead and link quality. This approach uses a multipath routing approach which discovers multiple disjoint routes from a source to destination having heterogeneity between each other. Among the discovered routes, the route with minimum cost index is selected, which is based on the node weight of all the in-network nodes from the source node to the destination node. By simulation results, the proposed approach has proved that it attains high packet delivery ratio, low routing overhead and also low end-to-end delay.

Keywords: Heterogeneous network, congestion, packet delivery ratio, routing overhead, End-to-End delay.

Date of Submission: Feb 25, 2016 Date of Acceptance: Feb 27, 2016

I. INTRODUCTION

Heterogeneous network are dynamic multi-hop wireless networks that are established by a group of mobile nodes on shared wireless channels. It is characterized by no fixed infrastructure, dynamic topologies, variable capacity links, limited physical security, and bandwidth-constrained and energy-constrained operation. Routing in Heterogeneous networks has been extensively studied over the past few years [1]–[4], and many Heterogeneous routing protocols have been proposed. Most existing routing protocols assume homogeneous mobile nodes, that is, all nodes in the network have the same characteristics, e.g., having the same transmission power (range), transmission data rate, processing capability, reliability, and security level. However, a homogeneous Heterogeneous network suffers from poor scalability, i.e., the network performance is degraded quickly as the number of nodes increases. Furthermore, in many realistic Heterogeneous networks, nodes are actually heterogeneous [5]–[7]. For example, in a battlefield network, portable wireless devices are carried by soldiers, and more powerful and reliable communication devices are carried by vehicles, tanks, aircraft, and satellites; these devices/nodes have different communication characteristics in terms of transmission power, data rate, processing capability, reliability, etc. So, it would be more realistic to model these network elements as different types of nodes. There are also many advantages that can be utilized to design more efficient routing protocols when nodes are modeled as different types. In Heterogeneous network congestion occurs with limited resources. Due to the shared wireless channel and dynamic topology, packet transmissions suffer from interference and fading, in such networks. The network load is burdened through the transmission errors. There is an increasing demand for support of multimedia communications in MANETs, recently. Large amount of real-time traffic involves high bandwidth and it is liable to congestion. Congestion leads to packet losses and bandwidth degradation and also wastes time and energy on congestion recovery. This paper proposes a congestion aware routing approach by considering the parameters such as, data rate, queuing delay, link quality and MAC overhead. By considering all these parameters, a weight is getting evaluated. Among the obtained routes, the route with minimum cost index is selected, which is based on the node weight of all the in-network nodes. The rest of the paper is organized as follows: section II gives the details about the related work. Section III gives the details about the earlier approach. The proposed congestion aware routing protocol is discussed in section IV, simulation results are given in section V and finally conclusions are given in section VI.

II. RELATED WORK

Congestion in Heterogeneous networks leads to transmission delays and packet loss, and causes wastage of time and energy on recovery. Routing protocols which are adaptive to the congestion status of a mobile Heterogeneous network can greatly improve the network performance. Information overload and convergence of devices aggravate the difficulties of accessing data distributed among various user devices especially when this is performed by mobile users and over heterogeneous wireless networks. [1] Presents the Smart Personal Information Network (Smart PIN), a performance and cost-aware personal information network which uses a novel user-centric utility-based

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Materials Today: Proceedings 3 (2016) 3770–3778

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ICMRA 2016

Photocatalytic degradation study of methylene blue by brookite TiO_2 thin film under visible light irradiation

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Abstract

In the present study, the nanoparticles of TiO_2 thin films have been deposited onto ultrasonically cleaned glass substrates by sol gel spin coating technique and annealed at various temperatures (from 300°C to 500°C). Photocatalytic activity of TiO_2 film has been studied by photocatalytic degradation of methylene blue (MB) in aqueous solution as a model pollutant under visible light irradiation. The photocatalytic degradation efficiency of MB using TiO_2 was reached to 92% after 240 min. XRD analysis confirms that the film was found to be orthorhombic structure and the average crystallite size was found to be in the range of 54 to 67nm. The SEM images of the TiO_2 film was shown highly uniform, crack free and having nano spherical particles of average diameter around 68nm. TiO_2 thin film exhibits high transparency in the visible region and decrease the optical transmittance with an increase in annealing temperature. Band gap energy calculated using Tauc method and the direct optical band gap of TiO_2 film was found to be in the range of 3.3 to 3.48 eV. The Urbach energy of the film tends to increase with increasing annealing temperature.

Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

Keywords: TiO_2 thin film, Sol–gel spin coating, photocatalytic degradation, Optical band gap

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Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

Available online at www.sciencedirect.com

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Materials Today: Proceedings 3 (2016) 4009–4018

materialstoday: PROCEEDINGS

www.materialstoday.com/proceedings

ICMRA 2016

Structural, morphological, optical and gas sensing properties of nanocrystalline ceria thin films

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Abstract

Ceria thin films are deposited with varying oxygen pressures (1- 225 m torr) and at an optimized substrate temperature of 1023K on quartz substrates by pulsed laser deposition technique. X-ray diffraction studies indicated that the prepared thin films are polycrystalline in nature. The prepared thin films contain nano crystals of size in the range of 20-31nm. Crystallite size, strain and dislocation densities of the ceria thin films have been calculated. To know the preferred orientation of the films texture coefficient has been calculated. The characteristic Raman peak appeared at 463 cm^{-1} is associated with F_{2g} active mode confirm the cubic fluorite structure of ceria. Surface morphology of the thin films carried out by atomic force microscopy. The optical properties of the thin films are investigated by using UV-Vis spectroscopy technique in the wavelength range 200-800nm.The optical band gap, refractive index and absorption coefficient are calculated. Gas sensing characterization of ceria thin films have been carried out by chemiresistive method for various concentrations of acetone vapour and operating temperatures.

Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

Keywords: Ceria, thin films, XRD, Pulsed laser deposition, Raman spectroscopy, optical properties, gas sensing

1.Introduction

The sensors to detect volatile organic compounds have been attracted great attention due to their practical applications in protection of environment and safety. Among volatile organic compounds, acetone is the important organic compound widely used in laboratories and medical fields. It is a colorless, flammable liquid and the simplest ketone with chemical formula CH_3COCH_3 . The large quantities of acetone is emitted into the atmosphere by human body, plants, trees, volcanic gases, forest fires, as a product of the breakdown of body fat and industries. Acetone in environment can irritate, cause permanent eye damage and its long-time exposure can cause kidney, liver and depress central nervous system. Due to its complex nature, much attention has been given by the researchers to

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Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

Available online at www.sciencedirect.com

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Materials Today: Proceedings 3 (2016) 4088–4092

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ICMRA 2016

Micro structural characterization and gas sensing behaviour of In_2O_3 :Ag nano composite thin films deposited by electron beam evaporation technique

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Abstract

The main objective in this discussion is to investigate the role of metal additives in In_2O_3 to detect the toxic gases. Ag-In_2O_3 nano composite thin films were grown by electron beam evaporation. In_2O_3:Ag nano composite thin films were deposited on quartz substrate by electron beam evaporation technique at a substrate temperature of 350°C, with deposition time 10mts and electron gun power of 75 W. The vacuum chamber was evacuated to a base vacuum of $6x10^{-6}$ Torr and oxygen partial pressure was maintained at 0.1 mTorr. GIXRD patterns confirmed the formation of polycrystalline films with cubic structure of (222) plane direction for In_2O_3 and (111) orientation for Ag_2O. Thickness of the films was estimated by stylus profilometer. SEM micrographs of pure In_2O_3 films shows spherical shaped grain morphology and after adding Ag to In_2O_3 grain morphology changes to helical structure with an increase in grain size. All the above synthesized thin films have been tested for sensing of volatile organic compound (VOC) gases. The In_2O_3:Ag nano composite thin films deposited on quartz substrate have shown better response to volatile organic compound gases.

Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

Keywords: E-beam, Composite thin film, GIXRD, VOC, Sensitivity.

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Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

Phys. Chem. Glasses: Eur. J. Glass Sci. Technol. B, February 2016, 57 (1), 37–41

Structural, electrical and optical properties of spray deposited V_2O_5 thin films on glass substrates

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Manuscript received 12 January 2015
Revised version received 3 March 2015
Accepted 21 May 2015

Vanadium pentoxide (V_2O_5) thin films were deposited on glass substrates using an aqueous ammonium vanadate solution and a spray pyrolysis technique with different nozzle to substrate distances. The films were characterized by x-ray diffraction, Raman spectroscopy, SEM, Hall effect measurement techniques and optical absorption studies. X-ray diffraction (XRD) patterns show that V_2O_5 thin films have a polycrystalline orthorhombic phase with a preferred (001) orientation. Using Raman spectroscopy, vibrational modes related to V_2O_5 were identified. Scanning electron microscopy showed the formation of a fibre like morphology. The electrical resistivity of the films was found to be 5·54 Ω cm at a nozzle to substrate distance of 30 cm. The optical bandgap (E_g) has been estimated from the optical absorption studies. The results obtained in the present investigation were presented and discussed.

1. Introduction

Vanadium pentoxide (V_2O_5), is an n-type semiconducting material with a wide band gap of 2·3 eV[1] with a variety of scientific and technological applications such as windows for solar cells[2] electrochromic devices,[3] catalysis,[4] energy storage devices,[5] gas sensors[6] and infrared detectors.[7] V_2O_5 thin films may possess interesting properties that are very different from their bulk counterparts. Efforts have been focussed recently towards the synthesis of vanadium oxide thin films and the study of their structural properties. V_2O_5 thin films have been prepared by using various deposition techniques, such as radio-frequency sputtering,[8] dc-magnetron sputtering,[9] flash evaporation,[10] pulsed laser deposition,[11] spin coating,[12] dip coating[13] and spray pyrolysis.[14] Owing to the low cost of the starting materials and deposition over a large area the spray pyrolysis technique (SPT) has been preferred over other deposition methods.

In SPT, film homogeneity, porosity and morphology will be influenced by various deposition parameters such as substrate temperature, precursor type and concentration, doping, flow rates and nozzle-to-substrate distance (NSD). Hence, a systematic optimization of each deposition parameter is required to produce device quality V_2O_5 thin films. The effect of substrate temperature on the properties of these films has been reported in our earlier paper.[15]

NSD is an important parameter as it is directly related to the growth/deposition rate and thereby the morphology of the thin film is an influential parameter for films deposited using the spray pyrolysis technique. At a low NSD, SPT results in the formation of a cracked and amorphous layer but a higher NSD results in the formation of powdery films. Also there is evidence indicating that properties such as crystallinity, surface morphology, resistivity and thickness of the films are affected by NSD. To the best of our knowledge so far no groups have ever reported the effect of NSD on the deposition of V_2O_5 films. Therefore, initially it was vital to optimize the NSD for depositing morphologically uniform V_2O_5 thin films.

In this paper, we describe the influence of the NSD on the structural, optical and electrical properties of V_2O_5 films prepared by the spray pyrolysis technique.

2. Materials and methods

V_2O_5 thin films were deposited on glass substrates using the spray pyrolysis technique at different nozzle-to-substrate distances (25 cm, 28 cm and 30 cm) using an indigenously developed spray pyrolysis system with optimized deposition parameters given

Table 1. Deposition parameters of V_2O_5 thin films

Deposition parameter	*Values*
Nozzle to substrate distance	25 cm, 28 cm, 30 cm
Substrate temperature	300°C
Flow rate	1 ml/min
Concentration of solution	0·1 M
Volume of the solution	30 ml
Compressed air pressure	3 kg/cm^2
Precursor	NH_4VO_3 (99%, Merck India)
Solvent	De-ionized water
Substrate	Glass (Blue star, India)

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DOI: 10.13036/17533562.57.1.019

Available online at www.sciencedirect.com

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Materials Today: Proceedings 3 (2016) 3637–3645

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ICMRA 2016

Solar Energy System and Design - Review

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Abstract

This report concentrates on the past, present and the future directions of the solar cell technology. To know the situation of solar energy and build a solar farm in India. The advantages and disadvantages of the single-crystal, polycrystalline and amorphous technologies are explored. The dye sensitized solar cell technologies are highlighted as the emerging, low cost alternatives for power generation. Their basic operating principles and the governing elements of the solar device performance are discussed. The stability of the DSSC module is highlighted and their outlook towards commercialization is also described at the end.

Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

Keywords: **: Energy, Photovoltaic, Excitonic Solar Cells, Dye-Sensitized solar cells, Sensitizer.**

INTRODUCTION

During the day the sun has different positions. If the mirrors or lenses do not move, then the focus of the mirrors or lenses changes. Therefore it seems unavoidable that there needs to be a tracking system that follows the position of the sun (for solar photovoltaics a solar tracker is only optional). The tracking system increases the cost. With this in mind, different designs can be distinguished in how they concentrate the light and track the position of the sun.
Solar energy is available in abundance in most parts of the world. The amount of solar energy incident on the earth's surface is approximately1.5 x 10^{18} kWh/year, which is about 10,000 times the current annual energy consumption of the entire world. The density of power radiated from the sun (referred to as **solar energy constant**) is 1.373 kW/m^2.

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Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

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Materials Today: Proceedings 3 (2016) 3892–3900

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ICMRA 2016

Precipitation derived ZnS:Ni nanocrystals: Study of Structural and Morphological Properties

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Abstract

Pure and Ni doped ZnS nanocrystals were synthesized using simple co-precipitation method. The obtained samples were characterized by different techniques such as X-ray diffraction pattern (XRD), transmission electron microscopy (TEM), and Fourier transform infrared (FTIR) spectroscopy. The X-ray diffraction (XRD) analysis confirms that the prepared nanocrystals have a cubic crystal structure. The lattice constant of $Zn_{(1-x)}Ni_xS$ samples was calculated from XRD patterns, which were found to decrease with an increase of Ni content. The morphology of ZnS changed from cubic to spherical –cubic structure after Ni doping. The average crystallite size is in the range of 3-5 nm. The FTIR spectra confirmed the formation of pure and Ni doped ZnS nanocrystals.

Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

Keywords: Nanoparticles; chemical synthesis; X-ray diffraction; TEM; FTIR

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Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

Available online at www.sciencedirect.com

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Materials Today: Proceedings 3 (2016) 3746–3751

materialstoday: PROCEEDINGS

www.materialstoday.com/proceedings

ICMRA 2016

Synthesis of 4H-Pyrido-[1,2]-pyrimidine derivatives by using sulphamic acid as catalyst

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Abstract

Synthesised three component, one pot synthesis of 4H-Pyrido-[1, 2]-pyrimidine derivatives by condensation of 2-minopyrimidines, aldehydes and ketones in the prescence of ethanol reflux and catalysed by sulphamic acid.

Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

Keywords : 2-minopyrimidines, 4H-Pyrido-[1, 2]-pyrimidine derivative, sulphamic acid, reflux.

Introduction: We recently developed a simple methodology proficient to selectively functionalized, 4H-pyridopyrimidines derivatives synthesised by 2-minopyrimidines, aldehydes and ketones in the prescence of ethanol reflux and catalysed by sulphamic acid. Tikad and co-workers was reported the synthesis of newly formed pyrido [2,3-d]- and pyrido[3,2-d]pyrimidinelibraries**1**, and previous methodologies reports on the Commnly twocomponent condensations of 2- amino pyridines with a deferent components[2,3-10.] Pyridopyrimidines are the

Selection and Peer-review under responsibility of International conference on materials research and applications-2016.

International Journal of
Scientific Engineering and Technology Research

ISSN 2319-8885
Vol.05,Issue.15
June-2016,
Pages:3015-3017

www.ijsetr.com

Women of 21st Century: Analysis on the Novels of Chetan Bhagat

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Abstract: In the present 21st century we can find many writers who, through their writings, have been successful in projecting the existing social inequality, metropolitan life styles, luxurious and sophisticated life styles, westernized and urbanized influences, increased preference for convent education and have made their literary narratives sharper, chiseled, effortless and pitchy. The creativity and open minded influence have brought in the scope of research and stud of these writers. Chetan Bhagat is one of such contemporary writers who is famous for his liberal thoughts. His writings portray the emotions and feelings of the present generation especially the female characters in his novels. This present paper aims to focus on the major theme of equality, feminism and the changing trends of female thought process who are competitive, ambitious and tech savvy in the select novels of Chetan Bhagat. This paper will also discuss the concept of social reflection and concept of modernity and how through the delineation of the various characters he portrays the contemporary reality.

Keywords: 21st Century Women, Feminism, Individuality, Metropolitan Life Style.

I. CONCEPT OF FEMINISM

The term 'feminism' has its origin from the Latin word femina' meaning 'woman' (through French feminisme'). It believes that women are and should be treated as potential intellectual equals and also social equals to men. They have the same rights and power economically as men do. The term gained popularity from the early twentieth century struggles for securing women's suffrage for voting rights. Indian writing in English is now gaining ground rapidly. In the realm of fiction, it has heralded a new era and has earned many laurels both at home and abroad. Bhagat's writing is more feminine than masculine. He places prominence and elevates his female characters than the other male heroes. He has portrayed and expressed the feelings and emotions of the women. He believes in the equality of women and their prominence and influence in the lives of the men that are around them. Not only the women are competitive, ambitious and techno-savy, the new generation women in Bhagat's fiction are fashionable and chic too. Chetan Bhagats women characters keeping in mind the various types and phases of the women characters expressed in his novels are studied here and it tries to link these novels with the various phases of feminism. For this purpose it is necessary to have some discussion of feminism and feminist literature. Feminism is indeed a serious attempt to analyse, comprehend and clarify.

II. DEPICTION OF IMAGES OF WOMEN IN INDIAN WRITING IN ENGLISH

The depiction of Characters, Women characters in the novels of Indian writing in English is remarkably different to which chetan Bhagat paints the picture of his female protagonists. Indian writers in English have been depicting in their novels, awful conditions of subjugation, desperate dependence and above all denial of domestic, social and economic freedom by men.But through Chetans novels theire is revolutionary breakthrough , or rather liberation of women of the 21 st century where chetan through his novels advices women to listen to their heart and life is short and has to be enjoyed. Mulk Raj Anand's presentation of images of women can be considered more pathetic. The image of Sohini, Bakra's sister, in 'Untouchable' Sohni is depicted as the pathetic symbol of oppression. She is depicted as a victim of caste exploitation as and sexual exploitation as a priest attempts to demoralize her during her daily chores in the temple.. Though she is very beautiful, she does not have adequate clothes to protect her beauty from the hungry eyes of the male passersby. So she becomes the victim of sexual exploitation. In 'Two Leaves and a Bud' Anand depicts the pathetic state of women characters under the colonial exploitation Sajani, Gangu, the hero's wife, who represents the fastidious village women who has been simply reduced as woman simply dedicated to cleaning , washing and cooking and cleaning again looking after her husband, . Here women are picturised as just confined to the house and have no identity of their own. Hunt, the Assistant Plant Manager, tries to seduce Gangu's daughter, Leila, in the tea garden. She shouts and runs back to her hut. Hunt pursues her till her hut. He fires his revolver in the air. Gangu rushes to the Spot and gets killed by Hunt. This is how the women have been depicted in the novels of the Indian writers in English in general. Such depiction of women since ages in the Indian Literature has somehow bought gloominess to the women of this world in reality. Women have been depicted as helpless victims of the circumstances Where they cannot go against the system to safe guard their rights.

Secure and Efficient DiDrip Protocol for Improving Performance of WSNs

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Abstract— *Wireless Sensor Networks consists of a set of resource constrained devices called nodes that communicate wirelessly with each other. Wireless Sensor Networks have become a key application in number of technologies. It also measures the unit of vulnerability to security threats. Several Protocols are projected to make them secure. Some of the protocols within the sensor network specialize in securing data. These protocols are named as data discovery and dissemination protocols. The data discovery and dissemination protocol for wireless sensor networks are utilized for distributing management commands and altering configuration parameters to the sensor nodes. All existing data discovery and dissemination protocols primarily suffer from two drawbacks. Basically, they are support centralized approach (only single station can distribute data item).This approach is not suitable for multiple owner-multiple users. Second, the protocols are not designed with security in mind. This Paper proposes the first distributed knowledge discovery and dissemination protocol called DiDrip which is safer than the existing one. The protocol permits multiple owners to authorize many network users with altogether totally different priorities to at an equivalent time and directly flow into data items to sensor nodes.*

Keywords— Wireless Sensor Networks, Security threats, Distribution Techniques, centralized approach

I. INTRODUCTION

Wireless Sensor Network (WSN) is a dense network consisting of little and light-weight nodes, which are broadcasted over the system in giant numbers by the measurement of physical parameters like temperature, pressure, ratio, etc. [1]. In WSNs some common variables could also be held in every node of the network. The data discovery protocols are accountable to feature, delete, and configure such variables by requesting every node to exchange packets in order that they eventually become consistent across the network [2]. In the literature, several data discovery and dissemination protocols are projected. The proposed protocols specialize in economical and reliable knowledge dissemination. Certain security concerns in several protocols remain an unresolved issue. Security vulnerability, as a result of the open nature of wireless communication channels and lack of protection of individual sensor nodes, makes it easy for the intruders to interrupt the communication. Sensor data for surrounding networks must not be leaked. In many applications such as ones concerning military and security nodes store and communicate sensitive data. Data confidentiality keeps the sensitive data secret by encrypting the data with a secret key that is solely meant for the receivers.

The proposed work will increase the confidentiality of sensitive knowledge throughout transmission and avoid fallacies of the existing system. The main contributions of this paper are: a) replacement approach to handle the safety problems in WSN victimization cryptography technique; b) Cryptography of sensitive knowledge wherever the amount of encryption will be controlled by the key generated. Thus, it limits the usage of resources offered by providing better security.

Our paper is structured as follows: we present an overview of the related literature concerning dissemination protocols in Section 2. We present the DiDrip framework in Section 3. Discussions and Conclusions are presented in Section 4. The contents of each section may be provided to understand easily about the paper.

II. REVIEW OF THE LITERATURE

Considering the objective of the paper, systematic review of the extant literature has been adopted as a suitable approach. The extant literature on Wireless Sensor Network, Drip, CodeDrip, DIP, DHV and Typhoon has been systematically reviewed and presented in the sub-sections below:

2.1 Wireless Sensor Networks:

A WSN consists of variety of nodes used for watching function that pass the data collected through the network to a main location [3]. The usage of wireless sensor networks was intended principally by military applications. However, these days WSN are used popularly in several applications like device and watching, environmental watching, attention

Imperial Journal of Interdisciplinary Research (IJIR)
Vol.2, Issue-1 , 2016
ISSN : 2454-1362 , www.onlinejournal.in

An Efficient Approach for Near-duplicate page detection in web crawling

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Abstract— The drastic development of the World Wide Web in the recent times has made the concept of Web Crawling receive remarkable significance. The voluminous amounts of web documents swarming the web have posed huge challenges to the web search engines making their results less relevant to the users. The presence of duplicate and near duplicate web documents in abundance has created additional overheads for the search engines critically affecting their performance and quality. The detection of duplicate and near duplicate web pages has long been recognized in web crawling research community. It is an important requirement for search engines to provide users with the relevant results for their queries in the first page without duplicate and redundant results. In this paper, we have presented a novel and efficient approach for the detection of near duplicate web pages in web crawling. Detection of near duplicate web pages is carried out ahead of storing the crawled web pages in to repositories. At first, the keywords are extracted from the crawled pages and the similarity score between two pages is calculated based on the extracted keywords. The documents having similarity scores greater than a threshold value are considered as near duplicates. The detection has resulted in reduced memory for repositories and improved search engine quality.

Index Terms— *Web Crawling, Generic Crawling, Focused Crawling, Web Mining, Search Indexing, Web Parsing, Keywords Extracted, Page Ranking, Similarity Score Calculation*

1. INTRODUCTION

The employment of automated tools to locate the information resources of interest, and for tracking and analyzing the same, has become inevitable these days owing to the drastic development in the information accessible on the World Wide Web. This has made the development of server-side and client-side intelligent systems mandatory for efficient knowledge mining [1]. A branch of data mining that deals with the analysis of World Wide Web is known as Web Mining. Web Mining owes its origin to concepts from diverse areas such as Data Mining, Internet technology and World Wide Web, and lately, Semantic Web [2]. Web mining includes the sub areas: web content mining [3], web structure mining [4], and web usage mining [5] and can be defined as the procedure of determining hidden yet potentially beneficial knowledge from the data accessible in the web. The process of mining knowledge from the web pages besides other web objects is known as Web content mining. Web structure mining is the process of mining knowledge about the link structure linking web pages and some other web objects. The mining of usage patterns created by

International Journal of Engineering and Future Technology,
Year 2016; Issue No. 7; Volume 7
ISSN 2455-6432

An Empirical Analysis on Coincident point of 1D and 2D data for Behavioural Pattern Detection

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ABSTRACT

The present research paper illustrates thorough analysis on the coincident point values of 1D and 2D data. Here 1D and 2D data are the human-speech signal and human-gait image respectively considered for the detection of behavioural pattern. The work has been carried out by extracting four features from each data. The mapping process through coincident point theorem and soft-computing has been done. The video data is separated using adaptive-lifting-scheme of wavelet transform, which works on three factors: separation, prediction and updation. Pre-processing operations on 1D and 2D data have been done with proper filtration, enhancement, loss-less compression, segmentation and extraction of features using statistical and soft-computing methods. The video data is captured when the subject is talking while walking. Five varieties of natural languages: Oriya, Hindi, Bengali, Chhattisgarhi and English, have been used for the mapping with the coincident point of 1D and 2D data. The four 1D data extracted features are: speech duration, speaking rate, pitch and speech momentum. Similarly, the four 2D data extracted features are: step length, energy or effort, walking-speed and gait momentum. The coincident point on these two 1D and 2D are computed using best-fit measurement and hence the classification process has been done for the behavioural pattern detection. In the present work, 50 male subjects with varying age's are used for an empirical analysis on the coincident point of 1D and 2D data and found that the performance of behavioural pattern detection has improved.

Keywords: Prosodic and geometrical features, human-gait-speech data pattern, human-speech pattern, human-gait pattern.

Mathematics Subject Classification: 68U10 – Image Processing, 68T10 – Pattern Recognition, 92B20 - Neural Networks, 92C55 – Signal Processing.

Computing Classification System: I.4

1. INTRODUCTION

1D data features are the real-values obtained from the speech pattern related to pitch, energy, duration, momentum of speaking between the utterances, and so on. These 1D data features also

International Journal of Computer Science
Scholarly Peer Reviewed Research Journal - PRESS - OPEN ACCESS
ISSN: 2348-6600
Since 2012
http://www.ijcsjournal.com Volume 4, Issue 2, No 6, 2016. ISSN: 2348-6600
Reference ID: IJCS-144 PAGE NO: 856-863

Using DGS Preserving Location Based Services by Encryption privacy

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Abstract— Due to the large increasing use of Location Based Services (LBS), which require personal data of the user to provide the continuous service, protecting the privacy of these data has become a challenge. An approach to preserving a privacy is through anonymity, by hiding the identity and user location data of the mobile device from the service provider(third party) or from any unauthorized party who has access at the user's request .Considering the challenge mentioned, in this paper gives a classification according to the Architecture, approaches and techniques used in previous works, and presents a survey of solutions to provide anonymity in LBS including the open issues or possible improvements to current solutions. All of this, in order to provide guidelines for choosing the best solution approach to a specific scenery in which anonymity is required.

Keywords: Dynamic grid system, cloaking areas, location based services, Encryption, privacy.

1. Introduction

The consumer market for location-based services (LBS) is estimated to grow from 2.9 billion dollars in 2010 to 10.4 billion dollars in 2015. While navigation applications are currently generating the most significant revenues, locationbased advertising and local search will be driving the revenues going forward. The legal landscape, unfortunately, is unclear about what happens to a subscriber's location data. The nonexistence of regulatory controls has led to a growing concern about potential privacy violations arising out of the usage of a location-based application. While new regulations to plug the loopholes are being sought, the privacy conscious user currently feels reluctant to adopt one of the most functional business models of the decade. Privacy and usability are two equally important requirements for successful realization of a location-based application. Privacy (location) is looselydefined as a "personally" assessed restriction on when andwhere someone"s

Introduction of an Authentication Method for Securing Data in Hadoop System

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Abstract: **The increasing popularity of cloud basis Hadoop system has led to the improvisation of security. It permits users for storing and processing purpose of huge data at exceptionally low costs however it lacks security measures to carry out satisfactory authentication as well as authorization of users and services. In our work we introduce a token-based approach which provides more secured protection of distributed file system data without burdening authentication functions. The introduced authentication approach protects sensitive distributed file system data against various attacks such as impersonation and replay attacks. The system will make use of hash chain of authentication keys, rather than public key-basis authentication keys which are found in existed file systems. The scheme allows clients to be verified by data node by the use of block access token while thwarting replay as well as impersonation attacks. The proposed system will include an additional layer of security towards the traditional symmetric key Hadoop's distributed file system authentication process. The technology of elliptic curve cryptography makes authentication keys unidentified, thus protecting them against various attacks. The scheme allows clients to be verified by data node by the use of block access token while thwarting replay as well as impersonation attacks.**

Keywords: **Hadoop System, Token-Based, Distributed File System, Hash Chain, Elliptic Curve Cryptography, Authentication Keys.**

I. INTRODUCTION

The Traditional systems of data processing as well as management systems are considered for processing of structured data, as a result they are not efficient in managing of unstructured and large-scale, data which is included in Big Data. The technology of Big Data needs novel techniques that make an analysis of huge volumes of data over network. Apache's Hadoop is a software support for processing of Big Data applications. It is used by several major online media companies and it mainly allows for distributed processing of huge data sets across several clusters of computers[1]. Hadoop's distributed file system is introduced for increase from single servers to several machines, where each of the machines offers local computation as well as storage. Hadoop software permits users for storing and processing purpose of huge data at exceptionally low costs. The data within Hadoop was not sensitive and accessible to cluster might be sufficiently restricted and it lacks security measures to carry out satisfactory authentication as well as authorization of users and services.

Hadoop security controls need name node as well as data node for sharing of private key to make use of block access token. When the key is known to the attacker, the data on the entire data nodes is exposed. Hadoop Distributed File System did not provide strong security for the purpose of user authentication which has made the system communication open to eavesdropping hence we introduce an authentication approach which is of token-based protecting sensitive Hadoop's distributed file system data against various attacks such as impersonation and replay attacks[2]. The proposed mechanism will permit the clients of Hadoop's distributed file system to be validated by data node by means of block access token.

II. METHODOLOGY

In the recent times, several platforms for structuring applications of Big Data of open-source and proprietary were proposed. Among them, one is Hadoop which is an open-source software approach for processing of Big Data used by most important companies. It is an open-source platform which is made up of stand-alone modules like distributed file system known as Hadoop's distributed file system, library for processing of huge distributed datasets known as MapReduce. It stores up data files across numerous machines and store up its metadata on name node. While Hadoop matured, additional data and further variety of data containing sensitive enterprise as well as personal data are moved to Hadoop's distributed file system. Hadoop's distributed file system lax authentication permits any user to impersonate any of the other user or else cluster services. For extra authentication purpose, Hadoop offers Kerberos that make use of symmetric key operations and when the entire components of Hadoop system are authenticated by means of Kerberos, then key distribution center of Kerberos might have a restricted access. To decrease Kerberos traffic,

Volume 6, Issue 3, March 2016 ISSN: 2277 128X
International Journal of Advanced Research in Computer Science and Software Engineering
Research Paper
Available online at: www.ijarcsse.com

Cost Effective Approach for Moving Huge Data to Cloud

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Abstract— Nowadays,Big Data is an emerging topic in thecloud computing arena that is getting a lot of importance. Big data is a collection of data sets which are large and complex and very difficult to process by the traditional tools. Hence the tremendous growth of demands on big data processing imposes a heavy burden on, storage in data centers, which hence includes large expenditure to providers of data centers. So to handle such large amount of data, well-suited resources are required. Thus it becomes necessary to move data to the other place due to some reasons. So In order to move data, systems require measurable amount of time for working out. Therefore, minimization of cost has become an evolving issue for the forthcoming big data era. This paper presents a novel approach for moving huge data to the cloud which minimizes the cost of data migration.

Key Words—Big Data, Cloud Computing, Cost Minimization,Data Migration

I. INTRODUCTION

The continuous increase in the volume a nd detail of data captured by organization, for instance the growth of social media, Internet of Things (IoT) [3], as well a s multimedia, has created an irresistible surge of data in either structured or unstructured format. Data creation is in the works at a tremendous rate [1], referred as big data, an d has emerged as a widely renowned inclination. Big data are characterized by three aspects: (a) data are numerous, (b)) data cannot be categorized into regular relational databases , and (c) data are generated, captured, and processedrapidly. Moreover, Big Data [1] is a term used to describe data sets which have grown so large that traditional storage infrastructures are ineffective at capturing, managing, accessing and retaining them in a tolerable time edge. The thing t hat separates Big Data from plainly a large archive is the need to process these large data sets.

Big data is a term that refers to data sets o r combinations of data sets whose size (volume) [4], complexity (variability), and rate of expansion (velocity) make them difficult to capture, manage, process or analyze by usual technology and tools. Whereas the size used to determine whether a particular data set is considered big data is not fir mly defined and continues to transform over era, nearly all analysts and practitioners at present refer to data sets from terabytes to multiple petabytes as big data [1].

Big Data has gained much attention from the academia and the IT business [6]. Information is generated and composed in the digital globe, at a rate that rapidly exceeds the border. In current stages, above 2 billion public are connected to the Internet, and over 5 billion persons possess cellular phone.

Near 2020, 50 billion devices are likely to be connected to the Internet. At this peak, predicted data creation will be 44 times greater than it was in 2009. At the same time as information is transferred and shared at light s peed on optic fiber and wireless network [10], the quantity of facts and the pace of market expansion boost. Nevertheless, the hasty expansion rate of such bulky data [8] generates abundant challenges, such as the speedy enlargement of data; transmit speed, diverse data [9], security and cost. Big Data is not a technology, but rather a phenomenon resulting from the vast amount of raw information generated crossways the world, and composed by commercial and government organizations There are numerous sources of b ig data and the types of data they create differ such as structured data [5], Unstructured data [5] and Semi-Structured data.

Over the past several years there has been a tremendous increase in the amount of data being transferred between Internet users. Escalating usage of streaming multimedia [3] and other Internet based applications has contributed to this surge in data transmission. An additional facade of the augment is due to the expansion of Big Data [18], which refers to data sets that are an order of magnitude larger than the standard file transmitted via the Internet. Big Data can range in size from hundreds of gigabytes to petabytes [11]. Today everything is being stored digitally. Within the past decade, everything from banking transactions to medical history has migrated to digital storage. This change from physical documents to digital files [12] has necessitated the creation of large data sets and consequently the transfer of large amounts of data. There is no sign that the amount of data being stored or transmitted by users is steady or even decreasing. Every year average Internet users are moving more and more data through their Internet connections [12]. Depending on the bandwidth of these connections and the size of the data sets being transmitted , the duration of transfers could potentially be measured in days or even weeks. There exists a need for an efficient transfer technique that can move large amounts

INCREASE SECURITY IN CLOUD COMPUTING USING HMAC AND KERBEROS ALGORITHMS

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Abstract

The Cloud Computing is a service, based on Internetwork technology. The customers can do data transfer and resource sharing among number of services provided in cloud computing. Any service is easily accessed by a customer from anywhere and anytime in cloud thru Internetworking, therefore it has two good properties called availability and QoS. It has its pros and cons for the customers to create and store the information in cloud server. The application and data management software tools are not that much trustworthiness, then it implies on security aspects of QoS and availability in cloud. Thus we proposed a method for improving security in cloud data storage using Kerberos algorithm and HMAC Public Key Infrastructure.

Keywords: *Cloud Computing, Third Party, Cloud Security, Kerberos algorithm, HMAC, Cloud Provider*

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1. INTRODUCTION

Cloud computing rapidly growing to achieve the prosperity for the human, and with this increase in penetrate malicious program in the cloud security becomes more important. The Cloud Computing is a powerful technology and the computing architecture consists of Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS). The SaaS services are used to transform data center into small areas of computation on large size [1], e.g., AWS EC2, S3 [2] [3]. In this paper, Kerberos algorithm is used to authenticate users for granting ticket to access a service and distribute the session keys in encrypted format over IP network. Every user must create profile and UserID in the third party to connect Cloud. The user's passwords are hashed and saved in the Database for more secure. To retrieve the UsedID and password in a secured mode, we use Kerberos and HMAC algorithms. It has the following procedure

- User request to AS for Ticket Granting Ticket (TGT)
- AS will verify the user's request, create TGT and Session key; encrypt using user's password.
- User receives reply from AS and the same will communicate with Cloud service provider to get Ticket Granting Service (TGS).
- A pair of ticket (Ticket, Session key) is generated and sends to user through HMAC algorithm.
- The user sends ticket to Cloud Service Provider/Server.
- The server will authenticate and grants access to user.

Here to access large scale database secured in the cloud every user should have profile and password. The remaining sections of the paper are organized as cloud services and models, problem statement, implementation process.

- In cryptography, a pair of HMAC algorithm and secret shared key will be used in cryptographic iterative hash function, e.g., MD5, SHA-1. These algorithms may be used depends on application. The strength of HMAC is based on properties of hash function and simultaneously verifies both authentication and integrity of message. An iterative hash algorithmic function divides the long information into number of blocks of fixed size. Compression algorithm is applied on these blocks. The HMAC algorithms such as SHA-1 and MD5 are operated on 512-bit block size of the information. The hash code size of SHA-1 is 160 bits and MD5 is 128 bits, the size of this hashing may be truncated if desired.

HMAC (K, m) = H (K XOR outpad, H (K XOR inpad, text))

Here
K – Secret key
m – Message or information
H – Hash function
outpad – Outer padding
inpad – Inner padding

Python has a library called a hmac module and it is defined as follows

```
import hmac
def hmac_md5(key, msg):
return hmac.HMAC (key, msg, md5)
```

The HMAC depends on the size of secret key, hence there is a chance of brute force attack on HMAC. The attack can be separated from regular collision attacks with shared secret key and therefor it is not possible to find collisions with the sufficient combinations. The forgery and pre-image attacks are not actively involved in proving security of HMAC [11], but they provide insights to HMAC based on existing hash code. Timing attack can be performed by digit by digit to find a HMAC code in less secured systems.

A Survey on Recommender System

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Abstract—Recommender systems (RS) aim to capture the user behavior by suggesting/recommending users with relevant items or services that they find interesting in. Recommender systems have gained prominence in the field of information technology, e-commerce, etc., by inferring personalized recommendations by effectively pruning from a universal set of choices that directed users to identify content of interest. A number of recommendation methods have been available for generating personalized recommendations, which includes collaborative filtering, content-based filtering, knowledge-based recommendation system and other methods. In addition to these methods, hybrid recommendation systems have been proposed which combines different methods to overcome their corresponding drawbacks. This paper provides the landscape of different recommendation methods and their basic approaches.

Keywords- Recommender Systems, Collaborative Filtering, Content-Based Filtering, Knowledge-based recommender systems, e-commerce, Hybrid recommendation system

I. INTRODUCTION

Recommender systems or recommendation systems (RS) (RS may be termed here as systemor platform or engine) are a subclass of information filtering system that seek to predict the 'rating' or 'preference' that a user would give to an item(in Francesco Ricci et al, 2011 [1] and TIME.com, 2015 [2]).

In recent years, Recommender systems has received more attention and have become a part of number of e-commerce applications which include recommending movies, books, news, research articles, social tags, etc., Moreover, new research works on Recommender systems also predicted for experts (in Buettner et al, 2014 [3] and H. Chen et al, 2015 [4]), collaborators (in H. Chen, 2011 [5]), jokes, restaurants, financial services(in Alexander Felfernig, 2007 [6]),persons (online dating), life insurance and Twitter followers (in Pankaj Gupta et al [7]).

Recommender systems are mainly categorized into two types:Content-Based Recommender system and Collaborative Filtering (in Hosein Jafarkarimi, 2012 [8]). Content-Based Recommender systems; which recommends the number of items similar to previous experience of the user,who liked in the past ((in R. J. Mooney and L. Roy, 1999 [10]). Collaborative filtering Recommender systems are based on the concept of similarity of users. It builds a model based on previous experience like behavior and decisions made by similar users. The model then predicts and might be interested in the items and suggests to user(Prem Melville and Vikas Sindhwani[9]).Combining both content-based and collaborative filtering RSs results in Hybrid Recommender systems.

Recommender systems is an alternative method to find and search algorithms, which helps the usersto find items or services for which the user interested in search the itemsthat they may not found themselves. It is very clear that most of the RSs are implemented by using not-traditional data with indexing algorithm in search engines.

This paper makes an attempt to present the research advances in Recommender Systems area. Section 2 outlines the Approaches used recommendations in recommender systems by various authors. In Section 3 the evaluation methods were discussed. In section 4 applications and techniques used in RS by various researches contribution were discussed.

II. APPROACHES

A. *Collaborative Filtering*

Collaborative filtering (John S. Breese, David Heckerman, and Carl Kadie [11]) is one of the most widely used method/technique of Recommender system. The main idea of Collaborative based technique is based on finding and analyzing user's past behavior, such as *ratings of an item* it then predicts the items based on similar type of ratings given by like-minded users to the end user or targeted user. The main advantage of Collaborative filtering is that, it is machine independent and is easily analyze the content. Therefore this method is capable of recommending even complex items like news, movies etc., accurately without considering property"understanding". For instance, there are two methods to measure similarity for measuring similarity of items or users are the k-nearest neighbor (k-NN) approach (Sarwar B, Karypis G, Konstan J and Riedl J[12]) and the Pearson Correlation approach (Allen R.B[13]).

The main assumption in Collaborative filtering is that the people who have preferences in the past may also prefer to have same kind of preferences in the future.

Collaborative filtering methods/techniques often faces certain limitations, which include cold start, sparsity and scalability (in Sanghack Lee, Jihoon Yang and Sung-Yong Park [14]).

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

Volume 6, Issue 4, April 2016 ISSN: 2277 128X
International Journal of Advanced Research in Computer Science and Software Engineering
Research Paper
Available online at: www.ijarcsse.com

Allocation of Work Load at Balancer Level Using Advanced Round Robin Scheduling Algorithm in a Public Cloud

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Abstract— Cloud computing is a technology where one can avail various services like storage, software usage and also some other shared equipments based on requirement of the users on rental basis. Generally cloud computing can work with a normal system and the Internet only. The number of users who uses cloud technology was increasing day by day. The increase in the number of users results in high traffic and improper load balancing. To balance the load equally to all nodes, various static and dynamic algorithms have been proposed and these algorithms consider various parameters like performance, response time, fault tolerance, high availability, cost parameters, number of services, scalability, flexibility, reduced overhead for users, etc. Each algorithm has its advantages and disadvantages. Hence there is a need to do more research work in this area i.e. load balancing. In this paper, cloud architecture for distributing the load to various nodes by the balancers using Enhanced Round Robin scheduling algorithm is proposed. The work load is distributed to the various nodes by the balancers is done using two parameters: one is node status (idle, normal and overload) and time stamp (point of time at which node status changed). Based upon these two parameters all nodes are sorted and stored in a list. Using round robin scheduling algorithm the incoming jobs are allotted to nodes in the list.

Keywords— Throttled Load Balancer (TLB), Least Connection Scheduling Algorithm (LCSA).

I. INTRODUCTION

Load balancing is a process of distributing the overall load to the all available nodes in the cloud system. The main objective of balancing the load is to utilize the resource maximum, to increase the response time and to perform efficiently. Distribution of load in the cloud depends on load balancing algorithm. While developing a load balancing algorithm, one has to consider the number of tasks submitted to cloud, the various resources required to complete the task, and load status of all available nodes etc.

The development of algorithm should consider various metrics and implementation of load balancing algorithm has many issues. Each load balancing algorithm has definite objectives. There are number of algorithms already developed for balancing, there are some problems that Some algorithms, aimed at maximization of throughput , some algorithms aimed at increasing response time and some algorithms aimed at maximum utilization of resources and each and every one has its own limitations and aimed at optimizing one or a few metric's only. But the cloud system needs an algorithm that aims at optimizing all metric and increases the system performance. In this paper, we proposed new cloud architecture, here a balancer distributes the incoming jobs to the various nodes based on the enhanced round robin scheduling algorithm.

II. DISTRIBUTION OF WORK LOAD TO VARIOUS NODES BY THE BALANCERS

Each balancer maintains the information about the status of various nodes under its control. Different statuses of nodes are idle, normal or overloaded. These statuses are determined based on values of three static parameters: CPUs, the CPU processing speed, and the memory size, and three dynamic parameters: the memory utilization ratio, the CPU utilization ratio and network bandwidth. The computations to determine node status are as given below

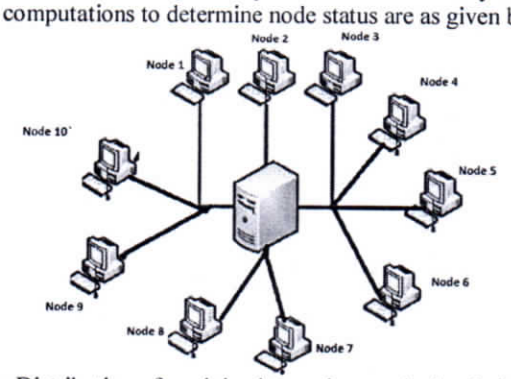

Figure 1: Distribution of work load to various nodes by the balancers

Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 5 Issue 03, March-2016

Influence of Micro Silica and GGBS on Compressive Strength of Ternary Blended Concrete

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Abstract: - **Extensive research work for decades also in progress throughout the globe in concrete technology in finding alternative materials which can partially replace ordinary Portland cement (OPC) and which can also meet the requirements of strength and durability performance of industrial by products like Micro silica, ground granulated blast furnace slag, flyash, metakaolin, rice husk ash etc. now termed as complimentary cementitious materials (CCM) are quite promising. Subsequently these have led to the development of binary, ternary and quaternary blended concretes depending on the number of CCM and their combinations used as partial replacement materials. The Present experimental investigation is carried out in the optimization of a Ternary Blended Cementitious system based on Ordinary Portland Cement (OPC)/ GGBS / Micro Silica for the development of Ternary Blended Concrete. Compressive Strength of Ternary Blended Concrete at the ages of 7, 28, 60, 90 days for various combinations of Micro Silica and GGBS mixes were investigated. Micro Silica of 0%, 5%, and 10% and15% along with GGBS was replaced by 20%, 30% 40% and 50%. All the mixes were studied at water cement ratio of 0.55.**

Keywords: ***Ordinary Portland cement, Micro Silica, Ground Granulated Blast Furnace Slag (GGBS), Compressive Strength.***

I. INTRODUCTION

Now a day the world is witnessing the construction of very challenging and difficult structures, concrete being the most important and widely used structural material is called upon to possess very high strength. The main ingredient in the conventional concrete is Portland cement. The amount of cement production emits approximately equal amount of carbon dioxide into the atmosphere. Cement production is consuming significant amount of natural resources. To overcome the above ill effects, the advent of newer material and construction techniques and in this drive, admixture has taken newer things with various ingredients has become a necessity. The addition of pozzolanic materials with OPC a century old practice is an alternative in the construction industry. The ground granulated blast furnace slag is a waste product from the iron manufacturing industry, which may be used as partial replacement of cement in concrete due to its inherent cementing properties. Blast furnace slag is a by-product of iron manufacturing industry. Iron ore, coke and limestone are fed into the furnace, and the resulting molten slag floats above the molten iron at a temperature of about 1500oC to 1600oC. The molten slag has a composition of 30% to 40% silicon dioxide (SiO2) and approximately 40% CaO, which is close to the chemical composition of Portland cement. Ground granulated blast furnace slag is off-white in Colour. This whiter colour is also seen in concrete made with GGBS, especially at replacements greater Than 50%.The main component of Blast furnace slag are CaO (30-35%), SiO2 (28-38%), Al2O3 (8-24%) and MgO (1-18%). Micro Silica in the ternary blend improves the early age performance of concrete and fly ash improves the properties at the later age. Silica fume was first discovered in Norway In 1947 when the environment controls started the filtering of the exhaust gases from furnaces. Silica fume can be utilized as material for supplementary cementations to increase the strength and durability. Micro Silica consists of fine particles with specific surface about six times of cement because its particles are very finer than cement particles.

II. LITERATURE REVIEW

Muhammad , Rizwan , Akram[1] Reported and describes the aim of research which was to evaluate the performance of OPC containing cement replacement materials in both binary and ternary system In this test variables different %of GGBS and MS are using as supplementary cementitious materials (SCM) . OPC was replaced with Micro Silica (SF) up to 7.5% and GGBS up to a level of 50%. The compressive strength of all the mixes was performed at 3, 7, 21, 28, and on 56 days duration. The use of SCM in the concrete mixes produced a lower strength value at the early age and gain in strength after 56 days is well pronounced for Mix A having 100% OPC is greater. *Surekha T; Dr. Chandrasekhar A*[2] was investigating the strength properties of GGBS & MS along with Polyvinyl Chloride (PVC) dust at the various replacement levels in M40 grade of concrete. A constant 8% of Micro Silica was used as on cement replacement for all the mix. Effect of GGBS was studied by replacing cement by 30 to 50% along with PVC dust 0 to 10% as additive. Mechanical Strengths such as compressive, Split Tensile & Flexural strength are investigated. This has made the researchers to use supplementary cementing material in making concrete. Compressive strength of MS with GGBS and without PVC dust was achieved more strength than the control Mix. The

An Experimental Study on Light Weight Concrete by Partial Replacement of Coarse Aggregate by Pumice Stone and Cement by GGBS

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Abstract— Today's construction industry, use of concrete is going on increasing rapidly. Cement is major constituent material of the concrete which produced by natural raw material like lime and silica. Once situation may occurs there will be no lime on earth for production of .This situation leads to think all people working in construction industry to do research work on cement replacing material and use of it. Industrial wastes like Ground Granulated Blast Furnace Slag (GGBS) show chemical properties similar to cement. Use of GGBS as cement replacement will simultaneously reduces cost of concrete and help to reduce rate of cement consumption. And also In this study, an attempt has been made to study the Mechanical Properties of a structural grade light weight concrete using the light weight aggregate pumice stone as a partial replacement to coarse aggregate. The conventional mix has been designed for M30 grade concrete. Coarse aggregate replaced with Pumice aggregate in volume Percentages of 25% and 35% further Cement replaced with the Ggbs in weight percentages of 5%,10%,15%, 20%, 25%, 30% for study in the present investigation. The properties like Compressive strength, Split tensile strength, Flexural strength of above combinations were studied and compared with conventional design mix concrete. It is observed that there is retardation in Compressive strength, Split tensile strength, Flexural strength for the light weight aggregate replaced concrete when compared to the concrete made with normal aggregate. For these light weight aggregate concrete mixes when 'cement' was replaced by 'GGBS' it is noticed that there is a marginal improvement in the properties studied. For 25% and 35% replaced light weight aggregate when cement was replaced by 5%,10%,15%, 20%, 25%, 30%.

Key words: Light weight concrete, Pumice Stone, Ground granulated Blast Furnace Slag, Compressive strength, Tensile strength, Flexural Strength, Density

I. INTRODUCTION

Light weight concrete has become most popular in recent years outstanding to the very great advantages it offers over the predictable concrete but at the same time strong enough to be used for the structural purpose. The most important characteristic of light weight concrete is its low thermal conductivity. This properties improves with decreasing density. Concrete with a density between 1350 and 1900 kg/m^3 and a minimum compressive strength of 17MPa is defined as structural lightweight concrete (ACI 213R-87, 1998).

Lightweight aggregate, because of their cellular structure, can absorb more water than normal weight aggregate. In a 24-hour absorption test, they generally absorb 5 to 20% by mass of dry aggregate, which is depending on the pore structure of the aggregate

Increasing exploitation of lightweight materials in civil structuring applications is making pumice stone a very important raw material as a lightweight rock. Due to its having a good capability for making the different products based on its physical, chemical and mechanical properties, the pumice aggregate finds a large useful in civil industry as a construction material. In the initial stage of a building project, the construction material properties should be well evaluated. Therefore, the need arises to evaluate the materials to be used in construction experimentally in detail. Pumice stone has been used for centuries in the world. Pumice aggregate can be found in many places around the world where volcanoes are situated. Although it has been used successfully in many countries. But finding new and improved ways to use pumice is little bit slowly. When structural lightweight concrete with pumice is used in construction and maintenance of civil engineering structures, the resultant benefits of reduced overall costs, better heat and sound insulation and better resistance to fire can be realized. Although its lower compressive strength and lower modulus elasticity, pumice concrete can be potentially used in many kinds of structural elements

GGBS means the ground granulated blast furnace slag is a by-product of the manufacturing of pig iron. Iron ore, coke and Lime-stone are fed into the furnace and the resulting molten slag floats above the molten iron at a temperature of about 1500oC to 1600oC. The molten slag has a composition close to the Chemical composition of Portland cement. After the molten iron is tapped off, the remaining molten slag, which consists of mainly siliceous and aluminous residue is then water-quenched rapidly, resulting in the formation of a glassy granulate. This glassy granulate is dried and ground to the required size, which is known as ground granulated blast furnace slag (GGBS).

II. METHODOLOGY AND OBJECTIVES

A. *Objectives:*

The specific objectives of the present investigations are as listed below:

- To conduct the possibility study of producing light weight aggregate pumice concrete with GGBS admixture.
- To investigate the mechanical properties of pumice aggregate concrete, such as, compressive strength, tensile strength, flexural strength.
- To investigate the flexural behavior of the pumice Light Weight Aggregate Concrete beam.

International Journal of Civil Engineering (IJCE)
ISSN(P): 2278-9987; ISSN(E): 2278-9995
Vol. 5, Issue 1, Dec - Jan 2016, 63-68

International Academy of Science, Engineering and Technology
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STUDIES ON THE FRESH AND HARDENED PROPERTIES OF BINARY BLENDED GREEN CONCRETE BY USING FLY ASH

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ABSTRACT

The February 2007 report issued by the international panel on climate change (IPCC) has stated in no uncertain terms that global warming is no longer an issue that has to be debated. According to the report, global warming is here, and drastic actions are needed for the long term sustainability of our environment. It is in this context that this paper discusses the roll of supplementary cementing materials as partial replacements for cement in concrete for reducing green house gas emissions. Due to growing interest in sustainable construction, engineers and architects are motivated to choose the materials which are more sustainable. Green concrete capable for sustainable construction is characterized by application of industrial wastes to reduce consumption of natural resources and energy and pollution of the environment. Replacement of materials over nominal concrete is what makes green concrete more environmental friendly concrete. Marble sludge powder, quarry rocks, crushed concrete and fly ashes are some of the materials used for making green concrete, a sustainable construction. Now a day's OPC is widely used and it is the costly ingredients in the production of concrete. The manufacture of OPC is expensive and skill intensive process, besides polluting the environment heavily production is associated with the emission of carbon dioxide which is a significant source of global warming. Pozzolanic materials are widely used in concrete and mortars for various reasons particularly for reducing the amount of cement required for making concrete which lead to a reduction in construction cost. In the present experimental investigation an attempt is made to study the workability and strength properties of M30 grade green concrete by using supplementary cementing materials (SCMs) as partial replacement of cement.

KEYWORDS: Compressive Strength, Fly Ash, Green Concrete, Superplastisicer, Workability

INTRODUCTION

Concrete has played significant role in the key development of the world for last one and half century. Concrete became widely popular material due to its versatility, excellent resistance to water, low cost, and availability of ingredients across the world [1].

Global warming is a key challenge for our planet and reducing the amount of energy intensive building materials such as Portland cement in the concrete is desirable as the Portland cement industry is one of the largest producers of carbon dioxide [2].

Discovering Context Using Contextual Positional Regions Based on Chains of Frequent Terms in Text Documents

Anagha Kulkarni, Vrinda Tokekar and Parag Kulkarni

Abstract While assigning importance to terms in Vector Space Model (VSM), most of the times, weights are assigned to terms straightaway. This way of assigning importance to terms fails to capture positional influence of terms in the document. To capture positional influence of terms, this paper proposes an algorithm to create Contextual Positional Regions (CPRs) called Dynamic Partitioning of Text Documents with Chains of Frequent Terms (DynaPart-CFT). Based on CPRs, Contextual Positional Influence (CPI) is calculated which helps in improving F-measure during text categorization. This novel way of assigning importance to terms is evaluated using three standard text datasets. The performance improvement is at the expense of small additional storage cost.

1 Introduction

In past few years, analysis of unstructured data, where context determination is vital, has gained importance due to tremendous rise in volume of documents. Most of the unstructured data contains text. The technique of assigning appropriate categories to text documents is called text categorization or classification (TC). *Content based* TC does not consider complex relationships between the contents of the documents.

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S. Berretti et al. (eds.), *Intelligent Systems Technologies and Applications*,
Advances in Intelligent Systems and Computing 385,
DOI: 10.1007/978-3-319-23258-4_28

International Journal of Engineering Research and Technology.
ISSN 0974-3154 Volume 9, Number 2 (2016), pp. 95-104

http://www.irphouse.com

Performance of Light Weight Concrete using Fly Ash Pellets as Coarse Aggregate Replacement

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Abstract

Many researchers have been carried out in the area of fly ash utilization in the past. It mainly concentrated on replacement of cement with fly ash but production of artificial aggregates with fly ash helps in utilizing large volume of flyash in concrete. In the present scenario the world is much interested in this part recently due to this large scale utilization which also reduces environmental pollution and dwindling of natural resources. The production of concrete requires aggregate as an inert filler to provide bulk volume as well as stiffness to concrete. Crushed aggregates are commonly used in concrete which can be depleting the natural resources and necessitates an alternative building material. This led to the widespread research on using a viable waste material as aggregates. Fly ash is one promising material which can be used as both supplementary cementitious materials as well as to produce light weight aggregate. This paper mainly focuses on manufacturing process of fly ash light weight aggregates using pelletizer and curing has been done in cold bonded

International Journal of Recent Trends in Engineering & Research
ISSN(ONLINE) : 2455-1457
IMPACT FACTOR : 3.344

AN EXPERIMENTAL STUDIES ON HIGH PERFORMANCE CONCRETE BY USING GGBS AND ROBO SAND

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Abstract-- The present paper focuses on the investigating characteristics of M40 grade concrete with partial replacement of cement with Ground Granulated Blast Furnace Slag (GGBS) and sand with the ROBO sand (crusher dust). The cubes and cylinders are tested for compressive strengths and split tensile strength. It is found that by the partial replacements of cement with GGBS and the sand with ROBO sand helped in improving the strength of the concrete substantially compared to nominal mix concrete. The compressive strength is studied at 7days, 28 days,90 days. Water reducing admixtures are used to increase the workability characteristics. For all levels of cement replacement concrete achieved superior performance in the fresh and mechanical tests should be compared with the reference mixture.

Keywords--Hpc, Ggbs, Robo sand, Compressive strength, Split tensile strength

I. INTRODUCTION

In the engineering industry, the improvement of existing materials allow for technological advancement and the construction of more reliable structures without over design. A High performance concrete is something which demands much higher performance from concrete as compared to performance expected from routing concrete. Use of chemical admixtures reduces the water content, thereby reducing the porosity within the hydrated cement paste. Mineral admixtures also called as cement replacement material (CRM) such as fly ash, rice husk ash, ground granulated blast furnace slag ,Met kaolin, silica fume are more commonly used in the development of High performance mixes, act as pozzolanic materials as well as fine fillers, thereby the microstructure of hardened cement matrix becomes denser and strong. High performance concrete (HPC), a widely utilized material in heavy structural constructions. This paper gives the characteristics of HPC, the study of influence of water-binder ratio and the influence of strength.

High performance concrete (HPC) is a concrete meeting special combinations of performance and uniformity and normal mixing. This leads to examine the admixtures to improve to improve the performance of the concrete. On the other side, cost of concrete is attributed to the cost of its ingredients which is scarce and expensive, this leading to usage of economically alternative materials in the production. This requirements is drawn the attention of investigators to explore new replacements of ingredients of concrete.

A . Ground Granulated Blast Furnace Slag

Ground Granulated Blast Furnace is a byproduct from the Blast furnace slag is a solid waste discharged in large quantities by the iron and steel industry in India. These operate at a temperature of about 1500 degree centigrade and are fed with a carefully controlled mixture of iron – ore, coke and limestone. The iron ore is reduced to iron and remaining materials from slag that floats on top of the iron. This slag is periodically tapped off as a molten liquid and if it is to be used for the manufacture of GGBS it has been rapidly quenched in large volumes of water. The quenching optimizes the cementitious properties and produces granules similar to coarse sand. This granulated

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

Performance Analysis of Solar Distillation with Reflector

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ABSTRACT:

There will be almost no water left on the earth that is safe to drink without purification after 20-25 years. This is a seemingly bold statement, but it is unfortunately true. Only 1% of Earth's water is in a fresh, liquid state, and nearly all of this is polluted by both diseases and toxic chemicals. For this reason, purification of water supplies is extremely important. Keeping these things in mind, a model is devised which will convert the dirty/saline water into pure/potable water using the solar energy (i.e. renewable source of energy). The basic modes of the heat transfer involved are radiation, convection and conduction. The results are obtained by evaporation of the dirty/saline water and fetching it out as pure/drinkable water. The designed model produces 0.6 liters of pure water from 4 liters of dirty water during six hours. The efficiency of plant is 38.37%.

LITERATURE SURVEY:

Prof. Minesh APatel have devised a model which is single slope solar still. The water evaporates only to condense on the underside of the glass. When water evaporates, only the water vapor rises, leaving contaminants behind the slope of the glass directs the condensate to a collection trough, which in turn delivers the water to the collection bottle. Thermal Modeling of single slope basin type solar still is prepared analytically for the evaluation of its performance characteristics by applying energy balance equations. Half hour interval is taken for readings and due to readings different graphs are plotted. Professor Alpesh arjun have devised a model which will convert the dirty/ saline water into pure/potable water using the renewable source of energy (i.e. solar energy). The basic modes of the heat transfer involved are radiation, convection and conduction. The results are obtained by evaporation of the dirty/saline water and fetching it out as pure/drinkable water. The designed model produces 1.5 liters of pure water from 14 liters of dirty water during six hours . The efficiency of plant is 54.37%. The TDS(Total Dissolved Solids) in the pure water is 81ppm. professors S. H. Sengar designed a single basin wick type solar desalination corrugated galvanized iron sheet of area 1 m2 as an absorber in between the wick strip for obtaining maximum temperature inside the distiller. The cost of the system was calculated. The efficiency of the SBWSD was 47.14% in winter and 56.29% in summer.

CONSTRUCTION OF SOLAR STILL:

The base of the solar still is made of wooden box . This box is embedded into another box of wood shown in figure. Here length L= 60 cm, Breath B= 40cm, Height H= 30 cm. and at opposite side = 13 cm, Angle Θ = 30. The channel is fixed such that the water slipping on the surface of the glass will fall in this channel under the effect of gravity. A frame of fiber stick is fixed with the wooden box so that glass can rest on it. This completes the construction of the model. The holes for the inlet of water, outlet of brackish water and outlet of pure water is made as per the convenience. We have made the outlet of brackish water at right bottom of the model (seeing from front of the model), outlet of the pure water at the end of the channel and inlet at the right wall above the outlet.

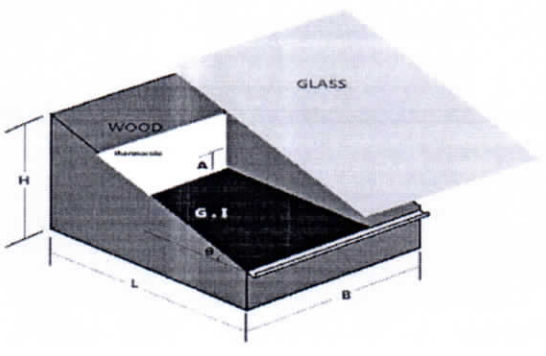

Fig 1.1: Proposed Model of Solar Distillation System

PERFORMANCE ANALYSIS OF SBASD:

Experiment conducted with and without aluminum sheet at different water levels means at 8lts and 4 lts,

Int. J. Appl. Comput. Math
DOI 10.1007/s40819-016-0177-4

ORIGINAL PAPER

Heat and Mass Transfer Effects on Unsteady MHD Flow over an Inclined Porous Plate Embedded in Porous Medium with Soret–Dufour and Chemical Reaction

Siva Reddy Sheri[1] · **Prasanthi Modugula**[2]

Abstract The aim of the present paper is to analyze the heat and mass transfer effects on unsteady magnetohydrodynamic flow over an inclined porous plate embedded in a porous medium with Soret and Dufour effects and chemical reaction. The dimensionless momentum equation coupled with the energy and mass diffusion equations are numerically solved by finite element method. The effects of the various dimensionless parameters entering into the problem on the velocity, temperature and concentration profiles across the boundary layer are investigated through graphs. Also the results of the skin-friction, Nusselt number and Sherwood number are prepared with various values of the parameters in the tables. Comparison with previously published work on special case of the problem were performed and found to be in very good agreement.

Keywords Heat and mass transfer · MHD · Soret effect · Dufour effect · Chemical reaction · FEM

Mathematics Subject Classification 65L10 · 65L12 · 76D50 · 76S05 · 76D10

Introduction

Many practical diffusive operations involve the molecular diffusion of a species in the presence of a chemical reaction within or at the boundary. There are two types of reactions, one is the homogeneous reaction, which occurs uniformly throughout a given phase. The species generation in a homogeneous reaction is analogous to the internal source of the heat generation. The second one is the heterogeneous reaction, which takes place in a restricted region or within the boundary of a phase. It can also be treated as a boundary condition similar to

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Published online: 06 May 2016

DESIGN AND ANALYSIS OF STRUCTURAL FRAME AND LOADING BEAM FOR MULTI AXIAL LOAD APPLICATIONS

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ABSTRACT

Full-scale and section level tests, on tests articles such as full-scale airframes and its sections are to be carried out using structural frame and loading beam. The test article experiences various loads such as aerodynamic, inertial, launch and handling loads during its development process. The structural loads experienced by test article during above-mentioned conditions may be summarized into axial load, bending moment, external pressure and thermal loads etc. Test article experiences axial loads during generator firing phase. Test article also experiences axial loads due to inertial effect of section ahead of individual sections. Airframe sections experience bending Moment due to maneuvering, handling and combined effect of aerodynamic & inertial loads during the flight. The present work is confined to design and analysis of structural frame and loading beam to simulate Bending Moment, Axial load and External pressure on airframes.

Structural frame is designed for maximum Bending Moments of 5676kgf-m (M_X) & 12000kgf-m (M_Y), maximum axial Load of 90000kgf and maximum external pressure of 10kg/cm^2. Axial load, B.M and external pressure are applied in different combinations for ten different load cases. The structural frame is designed and analyzed with beams and plates made of structural steel material. The test article will be fixed firmly on the structural frame as cantilever during section level tests, to simulate bending moments M_X & M_Y, Axial load and External pressure simultaneously depending upon the load case. The Structural Frame will be grouted near one end of the trench of loading beam. The loading beam is used for mounting hydraulic actuators for application of loads to simulate bending moment. The test article will be supported at two locations as simply supported beam for carrying out full-scale test. Point loads will be applied at appropriate locations along the tests article length to simulate bending moments during full-scale tests. Hydraulic actuators of required capacities will be mounted on the loading beam, which is grounded firmly in a trench using foundation bolts, to apply necessary point loads. Loading beam is designed for a central load of 25-tons applied between two adjacent grouting considering as fixed beam. Structural frame is designed and analyzed for ten different load cases having maximum bending moments of 5676kgf-m (M_X) & 12000kgf-m (M_X), axial load of 90000kgf and external pressure of 10kg/cm^2 and loading beam is designed and analyzed for 25 tons. Design and analysis are carried out using Finite Element Package ANSYS 10.0.

INTRODUCTION

Test article experiences various loads such as aerodynamic, inertial, launch and handling loads during its development process. The structural loads experienced by test article during above-mentioned conditions may be summarized into axial load, bending moment, external pressure and thermal loads etc. Test articles experience axial loads when gas generators are fired. Test article also

J Mater Sci: Mater Electron
DOI 10.1007/s10854-015-3801-x

Microstructural, optical and gas sensing characterization of laser ablated nanostructured ceria thin films

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Received: 24 June 2015 / Accepted: 27 September 2015

Abstract Ceria thin films are deposited on quartz substrates at various substrate temperatures (923–1073 K) with optimized deposition parameters by using pulsed laser deposition technique. Prepared thin films are characterized by X-ray diffraction (XRD), atomic force microscopy, Raman spectroscopy and transmission UV–Vis spectroscopy to study the effect of substrate temperature. The XRD studies reveal the polycrystalline nature of CeO_2 thin films. The preferred orientation is observed along (111) plane. The atomic force microscopy studies show the formation of uniform and dense nanocrystallites with smooth surface morphology. The RMS roughness of the thin film is increased with the increase of substrate temperature. The formation of CeO_2 with cubic structure is confirmed with Raman peak appeared at 463 cm^{-1} due to the F_{2g} active mode. The optical transmission studies reveal that the optical band gap decrease with increasing the substrate temperature. Acetone gas sensing characterization has been carried out at elevated temperatures.

1 Introduction

Ceria (Cerium oxides) have attracted great interest due to their unique properties, which make them suitable for different applications. Tetravalent Ce forms cerium dioxide (CeO_2) [1, 2], or generally called ceria, having a cubic fluorite structure. Cerium oxide has high absorption of Ultra Violet radiation and high refractive index which makes it an ideal UV blocker and potential replacement of titanium oxide and zinc oxide in sun screens [3]. Cerium oxide may be usefull for various applications such as electronic devices such as dynamic random access memory [4, 5], stable capacitor with small size [6], high temperature super conductor films, silicon-on-insulator structure [7], gas sensors [8], temperature sensor [9], humidity sensor [10] and radiation dosimeters [11, 12].

The nanostructured—dependent properties of these thin film ceria—based materials differ much from those of crystals of the chemically identical bulk materials. High density of defects in nano-structured materials provides a large number of active sites for ionic conduction and high diffusivity through nanometer-sized inter phase boundaries to promote fast kinetics and ion transportation. In the thin film the material; particles/grains are easy to form cross linking frame work and a special thin film two-dimension like structure, which promotes the fast ionic transport and dynamic process. This could be the reason why the nanostructured ceria based thin films have demonstrated a number of great improvements compared with the bulk materials. Various methods employed to prepare cerium oxide thin films such as sol–gel method [13], R. F. Sputtering [14], spray pyrolysis [15], Flash evaporation [16], thermal evaporation [17], Reactive ion beam sputtering [18], laser ablation [19] electron beam evaporation [20], atomic layer deposition [21] and pulsed laser deposition [22, 23]. Among all these methods pulsed laser deposition method is unique and simple technique to prepare extremely good quality thin films from wide variety of materials and compounds. The main advantage of PLD is production of hyper thermal species with vast kinetic energy in the order of 100 eV. Deposition of hyper thermal species can gain the adatom mobility and hence, the film quality. There are several

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Published online: 13 October 2015

Data Mining Techniques for Earthquake Frequency-Magnitude Analysis and Seismic Zone Estimation

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Abstract *- India has had a number of the world's greatest earthquakes in the last century. In fact, more than 50% area in the country is considered prone to damaging earthquakes. The northeastern region of the country as well as the entire Himalayan belt is susceptible to great earthquakes of magnitude more than 8.0. The main cause of earthquakes in these regions is due to the movement of the Indian plate towards the Eurasian plate at the rate of about 50 mm per year. The earthquake zoning map of India divides India into 4 seismic zones (Zone 2, 3, 4 and 5). According to the present zoning map, Zone 5 expects the highest level of seismicity whereas Zone 2 is associated with the lowest level of seismicity.*

In this Paper, we have derived regression relations on Earthquake Magnitude-frequency Data Set using statistical tools like SAS (Statistical Analysis System) and Weka (Waikato Environment for Knowledge Analysis). The regression relations obtained are the first relations for this region. In Earthquake Disaster Management Data Set, Magnitude is considered as a Dependent variable. It depends on LocationRank, StateRank, Elevation, Population, Year, Month, Day, Hour, Minute, Sec, Latitude, Longitude and Depth which are considered as Independent Variables. Based on Dependent and Independent variables, the new 'seismic zone' can be analyzed at different earthquake locations. If magnitude is equal to 7 or more, large areas are damaged depending on their depth. If magnitude is equal to 3 or less, the probability of occurrence of an earthquake is weak.

Keywords- *Dependent variable, Independent variable, Seismicity, SAS, Weka.*

I. INTRODUCTION

Earthquakes are sudden rolling or shaking events caused by movement under the earth's surface. Earthquakes happen along cracks in the earth's surface, called fault lines, and can be felt over large areas, although they usually last less than one minute. Earthquakes are measured using observations from seismometers. At the Earth's surface, earthquakes manifest themselves by shaking and sometimes displacement of the ground. When the epicenter of a large earthquake is located offshore, the seabed may be displaced sufficiently to cause a tsunami. Earthquakes can also trigger landslides, and occasionally volcanic activity. A shaking vibration at the surface of earth resulting from underground movement along a fault plane or from volcanic activity is an earthquake.

Movements within the Earth's crust cause stress to build up at points of weakness, and rocks to deform. Stored energy builds up in the same way as energy builds up in the spring of a watch when it is wound. When the stress is finally exceeds the strength of the rock. The rock fractures along a fault, often at a zone of existing weakness within the rock. The stored energy is suddenly released as an earthquake. Intense vibrations, or seismic waves, spread out from the initial point of rupture, the focus, like ripples on a pond. These waves are what makes the ground shake and can travel large distances in all directions. Near the focus, the waves can be very large, making them extremely destructive.

These Statistical Analysis on Data Set can be performed based on different tools are like SAS (Statistical Analysis System), SPSS (Statistical Package for the Social Sciences), WEKA (Waikato Environment for Knowledge Analysis) and R Software's. In Statistical Analysis used SAS and WEKA tools to predict future results. Apriori algorithm gets large frequent item sets through the combination and pruning of small frequent item sets

II. DATA PREPROCESSING

Consider .OUT file is used for generic output files. Then converted into text file using text command and then converted into excel file and then converted into Comma-Separated Values (CSV) file stores tabular data

International Journal of Electronics Communication and Computer Engineering
Volume 6, Issue (5) Sept., NCRTCST-2015, ISSN 2249–071X

3rd National Conference on Research Trends in Computer Science & Technology NCRTCST-2015

ATPG: ATPG System in Fault Diagnosis System

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Abstract – **Now a day's Networks are getting larger and more complex, hence network admin depend on normal tools such as ping and to trace route debug the problems. We are proposing automatic and systematic approach for testing and debugging networks called "Automatic Test Packet Generation and Fault Localization". ATPG read router configurations and generates a unique model. This model is generating a minimum set of test packets to exercise every link in network exercise every rule in the network. Test packets are sent periodically and detected failure trigger a separate mechanism to localize the fault. ATPG can detect both functional testing and performance testing problems. ATPG complements but goes beyond earlier work in static checking or fault localization. We describe our prototype ATPG implementation and results on two real-world data sets applications: like Stanford University's backbone network and Internet2. We find that small number of test packets suffices test all rules in these networks.**

Keyword – **Data Plane Analysis, Network Troubleshooting, Test Packet Generation.**

I. INTRODUCTION

It is popularly known us, very difficult to troubleshoot or identify and remove errors in networks. Every day, network engineers fight with mislabeled cables, software bugs, router misconfigurations, fiber cuts, faulty interfaces and other reasons that cause networks to drop down. Network engineers hunt down bugs with various tools (e.g., Ping, trace route, SNMP) and track down the reason for network failure using a combination of accrued wisdom and impression. a campus network may serve 50 000 users, a 100-Gbs long-haul link may carry 100 000 flows) and are getting complicated (with over 6000 RFCs, router software was based on millions of lines of source code, and network chips contain billions of gates. Fig. 1 is a simplified view of network state. Bottom of the figure is the forwarding state to forward each packet, consist of L2 and L3 forwarding information base (FIB), access control lists, etc. The forwarding state was written by the control plane (that could be local or remote) and should correctly implement the network administrator's scheme. Examples of the scheme include: "Security group X was isolated from security Group Y," "Use OSPF for routing," and "Video traffic received at least 1 Mb/s." We could think of the controller compiling the scheme (A) into device specific configuration files (B), which in turn determine the forwarding behavior of each packet (C). To ensure the network behave as designed, the three steps should remain consistent every times. Minimally, requires that sufficient links and nodes are working; the control plane identifies that a laptop can access a server, the required outcome can fail if links fail. The main reason for network failure is hardware and software failure, and this problem is recognized themselves as reachability failures and throughput/latency degradation. Our intention is to automatically find these kinds of failures. The intention of this paper is to generate a minimum set of packets automatically to cover every link in the network. This tool can automatically generate packets to test performance assertions like packet latency. ATPG detects errors independently and exhaustively testing forwarding entries and packet processing rules in network. In this tool, test packets are created algorithmically from the device configuration files and First information base, with minimum number of packets needed for complete coverage.

Test packets are fed into the network in which every rule was exercised directly from the data plan. Since ATPG treats links just like normal forwarding rules, the full coverage provides testing of every link in network. It could be particularized to generate a minimal set of packets that test every link for network liveness. For reacting to failures, many

network operators like Internet proactively test the health of the network by pinging between all pairs of sources. Organizations can modify ATPG to face their needs; for example, they can select to test for network liveness (link cover) or test every rule (rule cover) to make sure security policy. ATPG could be modified to test reachability and performance. ATPG can adapt to constraints such as taking test packets from only a few places in the network or using particular routers to generate test packets from every port.

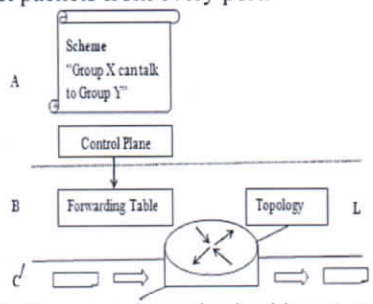

Fig.1. Static versus dynamic checking: A scheme is compiled to forwarding state, and it is executed by the forwarding plane.

Volume 5, Issue 8, August 2015 ISSN: 2277 128X
International Journal of Advanced Research in Computer Science and Software Engineering
Research Paper
Available online at: www.ijarcsse.com

Compressing the Data Secure Authorized Deduplication Checker in Hybrid Cloud

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Abstract: ***Data Deduplication is one of important data compression techniques for eliminating duplicate copies of repeating data and has been widely used in cloud storage in order to minimize the amount of storage space and save bandwidth. For protection of data security, this paper makes an attempt to primarily address the problem of authorized data deduplication. To protect the confidentiality of important data while supporting deduplication, the convergent encryption technique has been proposed to encrypt the data before outsourcing. Along with the data the privilege level of the user is also checked in order to assure whether he is an authorized user or not. Security analysis demonstrates that our scheme is secure in terms of the definitions specified in the proposed security model. We show that our proposed authorized duplicate check scheme has minimal overhead compared to normal operations. As a proof of concept, we implement a prototype of our proposed authorized duplicate check scheme and conduct tested experiments using our prototype. This paper tries to minimize the data duplication that occurs in hybrid cloud storage by using various techniques.***

Keywords: ***Deduplication, authorized duplicate check, confidentiality, hybrid cloud, convergent encryption.***

I. INTRODUCTION

Cloud computing provides seemingly unlimited "virtualized" resources to users as services across the whole Internet, while hiding platform and implementation details. Today's cloud service providers offer both highly available storage and massively parallel computing resources at relatively low costs. As cloud computing becomes prevalent, an increasing amount of data is being stored in the cloud and shared by users with specified privileges, which define the access rights of the stored data. One critical challenge of cloud storage services is the management of the ever-increasing volume of data. To make data management scalable in cloud computing, deduplication has been a well-known technique and has attracted more and more attention recently. Data deduplication is a specialized data compression technique for eliminating duplicate copies of repeating data in storage. The technique is used to improve storage utilization and can also be applied to network data transfers to reduce the number of bytes that must be sent. Instead of keeping multiple data copies with the same content, deduplication eliminates redundant data by keeping only one physical copy and referring other redundant data to that copy. Deduplication can take place at either the file level or the block level. For file level deduplication, [5] it eliminates duplicate copies of the same file. Deduplication can also take place at the block level, which eliminates duplicate blocks of data that occur in non-identical files. Cloud computing is an emerging service model that provides computation and storage resources on the Internet. One attractive functionality that cloud computing can offer is cloud storage. Individuals and enterprises are often required to remotely archive their data to avoid any information loss in case there are any hardware/software failures or unforeseen disasters.

Instead of purchasing the needed storage media to keep data backups, individuals and enterprises [6] can simply outsource their data backup services to the cloud service providers, which provide the necessary storage resources to host the data backups. While cloud storage is attractive, how to provide security guarantees for outsourced data becomes a rising concern.[8] One major security challenge is to provide the property of assured deletion, i.e., data files are permanently inaccessible upon requests of deletion. Keeping data backups permanently is undesirable, as sensitive information may be exposed in the future because of data breach or erroneous management of cloud operators. Thus, to avoid liabilities, enterprises and government agencies usually keep their backups for a finite number of years and request to delete (or destroy) the backups afterwards. For example, the US Congress is formulating the Internet Data Retention legislation in asking ISPs to retain data for two years, while in United Kingdom, companies are required to retain wages and salary records for six years. a.[7] A hybrid cloud is a combination of private cloud and public cloud in which the data which is most critical that resides on a private cloud and the data which is easily accessible is resides on a public cloud hybrid cloud is helpful for reliability, extensibility and fast deployment and cost saving of public cloud with more security with private cloud [1], [2]. The complex challenge of cloud storage or cloud computing is the arrangement of large volume of data duplication is a process of eliminating of duplicate data in de-duplication techniques redundant data removed leaving single instance of the data to be stored. In the previous old system the data is encrypted back to outsourcing[9] it on the cloud or network.

This encryption requires maximum time as well as storage space requirement to encode the data if there is large amount of data at that time encryption process becomes complex and critical. By using de-duplication technique in hybrid cloud

International Journal of Scientific Engineering and Research (IJSER)
www.ijser.in
ISSN (Online): 2347-3878, Impact Factor (2014): 3.05

Case Study: Analysis and Study of Different Approaches for Road Network Maintenance

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Abstract: *The protection and convenience of smooth traffic by the road network are governed to a large extent by the superiority of maintenance. By early identification of problem, the rapid deterioration of the roadways can be prevented. The primary intention of maintenance is to allow the movement of traffic at a desired speed, safety and not as much of cost. Road network can be preserved and prolonged if sufficient maintenance measures are undertaken at proper time. Potholes, cracks, patches etc., are some types of road surface distresses mostly used to perform manually. In the current field practices, road distress data assessment is reported to be done through distress data collection and processing of the collected raw data. This process is a labor-intensive and time consuming process and can also slows down the road maintenance management. By considering necessity for automation at present, distress data collection is increasingly being shifted towards atomization. In this paper, we analyzed, different solution which has used concept of neural network, artificial intelligence, fuzzy logic, computer vision, data-driven methods, for automation of the process. Sensor based technique and GPS based approach for monitoring road and traffic conditions to detect road distress has been analyzed.*

Keywords: Potholes, Road Distress, Image processing, Automation

1. Introduction

An arterial thoroughfare, is a high-capacity urban road, the main convenience of an arterial road is to deliver traffic from distributer roads to highways or expressways, and between inner-city and metropolitan centers at the maximum level of service possible. Road network act as the principal network to smooth out the progress of trade, transport, social assimilation and financial development. It provides line of work, extension of markets and provides greatest advantage of economies of scale. Road network facilitates for the level transportation of both people and goods. Transportation by road has the benefit more than other resources of transport because of its door-to-door service, short distance suitability and even provides service to rural area with rapid speed and less cost. It acts as a feeder to other modes of transport and hence provides better accessibility, flexibility and reliability. Consequently, passenger and commercial transportation of goods within India have progressively been more shifted over the years towards roads counterpart by other means of transport.

Growth in Road Length in contemporary nation desires to have various sources of transport. A country with high population and huge kilometers areas of road requires a transport network which can ensure quicker and faster travel across cities which are geologically isolated. It will advance the supply chain in transporting goods across cities. Indian road network consist of national highways, state highway and rural road network.

According to national highways authority of India in 2014 Indian road network is 33 lakhs kilometers and is second largest in the world which consists of Expressway length of 200 kilometers, National highway length of 79, 243 kilometers, State highway length of 1, 31, 899 kilometers, Major district road length of 4, 67, 763 kilometers, Rural and other roads length of 26, 50, 000 kilometers.

With the raise in world's inhabitants, there has been rising load on the roads. Roads have been busy with the vehicular traffic. Current Population of India in 2014 is estimated to be 1.27 billion. It has become increasingly difficult to manage such heavy traffic. One of the growing troubles the roads are facing is intensified thoroughfare. Because of many reasons like rains, oil spills, road accidents or inevitable aging makes the road difficult to drive upon. Also because of the bad road conditions driver gets frustrated and even unexpected hurdles on road may cause more accident. This leads to the wastage of valuable fuel and causes increase in vehicle petroleum expenditure.

The transportation sector in India plays as vital part in the country's profitable growth and expansion which also consumes a large amount of the total commercial energy of the country. It is the second main energy consuming sector after industry in India. It also consumes the prime share of the nation's petroleum products. According to Energy Statistics 2013 the sector's rapid growth and the near exponential increase in vehicle ownership in India, has become one of the fastest growing energy demand sectors in the country.

According to national highways authority of India in 2014 it has found about 65% of goods and 80% fare traffic is carried by the roads. National Highways constitute only about 1.7% of the road network but carry about 40% of the total road traffic. Quantity of vehicles has been increasing at an average rapidity of 10.16% per year over the last consecutive six years.

2. Motivation

Major problem to efficient communication and transportation are potholes, cracks and patches of the road surface. The most common harms are associated with the environmental conditions i.e. sun, weather, and those regarding to the surroundings such as partial shade on the roadway. When road weathers potholes occurs on the

SECRECY PROTECTING IDEAL REUNION SPOT DECISION ON MOBILE DEVICES

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ABSTRACT— Equipped with progressive smartphones and mobile devices, today's exceedingly interconnected urban population is progressively captivated with these gadgets to prepare and set up their daily lives. These applications usually place confidence in current (or preferred) locations of individual users or a gaggle of users to provide the specified service, that jeopardizes their privacy; users don't essentially need to reveal their current (or preferred) locations to the service supplier or to different,apparently untrusted,users. during this paper, we have a tendency to propose privacy-preserving algorithms for determinative associate best meeting location for a gaggle of users. we have a tendency to perform an intensive privacy analysis by formally quantifying privacy-loss of the projected approaches. so as to study the performance of our algorithms in a very real preparation, we have a tendency to implement and take a look at their execution potency on Nokia smartphones. By suggests that of a targeted user-study, we have a tendency to plan to get associate insight into the privacy-awareness of users in location based services and also the usability of the projected solutions.

1.INTRODUCTION

The speedy proliferation of smartphone technology in urban communities has enabled mobile users to utilize context aware services on their devices. Service suppliers make the most of this dynamic and ever-growing technology landscape by proposing innovative context-dependent services for mobile subscribers. Location-based Services (LBS), for instance, ar utilized by ample mobile subscribers on a daily basis to get location-specific info.Two standard options of location-based services ar location check-ins and site sharing. By checking into a location, users will share their current location with family and friends or acquire location-specific services from third-party suppliers. The obtained service doesn\'t rely on the locations of alternative users. the opposite form of location-based services, that place confidence in sharing of locations (or location preferences) by cluster|a gaggle|a bunch} of users so as to get some service for the total group, are turning into standard. per a recent study, location sharing services ar utilized by nearly two hundredth of all portable users. One distinguished example of such a service is that the taxi-sharing application, offered by a worldwide medium operator, wherever smartphone users will share a taxi with alternative users at an appropriate location by revealing their departure and destination locations. Similarly, another standard service permits a gaggle of users to search out the foremost geographically convenient place to satisfy.

2.RELATED WORK

The problem of privacy-preserving truthful rendez-vous location has received very little or no attention within the literature. port and Vaughn gift a survey of existing literature on meeting-location algorithms and propose a a lot of comprehensive answer for such a tangle. though considering aspects like user preferences and constraints,

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Volume 5, Issue 8, August 2015 ISSN: 2277 128X
International Journal of Advanced Research in Computer Science and Software Engineering
Research Paper
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INTERNATIONAL JOURNAL
OF PROFESSIONAL ENGINEERING STUDIES

Volume V /Issue 3 /AUG 2015

EFFICIENT DATA ACCESS THROUGH CO-OPERATIVE CACHING

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Abstract— Disruption Tolerant Networks (DTNs) incorporates mobile devices that contact one another opportunistically. In this paper, propose the first approach to support cooperative caching in DTNs, that alter the sharing and coordination of cached knowledge among multiple nodes and reduces knowledge access delay. the elemental plan is to intentionally cache knowledge at a group of network central locations (NCLs), which might be simply access by different nodes within the network. Propose Associate in Nursing economical technique that ensures applicable NCL choice supported a probabilistic choice metric and coordinates multiple caching nodes to optimize the trade-off between knowledge accessibility and caching overhead. The selected NCLs attain high possibilities for prompt response to user queries with low overhead in network storage and communication. A utility-based cache replacement theme to dynamically change cache locations supported question history, and this theme achieves smart trade-off between the info accessibility and access delay. A Contact length Aware Approach a unique caching protocol adaptive to the difficult surroundings of DTNs. To derive Associate in Nursing adaptive caching sure for every mobile node in step with its specific contact pattern with others, to limit the amount of information it caches. during this approach, each the cupboard space and therefore the contact opportunities area unit higher utilised. Extensive trace-driven simulations show that our cooperative caching protocol will considerably improve the performance of data access in DTNs.

Keywords— *DTNs, trade-off, difficult, NCLs, Caching .*

I INTRODUCTION

In Disruption Tolerant Networks (DTNs), movable nodes connect with one another victimization expedient contacts. Due to unpredictable node quality, there's no end-to-end affiliation between movable nodes, that greatly impairs the performance of knowledge access. DTNs are prevailingly utilized in numerous eventualities, like life following, vehicular network, etc. Among several world samples of DTNs, mobile social networks (MSNs), wherever individuals will communicate with their friends close, area unit of growing significance as a results of speedy and wide unfold usage of mobile devices (e.g., headsets, tablets) among individuals and their surroundings. In mobile social networks, information accessibility, as a vital application, is exerted for several totally different functions. for instance, it's fascinating that receiver users notice attention-grabbing contents from shut peers, meantime interactively share their native information with their friends. However, due to the intermittent property among mobile users, the information transmission from node to node isn't bonded and perpetually suffering huge delays. Cooperative caching has been oftentimes wont to improve the performance of knowledge access in each wire line and wireless networks. But, as a result of the unstable topology and restricted contact period in DTNs, inevitable cooperative caching techniques might not be applicable to DTNs.

International Journal of
Scientific Engineering and Technology Research

ISSN 2319-8885
Vol.04,Issue.53,
December-2015,
Pages:11444-11447

www.ijsetr.com

New De-duplication Constructions for Authorized Duplicate Check In Hybrid Cloud Architecture

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Abstract: Data deduplication might be a method for reducing the quantity of house for storing an organization has to save its data. In most organizations, the storage systems contain copies of the many things of data. for example, identical file is additionally saved in several all completely different completely different} places by different users, further files that aren't identical ought to still embody teeming of identical knowledge. Deduplication eliminates these any duplicates by saving just one original copy of the data and replacement the alternative copies with pointers that lead back to the primary copy. corporations oftentimes use deduplication in backup and disaster recovery applications, but it's wont to unlock house in primary storage additionally. To avoid this duplication of data and to stay up the confidentiality among the cloud we have a tendency to tend to victimization the conception of Hybrid cloud. to safeguard the confidentiality of sensitive data whereas supporting deduplication, the targeted secret writing technique has been planned to put in writing in code the data before outsourcing. to higher protect data security, this paper makes the first decide to formally address the matter of approved data deduplication.

Keywords: Deduplication, Hybrid Cloud, Encryption.

I. INTRODUCTION

In computing, data deduplication is also a specialised data compression technique for eliminating duplicate copies of continuation data. connected and somewhat similar terms unit intelligent (data) compression and single-instance (data) storage. this technique is utilized to boost storage utilization and may even be applied to network data transfers to chop back the amount of bytes that possesses to be sent. among the deduplication technique, distinctive chunks of knowledge, or computer memory unit patterns, unit famed and keep throughout a way of analysis. as a result of the analysis continues, alternative chunks unit compared to the keep copy and whenever a match happens, the redundant chunk is replaced with atiny low reference that points to the keep chunk. on condition that identical memory board unit pattern might occur dozens, hundreds, or even thousands of times (the match frequency depends on the chunk size), the amount of knowledge that possesses to be keep or transferred is greatly reduced. A Hybrid Cloud can be a combined style of personal clouds and public clouds throughout that some crucial data resides among the enterprise's personal cloud whereas different data is confine and accessible from a public cloud. To make data management scalable in cloud computing, deduplication has been a wide famed technique and has attracted additional and lots of attention recently. data deduplication is also a specialised data compression technique for eliminating duplicate copies of continuance data in storage. The technique is utilized to spice up storage utilization and may even be applied to network data transfers to chop back the quantity of bytes that must be sent. instead of keeping multiple data copies with c1onstant content, deduplication eliminates redundant data by keeping just one physical copy and referring different redundant data thereto copy.

Deduplication can occur at either the file level or the block level. For file level deduplication, it eliminates duplicate copies of constant file. Deduplication can also occur at the block level, that eliminates duplicate blocks of data that occur in non-identical files. Cloud computing is academic degree rising service model that has computation and storage resources on internet. One enticing usefulness that cloud computing offers is cloud storage. folks and enterprises ar typically required to remotely archive their data to avoid any information loss simply just in case there ar any hardware/software failures or unforeseen disasters. instead of obtaining the desired storage media to remain data backups, folks and enterprises can just supply their data backup services to the cloud service suppliers, which supply the obligatory storage resources to host the information backups. whereas cloud storage is attractive, the thanks to supply security guarantees for outsourced data becomes a rising concern. One major security challenge is to provide the property of assured deletion, i.e., data files ar permanently inaccessible upon requests of deletion. Keeping data backups permanently is undesirable, as sensitive information is additionally exposed at intervals the long run because of data breach or inaccurate management of cloud operators. Thus, to

IJRECS @ July – Aug 2015, V-3, I-2
ISSN-2321-5485 (Online) ISSN-2321-5784 (Print)

Design and Analysis of a Hexagonal Connected Dominating Set in Clustered Mobile Adhoc Networks

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Abstract: The framework less and dynamic nature of versatile specially appointed systems (MANET) needs effective bunching calculations to enhance system administration and to plan various leveled directing conventions. Bunching calculations in versatile impromptu systems constructs a virtual spine for system hubs. Ruling sets and Spanning tree are generally utilized as a part of grouping systems. Overwhelming sets and Spanning Tree based MANET grouping calculations were suitable in a medium size system concerning time and message complexities. This paper presents distinctive grouping calculations for versatile impromptu systems taking into account ruling sets and traversing tree.

Keywords :

Portable impromptu systems, grouping, overwhelming set and traversing trees, Clustering, versatility administration, execution investigation, radio assets .

1. INTRODUCTION:

Versatile Ad hoc Networks (MANETs) are recognized from other correspondence arranges by numerous elements, for example, the unlucky deficiency of a settled foundation, dynamic topology because of constant hub development, remote multihop correspondence, and strict asset impediments (e.g., restricted data transmission and vitality). The dynamic way of MANETs' topology may bring about continuous course breakage while the fleeting hub affiliations may restrain the connection lifetime or the course lifetime. In this way, the configuration of topology control calculations and steering conventions is a urgent and testing issue in MANETs [14]. As of late, numerous analysts have strived to plan steering and topology control calculations and conventions for MANETs [1]-[14]. Despite the fact that MANETs have no physical spine or base, an option for a physical spine is the development of a virtual spine or framework. One approach to make base in MANETs is to perform hub bunching. As a rule, bunching methodologies bring about lower overhead amid topology state upgrades furthermore have quick union [1]. In addition, grouping can empower data transmission reuse by decreasing impedance, and along these lines can build framework limit [4]. The Minimum Dominating Set (MDS) issue and the significant Minimum Connected Dominating Set (MCDS) issue best portray the bunching way to deal with topology administration. Be that as it may, discovering the negligible arrangement of groups is a NP-Complete issue [5] notwithstanding when the complete system topology is accessible. Accordingly, most methodologies are in view of heuristic arrangements that give a sub-ideal arrangement of the MCDS issue. Indeed, it was demonstrated that any circulated calculation for developing an associated arrangement of groups (once in a while called virtual spine) requires in any event O(nlogn) messages, where n is the quantity of hubs. All things considered, the tradeoff in the middle of straightforwardness and optimality assumes a discriminating part in the bunching methodologies in MANETs. To be more particular, having a virtual construction modeling that is basic, stable, and adaptable, while being near to ideal can be a sensible bargain. The idea of virtual spines is not new. Early studies on this issue showed up in [1][6][7] and [14]. Nonetheless, the creators of these studies don't endeavor to advance the span of the virtual spines. Taking after the early endeavors, grouping or topology control in MANETs got a lot of exploration [18]. Connected with topology control is the directing issue in MANETs. Lately, various directing conventions were created (a nitty gritty study about these steering conventions can be found in [1]). In any case, the greater part of these studies concentrated on homogeneous MANETs where hubs are thought to be of similar capacity. Notwithstanding, MANETs are

International Journal of Science & Technology
www.ijst.co.in

ISSN (online): 2250-141X
Vol. 5 Issue 3, October 2015

AUTOMATICALLY MINING OF MULTIWORDS IN PARALLEL ENGLISH HINDI SENTENCES

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Abstract:- *Now a day, getting touch with friends and relatives, people are usually online. Many are using social site through facebook, whatsapp, gtalk, etc. However, they are need of assistance to get proper words and sentences. Many times, they are also using online translator to get correct and quick translation of English sentence into Hindi sentence and vice-versa. For simple sentences, online translators are perfect as they are translated word-to-word translation. But when two-words verbs like draw_back – पीछे_हटना /मुकर_जाना , has_read – पढ़_लिया are occurred in sentence, online translators are helpless. In this paper, a simple method for identifying Multiwords Verbal Chunk of all kinds by means of python is presented for an English-Hindi parallel corpus and said system yields mining English-Hindi MWVC with an average precision is 90%-83% and a average recall is 93%-98%. The English-Hindi MVWC dictionary will be improved Natural Language Processing like Parts of Speech Tagging, Information Retrieval, Summarization, Word Alignment, Machine Translation etc.*

Keywords: *Multiwords, Verbal Chunk, Parts of Speech, Word Alignment, Python.*

I. Introduction

In Natural Language Processing (NLP), one of the most challenging jobs is the proper treatment of multiword chunk (MWC). They are lexical items [1] that are composed of a word i.e. boy, dog, go, etc, a part of word i.e. *non*sense, top*most* or a group of words i.e. ask for, smart card, again and again, all of a sudden. Ambiguities [2,3,11] in NLP are many times mainly due to not catching multiword chunk in a sentence during analysis i.e. parsing and during generation. For example, in the English sentence: *The policemen made after the thief very fast* and in its Hindi translation: पुलिसकर्मियों ने बहुत तेजी से चोर के बाद ककया, the multiword verbal chunk *made_after* is not meant as के_बाद_ककया but it is as के_पीछे_दौड़े. In sentences, multiword may be formed in subject, object and verb. The identification of Multiword Verbal Chunk (MWVC) is the initial task in mapping parallel English-Hindi sentences for extracting words and multiwords. It is observed as simple problem but practically it is complex task. Hindi verbal multiword chunk has been identified by light verb construction. This construction [4] is also called Complex Predicate (CPs) where part of speech (POS) likes a noun, a verb, an adjective are followed by a light verb, for example HinMWVC: परेशान_करना – EngV: *bother*. Language industry is the sector of activity dedicated to facilitating multilingual communication, both oral and written. These industries are growing exponentially. It also requires parallel English-Hindi multiwords to trained many application of NLP like Part of Speech Tagging, Information Retrieval, Summarization, Word Alignment, Machine Translation etc. Manually, identification and mapping of MWVC are time consuming, tedious, expensive, and error-prone and it also requires intelligence and knowledgeable person. Proper automated processing system will be impact and reduced manual processing costs, while also improved processing speed and accuracy.

International Journal of
Scientific Engineering and Technology Research

ISSN 2319-8885
Vol.04,Issue.36,
September-2015,
Pages:7701-7708

www.ijsetr.com

Automatic Speech Recognition for Resource Constrained Embedded Systems

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Abstract: The design and implementation of prototype hardware/software architecture for automatic single word speech recognition on resource-constrained embedded devices Designed as a voice-activated extension of an existing wireless nurse call system, our prototype device continually listens for a pre-recorded keyword, and uses speech recognition techniques to trigger an alert upon detecting a match. Preliminary experiments show that our prototype achieves a high average detection rate of 96%, while only dissipating 28.5 mW for continuous audio sampling and duty-cycled speech recognition. The speech recognition is based on the accent of the English language used in this project which allows performing the operations based on the words spell. The words which are spell are stored in the operating system of Raspbian OS which is implemented on Raspberry Pi hardware kit of ARM 11 processor. The design is based on the architecture which determines the output according to the speech which is previously stored during operation of the system. The implementation is basically performed with the LED and fan which is turned ON & OFF based on voice recognition. This design can be used in real time implementation of the wide varied applications. Based on the voice recognition, the application tends to perform the changes of the output which can be used in the real time applications.

Keywords: Duchene Muscular Dystrophy (DMD), Low-Power Wireless Bus (LWB), Voice Activity Detection (VAD).

I. INTRODUCTION

Low-power wireless networks for healthcare are largely being used for monitoring patient activity and physiological parameters. Instead, we recently developed a wireless nurse call system, providing bidirectional interactions between patient and caregiver, based on push-buttons and off-the-shelf low-power wireless devices. We successfully deployed the system in a summer camp for boys with Duchene muscular dystrophy (DMD). Patient devices were installed at the beds so the boys could alert a caregiver for help during the night. Using the Low-Power Wireless Bus (LWB), our system provides highly reliable and timely bidirectional interactions between wireless patient devices and a centralized graphical user interface through which caregivers acknowledge alerts. Since boys with an advanced stage of DMD experience difficulty pressing a button, we have developed a voice activated extension to our wireless nurse call system. To make it convenient for a boy to request help, the new patient device must automatically detect a single word with high accuracy. Furthermore, to simplify deployment and ensure a system lifetime of several weeks, the device must be battery-operated, exhibit a compact form factor, and have low total system power dissipation.

Contrary to most existing systems, we seek high single-word detection accuracy, while striving to keep the energy footprint of each patient device to a minimum. In this demonstration proposal, we outline hardware/software architecture for single word speech recognition on an embedded device exhibiting severe processing and memory constraints. Despite these resource constraints, our prototype achieves a high recognition rate of 96%, while only dissipating an average of 28.5mW for continuous hardware based audio sampling and duty-cycled software-based speech recognition. Finally, we describe in detail how we plan to demonstrate our prototype at IPSN.

II. LITERATURE SURVEY

The design and implementation of prototype hardware/ software architecture for automatic single word speech recognition on resource constrained embedded devices. Designed as a voice-activated extension of an existing wireless nurse call system, our prototype device continually listens for a pre-recorded keyword, and uses speech recognition techniques to trigger an alert upon detecting a match. Here in order to demonstrate it will use advanced Linux environment and control the system with speech. We will have a detail description of the existing and the proposed methods to enable the extension applied in the real time implementation of the project.

A. Existing Method

In the existing system, they have not provided any algorithm or implementation procedure to execute the concept. The implementation is based on research of hardware system execution of output without any interface of software in the system. They have used hardware codec

IOSR Journal of Electronics and Communication Engineering (IOSR-JECE)
e-ISSN: 2278-2834,p- ISSN: 2278-8735.Volume 10, Issue 6, Ver. III (Nov - Dec .2015), PP 55-66
www.iosrjournals.org

QoS Oriented Coding For Mobility Constraint in Wireless Networks

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Abstract: *With the increase in service demand in wireless network, new quality oriented communication approach are in need. In the process of wireless communication, user mobility is of greater importance. As the users are moved at a random fashion, the impact of offered quality of service is degraded. Towards providing quality of service in mobility scenario an improved QoE based communication model, under user mobility in random mode is proposed. Wherein QoE coding was used as a traffic control mechanism for service level coding, the offered blockage is neglected. Under heterogeneous condition with node mobility, is highly affected. The effect of mobility on the offered quality of service under heterogeneous nodes is developed. The offered quality of service for the communication network, under variant data traffic forwarding condition is observed to be improved.*

Keywords: *Quality of service, wireless network, random mobility, traffic blockage control*

I. Introduction

Communication technology has become constraint for future requirement as the growth of the communication industry is larger and growing complex. Different modes as mobile, wired, wireless, adhoc, supports growth of the communication industry but with certain limits. Mobility plays a vital role in wireless networks, where it is necessary to satisfy the requirements of the modern world. It is now a challenge to provide the seamless flow of information without re-modifying the existing infrastructure. The most challenging aspect is to provide mobility management for real time communication services in wireless networks with demanded quality of service. Various approaches are proposed in earlier to manage the mobility in wireless networks. In [1], the current state of the art for mobility management for next generation IP-based wireless systems with new wireless network architecture for mobility management were introduced. Towards provisioning of quality of service in such network [2] outlines a review for QoS based coding for wireless network. Various quality parameter such as the Mobility Management, Security and Reliability, and Power Consumption etc, were presented. The MAC control operation for mobility constraint was presented. The basic issues involved in handoff management [3] aspect of general mobility management in wireless communication systems is focused. The issue of delay, security and its management is derived. Towards the enhancement in mobility management for current and future communication networks, and the integration of heterogeneous networks for a smooth handoff and better Quality of Service (QoS), in the context of next evolutionary step for wireless communication networks a macro and micro mobility solutions [4].for Mobile IP is presented. In the focus of providing higher network performance in next generation communication, an adaptive resource allocation wrt. Bandwidth allocation [5] was proposed. Towards providing seamless mobility of user with higher degree of mobility an overview of the "off-path" QoS model to supplement PMIPv6 was observed in [6]. With the objective of heterogeneity, in [7] three alternative architectures for an all-IP network integrating different wireless technologies using IP and its associated service models were presented. The first architecture, called ISB, is based on a combination of DiffServ and IntServ models appropriate for low-bandwidth 3G cellular networks with significant resource management capabilities.

The second architecture, called DSB, is purely based on the DiffServ model targeted for high-bandwidth wireless LANs with little resource management capabilities. The last architecture, called AIP, combines ISB and DSB architectures to facilitate the integration of wireless LAN and3G cellular networks towards a uniform architecture for all-IP wireless networks. [8], investigate the integration of RSVP and aRSVP-like flow reservation scheme in wireless LANs, as an end-to-end solution for QoS guarantee in wired-cum-wireless networks. A RSVP-like flow reservation and admission control scheme for IEEE 802.11 wireless LAN. Using WRESV, wired/wireless integration for supporting multicast session, mobility management, and admission control is proposed. A seamless service on practical application such as multimedia and voice transfer were observed in [9, 10 11]. To describe a protocols for mobility management for PLMN-based networks, Mobile IP, wireless ATM, and satellite networks an integration of these networks is discussed in [12,13], in context to next evolutionary step of wireless communications networks. The advantage of the heterogeneous network is outlined in this approach. As heterogeneous networks are more advantageous due to variant offered

IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE)
e-ISSN: 2278-1684,p-ISSN: 2320-334X
PP. 01-04
www.iosrjournals.org

"Rocket Motor Hardware Design and Structural Analysis"

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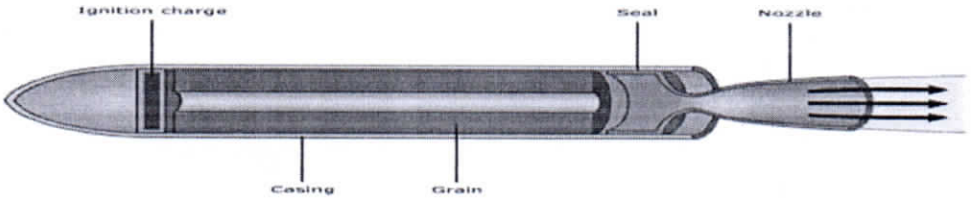
Abstract: *The rocket motor generally used for launching satellites and missiles. The motor consists the casing, nozzle, head end dome, propellant and igniters. The rocket motor hardware design is carried out generally with metals and composites materials*
In this project work literature survey carried out on the rocket motors. So the material selection is done and finally with suitable material, the rocket motor hardware is designed using ASME pressure vessel code. For the optimization point of view the hardware structural analysis is carried out using ANSYS package and weight is minimized. The structural analysis result comparison has carried out with test results.



I. Introduction

Rockets are a type of aircraft used to carry a payload at high speeds over a wide range of distances. Rockets are powered by a reaction type engine which uses chemical energy to accelerate and expel mass through a nozzle and relies on the principals of Sir Isaac Newton's third law of motion [1] to propel the rocket forward. Rocket engines use either solid or liquid fuel. They carry both the fuel and the oxidizer required to convert the fuel into thermal energy and gas byproducts. The gas byproducts under pressure are then passed through a nozzle which converts the high pressure low velocity gas into a low pressure high velocity gas. The thrust output depends on the mass flow rate of the fuel and the velocity of the ejected exhaust. [1]

Rockets are basically two types based on the fuel used in it. They are: chemical rockets and Solid rockets. Chemical rocket construction, working and design are very complex compared to solid rocket. The solid rocket itself can be designed as the integrated part of rocket. As in the sounding rocket and retro boosters and also they can be designed separately and installed into rockets and launch vehicles. Whereas, liquid rocket needs many separate equipment and pressure vessels to store the fuel and oxidizers. Solid rocket working is simple and easy to understand. The solid fuel is a mixture of fuel and oxidizer [2]. It has the property to burn instantly and continues to burn without stoppage. The exhaust is expelled through a nozzle and thrust is generated as a result.

1.1 Solid Rocket Motor:

Solid Rocket Motors serve as the propulsion back-bone for strategic and tactical missiles as well as satellite launch vehicles [2]. They impart required velocity to the vehicle at burn out of stage. The specification of rocket motor with respect to thrust versus time will be decided after detailed system study considering maximum allowable acceleration of the vehicle and burn out altitude from the point of view of dynamic pressure. Since most missions do not require sophistications of multiple restart and throttling operations, solid propulsion becomes overwhelming choice because of its inherent safety, high reliability, handling ease, simplicity, high density impulse minimum maintenance, packaging efficiency, effective system integration and low cost [3]. The solid rocket motors inherently have high reliability and lower costs because of the following reasons:

- Minimum number of components.
- No moving parts required to provide propulsive force.
- No complex electronic control systems for operation or diagnostics.

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Abstract

The aim of this work is to evaluate the friction factor for water flowing in various diameters of the pipe set up. The frictional force will oppose the flow of fluid in the pipe or channels and minimize flow rate of the fluid. The head loss is caused due to major and minor losses in the pipes, the loss of head due to friction is called major losses, the minor losses are due to bending, fitting and sudden endargement and contraction of the pipe. The objective of this work is to analyze the analysis of friction factor for water in the various diameters of GI and PVC pipe using Darcy's Weisbach equation. The average value of friction factor was higher for varying flow rate as compared to the constant flow rate of water

ME4: Heat Transfer Analysis of Solid Rocket Motor Nozzle

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Abstract

Rocket motor generally consists of different components, like motor shell, head end dome and noz zle, etc. these are the most important s. which will play vital role in operation of the rocket moto Motor shell acts as a chamber for combustion process of the fuel and also it : tank for the fu Nozzle is another most required component for motor in converting the thermal energy into kine energy and the thrust. Type of the nozzle is DE-LEVEL configuration. All this components experience high thermal loads due to higher e (3400K) gases flows inside the chamber and noz Hence suitable insulating material should thermally protect all its, so that these components wi safe in thermal point of view and meet the mission requirement.Nozzle, of all the components,

Arduino Based Advanced Intelligent Security System for Women with Location Tracking Through GPS Network and Bluetooth Operated App

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Abstract: **Today in the current global scenario, the prime question in every girl's mind, taking into account the ever rising increase of issues on women harassment in recent past, is only about her safety and security. The only thought haunting every girl is when they will be able to move freely on the streets even in odd hours without worrying about their security. This paper suggests a new perspective to use technology to protect women. The system resembles a simple button which when activated, tracks the location of the victim using GPS (Global Positioning System) and sends emergency messages using GSM (Global System for Mobile communication), to three emergency contacts and police .The main advantage of this system is that the user does not require a internet connection for operating APP unlike other applications that have been developed earlier. The App shall dial the already saved emergency number once the SMS is sent.**

Keywords: **Arduino ATMega328 board, GSM Module, GPS Module, HC-05 Bluetooth Module, Smart Phone, Custom built Mobile Application (MIT app inventory),Buzzer, Panic button**

I. INTRODUCTION

This proposal document describes a quick responding, cost effective system for an individual and especially for women using which a woman in distress can call for help just with the press of a button on this smart gadget. It has the ability to help women with technologies that are embedded into a compact device. This device can be made compact and portable, in case of any harassment or when she finds that someone is going to harass, she presses a switch that is located in the Application on the Mobile. The App is designed to be connected to the compact device which has a GPS and GSM system embedded in it.

This paper is organized into five section. section(1)-deals with the introduction of the paper ; section(2)-covers related work section(3)-explains about proposed model and system design; section(4)-displays result of the proposed model and related discussion; section(5)-includes conclusion and future scope.

II. RELATED WORK:

Existing System Keeping the same concern in mind many developers have come up with innovative applications. Few of such applications are as follows- **[1][2]VithU app:** This is an emergency app initiated by a popular Indian crime television series "Gumrah" aired on Channel [V]. In this app when the power button of the Smartphone is pressed twice consecutively, it will begin sending out alert messages with a link to the location of the user every two minutes to the contacts fed into the app.

ILA security: The co-founders of this system, McGivern, James Phillips, and Neil Munn , have designed three personal alarms that can shock and disorient potential attackers and draw attention to dangerous situations.

III. PROPOSED MODEL AND ITS IMPLEMENTATION:

***3.1. Proposed model*:** . The block diagram of the conceptual system is shown in below figure 1. The microcontroller acts as an embedded computing system and controls the activities of all the subsystems. It is interfaced with

ISEANS 101

Development and Validation of skeletal muscle relaxant Metaxalone in human plasma by LC-MS/MS : application to a Pharmacokinetic study

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Abstract

A sensitive and robust method has been developed and validated for quantification of Metaxalone in human plasma by Liquid-Liquid extraction method and Metaxalone N-methyl analog was used as an internal standard for Metaxalone. YMC Basic, 2.0 x 50 mm, 5 µm column provided chromatographic separation of analyte followed by detection with mass spectrometry. The method involves simple isocratic chromatographic condition and mass spectrometric detection in the positive ionization mode using an API-4000 system. The total run time was 3.5 minutes. The proposed method has been validated with the linear range of 10.0 – 6000.0 ng/mL for Metaxalone. The limit of quantification was 10.0ng/ml and limit of detection was 0.6fg on column. The intra-run and inter-run precision values are within 2.1 to 4.3% and 3.0 to 4.3% respectively for Metaxalone. The overall recovery for Metaxalone and Metaxalone N-methyl analog was 95.9% and 95.5% respectively. This validated method was successfully applied into the bioequivalence and pharmacokinetic study of human volunteers under fasting condition.

Keywords: Mass spectrometry; Metaxalone; Human plasma;

Resale Activities approaches using Data Mining

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Abstract:

Reuse and remarketing of content and products is an integral part of the internet. As E-commerce has grown, online resale and secondary markets form a significant part of the commerce space. The intentions and methods for reselling are diverse. In this paper, we study an instance of such markets that affords interesting data at large scale for mining purposes to understand the properties and patterns of this online market. As part of knowledge discovery of such a market, we first formally propose criteria to reveal unseen resale behaviors by elastic matching identification (EMI) based on the account transfer and item similarity properties of transactions. Then, we present a large-scale system that leverages MapReduce paradigm to mine millions of online resale activities from petabyte scale heterogeneous ecommerce data.

Keywords:

Resale market, Reseller,MapReduce,
Big data, E-commerce;

1.Introduction:

Recently there is tremendous republishing of content happening in the internet space and such trend is rapidly growing. While it does not imply copyright violation, marketing groups have studied the importance of "content curation"[1]on websites, e.g., blogs and news. Retweets on Twitter and reclips on P / interest are other examples of republishing on social networks. In E-commerce, the equivalent of content curation is obtaining inventory for reselling. Given these developments, republishing becomes a key aspect of the internet and resale is a key aspect of electronic commerce.

Since reuse and remarketing of content and products is an integral part of the internet, we particularly study the online resale market in this paper. Resale, which is the selling again of something purchased, is an essential part of a market. There have been many research studies on resale activities in different markets, e.g., tickets [7], real estate [13][6], and automobiles [30]. The previous research is mostly on resale price maintenance [27][22], auctions with resale [12][5], etc.

However, online resale activities are also a significant part of the resale markets. Therefore, understanding patterns and nature of the e-commerce resale activities is much needed. Since the resellers often purchase and sell items on the same online platform, the data will capture the complete activity from purchase to sale, which is desired for a comprehensive study. Online marketplaces, e.g. eBay, Amazon and Taobao, have been studied in various areas

CLOUD FORENSICS: CHALLENGES, POSSIBLE SOLUTIONS AND OPPORTUNITIES

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ABSTRACT

Cloud computing has become cost effective and efficient paradigm for small and medium size organizations. The main concern in cloud computing is security; hence most sensitive data like healthcare, military and finance can't be stored in cloud. Forensic investigation in the cloud introduces different issues which must be addressed and the legal environment of the cloud must be considered. In this paper we listed different challenges faced by cloud forensics and possible solutions to overcome those problems.

I.INTRODUCTION

Cloud computing has high flexibility where users can access stored data anywhere in the world with any device which is connected to internet. The cost towards hardware and software updates by organizations can be reduced hence they can concentrate on expansion of their business. Cloud servers can store huge amount of data so vendors no need to worry about storage space. The data can be accessed 24X7 because servers are always up.

The advantages of cloud computing are privacy, security, transferability and downtime of server due to various issues. The big concern is privacy and security of data which was stored in third party server. The market for public cloud service expected to grow by $210 billion by 2016 according to Gartner. The market for private cloud based IT service expected to reach $24 billion and for community cloud growth rate is by 34.5% from $566.1 million to $1.49billion.

Immensity the Performance and Cost for Stretchy Cloud Web Service

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Cloud computing is the latest evolution of computing where the IT resources are offered as services following the "pay-per-usage" pricing model. Cloud's scalability feature causes variable price for resources governed by the cloud service providers. Therefore, the cloud cus- tomers' main interest is whether the performance scales to the price for the leased resources in the cloud. In this paper we analyze the variable server load impact on the performance and the cost of two web services that utilize memory and CPU resources. In order to determine the real cost of the rented CPU resources, we experimented with different number of concurrent messages with different sizes. The results concerning the memory demanding web service show that the lowest cost is obtained when the web service is hosted on two CPUs, whereas the results concerning the web service which additionally utilizes CPU show that the lowest cost is achieved when it is hosted on one CPU and linearly rises with the resources.

Keywords: cloud computing, web services, performance, resources, cost

1. Introduction

The cloud is a parallel and distributed comput- ing system, which consists of a collection of interconnected and virtualized computers that are dynamically provisioned and presented as one or more unified computing resources. The resource provisioning is negotiated via service level agreements (SLAs) between the service providers and the consumers [1]. Cloud com- puting refers to the applications and services that run on a distributed network using virtual- ized resources and are accessed by common In-ternet protocols.

It makes the long-held dream of utility computing possible with a pay-as-you- go, infinitely scalable, universally available sys- tem [2]. This usage-based pricing model offers several advantages, including reduced capitalexpense, a low barrier to entry, and the ability to scale up as demand requires, as well as to sup- port brief surges in capacity [3]. A natural ex- pectation from the pay-per-usage pricing model is that the performance gain scales to the mone- tary costs, i.e., the more resources are rented, the more performance is achieved. Cloud service providers (CSPs) guarantee the availability of the rented resources to the customers; however, a guarantee of scalable and sustainable perfor- mance is missing in the SLAs [4]. Hence, the problem of scalable performance is a very chal- lenging field of study and is also beneficial for both the consumers and the CSPs.

In this paper, we conduct research to inspect the trade-off between the consumer's monetary costs for resources and the performance gain. Most of the related studies consider the CSPs' benefits, whereas the customers' expenses and privileges are not fully covered in the literature. In our research, we consider a single user case whose monetary costs for resources are propor- tional to the amount of rented resources. In order to simulate realistic occasions of renting different amount of resources, we prepared the cloud testing environments following the CSPs' pricing models presented in Tables 1 and 2, for Windows and Linux platform, respectively. These tables present the current offers for rent- ing virtual machine (VM) instances, indicated in USD per rented hour. We present these of- fers as a proof that the linear pricing model is the current business model of the most common CSPs.

BioMedical Segementation using Hyper Kernel Fuzzy C-Means Custering Using Level Set Method

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Abstract— **In this paper, Hper kernel fuzzy c-means (HKFCM) was used to generate an initial contour curve which overcomes leaking at the boundary during the curve propagation. Firstly, HKFCM algorithm computes the fuzzy membership values for each pixel. On the basis of HKFCM the edge indicator function was redefined. Using the edge indicator function the bio-segmentation of a medical image was performed to extract the regions of interest for advance processing. In this process the complexity of time iteration is reduce compare to better than KFCM. The above process of segmentation showed a considerable improvement in the evolution of the level set function.**

Keywords: Image segmentation; Bio-images; HKFCM; level set method.

I. INTRODUCTION

Image segmentation is plays an important role in the field of image understanding, image analysis, pattern identification. The foremost essential goal of the segmentation process is to partition an image into regions that are homogeneous (uniform) with respect to one or more self characteristics and features. Clustering has long been a popular approach to untested pattern recognition. The fuzzy c-means (FCM)[1] algorithm, as a typical clustering algorithm, has been utilized in a wide range of engineering and scientific disciplines such as medicine imaging, bioinformatics, pattern recognition, and data mining. *Given* a data $X = \{x_i \ldots\ldots\ldots x_n\} \subset R^p$, the original FCM algorithm partitions X into c fuzzy subsets by minimizing the following objective function

$$J_m(U,V) \equiv \sum_{i-1}^{c} \cdot \sum_{k-1}^{n} u_{ik}^m \|x_i - v_i\|^2 \ldots\ldots\ldots\ldots (1)$$ Where

c is the number of cluster and selected as a specified

Value in the paper, n the number of data points, u_k , the member of x_k in class i , satisfying $\sum_{i-1}^{c} u_{ik}$, m the quantity controlling clustering fuzziness and v is set of control cluster centers or a prototypes $\left(v_i \in R^p\right)$. The function J_m is minimized by the famous alternate iterative algorithm. Since the original FCM uses the squared-norm to measure inner product with an appropriate 'kernel' function, one similarity between prototypes and data points, it can only be effective in clustering 'spherical' clusters. And many algorithms are resulting from the FCM in order to cluster more general dataset. Most of those algorithms are realized by replacing the squared-norm in Eq (1) the object function of FCM with other similarity trial (metric) [1-2]. In this paper, a hyper kernel-based fuzzy c-means algorithm (HKFCM) is projected. HKFCM adopt a new kernel-induced metric in the data space to restore the original Euclidean norm metric in FCM. By replacing the inner product with an appropriate 'kernel' function, one can absolutely perform a nonlinear mapping to a high dimensional feature space without increasing the number of parameters.

The level set method is [4-7] based on geometric deformable model, which translate the problem of evolution 2-D (3-D) close curve(surface) into the evolution of level set function in the space with higher dimension to obtain the advantage in managing the topology changing of the shape. The level set method has had great success in computer graphics and vision. Also, it has been widely used in medical imaging for segmentation and shape recovery [8-9]. However, there are some insufficiencies in traditional level set method.

Firstly, as using the local marginal information of the image, it is difficult to obtain a perfect result when there's a fuzzy or discrete boundary in the region, and the leaking problem is unescapably appeared; Secondly, solving the partial differential equation of the level set function requires numerical processing at each point of the image domain which is a time consuming process; Finally, if the initial evolution contour is given at will, the iteration time would increase greatly, too large or too small contour will cause the convergence of evolution curve to the contour of object incorrectly. Therefore, some modification has been proposed to improve the speed function of curve evolution [10-12]. In the paper, based on the new variational level set method, the edge indicator function was weighted to improve the ability of detecting fuzzy boundaries of the object. At the same time, the KFCM algorithm [13-14] was applied to obtain the appropriate initial contour of evolution curve, so as to get the accurate contour of object and reduce the evolution time.

II. HYPER KERNEL FUZZY C-MEANS CLUSTERING (HKFCM):

Define a nonlinear map as $\phi : x \to \phi(x) \in F$,where $x \in X$. X denotes the data space and F is the transformed feature space with higher even infinite dimensions. HKFCM minimized the following objective function:

iNFORMATION- - An International Interdisciplinary Journal
ISSN 1343-4500(print)
ISSN 1344-8994(electronic)
Vol. 17 Issue 6(B).

Performance Comparison of DMTL Phase Shifter based on Bragg Frequency and Substrate Materials

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Abstract

This paper analyses the theoretical design strategies for various low and high resistive substrates of the Co-Planar Waveguide (CPW) based Distributed Micro electro mechanical system Transmission Line (DMTL) which is a typical microwave MEMS periodic structure based on analytical modeling of characteristic impedance, transmission line loss and effect of Bragg frequency. These results will be of use when developing methods for the optimization of DMTLs for a good efficiency and a precise circuit modeling of a cell in the periodic structure that the DMTL constitutes. 2D simulation using Advanced Design System (ADS) was also done to validate the theoretical results. Comparison of CPW based DMTL phase shifters of different impedances were done for analytically calculated phase shift, return loss and insertion loss.

Key Words: Distributed MEMS Transmission line (DMTL), MEMS, Phase shifters, Bragg frequency.

1. Introduction

The main components of phased array systems are power distributors, antennas and some structures to change the relative phases of respective signals. Microwave phase shifters are the structures used to change the transmission phase angle of network [1], [2]. The DMTL consists of CPW transmission line of high impedance that produces phase shift due to the capacitance effect created by periodic placement of MEMS capacitors. The DMTL phase shifters exhibits low delay dispersions, low insertion loss and good matching over a very wide bandwidth. The concept of distributed topologies is very useful due to the parasitic nature of the discrete components. In microsystems, a substrate serves an additional purpose: it acts as signal transducer besides supporting other transducers that convert mechanical action to electrical output or vice versa. The larger variety of substrate materials are used in DMTL phase shifters depending upon the applications. Fabrication conditions need to be more stringent as the operating frequencies are shifting higher level the design needs to be more exhaustive [3].

This paper gives better understanding of how high resistive substrate materials are chosen and the kind of considerations to be made while designing a DMTL phase shifter and

Amplitude-Only Null Positioning in Linear Arrays Using Firefly Algorithm

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***Abstract*—Beamforming is a serious problem in wireless communication. On one hand it involves in observing deep nulls in the direction of the undesired signal and, on the other hand, it involves in positioning the main beam in the direction of the desired signal. Many deterministic and numerical techniques are proposed to achieve this objective. However, the application of evolutionary computing techniques produced better results over many existing conventional methods. In this paper, one such attempt of applying a novel nature-inspired technique known as Firefly algorithm (FFA) to demonstrate beamforming in linear arrays. The desired objectives of the synthesis process are defined as sidelobe level (SLL) suppression and null positioning. The optimal set of amplitude distribution for the elements in the linear array is obtained using the technique in order to achieve the desired objectives. The results are evaluated in terms of radiation pattern plots.**

***Index Terms*—Linear array, Firefly, nulls, sidelobe level, Beamforming.**

I. Introduction

Modern wireless communications require several features like high directivity, good control on sidelobe level (SLL), control on beam width (BW) along with beam steering (BS) capabilities [1]. Single element antenna fails to achieve the above, as they exhibit poor directivity and no control on SLL and BW. Antenna\arrays have emerged as the best candidates for the above issues. Antenna array is a collection of radiating elements that work as a single radiating element with perfect control of radiation characteristics.

Linear arrays are the simplest form of array antenna geometry. All the elements of the array are oriented along a straight line defined in terms of array length and number of elements. These linear arrays are the best candidates for beamforming applications with efficient sidelobe level suppression [2], [3] and null control [4] characteristics. The problem of linear array synthesis refers to determining weights for the geometrical properties like spacing (d) between elements or electrical properties like current excitation and phase excitation that produces desired radiation pattern. These arrays are capable of interference suppression which is not possible in the case of single element antennas. This is possible by suppressing the radiation in the unwanted direction and enhancing the same in the desired direction. This technique in known as beamforming. Nulls are located in the direction of arrival (DOA) of the interference signal while the main beam is steered to the DOA of the desired signal in order achieve the above said characteristics. Many conventional techniques are proposed to solve the problem of beamforming. Unfortunately, these are time-consuming as well as provide poor performance. In order to overcome these hurdles, in the recent past several evolutionary techniques are proposed [5], [6]. These techniques are quite efficient and often express the supremacy over traditional techniques.

In this paper, novel nature-inspired metaheuristic evolutionary computing algorithm known as Firefly algorithm (FFA) [5], [6] is employed to achieve the specified two objectives of SLL suppression and null position in linear arrays. The rest of the paper is organized as follows. Section II is dedicated to description of the FFA and its implementation. Problem statement and the corresponding cost function formulation are given in Section III and Section IV respectively. The case wise presentation of results is given in Section V which is followed by overall conclusion in Section VI.

II. Firefly Algorithm

FFA is proposed by Xin-She Yang [5]. The FFA is also a population based optimization algorithm which belongs to the class of nature inspired techniques. It is inspired by the mutual communication that takes place among the Fire Flies (FF) using Luminescence produced by physiological processes. This phenomenon is referred to as bioluminescent communication. Hence the algorithm mimics the FF which are unisex, also nocturnal and small. Thus a FF may attract any fellow FF. The FF flashes or in some individuals emits continuous lightness which is used to attract a mate. The process of attracting another FF entirely depends on ones the effective illumination capability. Fruitful reproduction survives with successful attraction. Accordingly the algorithm is maneuvered with certain rules as described in [5]. The work flow of the FFA is explained as shown in Fig. 1.

The adoption of the algorithm for the array synthesis problem starts with population initialization. Every individual FF in the population is considered as a respective array and the amplitude distribution for each array in the population is randomly generated. If P individual FF are considered, then the population is a vector of size $1 \times K$. However, each individual FF is again a vector of size equal to the number of elements in each array. For example, the ith FF is given as follows

$$x_i = [x_1, x_2, x_3 \ldots x_K]. \quad (1)$$

Dynamic Modulation For Non-Uniform SNR Channels To Improve Channel Capacity In Network

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Abstract

This paper presents a scheduling scheme for packet transmission in OFDM wireless system with adaptive techniques. The concept of efficient transmission capacity is introduced to make scheduling decisions based on channel conditions. We present a mathematical technique for determining the optimum transmission rate, packet size, Forward Error Correction and constellation size in wireless system that have multi-carriers for OFDM modulation in downlink transmission. The throughput is defined as the number of bits per second correctly received. Trade-offs between the throughput and the operation range are observed, and equations are derived for the optimal choice of the design variables. These parameters are SNR dependent and can be adapted dynamically in response to the mobility of a wireless data terminal. We also look at the joint optimization problem involving all the design parameters together. In the low SNR region it is achieved by adapting the symbol rate so that the received SNR per symbol stays at some preferred value. Finally, we give a characterization of the optimal parameter values as functions of received SNR Simulation results are given to demonstrate efficiency of the scheme.

Keywords: Rate, Packet Lenght, FEC, Throughput, QoS, SISO-OFDM

1. Introduction

Orthogonal frequency division multiplexing (OFDM) is a promising technique for the next generation of wireless communication systems [1] [2]. OFDM divides the available bandwidth into N orthogonal sub-channels. By adding a cyclic prefix (CP) to each OFDM symbol, the channel appears to be circular if the CP length is longer than the channel length. Each sub-channel thus can be modelled as a time-varying gain plus additive white Gaussian noise (AWGN). Following the success of cellular telephone services in the 1990s, the technical community has turned its attention to data transmission. Throughput is a key measure of the quality of a wireless data link. It is defined as the number of information bits received without error per second and we would naturally like this quantity as to be high as possible. This paper looks at the problem of optimizing throughput for a packet based wireless data transmission scheme from a general point of view. The purpose of this work is to show the very nature of throughput and how it can be maximized by observing its response to certain changing parameters. There has been little previous work on the topic of optimizing throughput in general. Some things that have been investigated include choosing an optimal power level to maximize throughput [4][5]. Maximizing throughput in a direct sequence spread spectrum network by way of a link layer protocol termed the Transmission Parameter Selection Algorithm (TPSA) has also been discussed [3]. This provides real time distributed control of transmission parameters such as power level, data rate, and forward error correction rate. An analysis of throughput as a function of the data rate in a CDMA system has also been presented [6]. Most of the previous work found has taken a very specific look at throughput in different wireless voice systems such as TDMA, CDMA, GSM, etc. by taking into account many different system parameters in the analysis such as Parameter Optimization of CDMA Data Systems [7]. We have taken a more general look at throughput by considering its definition for a packet-based scheme and how it can be maximized based on the channel model being used. Unlike most of the work done on this topic, our research is focused on the transmission of data as opposed to that of voice. Most of the work done on data throughput analysis has been in wired networks (i.e. Ethernet, SONET, etc.) . Even in this work, however, the analysis is mostly done with system specific parameters. Many

On-demand self-services and Broad network access in Cloud Computing Stack

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ABSTRACT:

As with other significant developments in technology, many vendors have seized the term "Cloud" and are using it for products that sit outside of the common definition. In order to truly understand how the Cloud can be of value to an organization, it is first important to understand what the Cloud really is and its different components. Since the Cloud is a broad collection of services, organizations can choose where, when, and how they use Cloud Computing. In this report we will explain the different types of Cloud Computing services commonly referred to as Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) and give some examples and case studies to illustrate how they all work. Cloud Computing is a broad term that describes a broad range of services.

Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

KEYWORDS: On-demand self-service, Broad network access, Resource pooling, Measured Service.

I.INTRODUCTION

cloud Computing is often described as a stack, as a response to the broad range of services built on top of one another under the moniker "Cloud". The generally accepted definition of Cloud Computing comes from the National Institute of Standards and Technology (NIST) [1]. NIST also offers up several characteristics that it sees as essential for a service to be considered "Cloud".

These characteristics include;

Cloud Computing is often described as a stack, as a response to the broad range of services built on top of one another under the moniker "Cloud". The generally accepted definition of Cloud Computing comes from the National Institute of Standards and Technology (NIST), essentially says that; Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and