



Rajgad Dnyanpeeth's

SHRI CHHATRAPATI SHIVAJIRAJE COLLEGE OF ENGINEERING

Gat No. 237, Pune Bangalore Highway, Dhangawadi, Tal – Bhor, Dist- Pune (Maharashtra)

Criteria 3: Research, Innovations and Extension

Key Indicator – 3.3 Research Publications and Awards

3.3.4 Number of research papers per teacher in the Journals notified on UGC website during the last five years (10)

Index

Sr. No.	A.Y	Computer Engineering	E&TC Engineering	Mechanical Engineering	Civil Engineering	Total Count
1	2017-18	07	14	04	07	32
2	2016-17	07	08	17	07	39
3	2015-16	02	27	18	06	53
4	2014-15	05	18	06	03	33
5	2013-14	04	14	02	03	23



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Index

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISBN/ISSN number
Recognition of Bimodal Biometric System using Transformation Techniques	Prof. S. I. Nipanikar	E&TC Engineering	International Journal Of Engineering Sciences & Research Technology	2013-14	ISSN: 2277-9655
A Phase Based Iris Recognition Algorithm	Dr. Prof. S. B. Patil	E&TC Engineering	International Journal of Research in Advent Technology (IJRAT)	2013-14	ISSN:2321-9637
Automatic wheelchair for physically disabled persons	Prof. R. S. Nipanikar	E&TC Engineering	International Journal of Advanced Research in Electronics and Communication Engineering	2013-14	ISSN:2278-909X
Dual-Chambered Membrane Microbial Fuel Cell: Limitation on Potential Difference	Prof. G. S. Jadhav Prof. Y. G. Jadhav	Civil Engineering	International Journal of Engineering Research and Technology (IJERT)	2013-14	ISSN(Online):2278-0181

Performance Of Earthen Pot Microbial Fuel Cell Using Anodic Effluent As Cathodic Electrolyte	Prof. G. S. Jadhav Prof. Y. G. Jadhav	Civil Engineering	International Journal of Engineering Research and Technology (IJERT)	2013-14	ISSN(Online) :2278-0181
Analysis for Exploring Scope of Mobile Agents in Cloud Computing	Prof. R. B. Nangare	Computer Engineering	International Journal For Development In Computer Science & Technology	2013-14	ISSN(Online) : 2320-7884 ISSN(Print): 2321-0257
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Online Black Box System For Cars	Prof. S. I. Nipanikar	E&TC Engineering	International Journal Of Engineering Science Invention	2013-14	ISSN (Online): 2319 – 6734, ISSN (Print): 2319 – 6726
An Analysis Of Image Steganography Methods	Prof. S. I. Nipanikar	E&TC Engineering	International Journal of Engineering Research & Technology	2013-14	ISSN(Online) : 2278-0181
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C Implementation Of Sha-256 Algorithm	Prof. S. I. Nipanikar	E&TC Engineering	International Journal Of Engineering Technology & Advanced Engineering	2013-14	ISSN (Online): 2250-2459
Rescuing An Object By Reassembling Of Swarm Robotics	Prof. S. I. Nipanikar	E&TC Engineering	International Journal Of Engineering Research & Technology	2013-14	ISSN(Online) : 2278-0181
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Performance of Dual-Chambered Membrane Less Microbial Fuel Cell with Anaerobic Cathode	Prof. G. S. Jadhav Prof. Y. G. Jadhav	Civil Engineering	International Journal of Engineering Research and Technology (IJERT)	2013-14	ISSN(Online) : 2278-0181



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INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGY

Recognition of Bimodal Biometric System using Transformation Techniques

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Abstracts

A wide variety of systems requires reliable personal recognition schemes to confirm or determine the identity of an individual requesting their services. In this paper, recognition of Iris and Fingerprint provides easiest way security and faster processing. It ensures data security and protection of system from unauthorized users as well. In first part, Iris template is generated from Iris image. Iris features are generated by applying Discrete Wavelet Transformation (DWT) and Discrete Cosine Transformation (DCT) on Iris Template. Second part focus on fingerprints; the Fingerprint is preprocessed to get Region of Interest. Using DWT and Fast Fourier Transform (FFT), features of Fingerprints are obtained. Final feature set is generated using concatenation. The final feature set is compared with stored database using Euclidean distance matching to obtain exact match depending upon threshold value. We check False Acceptance Rate (FAR) and False Rejection Rate (FRR) at different threshold level.

Keywords: DWT, DCT, FFT, Euclidean distance, FAR, FRR.

Introduction

Recognition using single biometric trait is not sufficient. This system performs better for certain

assumptions, but fails when the biometric data available is noisy, also fails in case of unavailability of biometric template. Limitations of unimodal biometric systems can be overcome by using multimodal biometric systems which refers to the use of a combination of two or more biometric modalities in verification / identification system [6].

The most widely used method for recognition for person is fingerprint and iris [5]. The reason for chosen these two biometric are:

- (1) Iris has high degree of randomness as no two iris are alike and remains stable throughout person's life [1].
- (2) Fingerprint developed at fetal stage and remains same throughout person's life.

Multimodal biometric systems often provide promising results than any single biometric system [8]. The access to the secured area can be made by the use of ID numbers or password which amounts to knowledge based security. But such information can easily be accessed by intruders and they can breach the doors of security. This happens in case of net banking and highly secured information

zone. Thus to overcome the above mentioned issue multimodal biometric traits are used [4].

Related works

Wildes [1] proposed the algorithm which first convert image into a binary edge map and then detect

<http://www.ijert.com>

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[620]

circle using Hough transform. Laplacian filter multiple scales is used to extract features. Finally, matching between two iris images is done us

normalized correlation. Arun Ross and Anil K Jain introduced various scenarios that are possible multimodal biometric systems, the levels of fusion are plausible and the integration strategies that can be adopted to consolidate information. S. Prabhakar, K. Jain, and J.Wang [2] presented a unimodal fingerprint verification and classification system. This system is based on a feedback path for the feature extraction stage, followed by a feature-refinement stage to improve the matching performance. N. Ratha, R. M. Bolle, V. D. Pandit, and V. Vaish [6] proposed a unimodal distortion-tolerant fingerprint authentication technique based on gray-scale representation. Using the fingerprint minutiae features, a weighted graph of minutiae is constructed for both the query fingerprint and the referen

fingerprint. The proposed algorithm has been tested on a large private database with the use of an optical sensor.

Model

In this section the definitions of performance parameters, methodology is discussed

A. Definitions:

- (i) *False acceptance rate (FAR)*: FAR is the measure of the likelihood that the biometric security system will incorrectly accept an access attempt by unauthorized user [8].

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A PHASE-BASED IRIS RECOGNITION ALGORITHM

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Abstract-The increase demand in security system concern to issues such as person identity and theft detection the need of a new reliable security system. A biometric system provides automatic identification of an individual, based on a unique feature or characteristic possessed by the individual. Iris recognition is regarded as the most reliable and accurate biometric identification system. Iris recognition is perhaps the most accurate means of personal identification due to uniqueness of the patterns contained in each iris. The iris recognition system consists of an automatic segmentation system that is based on edge detection and Hough transform, and is able to detect the circular iris and pupil region and occluding eyelids and eyelashes. The extracted iris region is then normalized into a rectangular block with constant dimensions to account for imaging in consistencies. Finally, the image matching algorithm which specifically focuses on the characteristics of the phase components obtained from two-dimensional Fourier Transformation of an image. The Phase Only Correlation (POC) and Band Limited Phase Only Correlation (BLPOC) are the most fundamental transformations, the features of which include superior discrimination capability over the ordinary recognition system.

Keywords- Biometric, Iris recognition, edge detection, Hough Transform, Phase based Image Matching Algorithm

I. INTRODUCTION

With the advent of modern technology and services in life, human activities and transactions have increased, in which quick and reliable personal identification is necessary. Examples contain passport control, computer login control, bank automatic teller machines and other transactions authorization, premises access control, and security systems generally. All such identification efforts stake the common goals of speed, reliability and automation. The use of biometric indicia for identification purposes requires that a particular biometric factor should be unique for every individual, readily measurable, and invariant over time. Biometrics such as signatures, photographs, fingerprints, voiceprints and retinal blood vessel patterns all have significant drawbacks. Though signatures and photographs are economical and easy to obtain and store, they are difficult to identify automatically with guarantee, and can be easily forged. Electronically recorded voiceprints are susceptible to changes in a person's voice, and they can be simulated. Fingerprints or handprints require physical contact, and they also can be counterfeited and marred by artifacts. Human iris on the other hand as an internal organ of the eye and as well protected from the external environment, yet it is easily observable from within one meter of distance makes it a perfect biometric for an identification system with the simplicity of speed, reliability and automation.

Biometric personal identification has been largely motivated by the increasing requirement for security in a networked society. The traditional way of identifying people is via possession and knowledge. Possession is the method that uses a physical item to gain access to the security area, e.g. identity cards, smartcards, tokens etc. Knowledge is the method to gain authorization by the use of something that only the authorized people know, e.g. passwords, PIN numbers, security codes etc. However, physical items can be lost or stolen and password can be forgotten or guessed. Biometric recognition is one solution to the problem. Biometric recognition is the application of science to measure individual's properties. These properties can be a behavioral or a physical feature. Unlike

“Automatic wheelchair for physically disabled persons”

PROF.R.S.NIPANIKAR, VINAY GAIKWAD, CHETAN CHOUDHARI, RAM GOSAVI,
VISHAL HARNE

Abstract - This project is on automatic wheelchair for physically disabled people. A dependent user recognition voice system and ultrasonic and infrared sensor systems has been integrated in this wheelchair. In this way we have obtained a automatic wheelchair which can be driven using voice commands and with the possibility of avoiding obstacles by using infrared sensors and down stairs or hole detection by using ultrasonic sensors. The wheelchair has also been developed to work on movement of accelerometer which will help for the person whose limbs are not working. Accelerometer can be attached to any part of body of physically disabled person which he can easily move like head, hand etc. It has also provision of joystick for disabled person who can easily move his/her hand. Electronic system configuration, a sensor system, a mechanical model, voice recognition control, accelerometer control and joystick control are considered.

Index Terms —accelerometer, infrared sensor joystick, robotics,ultrasonic, voice recognition

I. INTRODUCTION

Robotics Wheelchairs extend the capabilities of traditional powered devices by introducing control and navigational intelligence. These devices can ease the lives of

many disabled people, particularly those with severe impairments by increasing their range of mobility.

For handicapped people human found a wheel chair which can be moved by using hands for those who don't have legs. But the peoples who don't have legs as well as hands cannot move their wheel chair self. They need some other person to move their wheel chair. But sometimes such person faces so many problems if they didn't get any person to move their wheel chair.

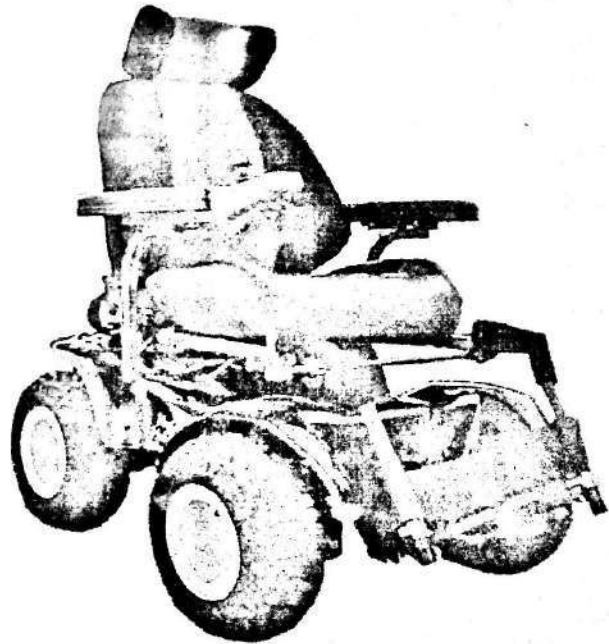


Fig1. model of wheelchair

This project “Auto Wheel Chair” aims to resolve the above mentioned issue. In this project we are going to make a wheel chair which can be controlled automatically as well as manually. This wheel chair controlled manually through head of the person sitting on it. He/ she just need to move his/her hand into the direction it wants to move by using accelerometer. In automatic control user just need to press keys for saved destination. Then the wheel chair will automatically move into the direction of saved destination by

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Dual-Chambered Membrane Microbial Fuel Cell: Limitation On Potential Difference

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Abstract

Performance of two microbial fuel cells (MFCs) was investigated under batch mode of operation using aerated distilled water as cathodic electrolyte. Stainless steel (SS) mesh anode was used in both the MFCs with surface area of 100 and 170 cm² in MFC-1 and MFC-2, respectively. Stainless steel (SS) mesh cathode with surface area of 33.9 cm² was used in MFC-1, where as graphite rods cathode with surface area of 150 cm² was used in MFC-2. Under batch mode of operation, these MFCs gave chemical oxygen demand removal efficiency in the range of 85-87 % and about 87-92 %, respectively. Anodic electrolyte pH was decreased for both MFCs, where as cathodic electrolyte pH was increased in MFCs. Carbonate alkalinity, bicarbonate alkalinity, hardness and TDS (total dissolved solids) of cathodic electrolyte were increased in both MFCs.

1. Introduction

Microbial fuel cell (MFC) provides new opportunity for the sustainable production of energy, in the form of direct electricity from biodegradable compounds present in the wastewater. MFC is a device that converts chemical energy to electrical energy with the aid of the catalytic reaction of microorganisms [1]. The MFC system often consists of two compartments normally separated by a PEM. In the anaerobic compartment microorganisms oxidize substrate [2]. The generated protons migrate from the anaerobic compartment to the aerobic compartment through the PEM. The produced electrons are transferred to the anode and then pass through an external electric circuit to the cathode, where they reduce oxygen to form H₂O. [3-4].

Performance of a MFC is affected by the substrate conversion rate, over-potentials at the anode and at the cathode, the PEM performance, and internal resistance of the cell [5]. The optimization of MFCs requires

extensive exploration of the operating parameters that affect the power output. A sound body of literature supports the exploration of different parameters such as surface area of electrode, different materials as electrodes, use of special aerobic culture of *Shewanella oneidensis* DSP10 as the active electrochemical species in the anode chamber [6], sedimentary bacterium [7], *Geobacter sulfurreducens* [8], sedimentary bacterium [7]; cathode performance with different electron acceptor such as a permanganate, oxygen [9-10]; and Hexacyanoferrate [10]; spatial arrangement of effluent with respect to PEM [9]; electrode distance [11]; cathode surface area and cathode mediator [12]; and operating parameters such as pH, temperature [13] etc.

This study was aimed to investigate the effect on cathodic electrolyte of MFC and to investigate factors affecting reduction of potential difference, under batch mode of operation using dual chambered membrane MFC.

2. Materials and methods

2.1. Microbial fuel cell

Two dual-chambered MFCs were constructed from acrylic sheet, with difference of anode surface area, anode orientation, cathode material and cathode area. MFC-1 was provided with L-shaped stainless steel (SS) mesh anode electrode, having surface area of 100 cm². Stainless steel (SS) wire mesh square cage of side 7×7 cm and length of 7 cm as anode electrode, offering total surface area of 170 cm², was used in MFC-2. Stainless steel was used as a cheaper replacement to the graphite electrode and as an easily available material in mesh form to offer more surface area per unit volume [9]. Total working volume of each anode and cathode chamber was 1,330 ml for MFC-1 and 1,310 ml for MFC-2. Proton exchange membrane of 0.007 inch thickness (Nafion® 117, Aldrich) was used to separate both chambers. Membrane surface area of 25.0 and 24.01 cm² was used in MFC-1 and MFC-2,

Performance Of Earthen Pot Microbial Fuel Cell Using Anodic Effluent As Cathodic Electrolyte

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Abstract

Performance of single chambered earthen pot Microbial fuel cells (MFC) was investigated to treat synthetic wastewater under continuous mode of operation using air and anode effluent as a cathode electrolyte. Stainless steel (SS) mesh with surface area 100 cm² was used as a both electrodes. Under continuous mode of operation, maximum power density of 12.0 and 16.44 mW/m²; maximum current density of 126 and 160.6 mA/m² and maximum volumetric power of 929 and 1096 mW/m³ were obtained using air and anode effluent as a cathode electrolyte respectively. Under continuous mode of operation, maximum chemical oxygen demand removal efficiency and maximum coulombic efficiency using air as a cathode electrolyte were 67-72% and 6.89%, respectively; whereas maximum chemical oxygen demand removal efficiency and maximum coulombic efficiency using anode effluent as a cathode electrolyte were 76-80% and 10.98%, respectively. Internal resistance of a cell changed with cathode electrolyte as well as with day of operation. Minimum internal resistance of the cell was 178 and 82 Ω using air and anode effluent as a cathode electrolyte respectively. Maximum potential difference developed using both stainless steel electrodes was 0.344 and 0.329 V using air and anode effluent as a cathode electrolyte respectively.

1. Introduction

The current technologies used to produce electric power are changing the climate due to increase in emission of the greenhouse gases such as CO₂, N₂O. In addition, due to limited amount of fossil fuels and considering the global warming effect, there is an increasing urge to develop more renewable energy sources, which are environmental friendly and clean energy source, with minimal or zero use of hydrocarbons. Fuel cells convert chemical energy

directly into electricity without an intermediate conversion into mechanical power [1]. The energy available in the organic matter present in the wastewater can be recovered as direct electricity through microbial metabolism oxidizing the organic matter under anoxic condition.

In a microbial fuel cell (MFC), the biochemical energy contained in the organic matter is directly converted in to electricity in what can be called as a microbially mediated "incineration" reaction [2]. This implies that overall conversion efficiencies that can be reached are potentially higher for MFCs compared to other biofuel processes. MFC uses bacteria to catalyze the organic matter in to electricity. Unlike a battery, fuel cell converts energy from one form to another (much like an engine) and will continue to operate as long as fuel is fed to it. They are mainly of two different types: biofuel cells that generate electricity from the addition of artificial electron shuttles (mediators) and MFCs that do not require mediator for electrons shuttles. Therefore, MFCs can use sustainable source of energy, apart from effective treatment of wastewater.

Performance of a MFC is affected by the substrate conversion rate, overpotentials at the anode and at the cathode, the proton exchange membrane performance, and internal resistance of the cell [3]. The optimization of MFCs requires extensive exploration of the operating parameters that affect the power output. A sound body of literature supports the exploration of different parameters such as surface area of electrode, different materials as electrodes, use of special aerobic culture of *Shewanella oneidensis* DSP10 as the active electrochemical species in the anode chamber [4], sedimentary bacterium [5], *Geobacter sulfurreducens* [6], sedimentary bacterium [5]; cathode performance with different electron acceptor such as a permanganate, oxygen [7; 8]; and Hexacyanoferrate [8]; spatial arrangement of effluent with respect to PEM [7]; electrode distance [9]; cathode surface area

Analysis for Exploring Scope of Mobile Agents in Cloud Computing

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Abstract

The Cloud Computing has emerged as a new computing paradigm which aims to provide reliable, customized, dynamic computing environments focused towards better quality of service and IT infrastructure availability without much financial burden. This paper, explores the cloud computing epitome from various aspects, reviews state of art implementations as well as its inherent challenges and explores the potential scope for research. This work also analyses the possibilities of amalgamating mobile agents in cloud computing, since both these technologies are promising and commercially useful thus the idea is to resolve challenges pertaining in cloud computing by harnessing mobile agent technology.

Keywords: Cloud Computing, IaaS, Mobile Agents, PaaS, SaaS.

1. Introduction

Cloud Computing (CC) is the fifth generation of computing after mainframe, personal computer, client server computing and the World Wide Web (WWW). It's a buzzword in IT based corporate world nowadays. CC is a model in which resources (e.g., CPU and storage) are provided as general utilities that can be leased and released by users through the Internet in an on-demand fashion. The cloud offers several benefits like fast deployment, pay-for-use, lower costs, scalability, rapid provisioning, rapid elasticity, ubiquitous network access, greater resiliency, hypervisor protection against network attacks, low-cost disaster recovery and data storage solutions, on-demand security controls, real time detection of system tampering and rapid re-constitution of services[21]. Because of its appealing features, it's becoming a temptation for small and medium business organizations. Also organizations such as Amazon, Google, IBM are putting their maximum potential towards developing CC based product and services for their users at negligible cost.

The IT Industry had been already fagging towards the research of cloud at lavish pace, academicians has also started realizing importance of this field. This is evident from conferences, workshops, seminars organized on this theme as well as numerous research papers on various aspects of cloud computing. This paper aims to review the research already been done and highlights the research challenges which still require attention. This paper is structured as follows: Section 2 discusses basic terminology of cloud computing; Section 3 outlines the layered architecture and types of clouds; Section 4 depicts the demand of cloud computing in agent technologies also explains the role of agents in this computing; finally Section 5 concludes the review by summing up the future research directions.

2. Computing Terminology

The Cloud computing came in lime light in 2007, its popularity has increased swiftly since then due to its ability to offer flexible dynamic IT infrastructures, good QoS(Quality of Service), computing environments and configurable software services[17]. Although CC has attracted much attention but still there are no widely accepted definition for it. Several reasons have contributed to this situation [3]:

CC involves researchers and engineers from various backgrounds, e.g., grid computing, software engineering and databases. They work on this computing from their own and different viewpoints.

- Technologies which enable CC are still in progressing stage, for example, Web 2.0 and Service Oriented Computing.
- Existing computing clouds still lack large scale deployment and usage, which would finally justify the concept of CC. understand

For better understanding the concept of CC, first the term cloud should be explored. Term Cloud stands for - *Common Location-independent Online Utility service, available on-Demand*. It is a pool of virtualized computer resources which support large variety of different workloads, including batch-style back-end jobs and interactive, user-facing applications.

Dynamic Resource Allocation Using Virtual Machines for Cloud Computing Environment

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Abstract

Cloud computing is on demand service as it offers dynamic, flexible and efficient resource allocation for reliable and guaranteed services in pay-as-you-use manner to the customers. In Cloud computing multiple cloud users can request number of cloud services simultaneously, so there must be a provision that all resources are made available to requesting user in efficient manner to satisfy their need without compromising on the performance of the resources. Cloud computing has its era and become a new age technology that has got huge importance and potentials in enterprises and markets. Clouds can make it possible to access applications and associated data from anywhere, anytime. One of the major challenges in cloud computing is related to optimizing the resources being allocated. The other challenges of resource allocation are meeting customer demands, data center management and application requirements.

Here the design, implementation, and evaluation of a resource management system for cloud computing services is presented. System multiplexes virtual to physical resources adaptively based on the changing demand. Skewness metric is used to combine Virtual Machines with different resource characteristics appropriately so that the capacities of servers are well utilized. This algorithm achieves both overload avoidance and green computing for systems with multi resource constraints.

Keywords

Cloud Computing, Resource Management, Virtualization, Green Computing

I. Introduction

The notion of Cloud computing has not only reshaped the field of distributed systems but also fundamentally changed how businesses utilize computing today. While Cloud computing provides many advanced features, it still has some shortcomings such as the relatively high operating cost for both public and private Clouds. The area of Green computing is also becoming increasingly important in a world with limited energy resources and an ever-rising demand for more computational power. Studies have found that servers in many existing data centers are often severely underutilized due to over provisioning for the peak demand. Clouds can make it possible to access applications and associated data from anywhere, anytime. But one of the major challenges in cloud computing is resource optimization. The other challenges of resource allocation are meeting customer demands, data center management, application requirements, and dynamic scalability. The application is responsible to scale up and scale down the computer nodes dynamically as per the response time of the user's queries. The scheduling delay is the key factor which leads to the need of effective and dynamic load management system. The distributed resource allocation is the most challenging problem in the resource management problem. The modern data centers, operating under the Cloud computing model are accommodating a variety of applications. These applications range from small scale up to large scale. Those that run for a few seconds (e.g. serving requests of web applications such as e-commerce

and social networks portals with transient workloads) to those that run for longer periods of time (e.g. simulations or large data set processing) on shared hardware platforms. The need to manage multiple applications in a data center creates the challenge of on-demand resource provisioning and allocation in response to time-varying workloads. The data center resources are allocated to applications, based on peak load characteristics, in order to maintain isolation and provide performance securities.

In the last few years dynamic resource allocation based on application demands in cloud computing has attracted attention of the research community. They come up with innovative ideas, new ways or techniques to face this type of challenge. Since data centers host multiple applications on a common server platform; they can dynamically reallocate resources among different applications. Virtual machine monitors (VMMs) like Xen provide a mechanism for mapping virtual machines (VMs) to physical resources. This mapping is largely hidden from the cloud users. Users with the Amazon EC2 service, for example, do not know where their VM instances run. It is up to the cloud provider to make sure the underlying physical machines (PMs) have sufficient resources to meet their needs. VM live migration technology makes it possible to change the mapping between VMs and PMs While applications are running. However, a policy issue remains as how to decide the mapping adaptively so that the resource demands of VMs are met while the number of PMs used is minimized.

II. Related Work

Clouds can make it possible to access applications and associated data from anywhere, anytime. But one of the major challenges in cloud computing is resource optimization [4-5]. The other challenges of resource allocation are meeting customer demands, data center management, application requirements, and dynamic scalability. The application is responsible to scale up and scale down the computer nodes dynamically as per the response time of the user's queries [4]. The scheduling delay is the key factor which leads to the need of effective and dynamic load management system. The distributed resource allocation is the most challenging problem in the resource management problem. As we know, modern data centers, operating under the Cloud computing model are accommodating a variety of applications. These applications range from small scale up to large scale. Those that run for a few seconds (e.g. serving requests of web applications such as e-commerce and social networks portals with transient workloads) to those that run for longer periods of time (e.g. simulations or large data set processing) on shared hardware platforms. The need to manage multiple applications in a data center creates the challenge of on-demand resource provisioning and allocation in response to time-varying workloads. The data center resources are allocated to applications, based on peak load characteristics, in order to maintain isolation and provide performance securities [12].

In the last few years dynamic resource allocation based on application demands in cloud computing has attracted attention of the research community. They come up with innovative ideas, new ways or techniques to face this type of challenge. Since data centers host multiple applications on a common server platform;



Survey on Visual Word Generation and Their Matching Techniques

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ABSTRACT

Content-Based Image Retrieval (CBIR), a technique which uses visual contents to search images from large scale image databases according to user's interests. Contents of image can be global features such as color, shape and texture or local features such as SIFT (Scale Invariant Feature Transform) features. Both types are complement for each other. Bag of visual words (BoVW) is a widely used approach in most of content based image retrieval. This approach is based on local features of images which forms clusters based on similarity of these features. These formed clusters are used for matching two similar images. This survey paper mainly concentrate on clustering of local features i.e. visual word generation and matching of similar visual words based on their characteristics. This paper surveys on recent studies on visual word generation and matching.

Key Words: Bag of Visual Words (BOW), CBIR, KD-tree

1 INTRODUCTION:

INTEREST in the potential of digital images has increased enormously over the last few years, by the rapid growth of imaging on the World-Wide Web. It is also discovering that the process of locating a desired image in a large and varied collection can be a source of considerable frustration. Content based image retrieval (CBIR) has been found to be a great solution in finding precise results for the given query images or finding a desired image from large collection of database images.

1.1 Content Based Image Retrieval system

In above title meaning of 'Content Based' is finding results for given query image by analyzing contents of query image itself. Here 'Contents' will be color, shape, texture and local features which are derived from that image itself. Content Based Image Retrieval systems are widely used in web-based image search engines as they are purely independent of meta-data. Thus a system which can search images based on their content will

provide better indexing and will return more accurate results.

1.2 Image Features

CBIR system makes use of contents of query image and these contents are referred as "Features". Image features can be color, shape, texture as well as local features.

1.2.1 Color: In CBIR systems, color is the most widely feature as they are easy to extract and utilize. Color feature is independent of image size and orientation, and fairly robust to background complication. Each image added to the database is analyzed to compute a color histogram which shows the proportion of pixels of each color within the image. The color histogram for each image is then stored in the database. At search time, the user can either specify the desired proportion of each color (75 % olive green and 25% red, for example), or submit an example image from which a color histogram is calculated.

Online Intrusion Alert Aggregation with Generative Data Stream Modeling

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Abstract: Online intrusion alert aggregation with generative data stream modeling is a approach which uses generative modeling. It also use a method called as probabilistic methods. It can be assume that instances of an attack is similar as a process may be a random process which is producing alerts. This paper aims at collecting and modeling these attacks on some similar parameters, so that attack from beginning to completion can be identified. This collected and modeled alerts is given to security personnel to estimate conclusion and take relative action. With some data sets, we show that it is easy to deduct number of alerts and count of missing meta alerts is also extremely low.

Also we demonstrate that generation of meta alerts having delay of only few seconds even after first alert is produced already.

Keywords: online intrusion detection system, data stream, alert aggregation, IDS, offline alert aggregation, online alert aggregation etc.

I. Introduction

In general, IT system is having huge number of information. This information is always confidential. Providing security to information is essential task in information technology system. To provide information security, emergence of new technologies which are innovative should be happened.

Intrusion Detection System plays an very important role in information security. It can be a device or a software application which is capable to detect outside intrusion as well as monitors inside activities such as unauthorized access. It detects suspicious actions by evaluating TCP/IP connections or LOG files. The working of this IDS is such a way that when it finds some action which is suspicious action then it produces alerts immediately. This alert contains information about source IP address, destination IP address, and possible type of attack. This possible type of attack consist of buffer overflow, denial of service, SQL injection etc. This alert processing is done at very low level of IDS. So it may be possible that single attack instance can have thousands of alerts. It becomes drawback of existing IDS. There are two types of IDS.

1.1 NIDS: NIDS is nothing but Network Based IDS. This IDS is an independent platform. It analyze the traffic on internet. It also monitors many hosts. Network based IDS access network by network tap, network switch, network router etc. In network based IDS sensors are placed, which identifies network traffic and analyze the content. Snort is the example of Network based IDS.

1.2 HIDS: HIDS is Host Based Intrusion Detection System. This IDS is may be dependent or independent platform. Agents are placed in Host based IDS. This agent in Host based IDS analyze log files, system calls and any other activities. Sensors are consists of agents. OSSEC is the example of Host based IDS.

II. Related Work

Existing IDS are having very high accuracy to detect the attacks, but still they have some drawbacks such as alerts are produces at very low level of IDS, thousands of alerts may produce for single attack instances, confusions may happened due to large number of alerts produced in taking appropriate actions while attack is done and so on. Many scientist or publication have done their work to remove these drawbacks. They have provided some direction to do the future enhancement in IDS.

The most suitable way to apply the correlation between different alerts is done in[6]. In this paper reconstruction of alert thread is done. The alerts which are produced by IDS can be aggregated by using some fixed length window. But it can produce duplicates, which should be eliminated for proper working of IDS. So

Online Black Box System for Cars

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ABSTRACT : This paper describes the design process of Car Black Box system IC. As x by wire is introduced to the several part in vehicle, the demand of automotive semiconductors are increasing. Because it will be mandatory for every car to be equipped with Car Black Box, it is expected that many ICs for Car Black Box also will be integrated. Unlike general electronic control units as PCB or module, car black box implemented on a single chip can reduce its size, power consumption and the cost. So the topic of this paper is to develop the Embedded controller for Car Black Box using SoC (System on Chip) technique. System on Chip (SoC) is the effective method to implement embedded system like car black box, which consists of processor, various sensors like temp , eye blink , steering position , over speed , alcohol sensors , SD card (to store the data) ,GPS and GSM(to send online (real time)information).

KEYWORDS: Embedded system, system on chip(SoC), GPS, GSM module, visual basic

I. INTRODUCTION

Black Box has been proven indispensable in improving car safety reliability. Unfortunately, on most real-life situations, Black Box fail to deliver their most essential feature - a faithful replay of the events in real time. The aircraft flight data recorder, Black Box continuously records the various parameters execution, even on deployed systems, logging the execution for post-mortem analysis .We are designing the flight data recorder for car accident mishap information in real time. There are many of the accident are happening world-wide but how many of them are completely clarified online black box system for cars is a system that continuously records all parameters of cars and send the information to the dedicated server so if unfortunately accident happens car black box clarify that whether it is a driver's fault or there is some malfunctioning in parts of car during accident.In this project we are using two units car unit that collects the information from the sensors and another is the PC unit it is a dedicated server, from this unit we can check the position and other parameters of car any time, it will be updated after each 20 seconds. [1] Car unit: This unit continuously scans for various parameters of car. It scans and stores the data such as fuel, engine temp, speed & steering position. As soon as the accident is detected the μ c stores all this data on the sd smart card.Also the μ c scans for alcohol and eye blink sensor.If the driver is found to have alcohol in the breath, the ignition is turned off by the μ c .and hence the possibility of accident is avoided. all this information is stored in sd card. Also we have designed a eye blink sensor which continuously monitors the no. Of times the eye blinks. If the eye blinks count decreases that means the driver is sleepy in that case a buzzer is operated , this is the working of car unit.

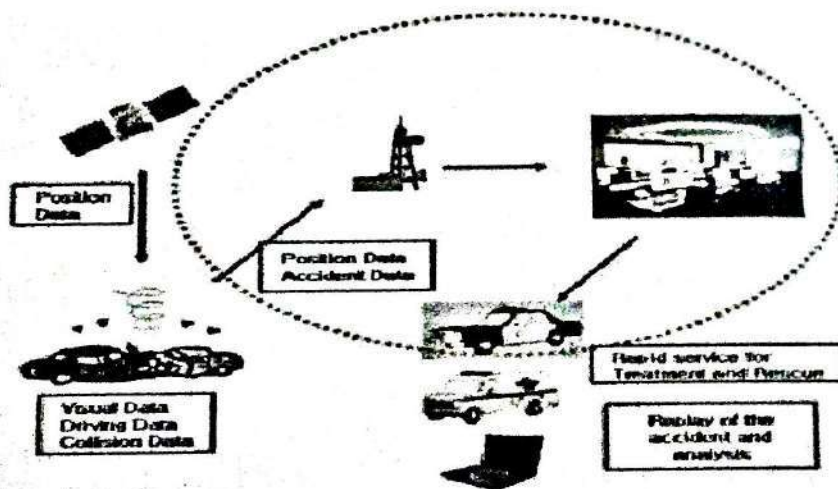


Fig 1.1 concept of car black box

An Analysis of Image Steganography Methods

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Abstract— Steganography means data hiding in images which can be used for covert transmission. This paper presents with hiding text in an image file using Least Significant Bit (LSB) based Steganography, Discrete Cosine Transform (DCT) based steganography, Discrete Wavelet Transform (DWT) based Steganography. Active data concealment ought to end in the extraction of the hidden information from the image with high degree of information integrity. The smallest amount vital bit (LSB) embedding technique suggests that information are often hidden within the least vital bits of image and also the human eye would be unable to note the hidden image within the cover file. The performance and comparison of these three techniques is evaluated on the basis of the parameters like Mean Squared Error (MSE), Peak signal-to-noise ratio (PSNR) and Bit error rate (BER).

Index terms: Steganography, LSB, DCT, DWT, MSE, PSNR, BER.

I. INTRODUCTION

Steganography is the procedure of hiding of a secret message within an ordinary message or image and extracting it to its required destination. Steganography is that the art of invisible communication by concealing information inside different information. The term steganography springs from the Greek and virtually suggests that "covered writing" [1]. A steganography system consists of 3 elements: cover-object (which hides the key message), the key message and therefore the stego-object (which is that the cowl object with message embedded within it.) A digital image is represented employing a 2-D matrix of the color intestines at every grid purpose (i.e. pixel). Typically, grey pictures use eight bits.

The steganography system that uses a picture because the cowl object is remarked as a picture steganography system [2].

The shift from cryptography to steganography is because of that concealing the image existence as stego-images change to implant the key message to hide pictures. Steganography conceptually implies that the message to be transmitted isn't visible to the informal eye. Steganography has been used for thousands of years to transmit knowledge while not being intercepted by unwanted viewers. The most objective of Steganography is especially involved with the protection of contents of the hidden info. Pictures are ideal for information concealment [1, 2] as a result of the big quantity of redundant area is formed within the storing of pictures. In this method, the secret messages are transmitted through unknown cowl carriers in a way that the horribly existence of the embedded

messages are not detectable. Carriers embrace images: audio, video, text or the other digitally diagrammatical code or transmission. The hidden message could also be plaintext, cipher text or something which will be diagrammatical as to a small degree stream.

Hiding of data can also be done in the frequency domain. Cover Image is transformed using conventional transformation like DCT, DWT etc. Secret message is embedded in the less significant frequency components of cover image. Mostly frequency domain steganography can be used because of its few applications like it is very secure, undetectable, flexible and has many more techniques for handling of DCT coefficients values.

II. METHODS OF HIDING IN IMAGE STEGANOGRAPHY

For covert communication steganography can be used. The secreta message or information can be embedded into the cover image to obtain the stego image.

There are various methods using which information can be hiding in image steganography. Here different algorithms for proposed embedding and retrieval techniques are discussed.

Almost all data hiding techniques always try to alter immaterial information in the cover image. LSB which means least significant bit insertion is a very common and also a simple approach for embedding the information in a cover image. For example, a simple scheme proposed, is to place the embedding data at the least significant bit of each pixel in the cover image [7, 8, 9]. In steganography, the altered image is called as stego-image. Changing LSB does not change the actual quality of image to human observation but this scheme is sensitive to variety of image processing attacks for example cropping, compression etc. We will be emphasizing more on this technique for the various image formats.

A. The LSB Technique

In the LSB technique of Message hiding, the least significant bit was replaced by the message bit of the secret message. In this paper we evaluated the technique using gray scale images of size 64*64 in which each pixel value was represented with 8 bit representation.



Locally Optimal Patch Based Wiener Filter

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Abstract—Patch based locally optimal wiener (PLOW) filter is use to derive a high performance practical denoising algorithm. We use both geometrically as well as photometrically similar patches to estimate the different filter parameters. All parameters can be estimated directly from the noisy input image. This method, designed for near-optimal performance that means in the sense of mean squared error. The performance of this filter is verified experimentally on a variety of images and noise levels.

Index Terms— Image denoising, geometric clustering, Wiener filter, LMMSE estimator, denoising bounds, MSE.

I. INTRODUCTION

Image denoising is a classical inverse problem. Denoising is the long standing issue in image processing for many decades. Now days, image denoising has been impacted by a new approach: it is preferable to denoise the image patch-wise (or block-wise) instead of processing each pixel individually. Taking benefit of the redundancy of small sub-images inside the image of interest, new methods can properly handle both constant, geometric and textured areas. Patch-based methods have proved to be highly efficient for denoising of image. Those methods range from the original Non Local Means (NL-Means), optimal spatial adaptation to the state-of-the-art algorithms BM3D, NLSM and BM3D Shape-Adaptive PCA.

Median filters, bilateral filters are pixel based edge preserving algorithms. Edge preserving methods focus on computing the de-similarities between pixels within a local neighborhood. These approaches are easy to implement. Some latest methods like the simple yet elegant Gaussian scale mixture (GSM) algorithm and Non-Local Means (NLM) that explore global image structures using patches. The performances of the patch based processes are excellent. These methods focus on computing similar patches to the noisy one within the image as cues. This operation usually requires pair-wise patch comparisons. For example, in NLM and BM3D, for determination of denoising we need to compare similarity of each patch with all other patches in a pre-

defined search window. Similarity scores are stored as a convolution kernel. We can use the K most similar patches instead of all patches within the window which is similar to solving the K-nearest neighbor (K-NN) problem in the high dimensional patch space.

Here, We use the algorithm based on a locally optimal denoising filter. This algorithm achieves the lower bound [1]. This filter is known as patch based wiener filter which is used both geometrically and photometrically similar patches to estimate the different filter parameters. The performance of this filter is comparably better than other current state of art in terms of PSNR and SSIM.

II. PATCH BASED LOCALLY OPTIMAL WIENER FILTER

The Wiener filter is, in fact, the LMMSE (Linear Minimum Mean Squared Error) estimator that achieves this lower bound (means less denoised image) [1]. Thus, we modify the wiener filter which is known as a patch-based Wiener filter, where the parameters are accurately estimated, can lead to near optimal denoising. This forms the basis of our approach.

We develop a locally optimal Wiener filter as shown in fig.1 where the parameters are learned from both geometrically and photometrically similar patches. First of all noisy image is segmented into regions of similar geometric structure, as shown in Fig. 2. It shows that clustering based on similar geometric structure (edge, corner, flat regions, etc.) but note that how pixels in any particular cluster can have quite different intensities as shown in Fig. 2. Then mean and covariance of the patches within each cluster are estimated. Next, for each patch, we identify photometrically similar patches and compute weights based on their similarity to the reference patch. These parameters are used to perform patch-wise denoising. Image patches are selected to have some degree of overlap (shared pixels) with their neighbors to reduce the artifacts. Aggregation is the final step which is used to optimally fuse the multiple

C Implementation of SHA-256 Algorithm

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Abstract - Hash functions play an important role in modern cryptography. Hash functions are widely used to provide services of data integrity and when they are used in combination with digital signature algorithms and MACs, they also provide authentication. In this paper a different scheme is proposed to improve the performance of the hardware implementation of the SHA-256 algorithm. The main focus of the proposed scheme is to reduce the critical path by reordering the operations required at each iteration of the algorithm.

Keywords - Cryptography, FPGA, Secure Hash Algorithm, critical path

I. INTRODUCTION

Hash functions are deterministic mathematical algorithms that map arbitrary length sequences of bits into a hash result of a fixed, limited length. The primary application of hash functions in cryptography is message integrity. The hash value provides a digital fingerprint of a message's contents, which ensures that the message has not been altered by an intruder, virus, or by other means. These functions allow to maintain a high level of security by performing complex operations, usually in an iterative fashion, which require a significant amount of computing resources.

The most commonly used hash functions are MD5 and SHA-1, designed by Ronald Rivest and by the National Security Agency (NSA), respectively. The Secure Hash Algorithm is a family of cryptographic hash functions published by the National Institute of Standards and Technology (NIST) as a U.S. Federal Information Processing Standard (FIPS). SHA-2 consists of a set of four hash functions with digests that are 224, 256, 384 or 512 bits. These have become de facto standards and are widely used in many applications. Recently, successful attacks against hash functions have been demonstrated by numerous researchers. Among these, the attacks by Wang [2, 3, 4] had a great impact on both theoretical and practical research on hash functions.

Many studies had been done on the implementation of the SHA-2 hash function, which applied different techniques, applications and technology.

Recently, FPGA-based systems have become very popular in verification and rapid prototyping of cryptosystems.

This paper is organized as follows: In section II, the Secure Hash Family Standard 2 (SHA 2) Algorithm Flow is introduced. In section III Related Works are proposed and in section IV the improved scheme is proposed and in section V the results of implementation are proposed. Finally in section VI conclusion is provided.

II. NORMATIVE SECURE HASH FAMILY STANDARD 2 (SHA 256) ALGORITHM

A. SHA-256 Algorithm Flow :

SHA-256 transforms an input message into the 256 bits message digest. According to Secure Hash Signature Standard [1] the input message whose length are shorter than 264 bits, should be operated by 512 bits in group and becomes a 256-bit message digest. The algorithm is summarized as follows:-

Step 1: Message Padding: Input binary message is appended with 1 & padded with 0's until length = $448 \bmod 512$. The original message length is then appended as 64-bit binary number. The padded message's length is a multiple of 512 bits, which decides how many '0' to be padded.

Step 2: Parsing: The padded message is then parsed into N 512-bit blocks: $M^{(1)}, M^{(2)} \dots M^{(N)}$. These $M^{(i)}$ message blocks are passed individually to the message expander.

Step 3: Message Expansion (Scheduler): Each 512 bit block can be divided into 16 32-bit words: $M_0^{(i)}, M_1^{(i)} \dots M_{15}^{(i)}$, which are then expanded into 64 words labeled $W_0, W_1 \dots W_{63}$ under the certain rule prescribed by SHA-2 standard

Step 4: Message Compression: The W_i words from Message expansion stage are then passed to the SHA compression function or the 'SHA core'. The core utilizes 8 working variables labeled A, B, ..., H which are then initialized to predefined values $H_0^{(0)} - H_7^{(0)}$ at the start of each call to the hash function.

“Rescuing An Object By Reassembling Of Swarm Robotics”

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Abstract

In many places, the need arises of finding different kinds of objects. This need can be fulfilled by using the concept of Swarm Robotics and ZigBee technology.

In this a numbers of robots are given the task of finding or doing a particular task. Here in this project we are trying to demonstrate how 4 robots try to find a specific ball by giving the robot the ball's characteristics features like shape, size and colour. Based on this information the robots start to search in random directions in a defined area. When any one of them finds a ball, they broadcast the message of "object found" to other robots via ZigBee communication, asking them to stop the on-going search. This combined search is called Swarm Robotics.

1. Introduction

1.1 Introduction

In many places, the need arises of finding different kinds of objects. This need can be fulfilled by using the concept of Swarm Robotics and zigbee technology.

In this a numbers of robots are given the task of finding or doing a particular task. Here in this project robots are given two tasks firstly we are trying to demonstrate how 4 robots try to find a specific ball by giving the robot the ball's characteristics features like

shape, size and colour. Camera is used to give the co-ordinates of the objects to the master and master sends the bots to the specified location .These bots takes position around the object in such a manner called as re-assembling of bots. After re-assembling these robots coordinately communicate between themselves and take the object to the specified position. This application is used for rescuing anybody from any location to the desired location like if any building has caught fire then sometimes humans cannot enter in the building in such conditions bots are send inside the building to rescue the human bodies and valuable objects without putting any life in danger. Hence swarm robotics can be used for rescuing operation. And also in the huge workshops of the companies we can this project as they can sort out the different object and can assemble them in proper manner .In this robots can keep the record also about the things which is being used from the workshops.

It can also used in shipping companies ,where the huge no. of goods are stored and transported every day. so for sort out the goods, for storage and also for keeping records we can use swarm robotics.

Cloud Computing: Alternative to Enormous In-House Data Centers

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Abstract-The time will come to prove that computing will one day be the 5th utility after water, electricity, gas and telephony. That will provide the basic level of computing services such as supporting files needed to run any type of software. It aims to share data, calculations, and services transparently among users. It became a hot issue concern to advantages those are reduction in costs, increase in business flexibility and/or provide business continuity.

This paper defines the cloud computing, cloud deployment model, cloud delivery model and its benefits. It also includes the detail explanation of technique to use of cloud computing with an example. It also tries to build awareness among companies and professionals to use cloud computing as an alternative tool for large in-house data centers.

Keywords - Cloud computing, Data Center, Engine, Networks.

I. INTRODUCTION

The cloud computing services are being used automatically while accessing online images or use of web-mail or a social networking site. The fundamental concept of cloud computing is that computing is in cloud. It refers to accessing software and storing the data in "Cloud".

Many formal definition have been proposed in both academic and industry, the one provided by the U.S.NIST [National Institute of Standards and Technology] [1] is that "Cloud computing is model for enabling convenient on-demand network access to shared pool of configurable computing resources (e.g. network, server, storage, application and services) that can be rapidly provisioned and released with minimum management effort or service provider interaction".

In other words, cloud computing is delivery of its computing services over internet. It allows individuals and companies, to use software and hardware, which are managed by third party at remote location; those cloud services include online file storage, social networking sites, and web-mail and business applications.

II. HISTORY

The concept of cloud and cloud computing is actually as old as Internet itself.

- In August 2006 –Search engine conference in San Jose California Z Google CEO Eric Schmidt introduced the term "Cloud Computing" to the world.
- In February 2007 –Google Docs were introduced.
- Where other contributors include Amazon web service, sales force .com etc.

III. CLOUD COMPUTING OVERVIEW

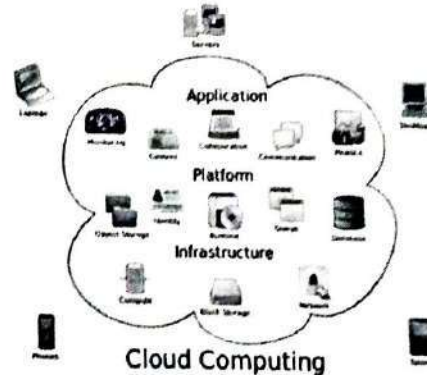


Figure1. Architecture of Cloud Computing

The name of Cloud computing comes from the use of cloud shaped symbol which represent complex structure that abbreviated as 'Cloud'[2] as shown in Figure1. The word 'Computing' is being used for model which consists services that are commoditized and delivered in a manner similar to traditional utilities such as water, electricity, gas and telephony. Such a model users are free to access any type of services, based on their requirements, without regard to where services are hosted. Cloud computing provides the computing with internet that includes the virtually optimized data center and data. Any organization or user simply connects to cloud and use available resources on the basis of pay for use. This help for company to reduction in cost and scaling up the resources. Cloud computing servers consist of highly

Optimized virtual data centers and also consist of software, hardware and information resources for user as and when they needed.

Micro- Mobility Management Issues and Solution in Next Generation All IP Based Wireless Networks

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Abstract: Wireless networks of the next generation need the support of all the standards, protocols and advance architectures. Mobility management is an important issue in the field of mobile communications, which can be solved at the network layer. The important feature of the next generation wireless networks is all-IP infrastructure. A mobility management is a hierarchical model, in which the mobility management is divided into two tasks: macro mobility and micro mobility. This paper describes the micro-mobility management issues and solution in next generation all IP based wireless networks. The Mobile IP is a specification for macro mobility management. It is not well suited for micro mobility management. Cellular IP offers tools to solve micro mobility issues in the network layer. Cellular IP supports local mobility. To provide wide area mobility support it can interwork with Mobile IP. Micro mobility issues can also be handled by different protocols such as HMIP, HAWAII and using link layer mechanisms.

Keywords: Mobility, cellular IP, hand-off, router, HAWAII, MSC, BSC.

I. INTRODUCTION

A. Mobility Management

Mobility management is one of the major functions of a GSM or a UMTS network that allows mobile phones to work. The objective of mobility management is to track where the subscribers are, allowing them calls, SMS and other required mobile phone services to be delivered to them. Two kinds of mobility can be defined as Micro-mobility and Macro-mobility.

1) *Micro mobility:* It means mobile node's movements inside a domain. For this intra-domain mobility management

solutions are suitable which focus mainly on a fast, efficient mobility support within a restricted coverage [1].

2) *Macro mobility:* It means i.e. mobile node's movements between different domains. For this inter-domain mobility management schemes can be employed, acting as a global mobility solution. It provides advantages of flexibility, robustness, and scalability. [1]

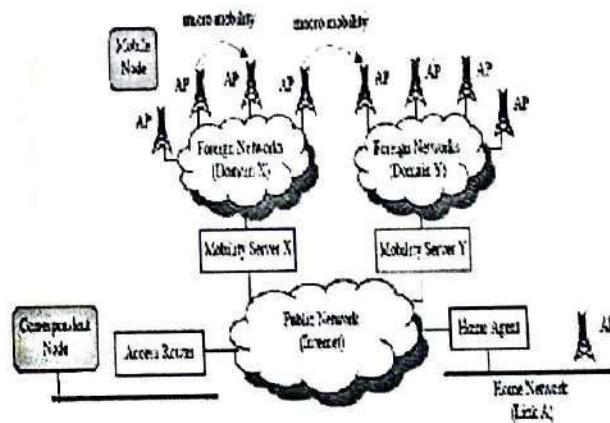


Fig.1. Mobility management model

B. Location Update Procedure

When a mobile device moves from one location to another, it is necessary to inform the cellular network. This procedure is known as location update procedure. Mobiles are responsible for detecting location area codes. When a mobile finds that the location area code is different from its last update, it performs another update by sending to the network, a location update request, together with its previous location, and its Temporary Mobile Subscriber Identity (TMSI). TMSI is the identity that is most commonly sent between the mobile and the network. TMSI is randomly assigned by the VLR

RESEARCH PAPER

Advanced text to speech synthesis system

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Abstract-

The goal of Text to Speech (TTS) synthesis is to convert input text to natural sounding speech in order to transmit information from a machine to a person. Such system is especially useful for blind or partially sighted people, when combined with screen reading software. This paper describes the design and implementation approaches for the efficient integration of TTS technology in computational environments while maintaining high speech quality.

Keywords-

Speech synthesis, Screen readers, NLP.

1. INTRODUCTION

In recent years, Text to speech synthesis has become a popular area of research. An excellent survey paper on the topic appeared recently in [1]. Synthesis of natural sounding speech from an input text which may be given by an operator has become most important aid for partially sighted or blind people. Number of issues such as quality of output speech, speed of synthesis etc. have to be kept in mind while implementing such system to satisfy the user requirements. Presently high quality output speech has been achieved as a result TTS systems are widely adopted in everyday solutions.

The most important qualities of a text to speech synthesis system are naturalness and intelligibility. Naturalness describes how closely the output sounds like human speech, while intelligibility means how easily the output speech is understood. The ideal speech synthesizer is both natural and intelligible. Therefore text to speech synthesis system usually tries to maximize both characteristics. Referring significant research progress in the field of text to speech synthesis, the unit selection method can give most naturally sounding output speech. In this method database of sufficiently large speech units is formed. This database may contain speech units like naturally recorded word or phonemes. Then for speech synthesis required speech units are selected from this database.

Speech synthesis technology now used in wide range of applications like telecommunication, entertainment, robotics, household devices, education, in mobile phones human computer interaction [1],[2],[3].

Though for speech synthesis, recent statistical parametric approaches like Hidden markov model gives excellent resulting output, unit selection approach provide large framework for speech synthesis, which has been advocated to fulfill most of the needs as well as domain and computational environments [4],[5]. Nowadays, much concentration is provided on optimizing several aspects of speech synthesis process such as expressivity, advanced signal processing and more [6].

Speech quality achieved by today's general purpose speech synthesis systems is near about naturally sounding but experience of the field indicates systems that are designed to a particular domain and application requirements can achieve higher quality output and performance. For that depending on the application context issues such as speech quality, storage space, processing requirements, speed of speech synthesis can significantly changes.

In speech synthesis, as in most language technologies language dependant and language-independent issues need to be consider. This is because for the synthesis, it is not of sound and speech synthesis, but also of naturalness and

RESEARCH PAPER

Vehicle Identification using Image Processing

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Abstract-

The detection of Indian vehicles by their number plates is the most interesting and challenging research topic from past few years. It is observed that the number plates of vehicles are in different shape and size and also have different color in various countries. This paper presents an approach based on simple but efficient morphological operation and Sobel edge detection method. This approach is simplified to segmented all the letters and numbers used in the number plate by using bounding box method. After segmentation of numbers and characters present on number plate, template matching approach is used to recognition of numbers and characters. The concentrate is given to locate the number plate region properly to segment all the number and letters to identify each number separately.

Keywords-

Character segmentation, Edge detection, Extraction of Number Plate, Morphological Operation, Recognition of Number Plate and Vehicle image.

1. INTRODUCTION

Number plates are used for identification of vehicles all over the nations. Vehicles are identified either manually or automatically. Vehicle identification technique is used to identify vehicles by their number plates. Vehicle identification system are used for the purpose of effective traffic control and security applications such as access control to restricted areas and tracking of wanted vehicles. Number plate recognition (NPR) is easier method for vehicle identification.

Experimentation of number plate detection has been conducted from many years, it is still a challenging task. Number plate detection system investigates an input image to identify some local patches containing license plates. Since a plate can exist anywhere in an image with various sizes, it is infeasible to check every pixel of the image to locate it. Generally, it is preferable to extract some features from images and focus only on those pixels that are characterized by the license plate.

The identification task is challenging because of the nature of the light. NPR system for Indian license plate is difficult compared to the foreign license plate as there is no standard followed for the aspect ratio of license plate.

In parking, number plates are used to calculate duration of the parking. When a vehicle enters an input gate, number plate is automatically recognized and stored in database. When a vehicle later exits the parking area through an output gate, number plate is recognized again and paired with the first one stored in the database. The difference in time is used to calculate the parking fee [1].

A novel feature-based number plate localization method which consists of many algorithms mainly focusing on the Edge Finding Method and Window Filtering method for the better development of the number plate detection system [2]. As far as extraction of the plate region is concerned, techniques based upon combinations of edge statistics and mathematical morphology [3] featured very good results.

License plate location algorithm consist of steps like as Edge Detection, Morphological operation like dilation and erosion, Smoothing, segmentation of characters and recognition of plate characters are described in

[1][2][3][4]



PrefixSpan Algorithm: An Approach for Mining User's Traversal Patterns from Server Log Files

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Abstract- In today's world of technological advancement, the use of World Wide Web (WWW) as the means for marketing and selling has been in humongous increase. Nonetheless to say, every major entrepreneur has its own website to make aware to the people all around the globe, about their business. The level of E-commerce has reached a benchmark that organizations have to fulfill one's demands of a right level of information to be available online. Now, the question arises as to how one could tell what contents are being read, if a website is effective, or even the extent of readers going through the content. Web Usage Mining (WUM), better known as Web Log Mining, is an application of data mining algorithms to Web access logs to fetch trends and regularities in Web users' traversal patterns.

This paper introduces PrefixSpan (i.e., Prefix-projected Sequential pattern mining), efficient algorithm to discover behavioral patterns of users interacting with a Website. Our performance study shows that PrefixSpan outperforms both the Apriori-based GSP algorithm and another recently proposed method, FreeSpan, in mining large sequence databases.

Keywords: WWW, Log Files, Data Mining, Web Usage Mining, PrefixSpan.

I. INTRODUCTION

The World Wide Web is a humongous source of electronic data that get collected from Web content, collective of billions of publicly available pages, or from web usage, a huge cloud collection of log information collected from servers all around the globe. Web Usage Mining (WUM), also known as Web Log Mining, is an application of data mining algorithms to Web access logs to find trends and regularities in Web users' traversal patterns [1].

Web Mining is that area of Data Mining which deals with the extraction of interesting knowledge from the World Wide Web [2]. Web Usage Mining is that part of Web Mining which deals with the extraction of knowledge from server log files; source data mainly consist of the (textual) logs that are collected when users access web servers [3].

And the results of WUM have been used in improving the design of Website, business and marketing decision support, user profiling, and performance of Web server system.

What are Log Files?

A Web server log is an important source for performing Web Usage Mining because it explicitly records the browsing behavior of site visitors. In conjunction to HTTP request, every hit against the server, the server access log is populated with a single entry generation. These logs can be stored in various formats such as Common log or Extended log formats.

Each log entry (depending on the log format) may contain following fields:

TABLE I
Web Log Field Descriptions

Sr. No.	Field	Appears as	Description
1.	Date	date	Date on which request was made
2.	Time	time	The time, in coordinated universal time (UTC), at which request was made
3.	Service Name and Instance Number	s-sitename	The Internet service name and instance number that was running on the client
4.	Server IP Address	s-ip	The IP address of the server on which the log files entry was generated.
5.	Method	cs-method	Method of request (Get, Post, etc)
6.	URI Stem	cs-uri-stem	The target of the action, for example, Default.htm.
7.	URI Query	cs-uri-query	Query from Client
8.	Client IP Address	c-ip	IP address of Client that made the request
9.	User Agent	cs/User-Agent)	OS and browser software at the Client
10.	Referrer	cs(Referrer)	URI from where request originated

NEED OF ELECTRONIC STARTER FOR DC MOTOR

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Abstract— Commonly used method for the starting of dc motors is reduced-voltage starting. This paper introduces a technique of soft starting. The device which is based on triggering of thyristors. At starting, three single-phase silicon controlled rectifier are in OFF position to reduce inrush current and keep the starting current constant at preset value by adjusting the firing angle of silicon controlled rectifier.

Index Terms—Current, Motor, silicon controlled rectifier (SCR), Starter

I. INTRODUCTION

Studies have shown that approximately 90% of the motors employed in industrial applications use no form of control other than simple electromechanical switching. This results in increased machine wear as rapid acceleration causes damaging torque transients and high peak currents. Soft starters solve this problem through controlling the application of current during acceleration and deceleration.

Soft starters are used for the smooth start-up control of three-phase induction motors.[06]

In applications where motor speed can be varied, significant energy savings can be realized by using variable speed drives. However in fixed speed applications soft starters are still the most economical solution.

A motor soft starter is a device used with DC electric motors to temporarily reduce the load and torque in the power train and electrical current surge of the motor during startup. This reduces the mechanical stress on the motor and shaft, as well as the electrodynamic stresses on the attached power cables and electrical distribution network, extending the lifespan of the system. Some of the objectives to meet are:

- ✦ reduced start current and start torque
- ✦ elimination of mechanical and electrical transients
- ✦ Increase the life of motor.
- ✦ Make the armature current of motor constant.[04]

II. NEED OF ELECTRONIC STARTER

Maximum current that a dc motor can safely carry during starting is limited by that max. Current that can be commutated without sparking. For normally design machine, twice the rated current can be allowed to flow and for specially design machine it can be 3.5 times.

At standstill back EMF is zero and the only resistance opposing flow of current is the armature circuit resistance, which is quite small for all types of DC motor.[01] If a DC motor is started with full supply voltage across its terminal, a very high current will flow, which may damage motor due to heavy sparking at commutator and heating of winding. Therefore it is necessary to limit the current to a safe value during starting. When motor speed is controlled by armature voltage controlled, the controller which controls the speed can also be used for limiting motor current during starting to a safe value. In absence of such controller a variable resistance controller is used for starting. As motor accelerates and back emf rises, one section of the resistor is cut out at a time, either manually or automatically with help of contactors, such that current is kept within specified maximum and minimum values. The time for the Electric motor to achieve the required rpm is calculated and shown in Table 1

Sr. No.	MOTOR H.P.	R.P.M.	TIME (in Sec.)
1.	1000	75	8.16
2.	1000	125	22.67
3.	1000	300	131.09=2.18 min.
4.	1000	500	363.63=6.06 min.
5.	500	75	16.71
6.	500	125	45.76
7.	500	300	261.67=4.36 min.
8.	500	500	726.25=12.10 min.
9.	333	75	24.52

AUTOMATED ELECTROPLATING PROCESS

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Abstract— People working in the electroplating industry may face risks from hazardous chemicals, metals, wet work, live electrical currents and heavy machinery. It primarily addresses the hazards involved with storage and handling of hazardous chemicals used in electroplating [22]. Generally there is no accurate calculation related to desired thickness and electrical parameter control. That's why; general process is works on trial and error method to get desired thickness with varying voltage and current "End-users need something so simple they don't have to become experts. "Experienced people (engineers or operators) react instinctively because they have experienced similar events. These operators or engineers do an excellent job of handling emergency situations or making decisions during a start - up. As a rule, the person that tends to respond based on methodical reasoning and calculations rarely can react fast enough to be of assistance in an emergency or if quick action is required in a start - up situation [23].

This paper presents new design and implementation of an automatic electroplating system using automation. Providing input events like desired thickness and area to be electroplated it automatically find the required time and current and complete the process automatically.

Keywords— electrolyte, faradays laws, automation, automatic plating, copper plating, embedded in plating, plating thickness

1. INTRODUCTION

Automation can be done either by using PLC or by using embedded system. Comparing the initial cost embedded system is preferred but it is not user friendly than the PLC. An automation system at the level of the process controller should have three things: First, it should be able to interpret sensor data and direct actuator behavior in real time. Second, it should have an HMI (Human Machine Interface) so that the operator can monitor and adjust the production process. And third, it should be able to network the local process control activity to a higher-domain system such as a DCS (Distributed Control System) or a SCADA (Supervisory Control and Data

Acquisition) system. In general process workers clean the component in chemical by hand and put it in electroplating bath by hand, to reduce this risk to health of worker and environmental condition, automatic electroplating process is best solution.

Electroplating is an electrodepositing process for producing a dense, uniform, and adherent coating, usually of metal or alloys, upon a surface by the action of electric current. The coating produced is usually for decorative and/or protective purposes, or enhancing specific properties of the surface. The surface can be conductors, such as metal, or non-conductors, such as plastics. Electroplating products are widely used for many industries, such as automobile, ship, air space, machinery, electronics, jewellery, defence, and toy industries. The core part of the electroplating process is the electrolytic cell (electroplating unit). In the electrolytic cell (electroplating unit) a current is passed through a bath containing electrolyte, the anode, and the cathode. In industrial production, pre-treatment and post treatment steps are usually needed as well.

Electroplating involves the use of low voltage high current DC derived from rectifier units operating at primary voltages of 415 volts AC. Auxiliary equipment typically includes pumps, filters, blowers, centrifuges, heaters (fixed and transportable) as well as hand-held portable tools and instruments. Automated plants incorporate conveyors, and lifting and manipulating equipment operated by control systems which range from simple contractor systems to sophisticated microprocessor controls.

1.1 Working Principle Of Electrolysis

Faraday's laws of electrolysis:

Michael Faraday, perhaps the greatest experimental scientist in history, enunciated his laws of electrolysis in 1833, and these laws have remained unchallenged ever since. They are basic to both the understanding and the practical use of electrolytic processes. They may be stated as follows:

CONTROLLING ELECTROPLATING PROCESS BY AUTOMATION

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Abstract— People working in the electroplating industry may face risks from hazardous chemicals, metals, wet work, live electrical currents and heavy machinery. It primarily addresses the hazards involved with storage and handling of hazardous chemicals used in electroplating^[22]. Generally there is no accurate calculation related to desired thickness and electrical parameter control. That's why; general process is works on trial and error method to get desired thickness with varying voltage and current "End-users need something so simple they don't have to become experts. "Experienced people (engineers or operators) react instinctively because they have experienced similar events. These operators or engineers do an excellent job of handling emergency situations or making decisions during a start - up. As a rule, the person that tends to respond based on methodical reasoning and calculations rarely can react fast enough to be of assistance in an emergency or if quick action is required in a start - up situation^[24]. This paper proposes an automatic electroplating system using automation. Promoting input events like desired thickness and area to be electroplated it automatically find the required time and current and complete the process.

Keywords— electrolyte, faradays laws, automation, automatic plating, copper plating, embedded in plating, plating thickness.

1. INTRODUCTION

Automatic control of electroplating processes offers a number of advantages over manual control, including the elimination of laborious manual analytical procedures, an increase in the frequency of analysis for better process control, improvement in employee productivity, and a reduction in product and chemical handling. In spite of these obvious advantages, today's plating industry relies on traditional analytical methods of controlling bath composition^[21]. Electroplating is an electrodeposition process for producing a dense, uniform, and adherent coating, usually of metal or alloys, upon a surface by the act of electric current. The coating produced is usually for decorative or protective purposes, or enhancing specific properties of the surface^[24]. End-users can also continue to use intelligent digital technologies in instrument calibration. Using the embedded features of Electronic Device Description Language (EDDL) and Field-device Tool (FDT)/Device Type Manager (DTM) allows end-users to provide consistent calibration and while

EDDL and FTD both enable physical calibration of devices. Intoday's industrial environment, it pressures to perform work at a minimum cost and manpower. "Automation systems will need to be more reliable to incorporate more features. This will require greater processing speed. But we won't get that performance by relying on faster clock rates to run traditional sequential programs faster^[23].

1.1 What Is Electroplating:

Electroplating is the application of a metal coating to a metallic or other conducting surface by an electrochemical process. The article to be plated (the work) is made the cathode (negative electrode) of an electrolysis cell through which a direct electric current is passed. The article is immersed in an aqueous solution (the bath) containing the required metal in an oxidised form, either as an aquated cation or as a complex ion. The anode is usually a bar of the metal being plated. During electrolysis metal is deposited on to the work and metal from the bar dissolves^[22]:

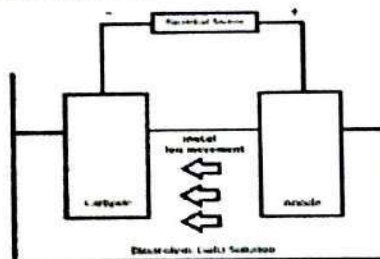


Fig.1 electroplating general process

1.2 Faraday's Laws of Electrolysis:

In 1833, the English scientist, Michael Faraday, developed Faraday's laws of electrolysis. Faraday's first law of electrolysis and Faraday's second law of electrolysis state that the amount of a material deposited on an electrode are proportional to the amount of electricity used^[14]. That is, the total cathodic charge used in the deposition, $Q(C)$, is the product of the number of gram moles of the metal deposited, m , the number of electrons taking part in the reduction, n , Avogadro's number, N_A (the number of atoms in a mole), and the electrical charge per electron, $Q_e(C)$. Thus, the following equation gives the charge required to reduce m moles of metal:

Performance Of Dual-Chambered Membrane Less Microbial Fuel Cell With Anaerobic Cathode

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Abstract

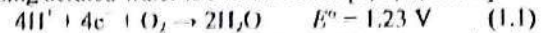
Performance of dual-chambered membrane less microbial fuel cell (MFC) with anaerobic cathode was investigated to treat synthetic wastewater under continuous mode of operation with anaerobic cathode compartment. Stainless steel (SS) mesh with surface area 100 cm² was used as an anode electrode; whereas a graphite rod with surface area 75 cm² was used as a cathode electrode. Under continuous mode of operation, maximum power density of 0.52 mW/m²; maximum current density of 3.8 mA/m² and maximum volumetric power of 12.78 mW/m³ were obtained using anode effluent as a cathode electrolyte under anaerobic condition. Under continuous mode of operation, maximum chemical oxygen demand removal efficiency and maximum coulombic efficiency with respect to anode chamber were 65-69% and 0.363%, respectively; whereas maximum chemical oxygen demand removal efficiency with respect to total volume of the MFC was 92%. Internal resistance and potential difference of a cell was changed with day of operation. Minimum internal resistance of the cell was 13700 Ω; whereas maximum potential difference developed was 0.583 V with both anaerobic compartments.

1. Introduction

Considerable attention has been paid to develop microbial fuel cells (MFCs) as a sustainable energy source because of their capability to simultaneously generate electricity and treat organic wastewaters [1]. This technology enables the direct capture of the energy contained in biodegradable organic matter in the form of electricity. MFC is a device that converts chemical energy to electrical energy with the aid of the catalytic reaction of microorganisms [2].

In traditional MFC, substrate is oxidized by bacteria in the anode chamber, generating electrons and protons. According to principle of MFCs, protons from an anode chamber are allowed to flow to a cathode chamber through a proton-exchange membrane (PEM) with electrons going in the same direction via a

conductive wire externally [3-4]. The electrons, transferred to the cathode through external circuit, and the protons diffused through PEM in cathode chamber are combined with oxygen to form water. Oxygen is usually supplied by aeration in cathode chamber to act as oxidant. The possible reaction in cathode chamber using aerated water is shown below [5, 6, 7, and 8].



The main disadvantage of a traditional two chamber MFC is that the cathode solution must be aerated to provide oxygen to the cathode [9]. The power output of a MFC can be improved by increasing the efficiency of the cathode, e.g. power is increased by adding ferricyanide, hexacyanoferrate, hydrogen peroxide, oxygen and permanganate to the cathode chamber. Using permanganate as the cathode's electron acceptor the maximum power density of 3986.7 mW/m² was achieved in the MFC [10]; but use of different cathode electrolyte operating cost of MFC increases.

Based on the facts mentioned above, the main aim of the present work was an attempt to produce electricity using mixed culture and anaerobic cathode compartment. Moreover, this study may pave way to meet the demand of electricity and wastewater treatment in future by cost-effective method.

2. Materials and Methods

2.1. Microbial fuel cell

The study was carried in dual chambered completely anaerobic laboratory scale up-flow microbial fuel cell. Both chambers of was MFC made by using plastic bottles; both chambers was connected by 4 cm pipe. No proton exchange medium was used; anode effluent itself was used as a medium to bring proton at cathode for cathodic reaction. The working volume of anode chamber and cathode chamber of MFC was 100 ml and 75 ml respectively. The MFC was operated under continuous mode. The wastewater was supplied to the MFC from the bottom of the anode chamber (12.5 ml/h). Stainless steel mesh having total surface area of 100 cm² and graphite rods having surface area of 75