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Load-Balanced Energy-Enhanced Routing Protocol for Clustered Bee-Ad Hoc MANETs

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Abstract

To make MANETs energy efficient and to balance the load swarm intelligence along with clustering as Bee-Ad Hoc-C has been chosen as the best method in our previous work with improvized routing by the use of BCN. But in this routing technique optimum load balancing and energy efficiency have not been improved much. In the present paper, one new routing algorithm has been introduced which takes care of the above factors. Here, the energy efficiency is increased by taking into consideration the number of nodes in the cluster and remaining battery power of the nodes. Also to avoid any redundancy in the routing alternate router has been initiated if any shortest path is busy. The work is carried using the NS2 (Network Simulator-2). By the proposed method, the MANET routing can be properly balanced and improved in terms of Energy Efficiency, End-to-end delay, Throughput, Packet Delivery Ratio, Route Discovery Time.

Keywords

MANET Load balance Energy efficiency Residual energy Number of nodes Alternate router

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Creating Language and Acoustic Models using Kaldi to Build An Automatic Speech Recognition System for Kannada Language

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Abstract— In this paper, creation of the Language Models (LMs) and Acoustic Models (AMs) using Kaldi speech recognition toolkit to build a robust Automatic Speech Recognition (ASR) system for Kannada language is demonstrated. The speech data is collected from the farmers of Karnataka under uncontrolled environment is used for the development of ASR models. The collected speech data needs to be translated to machine level language and hence the Indic Language Transliteration Tool (IT3 to UTF-8) is used for transcription. The dictionary for the collected speech data is created by using Indian Language Speech sound Label (ILSL12) set. The AMs are created by using Gaussian Mixture Model (GMM) and Subspace GMM (SGMM). The 80% and 20% of validated speech data is used for training and testing respectively. The accuracy and Word Error Rate (WER) of ASR models are highlighted and discussed in this work. The developed ASR models can be used in spoken query system which enables the farmers to access the on time agricultural commodity prices and weather information in Kannada language.

Keywords— **Kaldi, Accuracy, Word Error Rate (WER), Speech recognition, Language Models (LMs), Acoustic Models (AMs)**

I. INTRODUCTION

Speech is one of the most important types of communication media among the human beings. Speech recognition is one of the marvelous applications of speech processing. Recognizing the word spoken by the speaker is a challenging work [1]. Several speech recognition toolkits are used to build robust Automatic Speech Recognition (ASR) system. They are, Kaldi, CMU Sphinx, Hidden Markov Model Toolkit (HTK) and Julius etc [2]. Kaldi is one of the important speech recognition toolkit to build Language Models (LMs) and Acoustic Models (AMs) [3]. Kaldi is publicly available toolkit for speech recognition and it is written in C++ programming language. The Kaldi toolkit includes C++ executables and several shell scripts. The codes are very flexible, modern and easy to understand. The entire Kaldi speech recognition toolkit is available at SourceForge website (www.sourceforge.net). This can be run on both Microsoft windows and Linux operating systems. The basic building block diagram of Kaldi speech recognition toolkit is shown in Fig. 1. The following are the some special features of Kaldi compared to other speech recognition toolkits:

- Finite State Transducers (FST) integration: Kaldi provides better accuracy with low Word Error Rate (WER) based on FST.
- Complete Linear Algebra (LA) support: Kaldi uses entire package of LA.
- Complete design: C++ executables and shell scripts. Kaldi C++ library consist of Gaussian Mixture Models (GMM), Subspace GMM (SGMM), utils, LMs, Hidden Markov Model (HMM) and decoder. Kaldi external library includes Basic Linear Algebra Subroutines (BLAS) and Linear Algebra PACKage (LAPACK).
- Open source: The complete design of Kaldi is licensed under Apache v2.0.

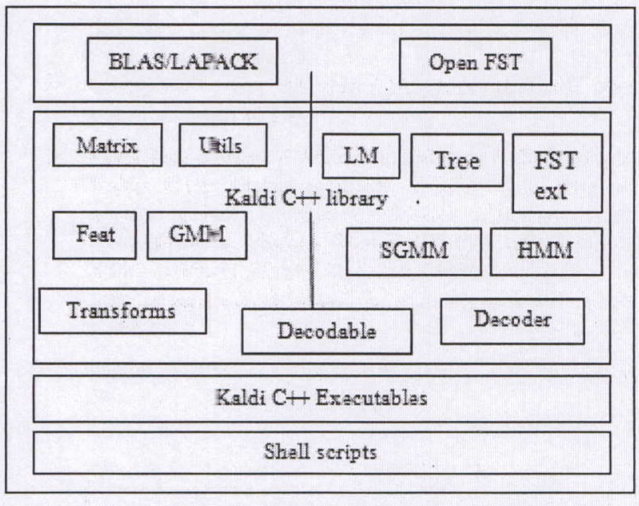

Figure 1. Block diagram of Kaldi speech recognition toolkit

Ahmed Ali, et al. have developed an Arabic speech recognition system using the Kaldi speech recognition toolkit [4]. The Arabic language has big dictionary and data sparseness. The regular GMM and SGMM models are used to build robust Automatic Speech Recognition (ASR) system for Arabic language. The 200 hours of speech data and 36 phonemes were used. The WER obtained was 15.81% for Broadcast Report (BR), 32.21% for Broadcast Conversation

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FINITE ELEMENT ANALYSIS OF JACKETED REINFORCED CONCRETE COLUMN SUBJECTED TO UNIAXIAL LOAD WITH VARYING THE SMALLER DIA TRANSVERSE BARS(TIES)

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Abstract - Strengthening of the reinforced concrete structures is one of the most difficult and important tasks of civil engineering. Individual approach to the problem is a necessity since any ready-made solution can be applied. One of the prime objectives is to provide detailed technical and cost-effective analyses. Structures must be carefully examined in order to determine their technical condition, to find reasons for deterioration and strengthening as well as to establish service requirements of the reinforced structures. It is also essential to analyze their technical design, dig out open pits and carry out suitable measurements. Cost-effectiveness of each of the proposed strengthening techniques should be considered and compared to the cost of a new structure. The strengthening methods applied should ensure the required safety margin and guarantee a sufficient reliability over time Concrete is the 2nd prominent criteria utilized in the world after water. In this paper the retrofitting is done for reinforced concrete columns for varies thickness to existing column. The confinement capacity is checked using the finite element software for different grade of mix proportion.

Keywords - Concrete, NISA, Laterial ties

I. INTRODUCTION

The rehabilitation of concrete structures has become increasingly important as we hear more and more about deterioration of the infrastructure. The problem is more severe due to limited funds available for rebuilding these structures. During the last decade the authors have been involved in various aspects of rehabilitation of concrete structures. These include bringing together engineers from the East and the West, to discuss such problems and develop common solutions through international symposia.The American Concrete Institute's (ACI's) committee 364 on "Rehabilitation of Concrete Structures" for a possible co-operation at global level. It was organized in 1981 with a mission of developing and reporting information for the rehabilitation, renovation of concrete and masonry structures. The committee has made efforts to present information on various aspects of rehabilitation, the most recent report being on guidelines and procedures for evaluating concrete structure. Along with a summary of this report, planned activities and benefit in the future.Recently, internationa symposia have been held with the sponsorship of ACI or its chapters in the far East. This brings the global interest and the need to have a better communication and co-operation for the benefit of humankind. Another step in this direction was also taken when International Association of Concrete Repairs Specialists (IACRS) was established in 1988, with a bulk of its membership (over 60 percent) from rehabilitation contractors and engineers.

ACI 364 works with other ACI committees related to rehabilitation. These include: ACI 365 (Service Life Protection); ACI 369 (Seismic Repairs and Rehabilitation); ACI 546 (Repairs) and ACI 437 (Evaluation).

II. LITERATURE REVIEW

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2. Attolico, S. Biondi, C. Nuti and M. Petrangeli: The paper presents the implementation of rebars buckling capabilities into a fibre beam element recently developed by the authors and the results of numerical analyses carried out on few representative concrete structures using this new element. The fibre model used for the implementation is an equilibrium based beam element using uniaxial constitutive modelling for concrete and steel. The existing uniaxial model for the longitudinal steel fibres has been replaced with a new one with buckling capabilities based on the Menegotto-Pinto constitutive law as

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MECHANICAL PROPERTY OF HPC BY PARTIAL REPLACEMENT OF FINE AGGREGATE USING GRANITE SCRAPS

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Abstract - Concrete is one of the 2nd prominent criteria utilized in the world after water. In this paper the HPC is prepared by using Granite Scrap as fine aggregate which is a partial replacement of Natural fine aggregate that is (0% - 30%) with 5% interval. This concrete is said to be cured for 7, 14 and 28 days and allowed for compression, tension and flexure tests. The concrete is also prepared by replacing the cement by following admixtures fly ash, GGBS, and micro silica with 10% each and an additional super plasticizer 1%. At the end of the tests the concrete prepared by Granite Scrap should give better results than the conventional concrete.

Keywords - FA(fly ash), GGBS, HPC, GP(granite powder)

I. INTRODUCTION

High Performance Concrete (HPC) is the current advancement in concrete. It has turned out to be more prevalent nowadays and is being utilized as a part of numerous esteemed undertakings. The utilization of waterway sand and made sand is more in progressing days so subsequently another parameter called stone piece is being presented which is a tremendous modern waste. Thusly, the target of decrease of cost of development can be met and it will conquer the issue related with its transfer including the ecological issues of the area. Utilization of substance admixtures ordinarily superplasticiser diminishes the water content. Silica rage, fly fiery debris and GGBS are for the most part called as mineral admixtures and called as bond substitution materials. In display work, concrete is made with 0%, 5%, 10%, 15%, 20%, 25%, 30% of stone powder as incomplete substitution of stream sand and furthermore 10% of Fly fiery remains, 10% of GGBS, 10% of silica exhaust as a halfway substitution of bond and 1% of superplasticiser are considered. This paper was led to assess the quality parameters (compressive quality, Split elasticity, Flexure quality) utilization of GP as sand supplanting together with admixtures as a fractional substitution of bond in the generation of elite cement.

II. LITERATURE REVIEW

A. Sharada S A and Ravindra Compressive strength of HPC using granite powder as fine aggregate

In this paper they have checked for parameters like compressive strength, flexural strength considering the concrete made of Granite powder as replacing agent for fine aggregates at the rate of 0%, 5%, 10%, 15%, 20%, 25% by weight of fine aggregates and the cement also been replaced by the following admixtures like GGBS at10%, Fly Ash at 10% and Micro Silica at 7.5% and to enhance the workability the Super plasticizer at the rate of 0.9%. The specimens were prepared at w/c ratio 0.42 and allowed for curing with following periods 7 days, 14 days, 28 days for compressive strength By addition of Granite powder resulted in decrease in compressive strength but the optimum percentage of Granite powder used was 15% with strength of 50.12kPa after 28 days of curing. When compared to normal mix concrete the Granite powder mix showed better results in all the parameters which was checked as above and also found that there is increase in strength as curing period is increased.

III. SPECIMEN DETAILS

A. Compression test

SL NO.	% GP	Number of cubes wrt days of curing			Total Number of cubes
		7 Days	14 Days	28 Days	
1	0 %	3	3	3	9 No
2	5 %	3	3	3	9 No
3	10 %	3	3	3	9 No
4	15 %	3	3	3	9 No
5	20 %	3	3	3	9 No
6	25 %	3	3	3	9 No
7	30 %	3	3	3	9 No
Total					63 No

TABLE 1: TOTAL NUMBER OF CUBES WRT CURING PERIOD

B. Split Tensile test

SL NO.	% GP	Number of cylinders wrt days of curing			Total Number of cylinders
		7 Days	14 Days	28 Days	
1	0 %	3	3	3	9 No
2	5 %	3	3	3	9 No
3	10 %	3	3	3	9 No
4	15 %	3	3	3	9 No

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Sparse Residual Learning of Deep Convolution Network for De-Noising Patch Based Block Match Three Dimension Algorithm

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Abstract: ***This paper introduces a unique approach to de-noise an image based on concepts of Deep Convolution Neural Networks (DCNN) with sparse residual learning sparse reconstruction and batch normalization. The basic concept is modification of existing block match three dimension algorithm in which similar local patches in the input image are integrated into a 3D block. Here first patches are retrieved the features are extracted. The de-noised image is employed as a basic estimate for the block matching, and then de-noising function for the block is learned by a DCNN structure. Most of the residual network has many residual units (i.e., identity shortcuts), our method employs a single scarified residual unit to classify the residual image. Experimental results demonstrate the effectiveness of the sparse residual learning, sparse reconstruction and batch normalization in the tasks of image de-noising. Our experiment results proves that our model provide better efficiency in terms of PSNR.***

Keywords: Noise, patch, BM3D, sparse residual, sparse reconstruction batch normalization

I. INTRODUCTION

Recently, image de-noising methods has gained popularity by a method called patch based method or non local means. This approach is measured an incredible in most of current state-of-the-art methods. The concept employed is to find related patterns that occur randomly all across the image and the image patches that have related patterns can be located far from each other. The patch based approach is a determining work that exploit this NSS prior[1]. The employment of patch based approach has boosted the performance of image de-noising significantly. The best example is the Block Matching and 3D Filtering (BM3D) method [2] which is a very good in performance and highly engineered approach that made the state-of-the-art record in image de-noising stay ahead for almost a decade.

In past decade ,Machine learning is gaining popularity and progressively escalating its prominence. Among these deep learning concepts are overtaking shallow learning methods. It is a sort of overhyped. And very potential results have been noticed for image processing applications such as image restoration class. The significant improvement in the performance can be achieved by deep networks is due to their advanced modeling capabilities, deep structure and the adaption of non-linearities that in fact can be combined with qualified learning on large training datasets. Among all the deep learning methods, the convolutional neural networks have shown great performance for image processing tasks because of the reason of its quite easy access to large-scale dataset and the advances in deep learning methods. The proposed work is a modification of BM3D[2][3][4] where CNN with sparse residual Learning ,sparse reconstruction and batch normalization It also adopts the residual learning formulation .

II. RELATED WORK

There exists abundant number of approach exists in literature in order to tackle the restoration de-noising problem using convolution neural networks[5][21][22][23][24]. Recently, due to the easy access to large-scale dataset and the advances in deep learning methods, the convolutional neural networks with residual learning have shown abundant accomplishment in handling various low vision tasks.

This section provides the review of various renowned work in residual learning for image processing tasks and its applications to image denoising. Initial work was proposed by K. He, X. Zhang, S. Ren, and J. Sun[8], for image recognition," In paper [9] authors emphasized the benefit of depth in neural networks. In [10] authors K. He, X. Zhang and et.al introduced identity mapping for deep residual learning. They were the original authors for residual learning. In [11] authors added an additional complexity that runs

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Wavelet Transform Based Open Circuit Fault Diagnosis in the Converter Used in Wind Energy Systems

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Abstract— **This paper is an attempt to develop a novel method of training the ANN for fault diagnosis technique of the open circuit faults in the PMSG wind turbine connected converters. The training portion of any artificial intelligence methods is time taking and needs lots of tuning for creating the black box. Thus the training portion of the fault diagnosis in the ANN structure has to be optimized. The Wavelet transform from the signal of interest, which is the response of the fault, occurred in the input voltage is taken into consideration as the feature to be extracted to be given as the input to the ANN for training. And the output of the ANN, which has to be trained, is taken as the fault status, which corresponds to the Wavelet coefficients. Thus the time taken for the training would get reduced and the accuracy of the prediction would get improved while the Wavelet transform based method is used. The open circuit faults are found for each switch in the converter. Matlab/Simulink and Wavelet Toolbox™ based implementation is carried out and the results for training and testing the diagnosis system is tabulated and inferred.**

Keywords— Fault Detection, Fault Diagnosis, Artificial Neural Network, Feature Extraction, Wavelet Transform.

I.INTRODUCTION

The Wind Energy Conversion Systems (WECS) are the combination of the Wind Turbine the converter that converts AC-DC and another converter which converts DC-AC converter which is called the back to back converter. These back to back generators transfers the power from the Permanent Magnet Synchronous Generator (PMSG) to the DC link capacitor and then from there to the grid [1-6].Most of the converters that are used in the PMSG based WECS are two level topology inverters . As the inverter and the converter as a combination has multiple switches, the protection of the switches are of ultimate importance thus the fault diagnosis of these converter switches attracts to newer research [7-14]. The thermal cycling, extremely high collector currents or a gate driver faults cause the open switch fault in the switches. An open-switch fault causes a change in the current pattern and can generate secondary problems that cause other parts to break down. Hence, the detection of open-switch faults is necessary to prevent the destruction of other components and to improve the reliability of these systems.

This paper attempts to develop a fault diagnosis system using the Discrete Wavelet Transform(DWT) as the feature extraction from the disturbed wave from the WECS and ANN for the prediction of the faults. The faults thus obtained from the open circuit of the switches are tabulated for the DWT coefficients and the corresponding switch number is taken as the output while the training is done. The DWT coefficients are given as the input to the neural network and the switch number which has occurred with the fault is considered as the output of the fault. The paper is ordered in the following manner, Section II talks about the proposed system, Section –III talks about the results and discussion of the implementation. Section –IV talks about the conclusion and the future work of the implementation.

II.PROPOSED FAULT DIAGNOSIS SYSTEM

Block Diagram

The Discrete Wavelet Transform based feature extraction technique is carried out in order to develop the fault diagnosis system. The ANN based fault diagnosis system is developed in order to get the DWT of the waves obtained by the WECS and the training is carried out based on the DWT coefficients. The Block Diagram of the proposed implementation is as shown in the Figure.1 . The Haar wavelet transform is used and the faults are made to occur in each switch and the training is carried out at for each switch fault.

The wavelet transform applied on the voltage response
The Neural Network uses the min-max normalization method to give as the input to the neural network. The hidden layer has 10 nodes in which the sigmoidal function is used as the activation function.

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Evaluation on Aging of Polymeric Insulators by Inclined Plane Test

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Abstract: Polymeric materials are generally made up of two types ethylene propylene dine monomer (EPDM) and silicon rubber(SR). Though composite insulators have shown good performance in hostile environments but silicon rubber have reduced contamination problem to some extent. Hydrophobic property of silicon rubber does not allow the surface to get wet and hence contamination does not occur. This paper presents some laboratory tests performed on silicon rubber insulators to ascertain the aging. Aging properties of the polymeric materials have been studied using inclined plane test. In inclined plane test pollution of different severity was coated on the surface of polymer and proper severity was determined for the ageing. Hence aging parameters which influence aging has been studied.

Keywords: Hydrophobicity Vandalism, Severity

I INTRODUCTION

Generally , insulators produced were of porcelain and toughned glass, which are widely used in overhead lines for transmission and distribution. However in early sixties polymeric materials entered into the insulation field and replacing porceline or ceramic due to its abundant advantages, the main advantages are weight reduction compared to ceramic, reduced breakage, improved resistance to vandalism , improved power frequency insulation and improved contamination performance[1]-[3]. Though the polymers have tremendous advantages, use has been restricted due to its limitations. The main limitations is the aging property of polymeric insulator. Many difficulties were observed in regarding their aging performance. The factors which are responsible for aging of polymers are tracking and erosion, chalking and crazing, bonding failures, arcing and flashover, corona splitting and water penetration into the surface boundary and reduction of hydrophobic property.

Though many work have been carried out on polymeric materials, aging properties have not been understood thouroghly. in order to understand the aging property of various polymeric material tests were conducting using inclined plane test and based on the results full sale testing where conducted on polymeric insulator. So we have taken up inclined plane test to study the aging of polymeric insulators,we have considered some samples of polymers for the study and later the test was performed on full scale insulator.

It is anticipated that the result will help in understanding the aging of polymeric material and will help in reducing the defects of polymer.

II EXPERIMENTAL SETUP & PROCEDURE

Experiments were carried out on an inclined plane after accessing the parameters like severity, the stress and a droplet flow, full length insulator of 66Kv polymeric insulator will also be subjected for ageing test.

Inclined Plane Test On Polymeric Material

Inclined plane test was proposed by Mathes and Gowan in 1961 and worked out as the ASTMD2303standard in 1964[1]-[3]. The samples are with the dimension of 120 × 50 × 6 mm two electrodes are fixed 50mm apart. Eight layers of filter-paper are clamped between the top high voltage electrode and the specimen to act as a reservoir for the liquid contaminant. The 0.1 % solution of ammonium chloride (NH_4Cl) with the conductivity of 2.53 mS/cm is fed to the electrode. The electrolyte flow is regulated so that flow rate will be 6 drops per minutes was allowed to flow on the surface during the aging test. The voltage was applied on to the polymeric material for about half an hour with the flow of electrolyte on the surface.

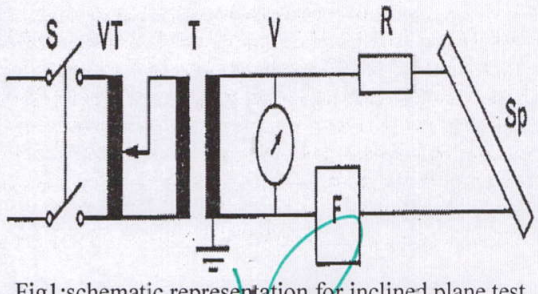

Fig1:schematic representation for inclined plane test

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Evaluation on Aging of Polymeric Insulators by Inclined Plane Test

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Keywords: Hydrophobicity, Vandalism, Severity

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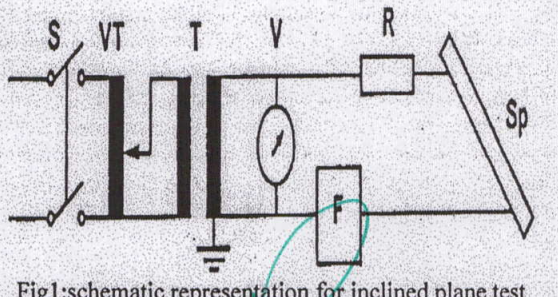

Fig1:schematic representation for inclined plane test

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Adaptive Hard Thresholding for Block Matching Three dimension for Denoising Volumetric Data

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Abstract: ***BM3D is a recent state of art patch based denoising algorithm .It works on the fact that an image has a locally sparse representation in transform domain.It is composed of two stages i)hard thresholding and ii)weiner filtering This paper provides a mechanism that incorporates an improved version of BM3D which combines the digital image characteristic with added noise pollution levels, and adaptively selects block-matching threshold in grouping stage for an extended BM3D to four dimension so as to denoise volumetric data corrupted by Gaussian and rician noise. Experimental results demonstrate it outperforms not only in terms of objective criteria of PSNR, but also in improving the visual quality.***

Keywords: Image denoising, adaptive thresholding, Patches, Volumetric data

I. INTRODUCTION

Noise is an inevitable that gets added while capturing or transmission in electronics cevices. Several approaches have been devised in literature to remove the noise Recently patch based approach has attracted research community and gained enormous popularity .They have been applied and incorporated in various machine learning ideas. Two most powerful approaches are NLMeans, BM3D and powerful enhancement of Patch based approach that is non local means. In past decades patch based has been employed to denoise medical images such as MRI.

Noise in MRI can be gaussian or rician noise .Numerous approaches exists in literature to denoise MRI images . Few approaches follow filtering, transform domain or statistical approach . In particular, nonlocal means (NLM) filter [1] has been used to denoise MRI image, achieving notable results [4][5][6]. NLM exploits the redundancy of the neighborhood pixel to remove the noise. The restored pixel is considered as the weighted average of the intensities of all pixels within the neighborhood area. Since MRI image has multichannel nature, NLM has been modified to denoise MRI data where the similarity measure can be considered to combine the relative information between different slices. Pierric and et al proposed a series of methods in [12] Magonni proposed an approach and later extended for varying variance estimation rather than fixed[4][5].Recently Muhammad Aksam Iftikhar and et al [6] [8]proposed an extension to Non local Means for MRI and obtained promising results. Hosein M. Golshan and et al determined a method for MRI denoising using LLMSE[7].in[17]authors proposed an approach for modification of BM3D with adaptive threshold.

The paper is organized as follows. In Section 1 we provide introduction in section 2 depicts methodology followed by mathematical model in section 3 and results in section 4

II. METHODOLOGY

This approach selects the digital image characteristic with added noise pollution levels, and adaptively selects block-matching threshold in grouping stage. The proposed algorithm makes use of voxels instead of fragments. The result is a formation of group which is created by stacking similar cubes, and hence a 4D hyper rectangle is formed. As observed in BM3D [6], the grouping is highly sparse and hence this type of grouping allows effective segmentation of signal and noise using threshold method or filtering process. Inverse transformation is estimated for each grouped cube which are then aggregated to original co-ordinates by adaptive weights and this acts as a regularize operator, Hence reconstructing incomplete volumetric data.

Reconstruction is performed iteratively, where in every iteration the missing part of the spectrum is excited with random noise.It attenuates the noise present in both magnitude and phase, thus disclosing even the minute details[4].

A. MBM3D Algorithm Steps

1) Algorithm Step1: Estimation of Adaptive Hard Thresholding

Read a Noisy Image

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CHILD SAFETY WEARABLE DEVICE

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AADHAAR CARD AND BIOMETRIC BASED VOTING MACHINE FOR LOCAL AND IMMIGRANT VOTERS

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Abstract—**Electronic voting system is the system in which the election data is recorded, stored and processed primarily as digital information. The 2 types of e-voting are Online and Offline. The Online voting can be done via internet and offline by using a voting machine or an electronic polling booth. The security of the system relies mainly on black-box voting machine ensures that vote casted cannot be altered by any person. Offline e-voting process authentication can be done using Aadhaar card and Fingerprint identification thereby allowing voters to cast their votes. GSM, A voter can alert the election commissioner's office about mis-conduct of elections at respective polling booth, such as rampage or bribes given to voters etc.**

Keywords: Renesas Microcontroller, LCD(20x4), Threaten-alert key, keypad, Amazon cloud server.

INTRODUCTION

Election is a basic process of democracy which allows people to show their opinion by selecting their candidate. The current system is less transparency as there could be a chance of cheating during voting. Biometrics is the use of biolcgical traits behavioral characteristics to identify an individual. The proposed survey provides option to choose the candidate to whom he/she wants to vote for a particular division to which the voter belongs to that division.Finger print of a voter is saved as Aadhaar card number in a central government database. Citizens are provided with a 12-digit unique identity number. Finger print biometric provide secure authentication because finger print is unique to each individual. Identity of an individual his cross checked with the data maintained server through finger print scanning and Aadhaar card. If any problem occurs ,the voter can press the threaten alert key.

LITERATURE SURVEY

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CLOUD DATA SHARING WITH GROUP USERS USING NPP AUDITING SCHEME

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Abstract— **Nowadays, cloud storage area has turned out to be one of the critical services, for the reason that users can certainly modify and share data with others. Cloud computing is the process that enables ubiquitous access to shared pool of configurable system resources and higher-level services that can be rapidly provisioned with minimal management effort, often over the internet. Here we discuss about public auditing scheme based data sharing between group of users over the cloud server. In our project paper, we have tried to incorporate a new privacy-aware public auditing mechanism for shared cloud data. The existing systems which make use of third party auditor need to share the data through the auditor. In our scheme, the Third Party Auditor [TPA] has no access to the data, but is responsible for checking the integrity of users in the cloud.**

With data storage and sharing services in the cloud, users can easily modify and share data as a group. A group key agreement with these features is very suitable for social networks. Here mainly communication is between the group of users and server. Here we propose a new privacy-aware public auditing mechanism for shared cloud data by constructing a homomorphic verifiable group signature.

I. INTRODUCTION

Since cloud servers are vulnerable to inevitable hardware faults, software failures or human errors, data stored in the cloud may be spoiled or lost. In the worst cases, a cloud owner may even conceal data error accidents in order to preserve its reputation or avoid profit losses. In addition, users who lose direct control over their data are not sure whether their cloud-stored data is intact or not. Therefore, integrity verification for the shared data in the cloud is an important, yet timely issue for a large number of cloud users. To ensure the integrity of data stored in cloud servers, a number of mechanisms based on various techniques have been proposed. In particular, in order to reduce the burden on users, a trusted third-party auditor (TPA) is engaged to conduct the verification, which is called public auditing. However, the TPA may have unnecessary access to private information during the auditing process. Therefore, researchers proposed some new schemes to protect privacy, including data privacy, and identity privacy. To be specific, the TPA cannot learn each block that is signed by a particular user in the group by

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GARBAGE MONITORING SYSTEM USING IOT WITH LOCATION TRACKING AND ALERT

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ABSTRACT

One of the major challenges faced by the world today is the growing amount of waste generated every day. Due to urbanization, population explosion and improper ways of garbage collection, garbage is being produced on a very large scale. Life-threatening diseases, reduction in the quality of aesthetics in the environment, air and water pollution are all resultant problems of unattended garbage mainly due to inefficiency in garbage collection. Thus, there is an urgent need of an efficient method for monitoring garbage. There are many available technologies which aim at effective collection of waste. In the proposed system, Internet of Things (IoT) has been used to manage smart bins that are employed to collect garbage and prevent it from overflowing. Arduino UNO microcontroller, ultrasonic sensor, Global Positioning System (GPS), Global System for Mobile Communication (GSM), and ESP8266 Wi-Fi module chip have been integrated into a system to implement smart bins.

Keywords—IoT, GPS, GSM, Arduino, Ultrasonic sensor, ESP8266 Wi-Fi module chip

I. INTRODUCTION

A serious problem being faced by developing nations today is the tremendous generation of waste which is not being managed properly. Urbanization, economic development and increasing

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AN EFFICIENT AND FINE-GRAINED BIG DATA ACCESS CONTROL SCHEME WITH PRIVACY-PRESERVING POLICY

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ABSTRACT

In Efficient Privacy – Aware Authentication scheme for mobile cloud computing services process the main concept is to provide the privacy aware authentication (PAA) to the mobile cloud computing. For security PAA scheme identity based signature scheme is used. To improve security level, we proposed a password-based authentication schemes. Then for more security, we use the encryption and decryption process using Attribute Based Encryption Scheme (ABE) and using that private key only they can access the file. By using the private key, after getting access for the file, user can download the particular file and it can be saved in the local system.

***Index Terms*—Access control, attribute bloom filter (ABF), big data, linear secret-sharing scheme (LSSS) access structure, privacy-preserving policy.**

INTRODUCTION

Mobile cloud Service Cloud computing is a large-scale distributed network system based on a number of servers in data centers. The models of cloud services can mainly be categorized based on a layer concept. In the upper layers of this paradigm, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) are stacked. Due to the limitation of

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DOS ATTACK DETECTION USING DATA MINING TECHNIQUES

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ABSTRACT

Globally the internet is been accessed by enormous people within their restricted domains. When the client and server exchange messages among each other, there is an activity that can be observed and tracked in detail of the activities that occur in a network that shows the, login and logout durations, the user's behavior etc. There are several types of attacks occurring from the internet. In this work the first focus is to provide product recommendations based on the collaborative filtering and content based recommendations. In collaborative based recommendations the rating across the users is taken into consideration which is same for all the users. In Content based recommendations the recommendations related to the product are made based on the transactions performed by the end user. The Session tracking is performed for every click action and every navigation of the user and then behavior based habitat file is generated. Two kinds of intrusion are detected one is behavior change using Least Common Sub Square algorithm and then Dos Attack which is repeated action performed by the user within the limited time frame.

Keywords: Denial of Service, Log File, Cyber Crimes, Data mining, outliers, Association rules.

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SMART PARKING RESERVATION SYSTEM AND AVOID PARKING IN RESTRICTED AREA USING IOT

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Abstract— **Parking is the major issues in many cities hence driver will end up in parking their vehicles in the restricted area. Smart parking and reservation system is an IoT system which is designed in order to automate and cater the issues in the above mentioned problem. An android application is a part of proposed system, has to be installed on the parker's smartphone. The parker should register in the application, thus a unique account is created per parker. The parker's account includes his/her personal details and vehicle detail. When the parker wants to park his vehicle in the particular location, he logs into his account and selects the location, date, time and selects the particular slot for parking the vehicle and confirms his reservation. Confirmation message will be sent to the**
owner's mobile phone.
When the person irresponsibly park his vehicle in restricted area, an indication will be given to the driver and alert message will be sent to the owner's mobile phone and automatically complaint will be lodged against the vehicle.

Keywords: Smart parking, Reservation System, Renesas microcontroller, Stepper motor, GSM, GPRS, Android Application.

INTRODUCTION

In the modern world the means of transportation are car, bus, etc. As each and every one is travelling by their own vehicles, parking their vehicles becomes a major task for the owner as vehicles are parked on the roads, footpaths and in the non-parking areas also which results particularly with dense traffic, directly effects the traffic flow and people's life. Problem such as congestion, limited parking facilities and road safety are being addressed in the smart cities. These problems results in wastage of resources and time.

Parking is an expensive process in terms of either money or the time and efforts spent for the "Free spot spacing". Current studies reveal that vehicle is parked for 95 percent of its life time and only on the road for the other 5 percent. If we take England in 2014 as an example on average a car was driven for 361 hours a year, according to the British National Travel Survey yielding about 8404 hours in which a car would be parked. Now where would

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REAL-TIME LOCATION CLASSIFICATION WITH SENTIMENT ANALYSIS BASED ON WORLDWIDE TWEETS

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SOLUTION FOR PERISHABLE PRODUCTS IN COLD CHAIN MANAGEMENT

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Abstract - **The project introduces a smart cold chain logistics monitoring system based on cloud based IOT. The temperature data in the cold chain vehicle and the geographic location of the vehicle along with all the proceeding events will be evaluated, monitored and notified in real time. The project aims at capturing location violations i.e., the path at which the vehicle was supposed to travel, and the vehicles actual trace of travel. With the continuous development of Internet of Things, cloud computing, many cold chain logistics providers have updated their IT solutions to enhance the quality control of perishable food products in the cold chain industry. Therefore, in project the attempt made to propose and present an intelligent solution form the perspective of key enabling technologies and system framework. Through the various sensors that are implemented in the system, data is obtained and sent to the server. To monitor the real time status of supervised products and give decision support intelligently in a cost-effective way. From the server the data is sent to user application which then displays the data to the user to monitor the activities in real time. Furthermore, load planning and route planning is done with the help of GPS data. The temperature data in the cold chain vehicle and the geographic location of the vehicle along with all the proceeding events will be evaluated, monitored and notified in real time. The project aims at capturing location violations i.e., the path at which the vehicle was supposed to travel, and the vehicles actual trace of travel.**

Index Terms - cold chain; Internet of things; cloud computing; optimization.

I. INTRODUCTION

Cold chain plays an important role in the quality control of perishable foods, such as fruits, vegetables, meat, and frozen desserts. According to a report issued by the International Institute of Refrigeration, about 360 million tons of perishable foods are lost annually due to insufficient use of refrigeration. Having realized the high significance of cold chain management, there has been an increasing interest in researching how to maintain appropriate environmental conditions to control the quality of perishable foods with cutting-edge technologies. Traditional methods include uses of time temperature integrator (TTI) labels and temperature data loggers. However, none of those methods can provide real-time visibility and proactive notification for remote users to reduce risks automatically. Consequently, as the business environment has been moving toward the world of ubiquitous computing, many scholars and practitioners are

Influence of Europium (Eu^{3+}) Ions on the Optical Properties of Boro Tellurite Glasses

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Abstract. The influence of Eu^{3+} ions on the Optical properties of Boro Tellurite Glasses of (70-x) B_2O_3-15TeO_2-10Na_2O-5PbO-xEu_2O_3 with x = 0, 0.1, 0.2, 0.3, 0.4 and 0.5 mol% glasses were prepared by conventional melt quenching method and their physical and optical properties were investigated by using UV absorption spectra, which was recorded at room temperature in the UV-visible region of wavelength 200-1100 nm. By the absorption edge studies, the values of optical bandgap energies have been evaluated. The direct and indirect bandgap values ranges between 3.362 to 3.650 eV and 2.011 to 2.863 eV respectively. The refractive index, molar refraction and polarizability of oxide ions have been calculated by using Lorentz–Lorentz relations. The refractive index and molar refraction values were ranges from 2.241 to 2.358 and 76.147 to 79.915 cm^3 respectively. The non-linear variations of the above optical parameters were discussed with respect to small variation of europium (Eu^{3+}) ion concentration.

INTRODUCTION

In recent years glasses known as very promising materials since they can be doped with rare-earth ions and so they gave best contribution to the development of optical amplifiers, lasers, optical waveguides and white-light-emitting devices. Boro Tellurite glasses were studied impressively and widely due to their better physical properties like high thermal stability, low melting point, good rare earth ions solubility, good mechanical strength, chemical durability, high dielectric constant, lower phonon energy and best transmission in the visible and IR wavelength regions [1-3]. PbO is thoroughly used in glasses because it enhances chemical durability and lower melting temperature of glass [4]. Optical glasses with rare-earth ions are considered as promising candidates for developing photonics and signal processing devices for communications and computing application, their physical, chemical and thermal properties are suitable for practical applications [5]. Due to technological importance and the advantages of europium (Eu^{3+}) ion, in the present paper, the study of the optical properties of B_2O_3–PbO–TeO_2-Na_2O glasses with respect to a small change in concentration of Eu_2O_3 are reported.

MATERIALS AND METHODS

The (70-x)B_2O_3-15TeO_2-10Na_2O-5PbO-xEu_2O_3 with x = 0, 0.1, 0.2, 0.3, 0.4 and 0.5 mol % of glass samples were prepared by melt quenching technique using raw materials namely H_3BO_3 (Aldrich, 99.5 %), TeO_2 (Aldrich, 99 %), Na_2CO_3 and PbO as starting materials. The sample was annealed at 150°C for 60 minutes and the prepared samples were cut into proper dimensions for the required measurements. The amorphous nature of the prepared glass samples was confirmed by using X-ray diffraction technique, and XRD analysis has been done at room temperature using a D-8 X-ray diffractometer (Bruker AXS-Model) using Cu K_α radiations of wavelength λ=1.5406 Å. The density of each glass samples was measured by the Archimedes method using toluene as an immersion liquid (density = 0.860 g/cm^3 at RT). The corresponding molar volumes (V_m) are calculated by using the formula, $V_m=M/\rho$. Where ρ is the density and M is the molecular weight of the glass samples. For polished glass samples, the optical absorption was taken using

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Effect of γ-ray Irradiation on Optical Properties of Erbium doped Bismuth-Tellurite Glasses

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Abstract. Heavy metal oxide contained glasses are very promising candidates in shielding and photonic materials. In this paper, we studied the effect of γ-ray irradiation on optical properties of Er_2O_3-Bi_2O_3-TeO_2 glasses through UV-Visible spectrophotometer. After γ-ray exposure, the optical band gap decreases and Urbach energy increases, which is due to creation of defects within the glass network as a result increases the number of non-bridging oxygens.

INTRODUCTION

In recent years, there is an enormous research interest on gamma irradiated various types of glasses due to their prominent applications in space, nuclear power, windows, TV camera objectives and other radiation shielding materials [1]. High energy ionizing radiations such as X-rays, γ-rays, electron, proton, neutron, heavy ions and UV radiations are capable of inducing electronic as well as rearrangement damage in solids and particularly can produce various types of defects in glasses [2]. Phenomenal development in the gamma irradiation on glasses is defects induced by irradiation can cause strong absorption extending from the ultraviolet to the visible region. Therefore, the study of defect centers in glasses is a prerequisite to examine their suitability for nuclear shielding purposes as well as in radiation dosimetry applications [3]. Heavy metal oxides such as Bi_2O_3, PbO, etc., contained glasses are extensively used in the radiation shielding because of their resistance to high radiation, high absorption cross-section for radiation and also, small irradiation effects on their mechanical and optical properties [4]. In this paper, we reported the effect of gamma irradiation on optical parameters such as optical absorption, optical band gap and Urbach energy on erbium doped bismuth-tellurite glasses.

EXPERIMENTAL

Bismuth-tellurite glasses were prepared with the composition of xEr_2O_3-$15Bi_2O_3$-$(85-x)TeO_2$ (x=0, 0.1, 0.2, 0.3, 0.4 and 0.5 mol%, labelled as BTE0, BTE1, BTE2, BTE3, BTE4 and BTE5, respectively) using conventional melt quenching method. Appropriate stoichiometric amounts of the chemicals in powder form were used to synthesize the glass samples. In this investigation, we used a set of glass samples is exposed to γ-rays (^{60}C) in a dose range 18.5 kGy at a dose rate of 5.2 kGy/h. The optical absorption measurements were carried out at room temperature using SHIMADZU UV-1800 UV-Visible spectrophotometer in the wavelength range 1100-200 nm. The optical absorption coefficient α(λ), was calculated from the absorbance 'A' and the thickness of the sample 'd' by using the following equation,

$$\alpha = 2.303\frac{A}{d} \qquad (1)$$

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Understanding Ransomwares and Analyzing their Prevention Mechanisms

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Abstract—**Ransomware are a type of malware that prevent users from using their data, either by locking the system screen, or encrypting the user data. The data cannot be decrypted or retrieved unless a ransom is paid. Ransomware writers control the affected host via a Command and Control(C&C) server. The software placed on the infected machine communicates with the C&C server, gets the key to encrypt and encrypts all the files on the infected machine using that key. Here various methods of encryption and various methods of detecting the communication to the C&C server are studied. Various methods to detect and prevent ransomware attacks are analyzed.**

Index Terms—**malware; ransomware; encryption; public key cryptosystem; private key cryptosystem; hybrid cryptosystem; CryptoLocker, Microsoft FileServer Resource Manager; EventSentry;**

I. INTRODUCTION

With the emergence of computers and smart phones, their ease of usage and availability has made them very popular. This ease of use and high availability has also made them prone to various types of attacks. Security in computers and smartphones has become the need of the hour. Computers and smartphones are used for all applications- from reading something, to booking tickets, to manage account, transfer funds, to store all the research data, to store all personal data-photos, videos, study or thesis material, documents and the list goes on.

Ransomwares are a type of malicious software that threatens to publish the user's data or purposefully block access to his data,unless some ransom (random amount of money) is paid. This malware is inserted to the host, when activated fetches the key, either by communicating with a C&C server, or finding the hardcoded key and then encrypts the user data with the key. Once the encryption is complete, it leaves a message to the user that the data is encrypted; he needs to pay some ransom amount to the malware writer to get the key to decrypt the files. Once the payment is done, the user gets the key, using which he can decrypt and get his files.

II. LITERATURE SURVEY

Mohammad Mehdi, Hamid Reza Shahriraiet.al [1] presents a novel approach for detecting ransomwares using by discovering a principal feature in high survivable ransomwares. They propose taxonomy for the ransomwares and then propose a framework for detecting them. They classify ransomwares based on the encryption mechanism they perform.

1. Non-Cryptographic Ransomware

These types of ransomwares do not use any encryption mechanism, i.e. they do not encrypt the data, rather restrict access to data by simply locking the screen, or modifying the master boot record, or the partition table. These types of ransomwares cannot do much harm and the action can be reversed without paying any money.

2. Cryptographic Ransomwares

These typesof ransomwares make use of cryptographic algorithms to hold the data in exchange for a ransom. These cryptographic ransomwares are again classified into three subtypes.

a. Private-key cryptosystemransomware

These ransomwares make use of private key crypto-systems like the classical ciphers, DES, stream ciphers and block ciphers. One such example of private-key ransomwares iscrypt orbit, which was discovered in December 2013. The drawback of such private-key ransomwares is that, they are inherently scrutable, i.e.malware analyst can easily predict the encryption key and reverse the effect of encryption.

b. Public-key cryptosystemransomware.

Some ransomwares make use of sophisticated public-key encryption. A ransomware called May Archive used RSA encryption with ever increasing key size. A ransomware known as Gpcode.Ak was detected used 1024 bit RSA key, such a large key is infeasible to break without concerted distributed effort. The public key and private key pair is generated only once, the public key is placed in the payload of theransomware which is used to encrypt the user data. Once the encryption is done, the ransomware gives a message saying that the data is encrypted, and also gives the contact information of the malware writer. Once the attacker is contacted, a ransom is charged for the exchange of private key. Once the user receives the private key, he can decrypt and recover his files. The disadvantage of such a public key encryption is that, the victim could publish the private key, which could help other victims, since the encryption mechanism consists of only a pair- a single public key, and a single private key. Attackers overcome this disadvantage by choosing multiple key pairs to perform encryption,

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Design of Secured Block Ciphers PRESENT and HIGHT Algorithms and its FPGA Implementation

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Abstract— **Light weight cryptography is a technology for providing the security solutions for the hardware systems where there is no computational resource or limited resource. PRESENT and HIGHT are a class of lightweight block ciphers which uses two different ways of computational structure for cipher generation. The paper presents the design and FPGA implementation of the two cryptographic structures PRESENT and HIGHT. A new hardware architecture design has been developed here for both PRESENT and HIGHT. A comparative analysis of the presented designs PRESENT and HIGHT have been done with the existing designs. A significant design optimization has been achieved for HIGHT and a significant throughput has been achieved for PRESENT.**

Keywords— Lightweight cryptography, PRESENT, HIGHT, FPGA.

I. INTRODUCTION

In the recent days, cryptography technique has become an emerging concept that provides security to electronic data transaction in computational environment. One of the new Cryptography technologies called as Lightweight Cryptography is designed to support the hardware resource constrained systems such as RFID tags, sensor, IOT devices and many other embedded devices. In hardware implementation system chip size and energy consumption are the important measures to calculate the lightweight factors and in software implementations, less RAM size or the code size are commonly preferable [1]. The Lightweight cryptographic primitives which are developed in the past years are classified into three classes which contain block ciphers, stream ciphers, and hash functions. A). Lightweight block cipher- In this the cryptographic algorithm were designed to obtain better performance parameter than AES-128 standard. The light weight block cipher contains following benefits compared to traditional block ciphers which are smaller block sizes, small key volume, simpler round, and simpler key schedule.
There are also various types of block cipher cryptographic methods which are described as 1). DESL and DESXL- These are forms of DES standard that consist of single S-BOX and can efficiently reduce the risk of attack such as linear and differential cryptanalysis attack. 2). HIGHT-(High security and light weight) this is a type of 64 bit block cipher with 128-bit key length and uses Feistel structure with lesser number of round. HIGHT uses key-whitening method to prevent the block cipher from the attack and it also has lower cost implementation. 3). PRESENT- This is an ultra-lightweight technique suitable for high resource constraint system such as RFID tag, sensor networks etc. if containing block length of 64 bits, 31 rounds and two keys length 80 bits and 128 bits. This technique preferably used for application where AES is unstable. B). Lightweight stream cipher- This is a type of technology which is designed for the hardware system that provides implementation flexibility. C). Lightweight Hash function- This is a class of cryptographic primitives which is constructed as the existing hash function which was unsuitable for embedded and integrated application due to their large memory capacity and energy consumption. The lightweight hash function has some features such as smaller state and result sizes which provide security against collision attacks and helps in minimizing the internal state memory, that differentiate it from the traditional hash function[2] [3].

Application Specified Integrated Circuits[ASICs] are the most considered choice for the lightweight cryptography but it includes high non-recurring engineering cost and long time to market where as FPGA have attracted lots of attention toward the development of hardware based on lightweight cryptographic application with low power and low-cost implementation feature and it also can be reconfigured or upgraded after manufacture. The reconfiguration feature of FPGA provides a best alternative for battery powered devices such as WSN or RFIDs instead of ASICs [4] [5].

In the proposed system lightweight cryptography architecture of PRESENT and HIGHT algorithm based on FPGA is designed. Where PRESENT block cipher is using 64-bit plain text and 128-bit key for encryption and decryption and HIGHT is using 64-bit plain text and 128-bit key for encryption.
The rest of the paper is organized as, section II presents Literature survey, in section III presents the fundamental computation structures of PRESENT and HIGHT cryptographic technique, section IV describes hardware architecture of PRESENT and HIGHT algorithms, section V shows the results and analysis of proposed work, section VI

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An End to End Spoken Dialogue System to Access the Agricultural Commodity Price Information in Kannada Language/Dialects

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Abstract— **In this letter, a spoken dialogue system is demonstrated to disseminate the agricultural commodity price information in Kannada language/dialects. The spoken dialogue system mainly includes interactive voice response system (IVRS), automatic speech recognition (ASR) models and price information database. The IVRS call flow is used for speech data collection from the farmers across various dialect regions of Karnataka. The collected speech data is transcribed and validated using Indic transliteration tool (IT3: UTF-8). The dictionary and corresponding phoneme set is created for Kannada language. The ASR acoustic models are created using the speech recognition toolkit called Kaldi. The 85% and 15% of transcribed and validated speech corpus is used for Kaldi system training and decoding respectively. The agricultural marketing network (AGMARKNET) website is used as the price information database for different agricultural commodities. The postgresql database is used for managing the crawled data. The word error rates (WERs) of ASR models for districts, mandis, commodities and mixed data are discussed and the spoken dialogue system is developed and tested from the real farmers to access the real time agricultural commodity price information in language/dialects of Kannada.**

Keywords— **Kaldi, accuracy, word error rates (WERs), speech recognition.**

I. INTRODUCTION

There are 6.5 crore people disseminated over Karnataka state under different dialect regions and they are daily deals with different commodities [1]. The agricultural marketing network (AGMARKNET) website is maintaining by agricultural ministry, Government of India provides agricultural commodity price information for Indian languages [2]. This website is updated frequently and provides minimum, modal and maximum price information of particular commodity in different Indian languages. Many farmers in Karnataka state are uneducated and do not computer savvy but almost all farmers uses mobiles for their interaction purpose [3]. Therefore, it is less cost to combine the mobile network with ASR system. Integrating the mobile network with ASR models to build spoken query system gives a good result for the statement of problem demonstrated in [4, 5]. An end to end spoken dialogue system consists of three main steps. They are, IVRS call flow, ASR models developed from Kaldi speech recognition toolkit and AGMARKNET commodity price information database management system. The IVRS call flow is used for task specific speech data collection. The PHP programming language is used to develop the call flow for the speech data collection and speech recognition system. The ASR acoustic models are created using the speech recognition toolkit called Kaldi. In [6], an Assamese spoken dialogue system is demonstrated to spread the price information of agricultural commodities in Assamese language/dialects. The acoustic ASR models were developed by using speech data which was gathered from the real farmers of Assam. The constrained speech data unseen speaker adaptation method was derived and it was known to give a significant development by 8% over initial evaluation. In [7], an Arabic ASR system is developed using Arabic language resources and data sparseness. The basic modeling techniques such as Gaussian mixture model (GMM) and hidden Markov model (HMM) were used to build an acoustic ASR models for Arabic end to end speech recognition system. The 36 phonetic symbols and 200 hours of speech corpus were used. A Russian speech recognition system is developed using syntactico-statistical language modeling technique with big Russian dictionary [8]. The standard IPA phonemes were used as quality phoneme set to build ASR models. It includes phonetic symbols of 55, consonants symbols of 38 and vowels of 17 in dictionary. The Russian language speech corpus was recorded in clean environment. The 16 kHz sampling rate and 26 hours of speech corpus was given for Kaldi system training and decoding. The obtained WER is 26.90%. The improvements in Assamese spoken dialogue system are implemented in [14]. Foreground speech segmentation enhancement algorithm is used for the suppression of different background noises. The noise elimination algorithm is introduced before the MFCC features extraction part. Recently introduced modeling techniques such as SGMM and deep neural networks (DNN) are used for the development of acoustic models. The developed spoken dialogue system is verified by the farmers of Assam under degraded condition and it enables the farmers/users to obtain the on-time price information of agricultural commodities in Assamese language/dialects. The literature reveals that spoken dialogue system was implemented for other Indian languages [9], [10]

Text Independent Speaker Identification: A Review

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***Abstract*—This paper presents an overview of Automatic Speaker Identification technology (ASI) with an emphasis on text-independent identification. Speaker identification is the process of automatically identifying person on the basis of the information obtained from the speech data. ASI is generally accomplished in four steps. The first step is the acquisition of raw speech data from real world environment. In the second step, the feature extraction is performed. The third step involves modeling the feature vectors and storing in a database. In the last step, the decision-making/testing is done. In this paper, the main techniques followed in each of the above steps are reviewed.**

keywords- Speaker identification, Text-independent, Feature extraction, Modeling, Testing

I. Introduction

Speaker recognition (SR) is a process of recognizing individual persons from their voice. Due to the different voice production organs such as vocal tract shapes, larynx sizes, and other parts, no two individuals have identical voice. In addition to these material dissimilarities, every speaker has typical style of speaking, including the use of a specific accent, rhythm, inflection style, elocution pattern, choice of lexicon and so on. To achieve more precise recognition, the contemporary SR systems use many of these features in parallel, trying to cover these different aspects and involving them in a supportive way [1]. There are two types of informations in SR viz. high level information and low level information. The information like dialect, accent, talking style and the subject manner of context all these constitutes high level information and these features can be recognized and analyzed only by humans beings. The information present in the speech such as the pitch period, rhythm, tone, spectral magnitude, frequencies, and bandwidth of a speaker's voice are low level information and these features are used by SR systems. We can speak to our personal computer (PC), make it to understand what we say and also we can make PC to respond to our queries with the help of SR and speech recognition. The speech recognition is different from the SR. In speech recognition the importance is for context of the speech ie., the stress is on the content what we speak whereas in SR who is speaking (the speaker) is more important than what is being spoken. In short, speech recognition is the potential to find the words spoken whereas SR is the potential to identify who said those words. In this paper the methods proposed for SR are discussed.

The SR is divided into two types. They are speaker identification (SI) and speaker verification (SV). These categories save reference models for number of known speakers (N) and utilize the same methodologies for analysis and decision. In case of SV, the speaker's voice data is compared to his/her model in the stored database and classified whether the speaker under the investigation is a known speaker or a fraud. The major application of SV systems is in the area related to security issues such as operations over telephone. The SI system, compares the sample voice with every models in the stored database to recognize the most appropriate speaker. This process needs more data procesing which leads to maximum error rates as the number of speakers keeps increasing. The SI is used in the areas such as audio conferences and police investigations. SR systems are also used in the fields such as banking, outsourced call centers, military, forensics and law enforcement, value added services etc.

Further SI is categorized into two subdivisions. They are open-set speaker identification and closed-set speaker identification. In case of closed set speaker identification, the authorized person of the unknown voice sample is one of the known speakers. In case of open set speaker identification, it is not known that the authorized speaker of the unknown voice sample is present in the reference or not. The closed-set identification is categorized into text-dependent and text-independent identification [2]. This hierarchy is represented in Fig. 1. In text-dependent speaker identification, the speaker need to speak the same words which he/she has given in the enrolled/training stage but in text independent speaker identification, the authorized speaker is recognized without giving much importance to the content of the speech. In text independent speaker identification, the speaker can speak openly with the system without the constraint of words. This act as one of the major advantage of the latter compared to that of text dependent speaker identification. But, to obtain better performance it demands much deeper training and testing sessions.

There are four modules in SR. They are pre-processing, feature extraction, modeling and testing. In the pre-processing stage, the noise removal and the speech enhancement is performed. Also, the speech data is divided into short-duration frames using a windowing technique and then the features of speech signal are extracted from each frame [3]. This is be-

Review on Rapid Application Development using IoT

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***Abstract*- Sensors are the most important part of the embedded system and the robotic world. Using different types of sensors we will be able to minimize the logic circuits and also make the system more efficient. In this paper we discuss different types of sensors and their applications in the different fields using soil moisture sensor, water measurement sensor, etc., Framework is based on embedded intelligent sensor nodes with suitable embedded architecture for various multi-sensor applications.**

Keywords*: *Environment sensor module, soil moisture sensor, water sensor, alcohol sensor, battery module.

I. INTRODUCTION

Wireless sensor network (WSN) technology is now used in various fields. WSN consist of large number of sensor nodes whose purpose is to sense environment parameters, and then provide a corresponding output. Sensors will detect the changes in physical or electrical quantity and thereby produces an output as an acknowledgement. This sensor output will be in the form of optical or electrical signal. Each sensor node also consists of various kinds of sensor, computational units and storage devices. We use heterogeneous wireless sensors that are capable of measuring temperature, water level and light, soil moisture etc. We use Gateway module 2 to collect the sensed data from the area which is used for monitoring and store the data in database for analysis and visualization through a portal [1][2].

II. SYSTEM ARCHITECTURE

Sensors are used for monitoring sensed data from the WSN through a web portal. We use heterogeneous wireless sensors that are used for measuring environmental data like humidity, Temperature, light etc. Sensor node collect the data and sends the data to the sink node which in turn sends to gateway and stores the data in data centre as shown in fig 1. Server sends the data upon query by the remote client for monitoring purposes [3]. WSN is used in various application like precision agriculture, health monitoring application, military application etc. WSN plays an important role. Nowadays it translates sensing and identification activities into services with low cost.

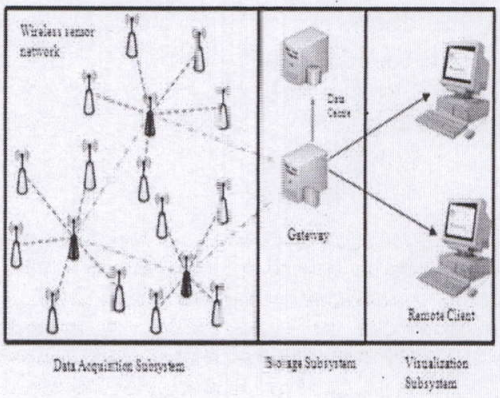

Fig 1. System Architecture

III. COMPONENT DESCRIPTION

Wireless Sensor Network: These components are responsible for collecting real time environmental data by sensing and transmitting them to the server.

A. *Gateway Module 2*

This device provides connection to other systems such as computers, laptops using USB it enables data exchange as well as serial programming of connected core modules.

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Multi Path Routing in Load Balanced Energy Enhanced Bee-AdHoc-C MANETs

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Abstract. In order to increase the energy efficiency in MANET structure Bee-AdHoc-C is being introduced as best suited technique with stable clustering scheme and proper load balance. For this purpose in order to form the clusters the signal power received and remaining energy of the nodes are considered where cluster merging and cluster splitting are considered for maintaining the load balance. Also in the previous case alternate route is chosen according to hop count. But still in any multi path routing process the traffic when sent through a particular path affects the parallel path and also sometimes increases the jitter in the parallel path. This happens mainly because there is competition among the neighboring nodes in order to find the joint channel in parallel paths. For this a strategy has been maintained for counting the number of active neighbors in a particular direction.

Keywords: MANET · Energy efficiency · Multipath · Routing
Number of nodes

1 Introduction

As MANET is a versatile structure with many applications right from office space to defense so many researches have been carried out to enable MANET to be more energy efficient. As MANET structure is dynamic in nature so according to [7, 8, 10] it is very important to have a hierarchical architecture in order to have routing in a very systematic way. Many techniques have been already introduced but in this work more importance has been given to make MANET well balanced in case of multipath data transfer. In the previous techniques in [3–6] already routing protocols have been introduced to make MANET structure most efficient with proper load balancing. Initially MANET routing has followed swarm intelligence as per [11, 12] where the complete MANET structure has been divided to clusters named as Bee AdHoc-C. Again the technique of routing has been made more systematic within the cluster and between parallel clusters by using BCNs (Border Cluster Nodes). Further the technique has been improved where the main care has been taken for proper load balancing.

Though in all the techniques the multipath routing is initiated between source and destination but the delay in routing has been observed to be more. This delay mainly occurs when there are parallel paths and the neighboring nodes try to compete with

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Influence of Europium (Eu^{3+}) Ions on the Optical Properties of Boro Tellurite Glasses

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Abstract. The influence of Eu^{3+} ions on the Optical properties of Boro Tellurite Glasses of $(70-x)\ B_2O_3$-$15TeO_2$-$10Na_2O$-$5PbO$-xEu_2O_3 with x = 0, 0.1, 0.2, 0.3, 0.4 and 0.5 mol% glasses were prepared by conventional melt quenching method and their physical and optical properties were investigated by using UV absorption spectra, which was recorded at room temperature in the UV-visible region of wavelength 200-1100 nm. By the absorption edge studies, the values of optical bandgap energies have been evaluated. The direct and indirect bandgap values ranges between 3.362 to 3.650 eV and 2.011 to 2.863 eV respectively. The refractive index, molar refraction and polarizability of oxide ions have been calculated by using Lorentz–Lorentz relations. The refractive index and molar refraction values were ranges from 2.241 to 2.358 and 76.147 to 79.915 cm^3 respectively. The non-linear variations of the above optical parameters were discussed with respect to small variation of europium (Eu^{3+}) ion concentration.

INTRODUCTION

In recent years glasses known as very promising materials since they can be doped with rare-earth ions and so they gave best contribution to the development of optical amplifiers, lasers, optical waveguides and white-light-emitting devices. Boro Tellurite glasses were studied impressively and widely due to their better physical properties like high thermal stability, low melting point, good rare earth ions solubility, good mechanical strength, chemical durability, high dielectric constant, lower phonon energy and best transmission in the visible and IR wavelength regions [1-3]. PbO is thoroughly used in glasses because it enhances chemical durability and lower melting temperature of glass [4]. Optical glasses with rare-earth ions are considered as promising candidates for developing photonics and signal processing devices for communications and computing application, their physical, chemical and thermal properties are suitable for practical applications [5]. Due to technological importance and the advantages of europium (Eu^{3+}) ion, in the present paper, the study of the optical properties of B_2O_3–PbO–TeO_2-Na_2O glasses with respect to a small change in concentration of Eu_2O_3 are reported.

MATERIALS AND METHODS

The $(70-x)B_2O_3$-$15TeO_2$-$10Na_2O$-$5PbO$-xEu_2O_3 with x = 0, 0.1, 0.2, 0.3, 0.4 and 0.5 mol % of glass samples were prepared by melt quenching technique using raw materials namely H_3BO_3 (Aldrich, 99.5 %), TeO_2 (Aldrich, 99 %), Na_2CO_3 and PbO as starting materials. The sample was annealed at 150°C for 60 minutes and the prepared samples were cut into proper dimensions for the required measurements. The amorphous nature of the prepared glass samples was confirmed by using X-ray diffraction technique, and XRD analysis has been done at room temperature using a D-8 X-ray diffractrometer (Bruker AXS-Model) using Cu K_α radiations of wavelength λ=1.5406 Å. The density of each glass samples was measured by the Archimedes method using toluene as an immersion liquid (density = 0.860 g/cm^3 at RT). The corresponding molar volumes (V_m) are calculated by using the formula, $V_m = M/\rho$. Where ρ is the density and M is the molecular weight of the glass samples. For polished glass samples, the optical absorption was taken using

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Studies on Relationship between Wear Behaviour and Microstructure of a Hypereutectic Al-Si Alloy

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Abstract

A commercial grade hypereutectic Al-Si alloy (LM-28) has been modified by adding P in the form of Cu-14P master alloy. The microstructures of unmodified and modified were examined under SEM. The mean size of the primary silicon in unmodified alloy is 24.87μm and the same observed in modified alloy containing 0.06% P is 12.53μm. The volumetric wear rate and COF at high temperature have been studied using pin-on-disc wear testing machine. It has been observed that the wear resistance of modified alloys is noticeably improved when compared to the unmodified alloy. The worn surfaces were characterized by confocal microscopy and observed wear mechanisms are explained in the background of their microstructures.

Previous Next

Keywords

LM-28 alloy; Cu-14P Maste alloy; SEM; High temperature; Worn surfaces; Confocal micoscopy; wears behaviour; Primary Silicon

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Review on remote sensing and GIS for lake management

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Enhancing Security for Load Balanced Energy Enhanced Clustered Bee Ad Hoc Network using Secret Public Keys

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Abstract— **Mobile ad hoc network (MANET) is one of the most important and unique network in wireless network which has brought maximum mobility and scalability. It is suitable for environments that need on fly setup. A lot of challenges come with implementing these networks. The most sensitive challenge that MANET faces is making the MANET energy efficient at the same time handling the security issues. In this paper we are going to discuss the best routing for maximum energy saving which is Load Balanced Energy Enhanced Clustered Bee Ad Hoc Routing (LBEE) along with secured PKI scheme. LBEE which is inspired from swarm intelligence and follows the bee colony paradigm has been found as the best energy efficient method for the MANETs. In this paper along with energy efficiency care has been taken for security of all the nodes of the network. The best suiting security for the protocol has been chosen as the four key security scheme.**

Index Terms—**MANET, LBEE, path selection, Security Public Key Cryptography**

I. INTRODUCTION

The Mobile Ad hoc Networks MANETs always require the most competent and energy efficient routing protocols since they need to maintain satisfactory performance as their nodes dynamically move and transmission properties change. MANET is a self organized wireless network where all the nodes can work as receiver as well as transmitter and each node should be able for routing. Now a day Mobile Ad hoc network (MANET) is being used in many areas starting from house, office to very sensitive and important missions such as military operations for achieving communication between soldiers. It is also being used to help in avoiding accidents and traffic jams in the road transportation system. Due to the limited communication range of wireless interface, a data packet has to be transferred via several intermediate nodes (Multi-hop routing). Moreover, MANET nodes have limited rechargeable battery power. Thus, the routing mechanism is the most critical and challenging problem in MANETs. Thus many protocols have been designed to make the MANET energy efficient. In this regard in our work we have considered swarm intelligence considering [2] as the best chosen method in which Bee Ad Hoc network was chosen to be the best which follows the nature's bee colony work where all the bee work in a group with proper mutual understanding. Similarly in a Bee Ad Hoc network the nodes are divided as cluster head, foragers and scouts where the type of work assigned to the nodes are different. After introducing the Bee Ad Hoc network we have introduced the clustered Bee Ad Hoc Network where the protocol follows the clustering as per [1] as well as the bee intelligence method. Again the protocol has been improved for making the MANET more energy efficient by introducing a protocol where the inter cluster communication has been given maximum importance by the use of Border Cluster Node (BCN). Again in the next method still improvement has been done by properly balancing the network by fixing the number of nodes in any cluster where the node existence is confirmed according to the RSS (Residual Signal Strength) and RE (Residual Energy) of the node. In this process also alternate route is found if the present path is busy. But in all these cases we have not taken care for security of the MANET. Because of the mobility features of nodes in any MANET, it is very challenging to keep such a network secure. In this paper care has been taken to make the MANET energy efficient as well as care has been taken for its maximum security. Mainly three mechanisms are being used to get maximum security of MANET which are prevention, detection and response mechanisms. In case of external attacks prevention mechanism is used. Similarly to secure network against internal attacks detection and response mechanisms are used. For this in this paper main focus is on confirmation plans using secret key system to protect the LBEE Clustered Bee Ad Hoc MANET against malicious external attacks.

The objective of the paper is:

- To establish improvements in LBEE Clustered Bee Ad Hoc MANET
- Authenticating the nodes in LBEE Clustered Bee Ad Hoc MANET
- To use the best security key for routing protocols.

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Effect of Composite biodiesel of Pongamia – Waste Cooking oils and its Diesel blends on Performance and Emission characteristics of C I Engine

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Abstract -**The Pongamia and waste cooking oils are the main non-edible oils for biodiesel production in India. The aim of the present work is to evaluate the fuel properties and investigate the impact on engine performance using composite oil of Pongamia and waste cooking biodiesel of various proportions of 60:40, 70:30, 80:20 and their ternary blend with diesel of B10, B20, B30, B40. The result of the test showed that brake specific fuel consumption for composite oil of Pongamia biodiesel and waste cooking biodiesel 70:30 of blend B20 is higher than diesel due to their lower energy content compared to all other blends. The brake thermal efficiency of ternary blend and diesel is comparable while the Pongamia and waste cooking biodiesel have higher efficiency. The result of the investigation showed that ternary blend can be developed as alternate fuels.**

Keywords- Composite oil; Biodiesel; Transesterification.

I.INTRODUCTION

Biodiesel produced from Composite oil of Pongamia oil and Waste Cooking Oil has been considered as a promising option for diesel engines because of its environmental friendliness[8]. In this work, biodiesel from the composite oil of Pongamia oil and Waste cooking oil is prepared of proportions 60:40, 70:30, 80:20 of blends B10, B20, B30 B40 and tested on a diesel engine for different blends[9]. The comparison is made with diesel operation. Parameters such as brake thermal efficiency, brake specific fuel consumption, carbon monoxide, unburned hydrocarbons emissions are evaluated[10]. Even though the performance reduces slightly when the engine is fueled with biodiesel, significant changes in the combustion parameters observed in the case of biodiesel blends are significant to note[3]. On the other hand, reduction in CO, HC, and smoke is observed. The study reveals the effect of bio-diesel on a DI engine when compared to diesel and evolves conclusions with respect to performance and emissions. The tests were conducted for 0% load to 100% load condition for 4 blends (B10, B20, B30, and B40) and for 100% diesel and 100% biodiesel and its comparison of brake thermal efficiency, brake power and brake specific fuel consumption for the various blends were made with diesel[10]. Results showed for composite oil of Pongamia-Waste Cooking oil of 70:30 blend B20 gives better performance and emission results over diesel.

II. MATERIALS AND METHODOLOGY

Pongamia and Waste cooking oils were collected and treated. Methanol and sodium hydroxide were purchased from chemical laboratories. Because of its high viscosity and low volatility, the direct use of feedstock in a diesel engine can cause problems including high carbon deposits, scuffing of engine liner, injection nozzle failure, and gum formation, lubricating oil thickening and high cloud and pour points. In order to avoid these problems, the feedstock is chemically modified to its derivatives which have properties more similar to petrodiesel. The free fatty acid and triglycerides contained in the oil are reduced to fatty acid alkyl esters. Two stage

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A review about Isolation and Different Characteristics Analysis of *Moringa Oleifera* leaves (Natural Medicine)

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Moringa oleifera is a plant that has been praised for its health benefits for thousands of years. It is very rich in anti-oxidants properties. After a lot of research *Moringa oleifera* is found to be a very nutritious, it is rich in anti-oxidants means act against free radicals in human bodies, it reduces the high blood sugar level, it also reduces the body's response to the infection or injury which is takes place in body, which means it reduces the inflammation in our body. It protects the skin and nourishes it.

The proposed project gives the different applications of *Moringaoleifera*, the composition of the leaves and also helps to determine the properties of leaves. *Moringaoleifera* benefits include providing antioxidants and anti-inflammatory compounds, balancing hormones and slowing the effects of aging, improving digestive health, balancing blood sugar levels and helping fight diabetes, protecting and nourishing the skin, and helping stabilize mood and protect brain health,The project helps to determine the sources like vitamins and minerals such as protein, vitamins, iron content, and also the dehydration and rehydration characteristics, and also it will helps to determine the water absorption index (WAI) and water solubility index (WSI). In the proposed project content the objective includes the moisture content determination and steam blanching. *Moringa oleifera* is a medicinal tree that has been used to treatment for lot of diseases from very long time. It has been used to treat various different diseases, recently the scientific studies were conducted. So far, the research studies have shown that *Moringa oleifera* may lead to observable reductions in blood sugar and cholesterol. It may also have antioxidant and anti-inflammatory effects, and protect against arsenic toxicity. Moringa leaves are also highly nutritious, and should be particularly beneficial for people who are lacking in essential nutrients.

KeyWords:*Moringa oleifera*, Dehydration and Rehydration Characteristics Water Absorption Index (WAI) and Water Solubility Index (WSI)

A Framework to detect SQL injection by intruders for SaaS providers

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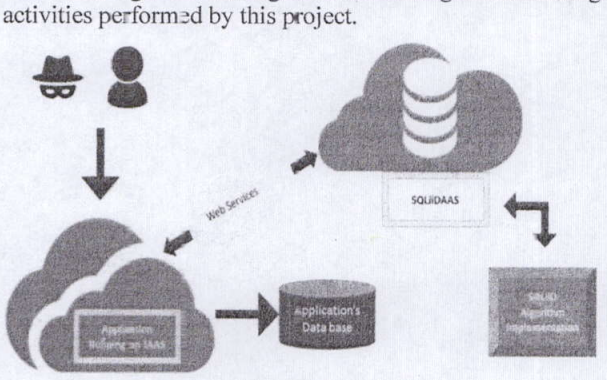
Abstract— **Recently, we are attending to the proliferation of Cloud Computing (CC) as the new trending internet-based-Platform. Thanks to the outsourcing paradigm, CC is enabling many services. Software as a Service (SaaS) is one of those cloud-based-services. Indeed, SaaS model allows providers to reduce the cost of maintenance and management by transferring traditional on premise deployment to public Cloud. Clients can subscribe, in self-service, to SaaS services based on a pay-peruse model. However, since user data are outsourced to the Cloud, serious security breaches are rising and could harm the reputation of providers and slow down the subscription of clients. SQL injection attack (SQLIA) is one of the most critical SaaS vulnerabilities that allows attackers to violate the availability, confidentiality and integrity of user data. In this project, we propose SQL injection intrusion detection framework as a service for SaaS providers, SQLIIDaaS, which allows a SaaS provider to detect SQLIAs targeting several SaaS applications without reading, analyzing or modifying the source code. To achieve SQL query/HTTP request mapping, we propose an event correlation based on the similarity between literals in SQL queries and parameters in HTTP requests. SQLIIDaaS is integrated and validated in Amazon Web Services (AWS). A SaaS provider can subscribe to this framework and launch its own set of virtual machines, which holds on-demand self-service, resource pooling, rapid elasticity, and measured service properties**

I. INTRODUCTION (*HEADING 1*)

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could see it as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering.

If the broader topic of product development "blends the perspective of marketing, design, and manufacturing into a single approach to product development," then design is the act of taking the marketing information and creating the design of the product to be manufactured. Systems design is therefore the process of defining and developing systems to satisfy specified requirements of the user. Until the 1990s systems design had a crucial and respected role in the data processing industry. In the 1990s standardization of hardware and software resulted in the ability to build modular systems. The increasing importance of software running on generic platforms has enhanced the discipline of software engineering. Object-oriented analysis and design methods are becoming the most widely used methods for computer systems design.[citation needed] The UML has become the standard language in object-oriented analysis and design.[citation needed] It is widely used for modeling software systems and is increasingly used for highdesigningnon-softwar systems and organizations.[citation needed]System design is one of the most important phases of software development process. The purpose of the design is to plan the solution of a problem specified by the requirement documentation. In other words the first step in the solution to the problem is the design of the project.The design of the system is perhaps the most critical factor affecting the quality of the software. The objective of the design phase is to produce overall design of the software. It aims to figure out the modules that should be in the system to fulfill all the system requirements in an efficient manner. The design will contain the specification of all these modules, their interaction with other modules and the desired output from each module. The output of the design process is a description of the software architecture. The design phase is followed by two sub phases High Level Design and Detailed Level Design

The below figure shows a general block diagram describing the activities performed by this project.



System Architecture

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An Efficient Resource Management Method for Cloud

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***Abstract*: Cloud computing provides on demand access to heterogeneous resources (compute, memory, network, storage etc.). It allows customers to scale up and down their resource usage based on the needs. The resources should be efficiently and reliably managed by the service provider to deliver such services. The resource management in cloud is a challenging task as it needs to satisfy both customers requirement and server performance. In this paper, a resource management method is proposed for efficient resource utilization. The proposed method handles the request in real time and guarantees high resource utilization. The resource management method checks for the jobs running on the virtual machine. If the jobs are idle they are killed and the resources utilized by those are given to other jobs. The scheduling is done based on the resource requirement. The CPU resource parameter is considered in the work.**

***Keywords*: Cloud computing, Resource Management, Resource allocation, Virtualization, Scheduling**

I. INTRODUCTION

The National Institute of Standards and Technology (NIST) defines Cloud Computing as " a model for enabling ubiquitous, 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". There are numerous advantages of cloud computing, the most basic ones being lower costs, re-provisioning of resources and remote accessibility. Cloud computing lowers cost by avoiding the capital expenditure by the company in renting the physical infrastructure from a third party provider. Due to the flexible nature of cloud computing, more resources can be accessed from cloud providers when there is need to expand the business. The remote accessibility enables users to access the cloud services from anywhere at any time. To gain the maximum degree of the above mentioned benefits, the resources should be managed optimally to the applications running in the cloud. The key challenges in resource management are resource provisioning and scheduling. The first task is to decide whether to accept the jobs and allocate the resources to it or not. It is critical decision, especially when the amount of work exceeds the amount of available resources. The capacity planning and decisions about job admissions are complicated by uncertainties due to the unpredictable arrival and termination of the jobs, fluctuations in demand, and the risk of contentions on different resource levels. Inefficient job admission can lead to underutilization of resources, revenue loss and degradation in the performance. It is therefore important to plan the admission process of the jobs to achieve efficient utilization without sacrificing performance. The partitioning and assigning resources highly impact utilization efficiency. The scheduling of jobs is another important task in resource management. The resources are provisioned based on the requirements for the job execution in cloud environment only if the required resources are available in resource pool. If the required resources are not available then the jobs are processed in the queue. The jobs in the queue are scheduled for execution once the resources are available. The importance of the job, preferences of the job and time required to execute the jobs are considered for efficient resource utilization while scheduling.

II. LITERATURE SURVEY

Abirami S.P[1] In this work a scheduling algorithm named Linear Scheduling of Tasks and Resources (LSTR) is designed to schedule tasks and resources. The scheduling algorithm in LSTR mainly focuses on the distribution of the resources among the users which is able to maximize the chosen Quality of Service (QoS) parameters. The scheduling algorithm designed considering the jobs and the total available virtual machines together. It is named as LSTR scheduling strategy. The scheduling algorithm is carried out based on the prediction that the initial response to the request is made only after assembling the resource for a finite amount of time (1 day or 1hr) but not allocating the resources as they arrive. The resource requests are collected and sorted in different queues based on the threshold value (say 50 for the sample memory request). The algorithm uses the memory request in gigabytes as the input such as Ri= (R1, R2 … Rn). The shortest request in both A[RQi] and B[RQi] is processed first which results in the allocating of resource to more number of requests. K.C Gouda[2] In this work a priority algorithm is used for a better allocation of jobs in the cloud environment. The model considers parameters such as user, time, number of processor request, resource assigned, resource selection

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Neural Network Based Heart Disease Detection System Using Facial Video and image

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Abstract: ***Heartbeat Rate is an important physiological parameter that provides information about the condition of human body's cardiovascular system in applications like medical diagnosis, fitness assessments etc. Heartbeat Rate is usually measured by an Electrocardiogram (ECG) though placing sensors on the body .A recent study was driven by the fact that blood circulation causes periodic subtle changes to facial skin color. The heartbeat Rate causes the facial color to change slightly by pumping blood into the skin. This fact gave a birth to an idea for Heartbeat Rate estimation. If the videos are recorded under more challenging condition then illumination variation and subject's motion are the factors considered. In this paper, a framework for heart disease detection system by using the initial important variable as Heartbeat Rate extracted from facial video or image is proposed. In this proposed method, the first part is the Heartbeat Rate estimation using facial video or image using the super pixel model-local pixel averaging, PPG peak detection algorithm and in the second part, heart disease detection framework is constructed using neural network classifier. Systems based on neural network have been used since from past years in medical diagnosis applications because of their ability to learn human expertise and to utilize this knowledge for separation. This proposed system results in detecting the type of heart diseases, make a judgment similar to an expert system and reasoning based on expertise suggestions***

Keywords: Photoplethysmography (PPG), Superpixel model-local pixel averaging, Gradient Decent optimization, Wavelet, Independent component analysis (ICA), Neural Network.

I. INTRODUCTION

Person's health condition can be revealed using the Heartbeat Rate(HR).As it is an important physiological parameter that provides information about the condition of the person's health for example the person heartbeat rate in cycling is more than in resting pose, as whether that exercise of cycling is safe for him/her to be continued. Heartbeat rate can be calculated by the following two ways, contact monitoring and contactless monitoring. The example for contact monitoring is Electrocardiogram (ECG) to measure heartbeat rate through placing sensors on the body. In conventional ECG ten electrodes are placed in a patients limbs and surface of the chest, then electrocardiograph is generated.

The contactless monitoring found to be very comfortable for the measurement of heartbeat rate .Contactless monitoring can be divided into three categories they are microwave Doppler radar, thermal imaging and video based imaging methods. Among these methods video based monitoring are considered as cheaper and easier to adopt. It uses webcams, surveillance cameras and cellphone camera which are available nowadays.

It has been reported that skin color changes caused by cardiac pulse can be captured by this ordinary camera for heartbeat rate measurement. There are a huge ways to estimate the heartbeat Rate. Nowadays the heart related diseases are faced by many peoples, the people are curious to know their status of heart disease and cure it as early as possible so that it may not lead to future disease related to heart (Heart Attack). Neural network is the one that is used to extract patterns.it act as an expert in the category of information and it learns adaptively.

The model of cardiovascular system is built and compared with real time psychological parameter taken from patients. This helps in early detection of heart diseases and cures it early. The proposed works provides the smart system for heart diseases detection using neural network classifier, where the heartbeat rate is the parameter taken and recommend the nutrition to the respective diseases for a patient.

II. LITERATURE SURVEY

J Allen et al [1] gave a potential method for calculation of Heartbeat rate measurements, by the smartphone consists of HD camera which uses Photoplethysmography (PPG) methodology to detect Heartbeat rate variability. This method is low-cost and noninvasive

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Diabetic Retinopathy and Age Related Macular De-Generation Diseases Screening Using Local Binary Patterns Approach

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Abstract: *This paper proposes a system to differentiate between diseased and healthy retinal images. Local binary patterns (LBP) is used as a main texture descriptor that provide generalizations to the gray scale and rotation invariant texture classification method. The goal is to analyze the texture of the retina background distinguishing between diabetic retinopathy (DR), age-related macular degeneration (AMD), and normal fundus. Experiments were designed and validated with the proposed procedure obtaining promising results. For each experiment support vector machine and neural classifiers were used. The result suggest that the method presented in this paper is a robust algorithm for describing retina texture and can be useful in a diagnosis aid system for retinal disease screening.*

Keywords: *Age-related macular degeneration (AMD), diabetic retinopathy (DR), diagnosis aid system, fundus image, local binary patterns (LBP), retinal image, Support Vector Machine (SVM).*

I. INTRODUCTION

Age related macular degeneration and Diabetic Retinopathy are the most common retinal diseases occurring in aged people in the current society. The retina is the light-sensitive tissue in the back of the eye, when stimulated, retinal neurons send visual information to the brain. Diseases like age-related macular degeneration (AMD), diabetic retinopathy can irreparably damage or destroy these neurons, which fails to regenerate on their own. Age- related macular degeneration is a disease that blurs the sharp, central vision needed for "straight-ahead" activities such as reading, sewing and driving. AMD affects the macula, the part of the eye that allow to see the fine details. Diabetic affects blood vessels in the light-sensitive tissue called the retina that lines the back of the eye. Diabetic retinopathy involves changes to retinal blood vessels that can cause them to bleed or leak fluid, distorting vision. It is the most common cause of vision loss among people with diabetes and the leading cause of vision impairment and blondness among working-age adults. Hence these diseases need appropriate screening and diagnosis in the early stage which ignored can lead to critical conditions. In this work we propose an automatic retinal disease screening system that differentiates between the diabetic retinopathy, age related macular degeneration and normal images analyzing the texture of the retina background

II. LITERATURE SURVEY

Mookiah et al [1]In this work a different methodology for AMD characterization is done through local configuration patterns (LCP) rather than by LBP. Linear configuration coefficients and pattern occurrence features are extracted and a linear SVM is used after feature selection. The drawback of this work is it required the segmentation of exudates in addition to segmentation of main structures (optic disc and vessels) for feature extraction and, although three different classes are identified, they only focus on DR detection. Krishnan and Lauce[2] In this work a system for an automated identification of normal and abnormal DR classes using digital fundus images was proposed. Local Binary Pattern (LBP), Entropies and Invariant moments were used to extract the salient features. In this work, a novel integrated index called Diabetic Retinopathy Index (DRI) is been proposed which is made up of different features, to diagnose the unknown class using a single number. The drawback of this work is it do not need previous segmentations but only handle with a disease at time, in particular with DR and AMD diagnosis. Garnier et al. deal[3]In the work a preliminary study for AMD detection from color fundus photographs is presented using a multiresolution texture analysis. The texture is analyzed at several scales by using a wavelet decomposition in order to identify all the relevant texture patterns. Textural information is captured using both the sign and magnitude components of the completed model of Local Binary Patterns. An image is finally described with the textural pattern distributions of the wavelet coefficient images obtained at each level of decomposition.

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On Demand Cache Management and Cache Migration to Balance the Cache Load

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Abstract: ***In Cloud Computing, balancing the workloads and managing the workloads across multiple servers is very important. The distribution of cache data among multiple servers according to their actual demand is also important. In existing system, cache management has a disadvantage where useful data is flushed out. In this project, an on demand cache management method is used where cache is allocated based on their demand and in order to store all important, a download count is used and a cache migration is used in order to balance cache load.***

Keywords: Cache Management, Cache Migration, Load balancing, Cloud computing, Cloud Cache

I. INTRODUCTION

In cloud, load balancing is a process of distributing the workloads and the resources in the cloud environment. Multiple servers, network or computer is maintained where workload and resources are distributed. A cache is a small part of memory where it contains the recently used data or more frecuently used data.

Cloud Cache is on-demand cache management where users used data is stored in cache of the cloud and is easily provided to other customers rather than getting the data from main server every time when it's been requested from other users .Cache of the cloud would have specific space to hold the data .When there is a condition wherein useful data of cache is flushed out from the cache, to hold the new data ,then some part of the data of the cache which is important will be migrated to some other location that is cache migration.

II. EXISTING SYSTEM

The Cloud cache of the cloud stores recently used data in the cache. All the recently accessed data is stored so that new user who wants to access same data will be redirected to cache rather than to main server where processing time will be decreased. But the issue with existing system is when there is more data which is frequently accessed to be placed on cache there is no space in cache to hold the data at that time the first placed data gets deleted from the cache.

III. METHODOLOGY

The Cloud cache of the cloud stores the recently used data in the cache but only if the data is used n number of times from many users, there is a count maintained for the data to be placed in the cache and it also overcomes the cache overload situation where the data will not be flushed out to place new data rather the earlier data will be migrated to other location.

The methodology used here is as shown in Fig.1.

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Security Enhancement to Exchange Health Information on Cloud

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Abstract*: The Electronic Health Record deployment at hospitals helps to improve patient safety and quality of care, but it has the prerequisite of interoperability between Health Information Exchange at different hospitals. The Clinical Document Architecture (CDA) document generation and integration Open API service based on cloud computing, through which hospitals are enabled to conveniently generate CDA documents without having to purchase proprietary software. CDA document integration system integrates multiple CDA documents per patient into a single CDA document and physicians and patients can browse the clinical data in chronological order. Along with achieving the interoperability, security is also a major concern. The proposed system provides security to the CDA document by making use of advanced encryption standard algorithm, RSA an asymmetric encryption algorithm and given to the patients for avoiding the interchanging and duplication of medical reports. Every detail in CDA Document is Encrypted and stored in Database. The proof for the efficient working of the proposed approach shall be given by ensuring reasonable quality of service even with multiple users logged on the system at the same time.
Keywords*: Cloud computing, Electronic health records, Clinical document architecture, Encryption, Security.

I. INTRODUCTION

Electronic Health Record (EHR) is longitudinal accumulation of electronic well being data for and about people, where wellbeing data is characterized as data relating to the strength of an individual or human services given to an individual and it can support of productive procedures for social insurance conveyance [1]. With a specific end goal to guarantee fruitful operation of EHR, a Health Information Exchange (HIE) framework is required to set up [2]. Be that as it may, a large portion of the HIS in benefit is distinctive and inconsistent. Henceforth, compelling wellbeing data trade should be institutionalized for interoperable wellbeing data trade between doctor's facilities. Particularly, clinical archive institutionalization lies at the center of ensuring interoperability. CDA (Clinical Document Architecture) by Health Level Seven is a noteworthy standard for clinical archives [5]. CDA is a record markup standard that indicates the structure and semantics of 'clinical archives' with the end goal of trade. The main variant of CDA was created in 2001 and Release 2 turned out in 2005. Numerous CDA-based tasks have been effectively finished in numerous nations. Dynamic works are being done on enhancing semantic interoperability in view of open EHR and CEN13606. To guarantee interoperability of HIE, the quantity of HIS that backings CDA should be adequately substantial. Be that as it may, the structure of CDA is exceptionally mind boggling and the creation of right CDA record is difficult to accomplish without profound comprehension of the CDA standard and adequate involvement with it. What's more, the HIS improvement stages for healing centers change so incredibly that era of CDA reports in every clinic perpetually requires a different CDA era framework. Additionally, there is a resistance towards new frameworks unless it is completely essential for arrangement of care. Accordingly, the appropriation rate of EHR is low with the exception of a couple of modest branch nations, for example, New Zealand or Australia. The US Government runs the Meaningful Use Program to enhance proficiency in human services and patient security. This program was propelled as a piece of motivating forces to raise the EHR selection rate for EHR receiving healing centers. The CDA report relating to a patient is produced at the facility where the patient is analyzed. The created CDA report can be sent to different centers after patient's assent is obtained. The idea of family specialist does not exist in Korea. Henceforth it is regular for a patient to visit various diverse centers. The trading of CDA report is activated in the accompanying cases: when a doctor needs to allude to the patient's medicinal history; when referral and answer letters are required for a patient who is being dealt with by different facilities; when the patient is in a crisis and the therapeutic history should be looked into.

II. LITERATURE SURVEY

K. Huang S. Hsieh Y. Chang[1] In this work Health Level Seven (HL7) organization published the Clinical Document Architecture (CDA) for exchanging documents among heterogeneous systems and improving medical quality based on the design method in CDA. In practice, although the HL7 organization tried to make medical messages exchangeable, it is still hard to exchange medical

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Exploring the Similarity and Dissimilarity of User Opinions for Sentiment Analysis in Heterogeneous Networks

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Abstract: ***This paper presents our experimental work on a new kind of domain specific feature-based heuristic for aspect-level sentiment analysis of twitter reviews and ftp data. We have devised an aspect oriented scheme that analyses the textual reviews of a twitter and ftp and assign it a sentiment label on each aspect. The scores on each aspect from multiple reviews are then aggregated and a net sentiment profile of the twitter is generated on all parameters. We have used a association rule based scheme to assign a sentiment score.***

Keywords: Sentiment score, twiter, ftp, positive, negative

I. INTRODUCTION

Recently the rise of social media and social networks, such as blogs, forums, and Twitter, has fueled the online space with lots of reviews, ratings, and comments. For example, customers may give reviews for products, make ratings for movies, provide comments on services, present opinions on current events and politics, and so on. Over the years, sentiment has been a widely used measure of how customers view a company's products and services, and how people think about current events and politics.
.Sentiment analysis states to the use of text analysis, natural language processing, and computational linguistics to classify and extract subjective information in source document. Sentiment analysis is widely useful for reviews and social media network for a wide range of applications and ranging from marketing to customer service. Sentiment analysis is the key evolving technologies to help people to direct the huge amount of user generated content available online.

II. EXISTING SYSTEM

Sentiment analysis tries to identify the expressions of opinion and mood of writers. A simple sentiment analysis algorithm attempts to classify a document as positive or negative The social media is now a major part of the Web. A large amount of the data on the Web is unstructured text.The traditional algorithm assigns a sentiment score for a particular topic based on the positive and negative dictionary.

III.METHODOLOGY

The methodology used here is as shown in Fig.1.

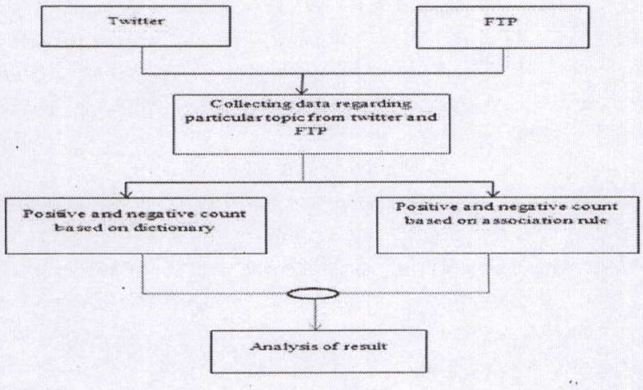

Fig.1 System Architecture

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Natural Convection in a Non-Uniformly Heated Vertical Annular Cavity

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Keywords: Annulus, non-uniform heating, convection, finite difference method.

Abstract: Natural convection from the linearly heated inner and/or outer walls of a vertical annular cavity has been numerically investigated. The bottom wall is uniformly heated and top cylindrical wall is thermally insulated. In this analysis, we considered two different thermal boundary conditions, namely case (I) and case (II) to understand the effect of non-uniform heating of inner and/or outer walls on the convective flow and subsequently the local and global heat transfer rate. For case (I), the inner and outer walls are heated linearly, while the linearly heated inner wall and cooled outer wall is considered in case (II). An implicit finite difference scheme is applied to solve the model equations of the problem. The numerical simulations in terms of streamlines and isotherms, local and global Nusselt numbers are presented to illustrate the effects of Rayleigh number and non-uniform thermal boundary conditions for a fixed Prandtl number of Pr = 0.7.

Introduction

A vertical annular enclosure with differentially heated inner and outer walls, and closed insulated top and bottom boundaries is a perfect model problem to aptly portray the physical model of many engineering applications, such as nuclear reactor systems, crystal growth process and electronic component cooling. The flow pattern, thermal fields and the resultant heat transfer in a vertical annular enclosure has been abundantly discussed in the literature [1-4]. The majority of investigations on convection in cavities are limited to the cases of uniform heating of boundaries. However, the boundaries of physical configuration involved in many practical applications need not be maintained at uniform thermal conditions.

Sathiyamoorthy *et al.* [5] analyzed the influence of linear heating of vertical wall on natural convection in a square cavity for wide range of Prandtl numbers and found the secondary circulations for linearly heated vertical side walls. Later, the influence of magnetic field on buoyancy-driven convection of liquid gallium in a linearly heated square cavity is analyzed by Sathiyamoorthy and Chamkha [6]. Recently, using FEM, Salem *et al.* [7] performed MHD mixed convection in a lid driven square enclosure with a linearly heated bottom wall. The analysis of non-uniform thermal boundary conditions on convective flow and heat transfer in nonrectangular enclosures has also received extensive interest in the literature. Natural convection in a linearly heated trapezoidal enclosure has been numerically studied by Natarajan and Roy [8]. Using FEM, Basak *et al.* [9] reported the consequences of different temperature conditions on natural convections in a triangular cavity with linearly heated walls. Other relevant work [10-12] examined the natural or mixed convection in a channel or pipe flow with heated walls.

After a careful and systematic survey of the existing literature, it has been found that natural convection is not investigated in a vertical annulus with non-uniform thermal boundary condition. Therefore, we numerically analyze natural convection in a linearly heated vertical annulus. In particular, we consider the linearly heated inner wall, uniformly or linearly heated outer wall, cooled bottom wall and adiabatic top wall. This study is an attempt to understand the influence of thermal conditions on convective flow and heat transfer in an annulus.

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Principal Curvature Based Polyp Detection in Wireless Capsule Endoscopy Images

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***Abstract*—Polyp identification in human Gastro Intestinal (GI) Tract employing endoscopy and colonoscopy through various computer vision and image processing techniques has achieved lot of success and maturity in its field. Over the last decade Wireless Capsule Endoscopy (WCE) has emerged as an innovative diagnostic system for identification of ailments such as polyps in GI tract. Polyp detection through WCE suffers from various types of challenges due to its unique image acquisition technique. In the proposed work, Principal curvature based polyp detection technique in WCE is presented. The experimental results were conducted on 58 WCE images comprising of various types of polyps. The results have revealed that an adaptive geometrical feature extraction based identification method of polyps is suggested for efficient analysis. Further, the challenges associated with detection of polyps are also discussed.**

***Index Terms*—Polyp detection,Wireless Capsule Endoscopy,WCE,Curvature,Geometrical feature extraction,Shape Index,Curvedness.**

I. Introduction

Polyps are a significant predecessor of cancer. It is a visible tumor that protrudes from the lumen of Gastro Intestinal (GI) tract [1]. It is among the foremost causes of cancer deaths in the western world [3]. Infact, ColoRectal Cancer (CRC) is identified as the fourth most common causes of death due to cancer worldwide [4]. Although Asian countries, including India, have relatively lower occurrence of CRC; adoption of Western lifestyles has led to rapid shift towards the Western rates [5].

Over the previous decade, Wireless capsule endoscopy(WCE) has been established as a new imaging technique for diagnosis of diseases related to human Gastro Intestinal tract. As compared to other GI polyp diagnosis techniques such as endoscopy and colonoscopy, WCE allows the doctor to examine areas of GI tract in a less invasive method and allows visualization of areas such as small intestine; which is impossible to visualize through other techniques [6].In fact, as reported in [7], [8], WCE provide higher yield rate as compared to other push enteroscopy methods.

Polyps are of various types. Fig 1. shows sessile polyps which are mushroom-like structures;having a cap with no stalks. Pedunculate polyps are mushroom-like structures with a thin stalk attached to the colon. The least common types of colon polyp are flat or maybe slightly depressed. Due to their non prominent structure, they are tough to identify.Adenomas polyps grow slowly over many years.Adenomas that become malignant are called adenocarcinoma. CRC usually begins as benign polyps. Such benign polyps are termed as hyperplastic. Fig 2. shows the progression of a polyp into cancer as reported by Scientists at John Hopkins [12]. Research has shown that polyps considered as benign for a long time may also become cancerous.

The probability of a polyp turning malignant also depends on the type of polyp which are [13]:

- Hyperplastic
  - pretty common, usually small in size and do not pose a serious threat (< 1% chance to become malignant)
  - usually found in the distal colon and rectum
- Inflammatory
  - most often found in patients with ulcerative colitis or Chrons Disease
  - They are not true polyps, in the sense that they are just a reaction to chronic inflammation of the colon wall
  - They are usually characterized by a whitish surface, indicating exudate or pus, and do not have malignant potential
- Neoplastic
  - most common type of polyps
  - They can be divided in two categories :
    * Tubular adenomas account for 80-86% of all polyps; they are the less dangerous and less likely to become malignant
    * Villous or tubulovillous adenomas are commonly sessile; they account for 8-16% of all polyps and present the biggest threat. In general, 15-25% of these polyps can become cancerous

The studies shows that potential for a polyp to turn malignant depends on the degree, type and size of dysplasia. Polyps greater than 1cm, high degree of dysplasia and large villous tissue have high potential for increases risk of malignancy. Initial detection of adenomas can considerably decrease risk of colorectal cancer. WCE has evolved has a new method for examination of polyp. It serves as a minimally invasive and additional tool for examination for GI tract.

Numerous work has been done in detection of polyps in areas of colonoscopy and endoscopy. To the best of our

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Numerical study of double-diffusive convection in a vertical annular enclosure with a baffle

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Abstract. This paper numerically examines the influence of a circular thin baffle on thermosolutal convection in a vertical annular enclosure. The inner and outer cylindrical walls, and the baffle are retained with different temperatures and concentrations, while the upper and lower boundaries are kept at adiabatic and impermeable. The model equations are solved using an implicit finite difference scheme consisting of ADI and SLOR methods. Numerical simulations are performed to understand the size and position effects of the baffle on the thermosolutal convection and are successfully captured through our results. It has been observed that the baffle size and location has very important role in controlling the thermosolutal convective flow and the corresponding heat and mass transport characteristics. Further, our results are in good agreement with the available benchmark results for limiting cases.

1. Introduction

Based on the past investigations on double-diffusive convection or thermosolutal convection, it is realized that the thermosolutal convective flows are basically examined in bounded and unbounded geometries. Each of the two geometries has many important applications in their own domain. For thermosolutal convection in an enclosure, the direction of two buoyant forces can either enhances or suppresses the thermal and solutal transport rates. In addition, the ratio of thermal and solutal buoyancies known as the buoyancy ratio, an important parameter for double-diffusive convection, has an important role in altering the flow fields and the corresponding thermal and solutal transport rates. Double-diffusive convection is of great interest among the researchers due to its wide applications in natural process and engineering such as dispersion of chemical contaminants through water saturated soil, grain storage installation, metallurgy and oceanography.

Amongst the bounded geometries, the cylindrical annulus designed by two vertical, concentric tubes attracted many researchers due to the sheer existence of this geometry in wide range of engineering and industrial applications. Beji et al. [1] used the control volume method to analyse the thermosolutal convection in a vertical porous annulus. Bennacer et al. [2] studied the influence Darcy number on thermosolutal convection in a porous annulus using Darcy-Brinkmann formulation. Benzeghiba et al. [3] reported the numerical results on heat and mass transport processes in a vertical

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An Optimized Virtualization Using Docker Container

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***Abstract*: In cloud, hypervisor based virtualization is the most prevailing technology for virtual environment. On any guest operating system it can perform but it increases the overload on memory and CPU. So managing the overload on memory and CPU are quite a challenging task on virtualisation environment. In this project, Docker container method is proposed for reducing the overload on memory and CPU. The proposed method is a container based virtualisation, which does not execute on complete operating system but run on partial instances of host operating system.**
***Keywords*: Virtualization, virtual machine, Docker container, CPU, memory, performance evaluation**

I. INTRODUCTION

In past decades cloud computing has made a good progress in how information can be stored in virtual way, exchange information and protect the data from unwanted users. Due to this cloud computing, the virtualization came into the highlight. Virtualization is software which acts as version of something like hardware, storage system and network resources. Virtualization is technique which helps to share single physical instances of an application or resources with the different customer. A user shares the infrastructure with help of virtualisation for building own application. There are various types of virtualization such as hardware virtualization, operating system virtualization, server virtualization and storage virtualization. In hardware virtualisation, a virtual machine manager (hypervisor) is directly installed on hardware. Whereas in operating system virtualisation, virtual machine manager (hypervisor) is installed on the host operating system instead of directly on to the hardware system. VMware workstation is used as the virtual machine manager (hypervisor). This virtualization helps to run two or more operating system on different virtual machines on one physical system. These guest operating systems is maintained by a single hypervisor or virtual machine monitor. A virtual machine is emulation of physical system, on which user can run multiple virtual machines at same time with different guest operating system. But due to this feature, there is a problem of CPU and memory overload on virtual machine. To overcome the above problem, a new technique named Docker can be used as best solution for memory and CPU overloading problem.

Docker provides the lightweight virtualization at system level by extending a common container format model on Linux called as Linux Containers. There is no separate operating System (OS) required for running Docker containers and uses same operating system as its Host. This primarily enables Docker to share the host operating system resources and trade-offs on the kernel's functionality which is provided by the underlying Linux containers and cgroups technologies that offers resource isolation like memory, CPU, I/O, network etc. that reduces the CPU and memory overload. A virtualization framework like that of container is an easy, lightweight virtualized environment where containers hold all the dependencies for portable applications. A portable, lightweight, self-sufficient container deployment of any application is automated and will scuttle virtually anywhere. Docker is a tool which is specifically designed to make it easier to create, deploy, and run applications by using containers. Docker is a slightly similar to a virtual machine, but unlike a virtual machine, in place of creating a whole virtual operating system, Docker allows applications to use the same Host operating kernel as the system on which they are running and only requires applications be shipped with things that are not already running on the host computer.

In performed experiment, one application is created where login file upload, file download and file encrypt and decrypt processes is performed. This same application is performed on both virtual machine and docker container at the same time. And at the end admin will check the performance of the both the system.

II. LITERATURE SURVEY

Key Yang, Jianhua Gu, Tianhai Zhao, Guofei Sun[1] In this paper, virtual machine the migration technology has received extensive attention in balancing the load. Load is nothing but includes CPU, memory, I/O and network bandwidth utilization load. The hosts

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Synthesis and Photoluminescence Studies of an Orange Red Color Emitting novel $CaAl_2O_4$: Sm^{3+} nanophosphor for LED Applications

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Abstract

A novel $CaAl_2O_4$: Sm^{3+} (1 – 9 mol %) was synthesized by solution combustion method by using ODH as a fuel. The final product was well characterized by PXRD, DRS, SEM, TEM and PL. The PXRD profile of $CaAl_2O_4$:Sm^{3+} well matched with JCPDS NO.172155. The average crystallite sizes are found to be in the range 20 - 40 nm. From Diffuse Reflectance Spectra, the energy gap of the samples were calculated and found to be ~ 2.6 - 3.1 eV. The PL emission peaks centered at ~ 564, 601 and 647 nm may be attributed to 4f - 4f $\left({}^4G_{5/2} \rightarrow {}^6H_{J=5/2,\,7/2,\,9/2}\right)$ forbidden transitions of Sm^{3+} ions. The Commission International De I-Eclairage chromaticity co-ordinates were evaluated from the emission spectra, the values (x = 0.296, y = 0.237) were very close to National Television System Committee standard value of orange red emission. Correlated color temperature was found to be 2780 K. Thus synthesized phosphor was fairly useful for LED's and display applications.

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Keywords: Combustion synthesis; Nanophosphor; Light emitting diodes; Photoluminescence.

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Extraction of Fetal Electrocardiogram from Maternal Electrocardiogram and Classification of Normal and Abnormal Signals

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Abstract— **Fetal Electrocardiogram (fECG) extracted from the non invasively recorded abdominal electrocardiogram signal of pregnant women during early weeks of pregnancy is an effective diagnostic tool used by clinicians to regularly evaluate the fetus health status. This abdomen Electrocardiogram (AECG) which carries clinically vital information is a complex mixture of fetal ECG, maternal ECG (mECG) interferences and other noises. In this paper, an ease to use method based on adaptive filtering is proposed to extract high quality fetal heart beat signal and further diagnose any abnormalities. The method uses Kalman filter (KF), Least Mean Square (LMS) algorithm based on adaptive noise cancellation to extract fECG. The extracted fECG is steady state error signal which is further amplified, preprocessed to make it noise free signal and further the fetal heart beat is found by detecting and counting the number of R-R peaks based on threshold value, then the abnormality classified as bradycardia with heart rate 113, tachycardia with 223 beats per minute respectively are detected. This paper provides a complete model to extract fECG, find the heart rate of fECG signal which is used in automatic characterization and classification of normal and abnormal classes.**

Keywords- kalman filter (KF); least mean square algorithm (LMS); adaptive noise canceller (ANC); fetal electrocardiogram (fECG) extraction; QRS -peak detection

I. INTRODUCTION

Congenital heart disease is the most common type of birth defect [1] and the leading cause of birth defect-related deaths. Approximately, one out of 125 babies born each year has some form of congenital heart defects [2], [3]. Some of these defects are so slight that the baby appears healthy for many years after birth and some other can be so dangerous that they may lead to birth defect-related death [4]. Most of the Heart defects originate the early weeks of pregnancy when the heart of the fetus is in forming stage which affects other parts and regular function of the heart.

Current fetal monitoring devices are based on PCG (Phonocardiogram) and ECG (Electrocardiogram) each of them has certain advantages and limitations. When PCG is concerned it is an audible signal so the information extracted has to be within the audible frequency range and are very sensitive to external noises. FECG is recorded practically by two ways: Directly and Indirectly, Direct method is invasive and may be harmful to both mother and fetus whereas indirect method is non invasive which records the FECG by placing the electrodes on mother's abdomen or by sound sensors. Abdominal ECG is a very low power/ amplitude high frequency noisy signal, has noises such as electromyogram (EMG), respiratory activity, fetal brain activity, power line interference, electrode noise, baseline wander, recording system noise and maternal ECG which is the major interference. Existing fetal monitoring relies on fetal heart rate and do not include characteristics of FECG waveform as there are no advanced signal processing techniques to measure FECG morphological characteristics, Most of the clinically useful information in the FECG signal is found in the amplitude and duration of its waveforms [5]. Fetal cardiac waveform helps physicians to diagnose fetal heart arrhythmia such as Bradycardia, Tachycardia, Asphyxia and Hypoxia. It has long been recognized that persistent of fetal tachyarrhythmia and bradyarrhythmia may also lead to the evolution of heart failure [6] and may be associated with neurological injury [7], [8].

II. LITERATURE REVIEW

The existing FECG extraction methods are classified by their methodologies as Linear decomposition, Non Linear decomposition and adaptive filtering. These methods include wavelet transform, Doppler ultrasound, Blind source separation (BSS) methods based on principal component analysis (PCA) and independent component analysis (ICA), combination of Blind source separation method and wavelets, adaptive neural network, adaptive neuro fuzzy inference system, Support vector machines.

Sparse decomposition method using Gaussian functions is proposed to separate maternal and fetal components [9]. The various BSS and JBSS algorithms were tested, concluded JBSS CUM4 algorithm was the best algorithm in terms of performance for separating MECG and FECG [10]. Hybrid non linear adaptive noise canceller with single or multi-reference channels was used to extract fECG [11]. Blind source separation method [12], based on higher-order statistics is contrasted with a significant classical technique for FECG extraction, such as Widow's multi-reference adaptive noise cancellation and also optimal Wiener-Hopf filtering solutions. Both procedures are applied to real multi-channel ECG recordings obtained from a pregnant woman.

Singular Value Decomposition (SVD) [13], applied on the spectrogram, followed by an iterated application of Independent Component Analysis on the principle components. Wavelet based methods have been used to detect the fetal ECG [14], [15]. This method used multi-

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Development and Comparison of ASR Models using Kaldi for Noisy and Enhanced Kannada Speech Data

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Abstract— **In this work, the Automatic Speech Recognition (ASR) models are developed using the speech recognition toolkit Kaldi to build an ASR system for Kannada language. A sufficient amount of speech data is collected from the farmers in the field across the different dialect regions of Karnataka state to capture all possible pronunciations. The collected speech data under uncontrolled environment is normally noisy in nature. A method is proposed for speech enhancement and it is a combination of Spectral Subtraction with Voice Activity Detection (SS-VAD) and Minimum Mean Square Error-Spectrum Power Estimator (MMSE-SPZC) based on Zero Crossing. The transcription and validation of noisy and enhanced speech data is done at word level by using Indic language transliteration tool (IT3 TO UTF-8). The Kannada dictionary and phoneme set is created by using Indian Language Speech Label (ILSL12) set. The 75% and 25% of validated speech data is used for system training and testing respectively. Using Kaldi recipe and Kannada language resources, the ASR models are developed, discussed and compared the Word Error Rates (WERs) of noisy and enhanced speech data. The best ASR models could be used in spoken query system to access the on time agricultural commodity price and weather information in Kannada language.**

Keywords—Kaldi; Spectral Subtraction with Voice Activity Detection (SS-VAD); Minimum Mean Square Error-Spectrum Power Estimator based on Zero Crossing (MMSE-SPZC); Word Error Rates (WERs); Speech data.

I. INTRODUCTION

Speech is one of the most important types of communication among the human beings. Recognizing the word uttered by the speaker is a challenging role and it is called speech recognition [1]. Normally, speech data collected in field is corrupted by several degradations such as background noise, street noise, musical noise, f16 noise, babble noise and reverberations etc., [2]. The Spectral Subtraction (SS) method is most widely used for speech enhancement. This method is mainly associated with Voice Activity Detection (VAD). To find the active regions of degraded speech signal VAD is used [3]. The degraded speech segments are processed frame by frame with duration of 20 ms. The SS-VAD method was proposed for speech enhancement in [4-8]. The effect of noise can be eliminated in degraded speech signal by subtracting the average magnitude spectrum of noise model from the average magnitude spectrum of degraded speech signal.

The speech signal Magnitude Squared Spectrum (MSS) estimators were proposed for noise reduction in degraded speech signal in [9-11]. The MSS estimators namely, Minimum Mean Square Error-Short Time Power spectrum (MMSESP), Minimum Mean Square Error-Spectrum Power based on Zero Crossing (MMSE-SPZC) and Maximum *a posteriori* (MAP) are implemented individually. These MSS estimators significantly performed well under many degraded conditions [11]. Ephraim and Malah have proposed a Minimum Mean Square Error Short Time Spectral Amplitude (MMSE-STSA) estimator for speech enhancement [9]. This method was compared with most widely used algorithms such as spectral subtraction and Wiener filtering and it was observed that the proposed MMSE-STSA method gives better performance than the existing methods. Alternatives to the Ephraim and Malah, a speech enhancement method was proposed under the assumption of the Fourier series expansion of clean (original) speech signal and noise may be modeled as independently with zero mean and Gaussian random variables [12]. Rainer Martin proposed an algorithm for speech enhancement using MMSE estimators and Supergaussian Priors [13]. The main significance of this algorithm was to improve the short time spectral coefficients of corrupted speech signal. Philipos C and Loizou have proposed an algorithm for noise reduction in corrupted speech signal using Baysian estimators. Three different types of Baysian estimators are implemented for speech enhancement [14].

Various speech recognition toolkits are used to build a robust Automatic Speech Recognition (ASR) system. They are, Kaldi, CMU Sphinx, Hidden Markov Model Toolkit (HTK) and Julius etc., [15]. Kaldi is one of the important speech recognition toolkits to build Language Models (LMs) and Acoustic Models (AMs) [16]. Kaldi is publicly available toolkit for speech recognition and it is written in C++ programming language. The Kaldi toolkit includes C++ executables and various shell scripts. The codes are very flexible, modern and easy to understand. The entire Kaldi speech recognition toolkit is available at SourceForge website (www.sourceforge.net). The basic building block diagram of

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ASSESSING UNCERTAINTY OF VARIABLE SOURCE AREA, HYDROLOGICAL MODEL IN HARANGI WATERSHED, KARNATAKA STATE, INDIA

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ABSTRACT

Assessing uncertainty associated with distributed Variable Source Area (VSA) hydrological models are essential for accurate simulation of stream flows of the humid tropical watersheds. The present study is taken up to assess the uncertainties associated with the Soil and Water Assessment Tool – VSA (SWAT-VSA) model using Generalized Likelihood Uncertainty Estimation (GLUE) technique. The study is carried out in Harangi watershed (538.8km^2) located in the humid region of Karnataka State, India. The goodness-of-fit and efficiency of the model have been tested using the Nash-Sutcliffe efficiency (E_{NS}) as the objective function. Sensitivity analysis indicated that model parameters CN_2, Alpha_Bf and Sol_Awc are important for simulating uncertainty associated with stream flows. The P-factor, which is the percentage of observed data bracketed by the 95% prediction uncertainty (95PPU), was 43% and 48% during calibration and validation periods. The results indicated that the GLUE technique applied on the SWAT-VSA model performed well in quantifying uncertainties in stream flow estimates at the outlet of the Harangi watershed.

Keywords: Hydrological modeling; uncertainty analysis; curve number (CN); variable source area (VSA); SWAT.

1 INTRODUCTION

In recent times, it is widely accepted that all hydrological modeling exercises must provide a detailed report of the associated uncertainty in predictions. Proper consideration of uncertainty in hydrological modeling is essential for assessment of water balance components and optimal planning and management of water and land resources (Wagener and Gupta, 2005). Uncertainty analysis is a process of identifying and quantifying uncertainties associated with model structure, input data and parameters of a hydrological model (Beven and Binley, 1992; Muleta and Nicklow, 2005). The uncertainty associated with model structure and its parameter and input data affects the efficiency of the predictions of hydrological models. The various sources of error and uncertainty in hydrological modeling have been analyzed by various researchers (Beven and Freer, 2001 Schaefli et al., 2007; Ewen et al., 2006). Ewen et al. (2006) gave a comprehensive description of the error sources in hydrological modeling, which were categorized into three groups: 1) model structure error 2) model parameter error and 3) run time error. These three components contributed to the "integrated" model output error but the individual contribution of each error cannot be isolated because it is difficult to understand hydrologic responses of the watersheds

Many uncertainty analysis methods have been introduced in hydrological modeling, which includes Generalized Likelihood Uncertainty Estimation (GLUE) (Beven and Binley, 1992) Importance sampling (Kuczera and Parent, 1998), Markov Chain Monte Carlo (MCMC) (Kuczera and Parent, 1998; Vrugt et al., 2003), Sequential Uncertainty Fitting (SUFI-2) (Abbaspour et al., 2004), Parameter solutions (ParaSol) (Van Griensven et al., 2006), Ensemble Kalman Filter (EnKF) (Vrugt et al., 2005), Bayesian Recursive Estimation (BaRE) (Thiemann et al., 2001), and Bayesian Model Averaging (BMA) (Ajami et al., 2007; Duan et al., 2007, Vrugt and Robinson, 2007). Among the many uncertainty analysis methods that have been introduced in hydrological modeling, GLUE and SUFI-2 use the flexible likelihood function to assign different levels of confidence to different parameter sets or models.

2 STUDY AREA AND DATA

The Harangi river originates in the Pushpagiri Hills of Western Ghats and joins the Cauvery near Kudige in Madkeri. The watershed is located in Karnataka State and has an area of 538.8km^2 (Figure 1). Elevation in the Harangi watershed ranges from 818m to 1635m. While average annual rainfall exceeds 3000mm the mean maximum and minimum temperatures are 36^{0}C and 4.8^{0}C respectively. The major LU/LC categories in the Harangi watershed included forest (62.39%), agricultural (32.80%), urban (1.57%) and water bodies/reservoirs (3.24%). Daily stream flow output from the watershed was monitored as inflow into the Harangi dam (Figure 1). The LU/LC map and characteristics of the Harangi watershed are shown in Figure 2 and Table 1 respectively.

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Machining With Cryogenically Treated Carbide Cutting Tool Inserts

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Abstract

With the development newer materials for aerospace, marine, automobile industries it became inevitable to develop new cutting tool materials with competitive performanceand productivity. In this regard Sintered Carbide tools were developed to meet the modern machining requirements. But they failed miserably to due to rapid wear in machining high strength and temperatureresistance alloy. This necessitated the need for bringing out innovative changes in machining process and controlling the various parameters associated. One such promising technique is subjecting the tool inserts to Cryogenic Treatment to alter the mechanical properties like hardness, strength and Wear resistance. Cryogenic treatment refers to process of exposing the metals to temperatures below -180°C and soaking for a predetermined period and then allowing ascending back to room temperature at slow cooling rates. In the present work, uncoated Tungsten Carbide cutting tool inserts of geometry SNMG 120408-MR4 have been used. The inserts were cryogenically treated at -183°C and were subjected to tempering in electric muffle furnace by placing on refractory brick at temperatures 250 °C and 300 °C for 120 minutes both followed by air cooling and furnace cooling. The samples showed appreciable improvement in hardness and microstructure study revealed that carbide phase distribution was fairly uniform with binder phase segregating slightly in few cases. Under all cutting velocities, Cryo-treated and tempered inserts showed the highest tool life and wear resistance. It was found that tempering has a significant influence on the phases present in WC+Co inserts and subsequently influences their machining performance. Cryogenic treatment significantly improved the mechanical properties of both the tested tool materials.

Previous Next

Keywords

Cryogenic Treatment; Tempering; Carbide tool inserts

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Dynamic Mechanical Properties of Effect of Nickel Oxide Nanoparticles in Polyester based Nanocomposites.

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Abstract: ***This paper describes the methodology of preparing nanocomposites using nickel oxide (Toxic) Nanoparticles in determined amounts in polyester resin and studying their properties for Dynamic Mechanical Analysis. The study provides major importance of the composites with weight loss, storage modulus and Tan delta results. These results provide major insight to the material behaviour in elevated temperatures and how the composites behave. The Nanoparticles filler and matrix bonding acts as major influencing parameter for the material performance. The graphs show uniform distribution of particles in matrix. The material has a significant percentage of combination that attributes to the best combination. The SEM and EDAX readings are also performed and results are discussed.***

Keywords: Nickel Oxide, Dynamic Mechanical Properties, Glass Transition Temperature, Polyester.

I. INTRODUCTION

The use Polyester and its literature have been discussed in our previous work [1]. The literature describes the importance of behaviour of the composite prepared using nickel Nanoparticles in Orthophthalic polyester and its Dynamic Mechanical behaviour. The use of Dynamic Mechanical Analysis (DMA) performed on a composite provides important information of Nanoparticles reinforcement behaviour with respect to the Modulus variation with the temperature. DMA test provides more insight on mechanical modulus and temperature dependant behaviour and has been discussed for nickel Nanoparticles in our previous work. [1]. Nickel oxide is toxic in nature and may be harmful for human beings if inhaled. The experiment conducted on rats has proved to be lethal. [2-3]. Also the nickel oxide Nanoparticles magnetism increases with the decrease in the size. [4]. Using SQUID,VSM and other magnetometer nickel oxide magnetic properties have been described [5-6]. The characterisation of Nickel oxide by microwave assisted method shows the increased homogeneity [7]. Nickel Oxide has been used as a gas sensing application as thin films also. [8-9]. Nickel Oxide is also used in Battery application with wide variety of variations and domains [10-12]With the wide variety of application of Nickel Oxide, the Nanoparticles have been selected and incorporated in determining its mechanical properties with respect to temperature, with the study of this dual performance we can try to evolve a facile composite which could have distinct property in applications. In this work the low density of polyester and advantageous properties of nickel oxide has been combined to evaluate its dynamic mechanical properties.

II. MATERIALS AND METHODS

A. Materials

Nickel Oxide Nanoparticles (Sigma Aldrich<50nm) was used as reinforcement. Table 1 shows the prominent properties of Nickel Oxide Nanoparticles, and Table 2 shows properties of Polyester and Hardener (As provided by supplier).

TABLE I.
PROPERTIES OF NICKEL OXIDE NANOPARTICLES.

Material	Average Size	Purity	Morphology	Supplier	Bulk Density	True Density	Signal word
Nickel oxide Nano particles	<50 nm	99.8%	Spherical	Sigma Aldrich	0.51 g/mL	6.67 g/mL at 25°C	Danger-Toxic

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Studies on Dynamic Mechanical Properties (DMA) of Nickel Nanoparticles in Polyester Matrix Composites.

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Abstract: ***This paper describes the study of Dynamic Mechanical Properties of Nickel Nanoparticles reinforced in Polyester Matrix in different proportions. The study is performed by fabrication of specimens and preparing by water jet cutting and tested for DMA properties. The samples are weighed before and after conducting and weight loss of the samples are also recorded. The properties of Storage Modulus, Loss modulus and Tan Delta are noted and analysed. Elemental analysis was done by EDAX and SEM studies were done. This work describes the properties of composite which behaves as a result of bonding between the nanoparticles reinforcement in the polymer matrix. The properties vary as per the filler reinforcement providing varying properties.***

Keywords: **Dynamic Mechanical Analysis, Nickel Nanoparticles, Polyester, Glass Transition Temperature.**

I. INTRODUCTION

Polyester resin is in use for many researchers for applications in many fields. Its properties have increased after reinforcing fibres and fillers into it. Natural fibres additions have improved its properties in many ways. Bagasse[1], pineapple leaf fibre[2], cotton/kapok fibre[3], jute[4], cocorut[5], glass fibre[6] have been reinforced in polyester and many properties have been studied. New techniques and developments are also discussed in terms of natural fibres studying their mechanical and interfacing properties. [7-11]. Polyester resin is also tested for various properties using filler particles like fly ash, natural particles, macadamia nutshell particle,Al2O3. [12-15].

Though the variety of materials has been added in polyester resin the research works are limited with Nanoparticles reinforcements. The strong mechanical properties of metal Nanoparticles have to be studied with all conditions and therefore we are using metal particles as reinforcements. Silver Nanoparticles [16]and Iron oxide Nanoparticles [17] has been used in polyester for determining its properties. Nickel Nanoparticles has been used in polyester fabric and tested for magnetic properties [18-19]. The magnetic properties of nickel Nanoparticles can be determined in many ways using SQUID, VSM magnetometers. [20-23]. the limited use of Nickel Nanoparticles in the above literature unique properties has to be determined. Other than simple mechanical properties the material properties with temperature provides more insight to material behaviour in elevated temperatures and its mechanical efficiencies. With DMA, the Glass Transition Temperature can be found. The Dynamic Mechanical Analysis (DMA) performed on a material provides important information of material behaviour with respect to the Modulus variation with the temperature. DMA test provides more insight on mechanical modulus and temperature dependant behaviour. The deformation applied on the sample in a cyclic manner and the DMA results are recorded in form of graph. When an oscillatory force is applied on the sample, the changes in stiffness and Damping is recorded. The storage modulus, loss modulus and tan delta values provide details of modulus information, mechanical properties in frequency range, sensitive glass transition temperature, Curing reactions, impact of fillers, and interaction of the fillers and matrix in various conditions. [24-32]

II. MATERIALS AND METHODS

A. Materials.

Nanoparticles (Nano-labs, India, <50nm) was used as reinforcement. Table 1 shows the prominent properties of Nickel Nanoparticles, and Table.2 shows properties of Polyester and Hardener(As provided by supplier).

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