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The *Journal of Mechanical Design* (JMD) serves the broad design community as the venue for scholarly, archival research in all aspects of the engineering design activity and welcomes contributions from all areas of design with an emphasis on design synthesis. While the journal has traditionally served the ASME Design Engineering Division, it embraces interdisciplinary design research topics and encourages submissions from teams of interdisciplinary researchers who work on theories and methods to support the design of emerging engineered products and systems. The journal communicates original contributions, primarily in the form of research articles of considerable depth, but also technical briefs, design innovation papers, book reviews, review articles on research topics or history of engineering design, and editorials. For more information, visit the companion website: www.asmejmd.org.

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RESEARCH-ARTICLE

Topological Synthesis of Epicyclic Gear Trains Using Vertex Incidence Polynomial

Vinjamuri Venkata Kamesh, Kuchibhotla Mallikarjuna Rao, Annambhotla Balaji Srinivasa Rao

Vinjamuri Venkata Kamesh
Associate Professor
Mechanical Engineering,
Aditya Engineering College,
East Godavari District,
Surampalem 533 437, Andhra Pradesh, India
e-mail: venkatakamesh.vinjamuri@aec.edu.in

Kuchibhotla Mallikarjuna Rao
Professor
Mechanical Engineering,
College of Engineering,
JNTUK University,
East Godavari District,
Kakinada 533 003, Andhra Pradesh, India
e-mail: rangaraokuchibhotla@gmail.com

Annambhotla Balaji Srinivasa Rao
Professor
Mechanical Engineering,
Sri Vasavi Institute of Engineering and Technology,
Pedana Mandal, Krishna District,
Nandamuru 521369, Andhra Pradesh, India
e-mail: absrao71@gmail.com

1 Corresponding author.

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Journal of Non-Crystalline Solids
Volume 471, 1 September 2017, Pages 476-482

Optical absorption and luminescence properties of Pr^{3+} ions doped P_2O_5-PbO-Bi_2O_3-R_2O_3 (R = Al, Ga, In) glasses

G. Chinna Ram [a], T. Narendrudu [a, b], S. Suresh [a, c], A. Suneel Kumar [a], M.V. Sambasiva Rao [a], Ch. Tirupataiah [a], D. Krishna Rao [a]

[a] Department of Physics, Acharya Nagarjuna University, Nagarjuna Nagar 522510, A.P., India
[b] Department of Physics, Aditya Engineering College, Surampalem 533437, A.P., India
[c] Department of Physics, Gudlavalleru Engineering College, Gudlavalleru 521356, A.P., India

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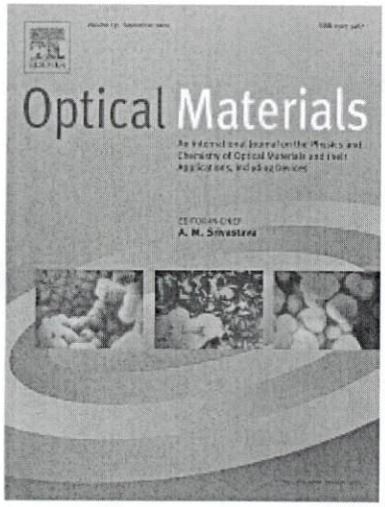
https://doi.org/10.1016/j.jnoncrysol.2017.07.009

Highlights

- PPBAlPr, PPBGaPr and PPBInPr glasses were prepared by melt quenching technique.
- Absorption and luminescence studies were carried out in both visible and NIR regions.
- Higher value of Ω_2 indicates more covalent environment around Pr^{3+} ions in PPBGaPr glass.
- Color coordinates of prepared glasses in CIE diagram lie within reddish orange region.
- Emission band at 1490 nm indicates these glasses are suitable for broad band signal amplification.



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Optical Materials
Volume 73, November 2017, Pages 7-15

Influence of valence state of copper ions on structural and spectroscopic properties of multi-component $PbO–Al_2O_3–TeO_2–GeO_2–SiO_2$ glass ceramic system- a possible material for memory switching devices

Ch. Tirupataiah [a], T. Narendrudu [a, b], S. Suresh [a, c], P. Srinivasa Rao [d], P.M. Vinaya Teja [e], M.V. Sambasiva Rao [a], G. Chinna Ram [a], D. Krishna Rao [a]

[a] Department of Physics, Acharya Nagarjuna University, Nagarjuna Nagar, 522510, A.P., India
[b] Department of Physics, Aditya Engineering College, Surampalem, 533437, A.P., India
[c] Department of Physics, Gudlavalleru Engineering College, Gudlavalleru, 521356, A.P., India
[d] Department of Physics, S.V.R.M. College, Nagaram, 522 268, A.P., India
[e] Department of Physics, Andhra Christian College, Guntur, 522001, A.P., India

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https://doi.org/10.1016/j.optmat.2017.07.040

Highlights

- $PbO – Al_2O_3 – TeO_2 – GeO_2 – SiO_2$: CuO glass ceramics were synthesized by heat treatment.
- Prepared glass ceramics were characterized by XRD, SEM and DTA.
- Absorption spectra of these ceramics exhibited a broad band in the range 650–950 nm.
- EPR spectrum exhibited a strong signal at $g_\perp = 2.072$ and a shallow quadruplet at $g_\parallel = 2.386$

Journal of Mechanical Design

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Journal of Mechanical Design

RESEARCH-ARTICLE

An Innovative Approach to Detect Isomorphism in Planar and Geared Kinematic Chains Using Graph Theory

Vinjamuri Venkata Kamesh, Kuchibhotla Mallikarjuna Rao, Annambhotla Balaji Srinivasa Rao

— Author and Article Information

Vinjamuri Venkata Kamesh
Associate Professor
Mechanical Engineering,
Aditya Engineering College,
East Godavari District,
Surampalem 533 437, Andhra Pradesh, India
e-mail: kameshvv@gmail.com

Kuchibhotla Mallikarjuna Rao
Professor
Mechanical Engineering,
University College of Engineering,
JNTUK,
East Godavari District,
Kakinada 533 003, Andhra Pradesh, India
e-mail: rangaraokuchibhotla@gmail.com

Annambhotla Balaji Srinivasa Rao
Professor
Mechanical Engineering,
Sri Vasavi Institute of Engineering
and Technology,
Pedana Mandal,
Krishna District,
Nandamuru 521369, Andhra Pradesh India
e-mail: absrao71@gmail.com

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EXPERIMENTAL STUDY OF BAGASSE ASH AS PARTIAL REPLACEMENT OF CEMENT IN CONCRETE

G Dinesh
Assistant Professor, Civil Engineering Department,
Aditya Engineering College, Surampalem, AP

G. Swathi
Assistant Professor, Civil Engineering Department,
Aditya Engineering College, Surampalem, AP

ABSTRACT

*Our project is about use of Sugarcane Bagasse Ash which is a byproduct extracted from sugarcane industry. When juice is extracted from sugar pulp, the bagasse is packed in graphite crucible air tight and placed inside electric control furnace burnt at temperature of 1200C for 5hours to obtain black ash. The composition is Siliceous Oxide and Alumina. Bagasse Ash is light material and high oxidation compound compared with cementing compounds. We have taken M30 grade concrete, for this grade we have casted cubes of size 150mm*150mm*150mm and cylinders 150mm*300mm. We have replaced cement with sugarcane bagasse ash of 2%, 4%, 6% and conducted tests for obtaining compressive strength for cubes and split tensile strength for cylinders. We obtained an optimum percentage of 2% it is that from locally available cheap materials like sugarcane bagasse ash, we obtained high workability and strength unlike cement sugarcane bagasse ash is environmental friendly too.*

Key words: Bagasse Ash, Cement in Concrete, Sugarcane Bagasse

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ANALYSIS OF MULTIPLE SERVER FUZZY QUEUEING MODEL USING α – CUTS

N. Sujatha
Department of Mathematics, Aditya Engineering College,
Surampalem, Andhra Pradesh, India

V. S. N. Murthy Akella
Department of Mathematics, School of Advanced Sciences,
VIT University, Vellore, Tamil Nadu, India

G. V. S. R. Deekshitulu
Professor, Department of Mathematics, JNTUK, Kakinada,
Andhra Pradesh, India

ABSTRACT:

In the present research paper, it is worked with fuzzy queueing models with single and multi-servers with triangular fuzzy numbers with the help of α – cut method. Both arrival rate and service rate are supposed to be of fuzzy nature. Also, it is presumed that the arrival rate follows Poisson distribution and service rate follows Erlang –k (E_k) distribution. Fuzzy queues are more vivid than the discrete queues which are generally considered in reality. In addition, extension of queues associating with fuzzy logic increases their practicability. Various performance measures of the queueing models are interpreted in triangular fuzzy numbers. Also the efficacy of the model is projected by making use of DSW algorithm in various situations.

Keywords: Triangular fuzzy numbers, α-cuts, DSW algorithm, Erlang–k distribution.

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http://iaeme.com/Home/issue/IJMET?Volume=8&Issue=10

1 INTRODUCTION:

Queueing models have wider range of applications in service organizations as well as in manufacturing firms, where customers receive service by different kinds of servers in accordance with the queue discipline. In particular, the inter arrival times and service times are restricted to follow specific probability distributions.

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IMPROVING THE QUALITY OF TRADITIONAL CONCRETE BY UTILIZING FLYASH AND WASTE GLASS POWDER WITH ADDED SUBSTANCE NYLON FIBER

Ch. Devi
M. Tech, Assistant Professor, Aditya Engineering College,
Andhra Pradesh, India

M.S. Saandeepya, R. Vimala
Aditya Engineering College, Andhra Pradesh, India

ABSTRACT

The progression of concrete innovation can diminish the utilization of characteristic assets and vitality sources and reduce the impact of toxins on the earth. By and by a lot of fly fiery debris are produced from warm power plant with a negative effect on nature. This fly fiery remains can be utilized as a part of concrete as a supplementary cementatious material and the incomplete substitution of sand by waste glass is generally conceivable.

In this project, 15% of cement is mostly supplanted with fly fiery remains and waste glass powder is utilized as fractional substitution of sand in M20 grade concrete with 0.3% addition of nylon filaments to the volume of concrete. Concrete cubes, cylinders and beams were casted with 0% 10%, 20%, 30%, 40% and 50% of sand by glass powder for testing of compressive quality, split rigidity and flexural quality of concrete. Cubes, cylinders and beams are tested at 7 and 28 days of curing period for compressive quality, split elasticity and flexural quality. The test outcomes gotten for the designed concrete mixes are contrasted and that of traditional concrete.

Key words: Fly Ash, Waste Glass Powder, Nylon Fibre, Super Plasticizer, Compressive Strength, Split Tensile Strength and Flexural Strength.

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p-Laplace Variational Image Inpainting Model Using Riesz Fractional Differential Filter

G Sridevi[1] and S Srinivas Kumar[2]
[1]Department of ECE, Aditya Engineering College, Kakinada, AP, India
[2]Department of ECE, JNTUK, Kakinada, AP, India

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ABSTRACT

In this paper, *p*-Laplace variational image inpainting model with symmetric Riesz fractional differential filter is proposed. Variational inpainting models are very useful to restore many smaller damaged regions of an image. Integer order variational image inpainting models (especially second and fourth order) work well to complete the unknown regions. However, in the process of inpainting with these models, any of the unindented visual effects such as staircasing, speckle noise, edge blurring, or loss in contrast are introduced. Recently, fractional derivative operators were applied by researchers to restore the damaged regions of the image. Experimentation with these operators for variational image inpainting led to the conclusion that second order symmetric Riesz fractional differential operator not only completes the damaged regions effectively, but also reducing unintended effects. In this article, The filling process of damaged regions is based on the fractional central curvature term. The proposed model is compared with integer order variational models and also Grunwald-Letnikov fractional derivative based variational inpainting in terms of peak signal to noise ratio, structural similarity and mutual information.

Corresponding Author:
G Sridevi
Department of Electronics and Communication Engineering
Aditya Engineering College
Surampalem, Andhra Pradesh, India
sridevi_gamini@yahoo.com

1. INTRODUCTION

Image inpainting, is an art of implementing untraceable modifications on images. It is used to restore the damaged regions of an image based on the pixel information from the known regions. It is not only used to recover the damaged parts but also used to discard the overlaid text and undesired objects. Inpainting is most useful in recovering the old photographs and images in fine art museums. It can be used as a pre-processing step for other image processing problems like image segmentation, pattern recognition and image registration. In this work, image inpainting model for text removal and scratch removal are demonstrated.

The image inpainting techniques are mainly classified into three categories: textural inpainting, structural inapinting and hybrid inpainting (combination of two approaches). Textural inpainting is mainly connected with the texture synthesis. Many texture inpainting methods have been proposed since a famous texture synthesis algorithm was developed by Efros and Leung [1]. Many other texture synthesis algorithms are proposed with the improvement in speed and effectiveness of the Efros-Leung method.

Structure inpainting is the process of introducing smoothness priors to diffuse (propagate) local structured information from source regions to unknown regions along the isophote direction. It uses partial differential equations (PDE) and variational reconstructions methods. Marcelo et al. [2] introduced first PDE based digital image inpainting. These models produce good results in restoring the non-textured or relatively smaller unknown regions. Navier-stokes equations of fluid dynamics were used by the same authors, to inpaint the unknown regions by considering the image intensity as a stream and isophote lines as flow of streamlines. However, these are slow iterative processes. In order to minimize the computational time a fast marching technique is described in [3], which fills the unknown region in

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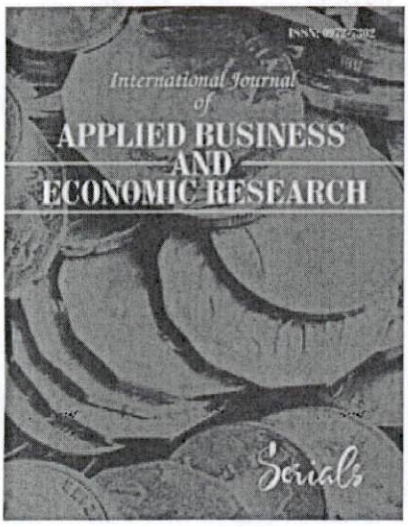

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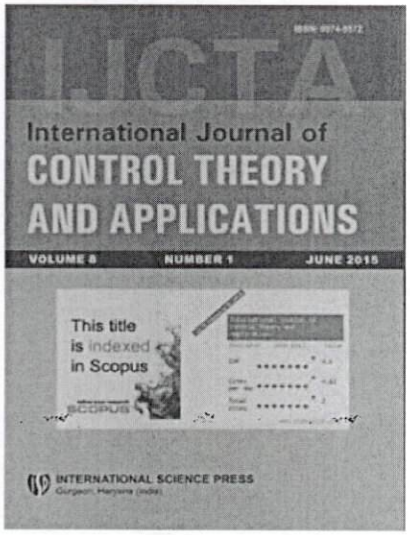

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Optimal Capacitor Placement in Distribution System with Random Variations in Load

Ajay Babu B[*], M. Ramalinga Raju[**] and K.V.S.R. Murthy[***]

Abstract: Capacitor placement is carried out in Distribution Systems for loss reduction and improving the voltage profile. In this work, random variations in load are considered for determining the capacitor placement. Sensitivity analysis is carried out for determining optimal locations and modified direct search algorithm is used for determining the sizes of capacitors.

The algorithm is tested on a practical distribution system. The system consists of 42 buses belonging to Tallarevu Mandal of East Godavari District of Andhra Pradesh. Random variations for 24 hours are considered on all 41 load buses for the analysis. For every hour, sensitivity analysis is done to determine the optimal locations for placing the capacitors. It is observed that the optimal locations are insensitive to load variations. Modified direct search algorithm is used for determining the sizes of capacitors. Optimal sizes are chosen in such a way that, it would result in best possible reduction in active power loss for all random load variations. Discrete sizes of capacitors are used for designing the capacitor placement.

Index Terms: Capacitor placement, Radial Distribution System, Power Flow, Modified Direct Search Algorithm.

1. INTRODUCTION

Capacitor banks connected to distribution systems helps in reducing the active power loss and improves the voltage profile. The Load flow techniques used in Transmission Systems like Gauss-Siedel and Newton-Raphson techniques cannot be applied to the Distribution Systems because of high R/X ratio. The design of compensation systems for radial distribution system is modeled as non-linear optimization technique.

Ramalinga Raju et. al., [1] have developed direct search algorithm for capacitive compensation in radial distribution system. Wang et. al. implemented integer programming technique [2], and Tabu search was used by Huang et. al., [3] for optimal capacitor placement. Grainger implemented Equal area criterion [4] and Genetic Algorithm applied to capacitor placement by Delfanti [5] for determining optimal sizes of capacitors. D. Das applied Fuzzy-GA method for capacitor placement problem [6]. Sydulu et. al., applied Index Vector to capacitor placement problem [7], Prakash et. al., applied Particle Swarm Optimization for Optimal capacitor placement problem [8]. Carpinelli et. al., implemented non-linear programming technique for capacitor placement [9] on three phase unbalanced system.

The new two stage algorithm has been proposed for capacitive compensation in this work by combining the sensitivity analysis and direct search algorithm. Sensitivity analysis is used to identify optimal locations with random variations in load. Direct search algorithm determines the suitable sizes of capacitors resulting in minimum active power loss. Dependency of optimal location for capacitor placement on variations in load is addressed for the first time in this paper.

1.1. Objective Function

Minimization of total cost is considered as Objective function for optimization. The first part of it is cost of energy loss and second part is the purchase cost of capacitor. The objective is to minimize the total cost, S [6].

[*] Research Scholar, University College of Engineering, JNTUK, Kakinada, India. *Email: ajayeeejntu@gmail.com*

[**] Professor, University College of Engineering, JNTUK, Kakinada, India. *Email: rajumanyala@yahoo.com*

[***] Professor, Aditya Engg College, Surampaem, India. *Email: murthykvs2000@yahoo.co.in*

Rating Of Kinematic Chains Using Genetic Algorithm

Venkata Kamesh Vinjamuri[#1]
#Professor of Mechanical Engineering,
Aditya Engineering College (A), SURAMPALEM-533437 AP, INDIA
[1]kameshvv@gmail.com

***Abstract*— Structural synthesis of kinematic chains is more interesting area for researchers since many years. In the analysis of kinematic chains for various industrial applications especially Robotics and Automation, it is necessary to rank the various kinematic chains on the basis of its capability in transmitting the input energy towards optimizing the energy resources. Enumeration of kinematic chains and detection of isomorphism plays a very important role in the synthesis. Earlier, many researchers' evolved methods to rate the kinematic chains based on computational algorithms. All these methods more or less involved in large amount of computations in the algorithms. In the present paper, genetic algorithm is applied for the detection of isomorphism and rating of kinematic chains by taking 8-link 1-dof kinematic chains (16) as a specific case.**

***Keywords*— kinematic chain, fitness, generation, isomorphism, rating**

I. INTRODUCTION

In structural synthesis of kinematic chains, detection of isomorphism, finding distinct mechanisms, rating play a major role. Earlier many researchers [1-8] developed several methods applied to Kinematic chains and planetary gear trains in these parameters. Much research was not carried out by the researchers in the field of Genetic algorithms. In this paper, 8-link 1-dof planar kinematic chains are studied for the rating using Genetic algorithm developed earlier.

II. FUNDAMENTAL CONCEPTS

Rao A.C.[2] developed a Genetic algorithm for topological characteristics of kinematic chains. In that concept, fundamentals of 'genetics' are followed in a broad sense applied in kinematic chains' structural synthesis. Each links of K-chain is said to have a 'fitness' which is equal to its connectivity. For each links, all other links are said to be 'Environment'. Formation of a closed loop K-chain is possible by 'mating' or joining of links. Direct joining of links is considered to be 'first generation'. Joining the links with '1' link in between is said to be 'second generation' and the concept extends to all other generations.

DEVELOPMENT OF ADJACENCY MATRIX FOR FIRST GENERATION

Adjacency matrix is the matrix representation of all the linkages in a kinematic chain. If a link A is connected to link B, it is represented by '1' else '0'. Also the connectivity of any link with itself is also considered to be '0'. Each kinematic chain of 8-link 1-dof (16 no.) is tested and adjacency matrices are prepared. Each row of the adjacency matrix consists of '0's and '1's, which can considered as 'fitness' values of that link in K-chain.

MATING OF LINKS

All the fitness values or strings of links of a kinematic chain are compared with all other linkages in that K-chain. The relative value of the mating is expressed as a 'numerical measure' in such a way that the 'off-spring' results are used to compare the characteristics of K-chains effectively. The result between two digits of two links are said to be 'off-spring'. The off-spring is generated by following the rules as:

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OPTIMISATION OF PROCESS PARAMETERS IN RAPID PROTOTYPING FOR NYLON POLYAMIDE MATERIAL

Sirisha Bhadrakali.A[1], DVVS B Reddy Saragada[2], A.Suman Babu[3]

[1,2,3] *Assistant Professor,Aditya Engineering College (India)*

ABSTRACT

Rapid Prototyping (RP) is finding applications in diverse fields in the industry today, with prototypes used for form, fit and function. Design Engineers around the world use Rapid Prototyping to pre-estimate product characteristics like shape, manufacturability and finish. Due to the excellent advantages of rp, it is fast catching the fancy of large number of people. A functional part of any manufacturing technique possess quality characteristics and they largely depend on process parameters. For the rapid prototyping technique, Selective Laser Sintering, process parameters and their interactions are optimized to gain quality characteristics.

I INTRODUCTION

Rapid Prototyping (RP) can be defined as a group of techniques used to quickly fabricate a scale model of a part or assembly using three-dimensional computer aided design (CAD) data. What is commonly considered to be the first RP technique, Stereolithography, was developed by 3D Systems of Valencia, CA, USA. The company was founded in 1986, and since then, a number of different RP techniques have become available.

Rapid Prototyping has also been referred to as solid free-form manufacturing; computer automated manufacturing, and layered manufacturing. RP has obvious use as a vehicle for visualization. In addition, RP models can be used for testing, such as when an airfoil shape is put into a wind tunnel. RP models can be used to create male models for tooling, such as silicone rubber molds and investment casts. In some cases, the RP part can be the final part, but typically the RP material is not strong or accurate enough. When the RP material is suitable, highly convoluted shapes (including parts nested within parts) can be produced because of the nature of RP.

There is a multitude of experimental RP methodologies either in development or used by small groups of individuals. This section will focus on RP techniques that are currently commercially available, including Stereolithography (SLA), Selective Laser Sintering (SLS), Laminated Object Manufacturing (LOM), Fused Deposition Modeling (FDM), 3D printing, and Ink Jet printing techniques.

II SELECTIVE LASER SINTERING

2.1. Introduction

Among the different RP processes the SLS process has gained traction in the manufacturing industry due to its capability to produce complex parts of any geometry without the need for special tooling and support structures.

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Load Flow Solution for Radial Networks with Composite and Exponential Loads

Gowthami Kunche[1], K. V. S. Ramachandra Murthy[2]

M. Tech (PE), Aditya Engineering College, Surampalem, East Godavari District, Andhra Pradesh, India[1]

Professor, Aditya Engineering College, Surampalem, East Godavari District, Andhra Pradesh, India[2]

ABSTRACT: A network-topology-based method is used to solve the load-flow problem of radial distribution networks in this Thesis. Power flow equations in matrix form are developed based on the topology. The technique requires line data in such way that the receiving end node must be in an ascending order. The implemented method requires building of two matrices: BIBC and branch-current to bus-voltage (BCBV) matrix. The bus-injection to branch-current (BIBC) is built by assigning unity to the nodes of the discovered paths. The method requires less number of iterations i.e., maximum of 3 iterations for convergence. In this Thesis, constant power load, constant current load, constant impedance load, composite and exponential loads have been considered for load flow solution. Load flow is obtained for 15 Bus, 33 Bus, 69 Bus and 85 Bus Systems. Load flow results are presented for various systems and also presented in graphical form. Results obtained for various types of loads are compared with the established results in the literature. They are found to be accurate to the third digit. Load flow algorithm is implemented in MATLAB.

KEYWORDS: Radial networks, Load flow, Bus system, Topology, MATLAB.

I.INTRODUCTION

Load flow analysis of distribution systems has not received much attention unlike load flow analysis of transmission systems. However, some work has been carried out on load flow analysis of a distribution network but the choice of a solution method for a practical system is often difficult. Generally distribution networks are radial and the *R/X* ratio is very high. Because of this, distribution networks are ill-conditioned and conventional Newton-Raphson (NR) and fast decoupled load flow (FDLF) methods are inefficient at solving such networks. Many researchers have suggested modified versions of the conventional load flow methods for solving ill-conditioned power networks. Recently researchers have paid much attention obtaining the solution of distribution networks. In India, all the 11 kV rural distribution feeders are radial and too long. The voltages at the far end of many such feeders are very low with very high voltage regulation. In this project, the main aim has been to implement a load flow technique for radial distribution networks. This method involves construction of two network matrices based on topology and matrix operations. Computationally this method is very efficient. Another advantage of this method is that it requires less computer memory. Convergence is always guaranteed for any type of practical radial distribution network with a realistic R/X ratio while using this method. Loads, in the present formulation, have been represented as constant power. However, this method can easily include composite load modeling if the break up of the loads is known. This load flow technique has been implemented using MATLAB. Several practical rural radial distribution feeders in India have been successfully solved using this method. In this paper, only 10 bus unbalanced system is considered. Relative speed and memory requirements of this load flow method are better than method proposed by Baran and Wu as per the literature.

Distribution system provides a final link between high voltage transmission systems and consumer services. The power loss is significantly high in distribution systems because of lower voltages and higher currents, when compared to that in high voltage transmission systems. Studies have indicated that as much as 13% of total power generated is consumed as I^2R losses in distribution level. Reactive currents account for a portion of these losses. Reduction of total loss in distribution systems is very essential to improve the overall efficiency of power delivery. The pressure of improving the overall efficiency of power delivery has forced the power utilities to reduce the loss, especially at

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SCOPE OF THE JOURNAL

This is a multi-disciplinary journal which receives research articles on advanced topics from various application areas, with theoretical, numerical, and practical studies.

KEYWORDS

Attribute-Based Access Authentication, Smartphone, Malicious code, Keylogger. Cloud computing, searchable encryption, privacy-preserving, keyword search, ranked search Cloud storage, data sharing, key-aggregate encryption, Public Key Encryption. Cryptography, Key Management, Group Key Agreement, Broadcast Encryption. Data alignment, data annotation, web database, wrapper generation Data alignment, data annotation, web database, wrapper generation. Data deduplication, Confidentiality, Hybrid cloud, Authorized duplicate check, Authorization. Data deduplication, authorized duplicate check, confidentiality, hybrid cloud. Digital

PMSG BASED VARIABLE-SPEED WIND TURBINE GENERATING SYSTEMS WITH HYBRID ENERGY STORAGE

Santhosh Kumar Kapaganti, Karri P Sarathi Reddy

ABSTRACT

Independent activity of a breeze turbine creating framework under fluctuating breeze and variable load conditions is a troublesome assignment. Also, high responsive power request makes it all the more difficult because of the constraint of receptive capacity of the breeze producing framework. A Remote Area Power Supply (RAPS) framework comprising of a Permanent Magnet Synchronous Generator (PMSG), a half breed vitality stockpiling, a dump stack and a mains stack is considered in this task. The cross breed vitality stockpiling comprises of a battery stockpiling and a supercapacitor where both are associated with the DC transport of the RAPS framework. A vitality administration calculation (EMA) is proposed for the half breed vitality stockpiling with a view to enhance the execution of the battery stockpiling. A synchronous condenser is utilized to give receptive power and inertial help to the RAPS framework. By utilizing svpwm system better smoothning and less contortion was seen in the wave shapes. An organized control approach is produced to deal with the dynamic and receptive power streams among the RAPS parts. In such manner, singular controllers for every rap part have been created for compelling administration of the RAPS segments. The proposed technique is fit for accomplishing: a) vigorous voltage and recurrence direction (as far as their adequate data transfer capacities), b) successful administration of the cross breed stockpiling framework, c) receptive power ability and inertial help by the synchronous condenser, and d) most extreme power extraction from wind. The outcomes will be helped out through Matlab/simulink R2009a condition.

KEYWORDS

Attribute-Based Access Authentication, Smartphone, Malicious code, Keylogger. Cloud computing, searchable encryption, privacy-preserving, keyword search, ranked search Cloud storage, data sharing, key-aggregate encryption, Public Key Encryption. Cryptography, Key Management, Group Key Agreement, Broadcast Encryption. Data alignment, data annotation, web database, wrapper generation Data alignment, data annotation, web database, wrapper generation. Data deduplication, Confidentiality, Hybrid cloud, Authorized Duplicate check, Authorization. Deduplication, authorized duplicate check, confidentiality, hybrid cloud. Digital signature, digital signature algorithm (DSA), Enhanced Adaptive ACKnowledgment (AACK) (EAACK), Mobile Ad hoc NETwork (MANET).

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Direct Torque Control Scheme For A Four Switch Inverter Fed Induction Motor Using Fuzzy Controller

Kancharla Gunamanikanta[1], Dr. V Srinivasa Rao[2]
M.tech Scholar Department of EEE, Aditya Engg. college, Surampalem, India.[1]
Professor and HOD Department of EEE,Aditya Engg. college , Surampalem, India.[2]

Abstract— This work implements a new approach of fuzzy logic based space vector regulation with respect to the immediate torque controlled acceptance engine bolstered by four switch three stage inverter (FSTPI) to conquer the downside of high torque swell. This methodology offers superior as far as torque swell lessening partnered to control of inverter exchanging misfortune. The three level hysteresis controller in the torque circle is supplanted by a two level hysteresis controller, with the goal that no zero voltage vector is associated with the proposed DTC plot. This technique depends on the imitating of the operation of the traditional six switch three stage inverter (SSTPI). The FSTPI produces four lopsided voltages intrinsically. With the best possible blend of four lopsided voltages prompting the union of six adjusted voltage vectors of the SSTPI. In the execution of this approach the outline of vector choice table partitions the Clarke plane into six zones. In the actualized DTC conspire enlistment engine is reenacted in stationary reference edge and its outcomes are drawn. Recreation aftereffects of the proposed DTC methodology, FSTPI sustained acceptance engine drives shows fascinating execution.

Index Terms— **Balanced voltage vectors, direct torque control (DTC), four-switch/six-switch three-phase inverter (FSTPI/SSTPI), induction motor (IM) drive, vector selection, Table, Fuzzy controller.**

I. Introduction

Over the previous decades DC machines were utilized widely for variable speed applications due to the decoupled control of torque and flux that can be accomplished by armature and field current control separately. DC drives are favorable in numerous viewpoints as in conveying high starting torque, simplicity of control and nonlinear execution. Be that as it may, because of the real downsides of DC machine, for example, nearness of mechanical commutator and brush get together, DC machine drives have turned out to be out of date today in modern applications.

The benefits of asynchronous motor such as the robustness, low cost, the high performance and easy maintenance made utilized as a part of numerous modern applications. Among a wide range of electric motors squirrel case inductance motor(SCIM) are broadly utilized as they have every one of the benefits of AC engines and less expensive in cost when contrasted with slip ring induction motors. In the absence of slip rings, brushes and cost connected with the wear and tear of the brushes are minimized

Numerous new techniques of control have been created in most recent couple of years to achieve the best performance of induction motor drive. Presently modern high switching frequency power converters, frequency, phase and magnitude of the input to an AC motor can be changed, subsequently the motor speed and torque can be controlled. Today it is conceivable to manage the axis control of machine drives with variable speed in low power applications for the most part because of joint advance of the power electronics and numerical electronics. The dynamic operations of the induction motor drive frames as a critical part on the overall performance of the system.

Thomas G Habetler, et al proposed a control conspire for direct torque and flux control of induction machines in view of the stator flux control of induction machines in view of the stator flux field introduction strategy [1]. In this prescient control plot an inverter obligation cycle has specifically ascertained each settled exchanging period in light of the torque and flux ripples, the transient reactance of the machine and an expected estimation of the voltage behind the transient reactance.Mauricio, CursinoThe common mode voltage generated by the four switch three phase inverter is evaluated and compared to that of the standard six switch three phase inverter.Khoa D Hoang, Z.Q.Zhu, and Martin P Foster in the paper presented direct torque control system for a four switch three stage inverter nourished changeless magnet brushless ac machine with reference to an ordinary six switch three stage inverter[3]. It has been observed that when gotten from routine voltage show flux estimation plot, the anticipated stator flux unevenness may might be brought about by unequal inverter voltage drop in the FSTP inverter, in which one stage winding is straightforwardly associated with dc-connect midpoint. Yongchang Zhang and JIanguo Zhu in the paper implemented a superior method to the existing methods in terms of simplicity and robustness by approximately

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THERMAL ANALYSIS ON NONMETALS SUBJECTED TO CONFINED SPACE

V.S.N.Ch.Dattu[1] R.D. Madhuri[2]

[1,2]*Department of Mechanical Engineering, Aditya Engineering College (India)*

ABSTRACT

A confined space is a space with limited entry. In case of concentric spherical shells heat transfer takes place. At present in this work Thermal analysis on non metals subjected to confined space, where air is taken as common confined gas. Whereas for the spherical shell two different shell materials has been chosen from the families of non metals. The outer shell and inner shell are maintained at several temperature sources namely335K, 364K, 395K & 424K. Diamond (C) and Silica Aero-Gel are considered as non metals. For analyzing thermal analysis ANSYS software is used.

***Keywords*: ANSYS, Confined gas, Non-Metals, Spherical Shell, Temperature**

I. INTRODUCTON

Convective heat transfer is the transfer of heat from one place to another place by the movement of fluids. Heat transfer by means of convection combines the processes of unknown conduction (heat diffusion) and advection (heat transfer by bulk fluid flow). To refer cumulative transport the term convection is used and to refer the transport due to bulk fluid motion the term advection is used. The properties of convective heat transfer can be evaluated at one convenient reference point, that point is called average fluid temperature or bulk temperature.

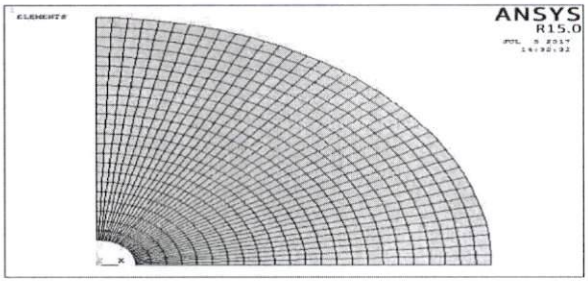

Fig No: 1 Mesh Geometry

S.No.	Materials	Thermal Conductivity (K) (W/m K)
1	Diamond	2000
2	Silica Aero-Gel	0.024

Table No: 1 K Values

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Research... ? Let's do it.

Design and Fluid Flow Analysis of Monolithic Wind Turbine Blade Constructed using NACA 4424, NACA 4421 and NACA 4418 Airfoils

Author(s):

B Manikanta , Aditya Engineering College; S D V V S Bheemeshwar Reddy, Aditya Engineering College; K L Kishore, Aditya Engineering College

Keywords:

Airfoil, Blade, CFD, Drag Coefficient, Lift Coefficient, FEA, Simulation, Wind Mill

Abstract

The world vision for the sustainable power source assets and its usage is expanding step by step. Thus, scientists in the territory of sustainable power source assets additionally expanded particularly in the range of wind turbines. By 2030 each significant nation of the world is a dream to use wind energy by 35% for their electrical needs. Many sorts of difficulties are confronted in the development of wind power units, for example, topology, geology, building challenges, and so on. Keeping in mind the end goal to accomplish the world vision for wind energy and to give power even to remote territories, this paper goes for building up the monolithic wind turbine blade which can be introduced in the remote zones of the world including inhabitable islands, places and in remote ranges with less population density. The modeling of monolithic wind turbine blade is done in Solidworks Part Design and the fluid flow analysis is done in Solidworks Flow Simulation.

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Article Preview

RESEARCH ARTICLE OPEN ACCESS

An Overview on Image Retrieval Using Image Processing Techniques

Mylavarapu Kalyan Ram [1], Dr.M.Venkateswara Rao [2], Challapalli Sujana [3]
PhD [1] Research Scholar, Gitam University,Vishakapatnam,
Asst Professor in Aditya Engineering College, Surampalem,Kakinada,
Associate Professor [2], Gitam University,Vishakapatnam
Asst Professor [3], Aditya Engineering College,Surampalem, Kakinada
Andhra Pradesh -India

ABSTRACT
Data mining refers to the extracting of knowledge /information from a huge database. There are number of topics in data mining such as Clustering, Classification, Association, Decision Tree, Graph mining, Multimedia mining and Image Mining. In above topics Image mining plays a vital role in every aspect. Image mining is the process of searching and discovering valuable information and knowledge in large volumes of data. Image mining draws basic principles from concepts in databases, machine learning, statistics, pattern The demand of image mining increases as the need of image data is growing day by day. There are many techniques developed in the earlier researches and eventually these techniques can reveal useful information according to the human requirements, but Image Mining still require more development especially in the area of web images. Image mining contains different research areas like Space, remote sensing, medical diagnosis etc. These techniques include neural network, clustering, correlation and association. This writing gives a review on the application fields of data mining which is varied into telecommunication, manufacturing, fraud detection, and marketing and education sector. In this technique we use size, texture and dominant colour factors of an image. Gray Level Co-occurrence Matrix (GLCM) feature is used to determine the texture of an image.
Keywords :- Data Mining, Image Mining, Feature Extraction, Image Retrieval, Gray Level Co-occurrence Matrix (GLCM).

I. INTRODUCTION

1.1Preprocessing: In the image database, the spatial segmentation can be done at the region or edge level based on the requirements of the application. It can be done automatically or manually and it should be resemblance enough to retrieve the features that can reasonably capture the image content

Image Cleaning:

Image cleaning is the process of detecting and correcting (or removing) corrupt or inaccurate images from the set of images and refers to identify the unclear, incorrect, or irrelevant parts of the images and then replacing, modifying, or deleting the dusty or fouled image data.

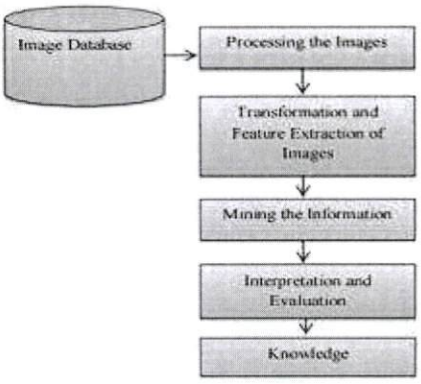

Fig 1: Image Mining Process

1.2Feature Selection and Extraction:

Feature selection and extraction a type of dimensionality reduction that efficiently represents the interesting parts of an image as a feature vector. This approach is useful when image sizes are large and a reduced feature representation is required to quickly complete tasks such as image matching and retrieval.

RESEARCH ARTICLE OPEN ACCESS

An Overview on Multimedia Data Mining and Its Relevance Today

Mylavarapu Kalyan Ram [1], Dr.M.Venkateswara Rao [2]
Challapalli Sujana [3]
PhD Research Scholar at Gitam University,Vishakapatnam
Asst Professor, Aditya Engineering College,Surampalem,Kakinada
Associate Professor [2], Gitam University,Vishakapatnam
Asst Professor [3], Aditya Engineering College,Surampalem, Kakinada
Andhra Pradesh - India

ABSTRACT

Over the past few decades, data quarrying or mining has been an effective approach for extracting concealed knowledge from huge collections of regulated digital data stored in databases. Multimedia data mining (MULTIMEDIA DATAMINING) refers to the analysis of large amounts of multimedia information in order to find patterns or statistical relationships. Rapid changes in information technology have drastically changed the functions and activities of multimedia. It includes audio, video, speech, text, web, image and combinations of several types are becoming increasingly available and are almost unstructured or semi structured data by nature, which makes it difficult for human beings to extract the information without powerful tools.. This paper sight sees survey of the current state of multimedia data mining and knowledge discovery, data mining efforts aimed at multimedia data, current approaches and well known techniques for mining multimedia data.

Keywords:- Data Mining, Multimedia Data Mining, Data Warehouse, Architectures, Applications, Models.

I. INTRODUCTION

With the recent progress in electronic imaging, video devices, storage, networking and computer power, the amount of multimedia has grown enormously, and data mining has become a popular way of discovering new knowledge from such a large data sets The goals of Multimedia Data Mining are to discover useful information from large disordered data and to obtain knowledge from the information. . Extracting the required information from the multimedia database is not a simple thing. The solution is to develop mining tools to operate on multimedia directly.

1.1 What is Multimedia Data Mining:

Multimedia mining is a subfield of data mining which is used to find interesting information of implicit knowledge from multimedia databases. Mining of multimedia data requires two or more data types such as text and video or text video and audio. Mining in multimedia is referred to automatic annotation or annotation mining

1.2categories Of Multimedia Data Mining:

Multimedia data are classified into five types; they are (i) text data, (ii) Image data (iii) audio data (iv) video data and (v) electronic and digital ink. Figure 1 illustrates multimedia data mining, in particular, various aspects of multimedia data mining

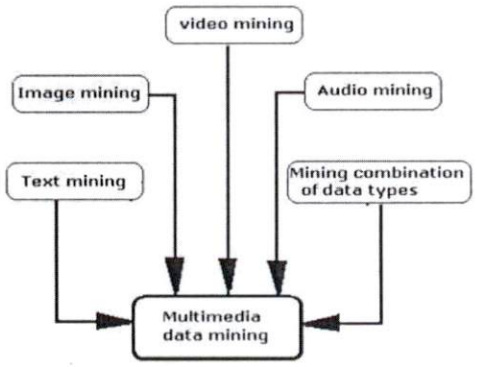

Fig 1: Categories of Multimedia data mining

Text mining

Text Mining also referred as text data mining and it is used to find meaningful information from the unstructured texts that are from various sources. Text is the foremost general medium for the proper exchange of information [3]. Text Mining is to evaluate huge amount of usual language text and it detects exact patterns to find useful information.

Image mining

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Study on Developing Engineering Properties of Marine Clay by Using Tile Waste and Polyster Fibre

[1]Ch. Devi, [2]K.H.N.S.D.Ragini and [3]M.V.Krishna Reddy

[1]Assistant Professor, [2]UG Student, [3]PG Student
[1, 2, 3] Department of Civil Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India.

Abstract

Subgrade soil stabilization is one of the primary and major processes in the construction of any highway; also environmental authorities are concerned about the growing amount of polyethylene (PET) bottles produced by household sectors. Presence of poor sub grade conditions and expansive sub grade is one such problematic situation. Marine soils, because of the specific physico-chemical makeup are subjected to volume changes with changes in their ambient environment. This research is intended to study on properties of marine clay with waste tile powder and reinforcing with polyster fibre. Especially shear strength and California Bearing Ratio (CBR). polyester fibers were mixed with soil in three different percentages 2.5%, 5% & 7.5% and combination with ceramic tile powder mixed with soil in three different percentages 5%, 7.5% & 10%. The shear strength, CBR, atterberg limits of treated samples were measured by direct shear test and CBR test and atterberg limits test. Experiments results show this fact that using of polyester and tile powder leads to increasing shear strength and CBR and reduction, plasticity index.

I. INTRODUCTION

Mainly in poor countries the economies in the construction lead to the development of the country. At the same time the durability aspect should also be kept in mind. Need to strengthen the rural economy by providing all weather resistant roads have been emphasized. In countries like India the biggest handicap is to provide a complete

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Efficient Dynamic Data Flow and Black Hole Detection in Manet

A.Vanathi[1], A.S.S.D.Toyaza[2]
[1,2]*Computer Science and Engineering, Aditya Engineering College Surampalem, India*

Abstract: ***In Wireless networks, when data packets are being transferred between nodes from a specified node to destination, then source node checks for shortest path to reach destination. In this approach there may be a possibility of occurring attack called BLACKHOLE attack. In Black Hole attack, source node sends Route Request (RREQ) to its neighbor nodes to know which node contains shortest path to reach destination. So malicious node sends Route Reply (RREP) to source node that it has a valid route to destination and then responds with False Route Reply (RREP). Then Source node transmits data to the destination through this malicious node. Then the malicious node absorbs or drops the data packets that are destined for destination. In this, an approach is proposed to detect the malicious node along with Routing tables. It can also show the metric analysis like packets sent, packets Received, Dropped Packets etc. A Runtime frame work for dynamic data flow using Network Simulator2 (ns2) has been proposed to implement black hole attack.***
Keywords: MANET, AODV, Black Hole Attack, Network Simulator 2, AWK

I. INTRODUCTION

Wireless network is a computer network that connects one node to another node and allows wireless data connection. MANET (Mobile Adhoc Network) is one of the types in Wireless Network Environment.

A. Manet

[1] MANET is a collection of different types of nodes with different architectures connected to each other. There will be a constant change in network Topology. Each node in the network forwards the packet without the need of central administration as it is adhoc type so that it does not depends upon on the foregoing infrastructure i.e. no need to access routers and other routing devices. Each and every node in this network acts like a router or host.

B. Types of Manets[2]

MANETS are categorized into 2 types

1) Vehicular Adhoc Networks
2) Internet Based Mobile Adhoc Network.
3) *Vehicular Adhoc Networks* (VANETs): are used for transmission among transport system mostly in roadside equipment.
4) *Internet Based Mobile Adhoc Networks* (iMANET): links mobile nodes and established gateway nodes which are transmit or receive stoppages.

C. Challenges of Manet[3]

1) *Black Hole Attack:* Black hole is a node referred as a malicious node that absorbs data packets passed through it. In MANET, a malicious node acts like a Black hole that drops all data packets passing through it. A black hole is a malicious node that falsely sends response for a route request even though it doesn't have any correct route to destination.
2) *Gray Hole Attack:* It also drops DATA packets but node's malicious activity is depends upon specific targeted node from which packets are coming or based on time i.e sometimes it acts as malicious and sometimes as normal node.
3) *Jellyfish Attack:* Here, There may be a chance of packet delay when they are transmitted to destination or it may even change the order of packets in which they are received and sends it in scrambled manner.
4) *Worm Hole Attack:* Here, a link was established called as worm hole link between any two points in the network .As soon as the link is connected the attacker seizes data or may exchange.

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A Novel Customized Persuasive Cued Click-Point Password Authentication

N. Akhila[1], A. Sri Sudha[2]
[1]*Asst. Prof, Dept. of CSE, Aditya Engineering College, Surampalem*
[2]*Assistant Marketing Manager, Reportstack, Pune*

Abstract: ***Most of the authentication methods use alphanumeric characters and passwords. This type of method has several drawbacks as textual passwords are easy to guess and the password that is hard to guess will be difficult to remember. To avoid this Customized Persuasive Cued Click Point (CPCCP) based image authentication method is introduced where user selects two images which are scrambled from sixty five set of images to prevent unauthorized access from an intruder.***
Keywords: Graphical passwords, Password guessing attacks, CPCCP

I. INTRODUCTION

Authentication is the process which verifies the identity of a User who wishes to access a particular system or resource and most of the textual passwords are vulnerable to attacks. The passwords should be very much complex to prevent the attacks like brute force. But if the password is hard it becomes difficult to remember passwords over time. In order to remember password easily, a graphical password authentication is used where passwords are easy to remember and hard to guess by hacker [2]. This paper brings forward the concept of customized persuasive cued click point authentication with the technique of scrambling images by generating session password from user id.

II. RELATED WORK

Graphical password systems belong to the category of information related legalizations Such as

A. Cued Click-Based Graphical Passwords

In CCP, Rather than clicking five different points on a single image, Cued Click Point introduces single click over each five different images. The user needs to choose few regions to record their highly secured password. The major problem encountered regarding the concept of graphical password is Mouse logger.

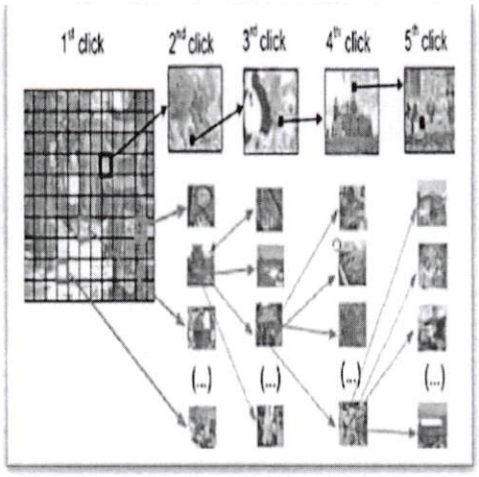

Fig 1:-Cued Click Point

B. Persuasive Cued Click-Points

When users generate a password in PCCP, the images will be little bit shaded except for the randomly chosen small block from the set of images given which is nothing but viewport as shown in Figure 2. Users need to pick out a click point from that small block. Users can make use of shuffle button to rearrange the viewport, if they are incapable to select a point from given viewport [3]. The

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An Automatic Form Monitoring System Using Arduino and Wireless Sensor Networks

B.Vidheya Raju

Assistant Professor, Department of Electronics and Communications Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

ABSTRACT: Irrigation has been the backbone of human civilization since man has started agriculture. As the generation evolved, man developed many methods of irrigation to supply water to the land. In the present scenario on conservation of water is of high importance. By knowing the status of moisture and temperature through GSM with the use of moisture, Raindrop and temperature sensors, water flow can be controlled by just sending a message from our mobile and also adaptively sprinkling water to simulate the effect of rainfall. Central to this design is an Arduino Uno microcontroller which monitors the farm condition and controls the distribution of water on the farm. Relays are controlled by the microcontroller through the high current driver IC and provided for controlling the system, which controls the flow of water to different parts of the field and also used to shut-off the main motor which is used to pump the water to the field. This irrigation system allows farmers to reduce runoff from over watering saturated soils, avoid irrigating at the wrong time of day and in effect improve the crop yield by ensuring adequate water supply when needed.

KEYWORDS: Arduino Uno, GSM module, Temperature, Moisture, Raindrop sensors.

I. INTRODUCTION

Water is a resource that all living species need. It is therefore very precious and has to be used with moderation to be preserved for the generations to come. Agriculture is an industry that uses a lot of water. Most of the time, this resource is not used efficiently and substantial amounts of water are wasted. In the near future, these wastes will represent a large sum of money. In this Paper, an Automated Irrigation System is suggested to minimize the water input and human intervention, while satisfying the plants' needs.

II. BLOCK DIAGRAM

The System consists of two sections, the transmitter section and receiver section. The entire transmitter section will be placed in the farm where as the receiver section is a mobile.

At Transmitter:

- Arduino Uno.
- Moisture sensors.
- Temperature sensor.

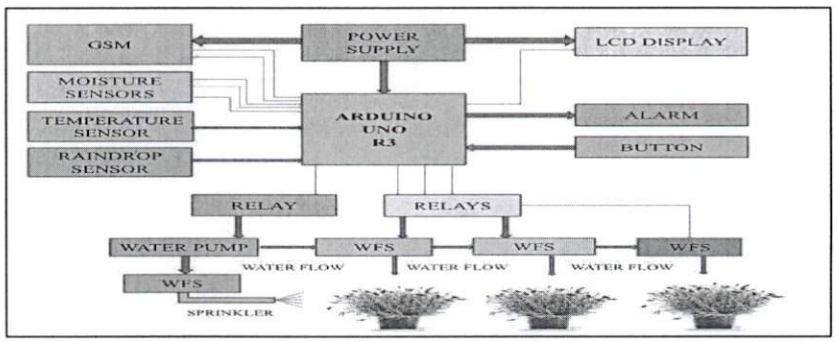

Fig 1: Block Diagram

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HEAT DISSIPATION ANALYSIS OF RUGGED SYSTEM USED IN DEFENCE APPLICATIONS

DVVS Bheemeshwar Reddy S[1],

Grandhi V Ayyappa Swamy[2] , K.L.Kishore[3]

[1]Asst.Professor ,Dept., of Mechanical Engineering, Aditya Engineering College, Surampalem, Kakinada.

[2]Asst.Professor, Dept., of Mechanical Engineering, Aditya College of Engineering, Surampalem,Kakinada.

[3]sr Asst. Professor, Dept., of Mechanical Engineering, Aditya Engineering College, Surampalem, Kakinada.

ABSTRACT

A rugged system is a system specifically designed to operate reliably in harsh usage environments and conditions, such as strong vibrations, extreme temperatures and wet or dusty conditions. They are designed from inception for the type of rough use typified by these conditions, not just in the external housing but in the internal components and cooling arrangements as well. Typical end-user environments for rugged laptops, tablet PCs and PADs are public safety, field sales, Field service, manufacturing, retail, healthcare, transportation/distribution and the military. They are used in the agricultural industries and by individuals for recreational activities.

The rugged system is used for carrying the sensitive items for one place to other place without damaging. The products like computers, guns, medicine, walk talky etc. to withstand harsh conditions. The rugged system provides the good conditions while traveling, it keep the devices clean, protected from water, dust, vibrations, and fire to and environmental conditions and more.

This paper mainly focused on the better position for placing fans to cool the electronic system.

In this paper we designed a rugged casing using CREO-2.0 and CFD analysis for rugged box and inner part electronic component takes place with help of FLOEFD Software.

Keywords— Rugged ,Casing , Design

I. INTRODUCTION

Rugged is strongly made and capable of withstanding rough handling. A rugged system is a system specifically designed to operate reliably in harsh usage environments and conditions, such as strong vibrations, extreme temperatures and wet or dusty conditions. They are designed from inception for the type of rough use typified by these conditions, not just in the external housing but in the internal components and cooling arrangements as well. Typical end-user environments for rugged laptops, tablet PCs and PADs are public safety, field sales, Field

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Design of a Low Power and High Speed FIR filter based on Reusable MAC Unit

*T.Srinivasa Rao[1], D.Viswa Bharathi[2], K.H.K.Prasad[3]
[1, 3](Department of ECE, Aditya Engineering College, Surampalem, India)
[2](Department of ECE, University College of Engineering, JNTUK, Kakinada, India)
Corresponding Author: T.Srinivasa Rao*

Abstract : *Portable real-time Electrocardiogram (ECG) monitoring is a prominent technology enabling early diagnosis and increased ability of prevention of cardiovascular diseases. However, the ECG signal suffers from Power Line Interference (PLI) which corrupts the biomedical recordings. Low power and high speed filtering of the ECG signal is essential to eliminate the PLI and make the monitoring device portable. The Multiply-Accumulator (MAC) based FIR (Finite Impulse Response) filer is well suited for low power and high speed applications. In this paper, proposed an innovative concept of Reusable MAC (R-MAC) to improve the performance of the FIR filter. In which a single MAC unit is used instead of multiple MAC units to design an FIR filter by employing the time division multiplexing. The speed is almost improved by 11% and power consumption is reduced to 38% compared to existing regular MAC based FIR filters. The low power high speed FIR filter design is possible by Vedic multiplier-Carry Select Adder-R-MAC combination.*

Keywords: *ECG, FIR filter, PLI, R-MAC unit.*

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I. Introduction

The real time digital signal processing applications are greatly extended by the advancements in VLSI (Very Large Scale Integrated Circuit) technology. As a part of digital signal processing, the FIR (Finite Impulse Response) filter has so many applications especially it is well-suited for elimination of PLI [1]. Power line Interference is the most common type of noise in the ECG signal caused by absorbing the electromagnetic radiation by the human body from 50Hz frequency power lines [2]. Low power and high speed filtering is essential to eliminate the noise from biomedical raw signals and make the monitoring device portable. Basically the FIR filter consists of multiplier and an accumulator that contains the sum of the previous consecutive products [3]. A digital athematic unit called MAC can also perform the same operation of multiplication and accumulation. Therefore, the repetitive process of multiplication and addition in FIR filter is conveniently obtained by MAC unit as shown in Fig.1. This thesis presents an innovative FIR filter design based on R-MAC Unit. The performance of this filter largely depends on the speed and power of the MAC unit employed inside the filter. The effective architecture for FIR filter with given specifications may be designed by using MATLAB. The performance of the designed filter may be verified by using Xilinx.

The current work compares various MAC units on Power, Performance and Area (PPA) benchmarks. In this project, the MAC is designed by using Vedic multiplier and Carry Select Adder. Vedic multiplier is faster than the array multiplier and Booth multiplier. The area needed for Vedic Multiplier is very small when compared to other multiplier architecture and the higher order multipliers can also be designed easily from lower order multipliers [4]. Carry Select Adder (CSA) is mainly used due to its low power consumption in the MAC unit and it also occupies less area. CSA can also operate at more speed [5]. A Vedic multiplier-CSA MAC is used to design a FIR filter to meet the speed and power requirements. In the design of MAC based FIR filter, the each tap-summer is needed to replace by one MAC unit. By this way the design requires same number of MAC units as number of taps and consequently increases the utilization area and power consumption. The power consumption can be reduced by introducing the concept of reuse of a single MAC unit instead of multiple MAC units using multiplexing technique. The main goal of this project is to design a low power and high speed FIR filter based on R-MAC by employing the time division multiplexing. The entire FIR filter is coded in Verilog and synthesized in Xilinx for speed and power analysis.

The rest of the paper is organized as follows. In section II, the basic design of FIR filter based on MAC unit is presented. Section III, presents the proposed work that is how the FIR filters is designed using the concept of R-MAC. Section IV describes the validation and comparison of results. Section IV gives the conclusion and future scope of this work.

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Tremendous Changes in India after Paris Climate Change Conference

Tirupati rao Bantu[1]*, Sattibabu Adapa[2], Suryanarayana Veeravalli[3]

[1,2,3]Faculty of Chemistry and Environmental Sciences, Aditya Engineering College, Surampalem, East Godavari dist, Andhra Pradesh, India

Abstract

India is the first Nation in the Earth to have made provisions for the conservation, preservation and protection of environment in its constitution .On 5th June 1972 environment was first discussed as an item of U.N Conference on human environment development in Stockholm and thereafter our country took legislative steps for environmental protection. The Paris Climate Change Conference was successfully concluded with the Paris Agreement, which is a Turning Point for the world in Inclusively Oppose climate change. By Engage in **IPCC (Intergovernmental panel on climate change)** assessments, adopting new methods and conducting national climate change assessments, India has been increasing its understanding of the issue. Moreover, this participation indicates India's dedication to including climate changes in its ecological balance program, sustainable development and conducts a low-carbon Group and Affluence. The constructive involvement in global governance shows that India is a responsible power to both developed and under developing nations.

Keywords: Paris Climate Change Conference; Paris agreement; Carbon emission; sustainable development; Indian Government

1. Introduction

"Climate change is the average weather conditions like seasonal variations and extremes of weather in a region-at least 30 years of an area".

The Paris Agreement That Was Adopted On 13Th December 2015.

The negotiators of the Agreement however stated that the NDCs and the 2 °C depletion goal were inadequate, instead, a 1.5 °C Goal is required, noting "with concern that the estimated aggregate greenhouse gas emission levels in 2025 and 2030 resulting from the Calculated governmentally decided beneficiations do not fall within least-cost 2℃ scenarios but rather lead to a projected level of 55 gig tonnes in 2030", and Identify moreover "that much considerable discharge reduction performances will be needed in order to hold the increase in the global average temperature to below 2℃ by reducing emissions to 40 giga tonnes or to 1.5℃".

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EFFECT OF SHRINK WRAPPING ON SHELF LIFE OF BANANAS

D. SUREKHA[1], T. SRAVAN[2] & L. EDUKONDALU[3]

[1,2]*Department of Agricultural Engineering, Aditya Engineering College, Surampalem, India*

[3]*Department of Agricultural Process and Food Engineering, College of Agricultural Engineering, Bapatla, India*

ABSTRACT

Mature green locally available bananas (Chakkerkeli) were pretreated (hot water 50 °C; 10 min) and shrink wrapped in shrink films of polyolefin 15 μ and cryovac 9 μ and stored at ambient storage conditions (Temp = 33°C; RH 72%). An experiment was conducted, both for fingers and hands; periodical observation was recorded in % weight loss, firmness, colour, percent decay and the CO2 transmission rate of stored bananas. The PLW increased gradually in banana, during the storage period. Hands wrapped with polyolefin 15 μ, recorded the lowest weight loss of 1.72%, followed by hands wrapped with cryovac 9 μ. Unwrapped fingers recorded more weight loss (27.48%) compared with wrapped fingers by the end of storage period. The fruit firmness followed a declining trend because of the softening of fruit tissues. Hands wrapped in polyolefin 15μ recorded highest firmness (3.65 kg). The Colour of the fruits changed slowly from green to yellow. The highest colour change from green to yellow was recorded with unwrapped finger bananas and the lowest was observed with hands wrapped with polyolefin 15μ. Decay percentage increased gradually, during the storage period. But, the rate of decay was faster in unwrapped treatments. The CO2 transmission rate increased, with the increase in storage period with lowest in hands, wrapped with polyolefin 15μ. It was noticed that, shrink film increased the shelf life and maintained the quality of banana fruits for 14 days, under ambient conditions.

KEYWORDS: Chakkerkeli, Fingers, Hands, Physiological Parameters, Shrink Wrapping, Polyolefin 15μ & Cryovac 9μ

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Original Article

INTRODUCTION

Banana (*Musa* sp.*)* is a large perennial herb with leaf sheaths that form trunk like pseudo stem. Banana is a globally important fruit crop with 97.5 million tons of production. Banana is a rich source of carbohydrate and vitamins. Banana powder is being used as one of the ingredients of baby food.

Bananas are generally harvested early in the season at a pre-mature stage to capture early market. Fruit production has increased but the post-harvest losses are not controlled. In a tropical country like India, these losses occur due to various reasons like lack of proper storage facilities, improper handling during long distance transport and rapid ripening due to high temperature followed by microbial spoilage. Banana being a highly perishable fruit, shows high post-harvest losses to the extent of about 20-30%, Sreenivasa *et al.* (2009).

The increased production of banana is supplemented with efforts to minimize post-harvest losses, by adopting a suitable technique with proper storage conditions. Shrink wrapping produces a micro atmosphere and retard ripening, by limiting the exchange of oxygen and carbon dioxide and can interplay with the physiological processes of commodity, resulting in reduced rate of respiration, transpiration and other metabolic processes of fruits, thereby allowing lower physiological weight loss, reducing decay incidence and maintaining retention of colour and texture of fruits, during extended shelf life, Sharma *et al* (2010).

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Image Inpainting and Enhancement using Fractional Order Variational Model

G. Sridevi[a,*] and S. Srinivas Kumar[a]

Department of Electronics and Communication Engineering, Aditya Engineering College, Surampalem - 533 437, India
[a]*Department of Electronics and Communication Engineering, JNT University, Kakinada - 533 003, India*
[*]*E-mail: sridevi_gamini@yahoo.com*

ABSTRACT

The intention of image inpainting is to complete or fill the corrupted or missing zones of an image by considering the knowledge from the source region. A novel fractional order variational image inpainting model in reference to Caputo definition is introduced in this article. First, the fractional differential, and its numerical methods are represented according to Caputo definition. Then, a fractional differential mask is represented in 8-directions. The complex diffusivity function is also defined to preserve the edges. Finally, the missing regions are filled by using variational model with fractional differentials of 8-directions. The simulation results and analysis display that the new model not only inpaints the missing regions, but also heightens the contrast of the image. The inpainted images have better visual quality than other fractional differential filters.

Keywords: Fractional calculus; Image inpainting; PDE models; Variational model

1. INTRODUCTION

Digital image completion, or inpainting, is used to complete or replace the corrupted or missing zones of an image by using the knowledge from the known regions, such that a neutral observer would not notice any changes. There are diverse important applications of the digital image inpainting techniques, such as: damaged painting reconstruction, photo restoration, superimposed text removal, object removal, image compression and coding.

The image inpainting approaches are branched into the three groups: exemplar-based inpainting[1,2], diffusion-based inpainting[3-13], and hybrid inpainting[14]. Exemplar-based inpainting technique repeatedly synthesises the unknown area by a most identical patch in the known area. An influential exemplar-based inpainting approach was developed by Antonio[1], *et al.*. Many other innovations improving the speed and efficacy of the Antonio's proposal have been amplified[2].

Diffusion-based image inpainting refers to the technique of completing, which employs the information around the damaged region to estimate isophotes, and propagates information from outside region to inside region by propagation. It utilises the partial differential equation (PDE) based and variational based restoration methods. The PDE techniques follow isophote directions in the image to perform the restoration process. The first PDE-based image completion method was introduced by Bertalmio[6], *et al.*. The first variational method to the image completion was introduced by Nitzberg and Mumford[3], and the second variational model to image completion was proposed by Masnou and Morel[5], based on interpreting the level lines with minimal curvature. A famous variational model for image inpainting was introduced by Chan and Shen[7]. Their variational framework completes the damaged areas by minimising the total variation (TV), while retaining approximately the ground truth image in the source regions. This method adopts an Euler–Lagrange (E-L) equation and anisotropic (non-linear) diffusion which depends on the isophotes strength. It fails to connect broken edges. The same authors extended the TV model in curvature driven diffusion (CDD) model. It is based on the geometric information of the isophotes. It modifies the coefficient of conductivity to be stronger when the isophotes have large curvature. Quick curvature driven diffusion is proposed by Xu[10], *et al.* to reduce the computational complexity of the CDD model. Biradar and Kohir[11] applied a simple method based on a nonlinear median filter to diffuse median value from exterior to interior regions. Barbu[13] proposed a fast converging second order nonlinear diffusion to image inpainting.

Recently, fractional order PDEs have been studied in computer vision. The fractional derivative[15,16] finds a major role in digital image processing[16-23]. It is the generalised form of integer order derivative. Fractional derivative is defined by many mathematicians like Riemann-Liouville, Grunwald-Letnikov, and Caputo. It exhibits the non-local property, as the fractional derivative at a pixel depends on the whole image and not just the neighbourhood pixel values. It is very useful for edge preservation and enhancement of the image. Zhang[17,18], *et al.* proposed p-Laplace fractional order variational image inpainting based on Grunwald-Letnikov and Riemann-Liouville definitions. The inpainting process of these models is based on the fractional differential filter in four directions and the diffusion process is controlled by the p-Laplacian fractional

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Implementation of FIR Digital Filters for Odd Length using Power Reduction Technique

T. NARMADA[1], G. SRIDEVI[2]

[1]PG Scholar, Dept of ECE, Aditya Engineering College, Surampalem, E.G(Dt), AP, India, Email: narmadathadi@gmail.com.
[2]Assoc Prof, Dept of ECE, Aditya Engineering College, Surampalem, E.G(Dt), AP, India, Email: sridevi_gamini@aec.edu.in.

Abstract: This paper proposes, a new parallel FIR filter structure based on clock gating method. The clock technique is used for reducing the unwanted clock signals. The proposed parallel FIR structures use symmetric property to reduce half the number of multipliers in subfilter section at the expense of additional adders in pre-processing and post-processing blocks. Exchanging multipliers with adders is advantageous because adders require less area than multipliers also the additional adders will not effect the length of the FIR filter. With the combination of fast FIR filtering and clock gating technique, a major reduction of multipliers is done. Overall, the proposed parallel FIR structures can lead to significant hardware savings for symmetric convolutions from the existing FFA parallel FIR filter, especially when the length of the filter is large. The FFA and proposed structures are implemented in Verilog HDL for an 27-tap linear-phase FIR filter with different word lengths, filter lengths N = 8,16 and 32. The work is carried out using MATLAB R2013a and Xilinx 14.7.

Keywords: Clock Gating, Digital Signal Processing(DSP), Fast Fir Algorithm(FFA), Parallel FIR, Symmetric Convolution, Xilinx System Generator.

I. INTRODUCTION

Digital signal processing (DSP) has many advantages over analog signal processing. Digital signals are more robust than analog signals with respect to temperature and process variations. The accuracy in digital representations can be controlled better by changing the word length of the signal. Furthermore, DSP techniques can cancel the noise and the interference while amplifying the signal. In contrast, both signal and noise are amplified in analog signal processing. Digital signals can be stored and recovered, Transmitted and received, processed and manipulated, all virtually without error. While analog signal processing is indispensible for systems that require extremely high frequencies such as the radio frequency transceiver in wireless communications, or extremely low area and low power such as micro machine sensors used to detect cracks and other stress-related material defects, many complex systems are realized digitally with high precision, high signal to noise ratio (SNR), repeatability, and flexibility. The finite-impulse response (FIR) filter has been and continues to be one of the fundamental processing elements in any digital signal processing (DSP) system. FIR filters are used in DSP applications that range from video and image processing to must be a low-power circuit, capable of operating at moderate frequencies. Parallel, or block, processing can be applied to digital FIR filters to either increase the effective throughput or reduce the power consumption of the original filter. Traditionally, the application of parallel processing to an FIR filter involves the replication of the hardware units that exist in the original filter.

There have been a few papers proposing ways to reduce the complexity of the parallel FIR filter in the past. In [1]–[4], poly phase decomposition is mainly manipulated, where the small-sized parallel FIR filter structures are derived first and then the larger block-sized ones can be constructed by cascading or iterating small-sized parallel FIR filtering blocks. In [5]–[7], the fast linear convolution is utilized to develop the small-sized filtering structures and then a long convolution is decomposed into several short convolutions, i.e., larger block-sized filtering structures can be constructed through iterations of the small-sized filtering structures. However, in both categories of method, when it comes to symmetric convolutions, the symmetry of coefficients has not been taken into consideration for the design of structures yet, which can lead to a significant saving in hardware cost. In this paper, we provide new parallel FIR filter structures based on FFA consisting of advantageous poly phase decompositions, which can reduce amounts of multiplications in the sub filter section by exploiting the inherent nature of the symmetric coefficients, compared to the existing FFA fast parallel FIR filter structure. Fast FIR algorithms (FFAs) introduced in [1]–[3] show that they can implement an L-parallel filter using approximately (2L −1) subfilter blocks, each of which is of length N/L. It reduces the required number of multipliers to (2N −N/L) from L ×N. In [5]–[9], the fast linear convolution is utilized to develop the small-sized filtering structures, and then a long convolution is decomposed into several short convolutions.

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Energy Efficient Environmental Monitoring System

P.Jamalaiah & G.Jyothirmai

[1] Student details: P.Jamalaiah, M.Tech Student, Dept of ECE, Aditya Engineering College, Surampalem, A.P., India.

[2]Guide details: G.Jyothirmai, M.Tech, (Ph.D), Assistant Professor, Aditya Engineering College, Surampalem, A.P., India.

Email ID: pjamalaiah408@gmail.com **& Email ID:** sivajyothi1427@gmail.com

Abstract:

This paper presents the development of energy efficient environmental monitoring system that monitors the greenhouse gases such as CO, CO2, SOx, NOx, O2 in the environment, and environmental conditions or the ambient conditions in indoor spaces at remote locations. In order to achieve the target design goals, the communication module, the wireless smart transducer interface module, and ARM processor have to be used. The communication between the system's components is performed using the existent wireless infrastructure based on the IEEE 802.11 b.g standards. Visual basic is created to show the digital representation of the sensed data on user PC. The Gas sensor Will Sense the Gas and it will display in our LCD Module and System

Keywords: *lpc 2148, Humidity, Temp, Gas, ZIGBEE.*

Introduction

The IMPORTANCE of environmental monitoring is undoubted in our age. This is the field where wireless sensor networks (WSNs) have been first used, their primary purpose consisting in the observation of the physical world and the recording of physical quantities characterizing it. WSNs are large networks of resource-constrained sensors with processing and wireless communication capabilities, which implement different application objectives within a specific sensing field. They can also be used for ambient monitoring, a topic of great interest nowadays as well,

indoor air quality representing an important factor affecting the comfort, health, and safety of building occupants. Finally, the use of wireless ambient sensors can lead to more energy-efficient buildings. The constant attempts of social and economic bodies for the development of technologies for improving energy efficiency and reducing pollution and for the more efficient use of national infrastructure along with the needs of decreasing the cost of computation, networking, and sensing had lead to the emergence of a new generation of digital systems, called environmental monitoring systems, less than a decade ago. These include embedded systems, sensor networks, actuators, coordination and management processes, and services to capture physical data and to act on the physical environment, all integrated under an intelligent decision system .

This paper presents a system for environmental and ambient parameter monitoring using low-power wireless sensors connected to microcontroller, which send their measurements to monitoring PC using the IEEE 802.11 b/g standards. Finally, data from all sensors can be remotely visualized from the PC connected to the microcontroller. This overcomes the problem of system integration and interoperability, providing a well-defined architecture that simplifies the transmission of data from sensors with different measurement capabilities and increases supervisory efficiency. Until recently, Zig bee technology has not been considered for implementing wireless sensing solutions because of its inability to meet the challenges in these types of systems, with the major drawback consisting in the unsatisfactory energy consumption. However, this has changed, since new power-efficient Zig bee devices have been developed and new solutions can benefit from several advantages offered by this technology, namely, the reduction of infrastructure costs, self configuring, long battery life, and high

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Automated Segmentation of Retinal Blood Vessels

V.R.Jahnavi ; K.Pavani ;B.Savithri & G.Jyothirmai
AEC-ECE surampalem
vrjahnavi@gmail.com ; k.pavani.k@gmail.com; savithri.bondada@gmail.com;
sivajyothi1427@gmail.com

ABSTRACT

Digital image processing and the image analysis technology based on the advances in microelectronics and computer have many applications in biology. In clinical ophthalmology, study of blood vessels in retina is important for detection of the diseases. Diabetic retinopathy is one of the diseases which damages the retina and leads to blindness. Manual diagnosis of analyzing images from a patient with Diabetic Retinopathy increases the time. Automatic segmentation of retinal blood vessels could save workload of the ophthalmologists and may assist in characterizing the defected lesions and to identify false positives with high accuracy. The proposed algorithm uses optimized Gabor filter with local entropy thresholding. The blood vessel detection and segmentation is important for diabetic retinopathy diagnosis at earlier stage. The proposed method detects blood vessels with higher accuracy and sensitivity in the retinal images. The DRIVE database has been used to enable comparative studies on segmentation of blood vessels in retinal images.

Keywords

Retinal image, Blood vessels, Diabetic retinopathy, Optimized Gabor filter, Local entropy thresholding, DRIVE database

1. INTRODUCTION

Retinal blood vessel segmentation using fundus photographs plays a vital role in assessing the severity of retinal pathologies that can lead to acquired blindness such as retinopathy of prematurity, glaucoma, vein occlusions and diabetic retinopathy (DR). Automated blood vessel segmentation algorithms can be very useful in screening patients that are affected by such retinal complications and require regular follow-up by automated blood vessel segmentation systems. Thus, an accurate vessel segmentation algorithm that is robust to image variability and that has low computational complexity is desirable for such automated real-time detection and screening systems.

All existing algorithms for automated segmentation of blood vessels using fundus images can be broadly categorized as supervised and unsupervised. In the supervised category of algorithms, classifiers such as the k-Nearest Neighbor, Gaussian Mixture Model (GMM), Support Vector Machine (SVM), Neural Networks, Decision Trees and Ada-Boost have been applied to classify vessel pixels from the non-vessels. The unsupervised algorithms mostly apply matched filtering, line detectors, morphological transformations, model-based methods, or multi-scale vessel segmentation methods. While most supervised vessel classification methods are dependent on the training data and sensitive to false edges, the existing unsupervised methods are computationally complex and hence they are not viable for real-time portable DR screening systems.

Diabetic retinopathy (DR) is the result of damage caused by diabetes to the small blood vessels located in the retina. Blood vessels damaged from diabetic retinopathy can cause vision loss.

Computer based analysis for automated segmentation of blood vessels in retinal images will help ophthalmologists screen larger populations for vessel abnormalities. A wide variety of approaches have been proposed for retina blood vessels segmentation [1] [2] [3] [4] [5] [6] [7]. This paper is based on optimized Gabor filter with local entropy thresholding. Gabor filters have been widely applied to image processing and computer vision application problems such as face recognition and texture segmentation.

Optimized Gabor filter methods often produce false positive detections and fail to detect vessel of different widths. Also detection process is much more complicated when retinal image is in abnormal condition. This paper has been proposed a much robust and fast method of retinal blood vessels extraction using optimized Gabor filter with local entropy thresholding.

2. PROPOSED METHOD

The proposed method is one of the several ways of implementing the vasculature detection using fundus images. In this method, the green plane image is extracted from the fundus image which is the green color values from the fundus image obtained. The color image obtained from the

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Enhanced Novel Multilevel Secure User Authentication Scheme in Cloud.

A.Lakshmi Pavani[1], K.Devi Priya[2]
[1]M. Tech Student, Department of Computer Science and Engineering, Aditya Engineering College, Surampalem, Peddapuram, East Godavari District, Andhra Pradesh, India.
[2]Sr. Assistant Professor, Department of Computer Science and Engineering, Aditya Engineering College, Surampalem, Peddapuram, East Godavari District, Andhra Pradesh, India.

Abstract: ***Now a day, cloud computing is becoming more popular and the major problem in cloud computing is security. Many companies such as Amazon, Microsoft are developing cloud computing systems and provide services to large number of users on demand. When we store data in the cloud server some security and privacy issues may take place because many users may use the same server. Some unauthorized users may access the data while storing in the cloud. Unauthorized users may gain the passwords easily because users may not use complicated passwords or may not change the passwords to get multiple services. Hence security enhancement is required such as authentication is provided in this paper. Authentication is the process of checking the identity of the user who is logging on the network. The credentials of the user are compared with the details of authorized users stored in the database; if the user is authorized then he gets the permissions to access the data. Authentication allows the system to identify the user through user id and verify with password. In this paper to provide authentication different levels of authentication centers are available which generates keys to provide security. Encryption algorithm such as AES 256 is used to encrypt the file and store in cloud which provides high security. The evaluated results are implemented using Drive HQ cloud***

Keywords-Cloud computing, Authentication, Security, Authentication center,Sub Authentication centers,AES.

I. INTRODUCTION

Cloud computing refers to sharing and storing information in the cloud. Sharing resources, software and information over the internet. The data which is stored in the cloud server is maintained by cloud service provider. User can use the information stored in the cloud. There is no need to store the information on our own device. One can access files from any location. Users can download the files from the cloud server to any devices such as laptop, tablet or smart phone etc. The price will change depending upon the service used by the user. For example initial amount of 5Gb is free with icloud for storage of data. For additional storage need to pay fee. Cloud computing simply states delivery of computing resources such as servers, storage, databases, networking, software via internet as pay per use [1]. Advantages of cloud computing are world wide access, more storage, easy set up, automatic updates and reduced cost. Companies which provide the services required for the end users are called cloud service providers. Amazon Web Services, Microsoft Azure, Google Cloud Platform, Adobe, VMware, IBM Cloud, Sales force, Oracle Cloud, Verizon Cloud, Drop box are some of examples of cloud service providers. Microsoft Azure is an operating system of cloud and a platform to develop applications in cloud which is used to provide runtime environment for web applications and distributed applications. Google app engine is a scalable runtime environment used for executing web applications. Three delivery models of cloud computing are Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service which are offered based on different services.

A. Services of Cloud

1) *Infrastructure as a Service (IaaS):* This service provides the infrastructure in a virtual environment so that many users can access this service. Resources like Servers, Operating Systems, Virtual Machines, Networks, and Storage etc are provided (e.g. Amazon Web Service, Microsoft Azure).
2) *Platform as a Service (PaaS):* This service provides the environment in which users can compile and run the programs. This service is mainly used by developers.
3) *Software as a Service (SaaS):* It provides application software as pay per use to the end users. It is platform independent and not needed to install software on our own device. This service is available to many end users which makes cloud computing cheap (e.g. Google Applications, Sales force [2]).

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Digital security: an Model to work out Overall Network Security Risk Abuse Stochastic Process Strategy

V.Ravi Kishore[1].K.Vydhei[2], Dr.V.Venkata Krishna[3]
[1, 2]Assistant Professor AdityaEngg College
[3]Professor & Principal NishitaEngg. College

Abstract: ***There are numerous security measurements created to protect the pc systems. As a rule, normal security measurements have some expertise in subjective and subjective parts of systems lacking formal connected math models. Inside the blessing study, we tend to propose an arbitrary model to evaluate the threat identified with the system misuse method} process in conjunction with Common Vulnerability rating framework (CVSS) structure. The model we tend to created utilizes have get to chart to speak to the system climate. Using the created demonstrate, one will channel the huge amount of information offered by making a need rundown of defenceless hubs existing inside the system. Once a need list is prepared, arrange executives will make code fix choices. Increasing far reaching comprehension of the risk and need level of each host encourages individuals to execute choices like readiness of security stock and to style arrange topologies.***

Catchphrases: Attack Graph, Exploitability, CVSS

I. INTRODUCTION

PC organizes square measure undeniably helpless paying little respect to what level of equipment, programming framework or a blend of every assortment of security parameters square measure consolidated. As long in light of the fact that the system servers offer administrations on totally unique host servers, they rely on the server programming framework that will have security openings that makes them defenseless against vindictive assaults. To discover and additionally thwart the system open assets from suspicious assaults shifted business Intrusion Detection Systems (IDSs) [1]/Prevention Systems square measure available inside the market. This interruption identification/anticipation based for the most part apparatuses gives some sort of a sign that cautions the system head and gives them an incomplete picture of the system [2]. one among one among one in each the first essential difficulties on the present systems is to build up the instrument to blend the danger of all frameworks in a system to judge the general security chance. Keeping in mind the end goal to gage the danger of an outsized scale venture, relate degree director ought to examine not exclusively single defenselessness abuse however moreover the multi-organize and furthermore the multi-have powerlessness assault used by the aggressors. to incorporate this reality, relate degee assault diagram is developed to search out the consistent connection between different endeavors. Be that as it may, once size and intricacy of the system will build, 2 noteworthy issues happen. Initially, the assault diagram develops exponentially once the size of the system and algorithmic manage many-sided quality increment. Besides, fathoming the learning sent by the diagram winds up noticeably troublesome. In this way, the assault chart that tends to the issues specified before were picked and that we can put forth a defense for any inside the following area.

Almost no has been exhausted logical and investigation group to create connected science display that measure the general system security hazard. The vast majority of the work concentrates on subjective and subjective side of systems while not having formal factual model. to encourage forestall this disadvantage, we tend to present the connected science display that utilizations Markov chains in conjunction with CVSS system measurements to explore dangers identified with structures of grouped systems. The model might be utilized to recognize pivotal hubs inside the host get to chart wherever assailants could likewise be well on the way to center. bolstered that information, a system overseer will make fitting, organized determinations for framework settle. Further, an adaptable hazard positioning method is outline, wherever the choices made by relate miscreant might be balanced utilizing an inclination issue. The model might be summed up to be utilized with modern system conditions.

II. FOUNDATION AND TERMINOLOGIES OF CYBER SECURITY

In this segment, we've sketched out some of the fundamental dialect associated with digital security. we tend to conjointly legitimize the fundamental arrangement of the Markoff chain Mark off process that is upheld to build up the irregular model to understand our