

National Conference on  
Advancements in  
Instrumentation, Control & Automation

# NCAICA'14

## PROCEEDINGS



THANGAVELU ENGINEERING COLLEGE  
DEPARTMENT OF ELECTRONICS &  
INSTRUMENTATION ENGINEERING

NATIONAL CONFERENCE  
ON  
ADVANCEMENTS  
IN  
INSTRUMENTATION, CONTROL &  
AUTOMATION

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**NATIONAL CONFERENCE  
ON  
ADVANCEMENTS  
IN  
INSTRUMENTATION, CONTROL &  
AUTOMATION**

**DEPARTMENT OF  
ELECTRONICS AND INSTRUMENTATION ENGINEERING**



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## ABOUT THE COLLEGE

*Thangavelu Engineering College was established in the year of 1995 by Ponniamman Educational Trust, with the approval of AICTE / New Delhi and Govt. of Tamil Nadu. The college is affiliated to Anna University, Chennai.*

*Our Group of Colleges...*

- ***Thangavelu Engineering College***
- ***TJ Institute of Technology***
- ***Da Vinci School of Design & Architecture***

*The college offers 7 UG programmes (EIE, ECE, CSE, IT, EEE, MECH and CIVIL) and 4 PG programmes (M.E-PED, M.E-CAD, MBA, MCA).*

*The college is committed to maintain high standard of academic excellence in the field of Engineering, Technology and Management. The college has strong Institute – Industry interaction, Placement & Training cell.*



***Dr. S. S. Jayachandran***

*Director*

*Thangavelu Group of Colleges*



## ***ABOUT THE DEPARTMENT***

*The Department of Electronics and Instrumentation Engineering was established in the year of 2000.*

*The Department is enriched with dedicated and well qualified staffs whose motives are to impart good education to the students and to build a better future. The very first batch of students created a record of 100% pass results at the Anna University examinations.*

*The Department comprises of excellent infrastructure with well equipped laboratory facility for Transducer Engineering, Virtual Instrumentation, Industrial Instrumentation and Process Control which helps in the development of the practical knowledge of the students and paves path to bring out their innovative ideas for betterment in the field of Instrumentation.*

*Many of our students have been placed in numerous campus recruitments from highly esteemed Software and Instrumentation giants like Mahindra Sathyam, L&T, Cognizant Technology Solutions, Syntel Corporation and more.*





## YANTRAVEDA'11

*One of the milestones on our road to success was YANTRAVEDA'11. A two day symposium conducted by the final year students of batch (2008-2012). Various papers were presented on the trends in PLC, SCADA and DCS.*

*Experts from Prolific Technologies conducted a special seminar for our students in collaboration with YANTRAVEDA'11 on the occasion.*



## NCICM'12

*A National Conference on Recent Trends in Instrumentation, Control and Mechatronics was conducted under the name NCICM'12 in the year 2012. Engineers and Researchers from the entire South Zone participated in the conference and established their knowledge and experiences in the fields such as Industrial Automation, Robotics, MEMS, and Nano Electronics etc.*

*The main objective of the conference was to bring together distinguished Research Scholars, Professionals and PG students to explore their innovative ideas and experiences in the Instrumentation fields from India and Abroad.*



## **PRAVAHAA'14**

*An Internal Symposium initiated and encouraged by our Director Mr.Jayachandran was conducted by the Department as PRAVAHAA'14. Several events such as Paper Presentation, Technical Quiz, and instruwood were conducted and students of all the batches participated in all the events with enthusiasm.*

*The occasion was enriched by the presence of our Honourable Chief Guest Dr.V.Senthil, Research Dean of the Electronics and Instrumentation Department of KCG College of Technology. The aim of conducting this symposium was to bring out the individual talents of the students in their respective fields of interest.*



## **KARUVI'14**

*An Inter-College Symposium was held under the name KARUVI'14 by the department in the year 2014. Students from various Colleges across the City took part in the symposium.*

*Several events such as Paper Presentation, Robot Race, and Game-Athon were conducted. The symposium not only helped the students to enhance their knowledge but also served as a platform to bring out their leadership and coordinating qualities.*



# ISA-International Society of Automation

*An International Society of Automation (ISA) Student Branch of Thangavelu Engineering College was formed by the students of batch (2010 – 2014). It comprises both staffs and students as members.*

*The students utilized the Association utmost by attending all the Fests and Workshops conducted by the Society which helped them in enhancing their knowledge in the field of Automation and to keep them updated with the latest trends and inventions.*



*The Department arranges Industrial Visit for each semester for the benefits of the students. Other than the above mentioned events the vibrant Students of the Department took part in various Technical events and Symposiums that were conducted in the leading Colleges and bagged several prizes back home with them. The students are also encouraged to take part in other curricular and extra-curricular activities apart from academics.*



**Mr. K. K. MANIVANNAN**

**CONVENOR-NCAICA'14**



## ABOUT THE CONFERENCE

*NCAICA'14, "National Conference on Advancements in Instrumentation, Control & Automation" is organized by the department of Electronics & Instrumentation Engineering.*

*The foremost objective of the conference is to Endorse, Embolden and conveys together the Authors and Researchers from all over the nation. The Conference Sustenance support business leaders through the extensive network accomplishments focused on the key issues.*

*The participants establish their knowledge and experience in the various fields such as Industrial Automation, Robotics, MEMS, NEMS, etc.*

*Undoubtedly this conference will serve as a platform which gives ample scope to the student as well as the staff community to exhibit their intrinsic talents.*

*The National Conference (NCAICA'14) will fire the imagination of the students, faculty and researchers to explore the new areas in Engineering and Technology.*

*With Best Wishes*

**Mr. C. N. Ravi**

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*Electronics and Communication Engineering*  
*Sri Krishna Engineering College, Chennai*



## OPTIMIZING BACK PRESSURE AND NOISE IN EXHAUST MUFFLER THROUGH CFD APPROACH

**ALAUDDHIN. A**

*PG Scholar*

*M.E Product design and development*

**Dr. R. VELRAJ**

*Director, Institute for Energy Studies*

*College of Engineering, Guindy*

*Anna University*

*Exhaust noise from engines is one of component noise pollution to the environment. Exhaust systems are developed to attenuate noise meeting required db levels and sound quality, emissions based on environment norms. Hence this has become an important area of research and development.*

*In this project the objective is to design and develop a new concept vane type muffler considering the following key factors such as transmission loss, simplified design, cost effective, serviceability and satisfy the BS III norms to use in diesel engine vehicles.*

*It is also planned to analyze the new concept muffler using LMS and Computational Fluid Dynamics software's and to compare the performance with the existing muffler.*

## MAGNETICALLY INDUCED DEEP BRAIN STIMULATION FOR PAIN RELIEF

**K.A. MOHAMED SHAHIN GANI**

**V. GOWRI SREE**

*High Voltage Engineering*

*College of Engineering, Guindy*

*Anna University*

*Deep Brain Stimulation (DBS) is an emerging intervention for treating neural disorders, pain, and artesina. This technique involves applying electric potentials to specific targets in brain. This paper provides insight on equivalent circuit for brain called Randle's circuit. Even though Medtronic 3387 DBS electrode is wide on use today. This paper provides information on Medtronic 3387 DBS electrode configuration and its electrical output. Simulation of DBS electrode is carried out in an FEM package. The main advantage of this method is that it is free from side effects and less time consumed for treating the disease*

**INDEX TERMS:** *Deep Brain Stimulation, Sub thalamic nucleus, Finite element method, Randle's circuit.*

## COMPUTER AIDED DIAGNOSIS FOR DETECTION OF LESIONS IN PANCREAS

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*The Computer Aided Diagnosis (CAD) is currently hot research area in medical imaging system. To produce a successful CAD system, several problems has to be resolved. Segmentation is the first step to be considered which helps in generation of candidate region for detecting cancer nodules. Second step is identification of affected nodule. Initially basic image processing technique such as median filtering and histogram equalization are applied to CT scan image in order to detect pancreas region. Then segmentation algorithm is applied to detect cancer nodules from extracted abdominal image. After segmentation surface based feature extraction is applied to extract feature and classifies the extracted features using classifier algorithm. Cancer nodules are identified clearly from the proposed methodology. The main objective of the paper is to develop a CAD (computer aided diagnosis) system for finding the pancreatic lesions using abdominal CT images and classify the lesions as benign or malignant.*

**INDEX TERMS:** CAD, CT, Segmentation, Classifier, Nodules

## **GPRS BASED MONITORING SYSTEM USING IMAGE SENSOR**

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**DR. N. RAMADASS**

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*Anna University, Chennai*

*At present the intelligent security and monitoring system has become one of the fast developing areas in the applied electronics world. Monitoring the present situation for the purpose of security protection is a very important phenomenon in the day today activities. Most of the monitoring system is working based on information provided by the relevant sensors. A sophisticated monitoring system is required to visualize the current situation for this purpose. Visualization is playing a vital role in most of the applications than sensors information. Wireless communication is the best way to connect remote user with the system. To achieve low cost solution, the information should be transferred through the available network. GSM (Global System for Mobile communication) network is the available low cost solution in wireless communication for connecting the system and user. GSM based security and monitoring systems are working using SMS (Short Message Service). This paper explains about capturing the present situation as image using low cost camera module and then transferring that image to the user mobile equipment through GSM network and also storing it in micros (Secured Digital) memory device for redundancy.*

**INDEX TERMS:** *GPRSModem, wireless Image transfer. Remote monitoring, surveillance camera, MicroSD memory storage*

## SELF - CHECKING ALU BASED ON SCALABLE ERROR DETECTION CODING

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*In this paper we designed a self checking ALU that uses Scalable Error Detection Coding (SEDC) Algorithm. Self checking ALU used to detect unidirectional errors. SEDC algorithm is scalable based on the input data length. Latency remains constant irrespective of data length .Self checking ALU is faster and easily scalable compared with the Berger Check prediction based ALU.*

**INDEX TERMS:** *Unidirectional Error; Self Checking ALU*

## FAULT RECOVERY USING EVOLUTIONARY ALGORITHM ON FPGA

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Anna University*

*The Xilinx Field Programmable Gate Arrays (FPGA) configurability is exploited by means of a modified genetic algorithm to provide autonomous fault recovery during run-time for critical applications where manual intervention is not possible. The Evolutionary Algorithm is modified so as to reduce the search space for the algorithm by more than ninety percent in terms of the logic elements. Design time information about the circuit being repaired is made use of to increase the tractability of the dynamic evolutionary algorithm technique. This provides scalability of the algorithm even for rather large FPGA circuits. Then a hardware platform for the evolutionary algorithm is designed. The dynamic hardware is compiled for mutation and crossover operations by directly manipulating the connections and the underlying bit stream. Standard circuit evaluation and complete recovery from stuck at faults can be achieved using this platform.*

**INDEX TERMS:** *Fault Recovery, Pruning, Evolutionary Algorithm, FPGA, Generations.*

## GRAPHENE FROM FUNDAMENTALS TO FUTURE APPLICATIONS

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*Graphene is a material with unique and extraordinary properties that is made up of flat monolayer of carbon atoms and is tightly packed into a two dimensional (2D) honeycomb lattice. It has a wide range of applications in the field of science and technology.*

*It is highly flexible and stretchable material made up of carbon atoms arranged in a layer of 0.14nm. A simple way to deposit thin films of carbon atom could lead to cheaper solar cells .It is commercially valuable because it has extraordinary mechanical, thermal, optical and electrical properties .It is applicable in a broad range of industries ranging from aerospace, automobiles, composites and marine applications , medical and telecommunication , electronics to construction . The utilization of grapheme provides practical modifications to existing products and also creates new products. It is composed of carbon, which is one of the most important elements in the periodic table.*

# FACE RECOGNITION BY EXPLORING INFORMATION JOINTLY IN SPACE, SCALE AND ORIENTATION DOMAINS USING NEURAL NETWORK

**M. ABITHA**

**A. VIJI**

*Electronics Engineering*

*Madras Institute of Technology*

*Anna University*

*Getting information from different domains is explored to give a good face representation for recognition. Gathering information in image space, scale and orientation domains can give rich important clues not seen in either individual of these domains. Here we introduce Gabor analysis and local binary pattern analysis in a combined way to propose a new face recognition system. First the face image is decomposed in to different scale and orientation responses by convolving multistage and multiorientation Gabor Filters. Then Effective Gabor Volume based Local Binary Pattern (E-GV-LBP) descriptor is applied to model the neighboring changes around the central point in the joint domains simultaneously for face representation purpose. Statistical uniform pattern mechanism (LBP) adapts local histogram features based upon the uniform patterns extracted. Finally Neural Network classification is performed based upon Back Propagation Algorithm.*

**INDEX TERMS:** *Gabor Volume Based Local Binary Pattern (GV-LBP), Gabor Volume Representation, Local Binary Pattern (LBP).*



## REAL TIME MONITORING OF AMMONIA IN EXHALED BREATH

**GEERTHY T**

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*College of Engineering, Guindy*

*Anna University*

*Clinical breath analysis has been recognized for centuries, to detect the diseased state in humans. The exhaled breath consists of volatile organic compounds (VOC) which reflect the health status of an individual. Among the various gas molecules present in breath, ammonia specifically indicates the presence of pathological conditions like renal failure, gastric ulcer, liver failure etc. and hence can be used in diagnosis. Such monitoring can be done using existing techniques like Gas chromatography which involve a difficult sampling process and incur high cost. In this work, a low-cost and a less complex prototype model was developed to detect the presence of ammonia in human breath. This non-invasive technique involves a semiconductor sensor which is sensitivity to ammonia, has been calibrated and used to detect the presence of ammonia from the collected breath samples. The output generated is then interfaced to PC and finally the samples are analyzed for diagnostic applications.*

**INDEX TERMS:** *Breath analysis, ammonia, semiconductor sensor*

## STATE FEEDBACK CONTROLLER DESIGN FOR DC-DC BUCK CONVERTER

**P.R.HEMAVATHY**

**BANITA KUMARI PATTANAYAK**

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*B S Abdur Rahman University*

*The main objective of this paper is to study the modeling and control techniques for buck DC- DC converter. In this paper DC- DC buck converter is modeled using average state space technique. This paper deals with the control of buck dc- dc converter using PID, Linear Quadratic Regulator (LQR) based state feedback control. The PID and State Feedback controller has been simulated in MATLAB/SIMULINK.*

**INDEX TERMS:** *LQR, state feedback gain, DC-DC buck converter.*

## EFFICIENT UTILISATION OF WIND AND SOLAR ENERGY FOR POWER GENERATION THROUGH THERMAL AND COMPRESSED AIR STORAGE

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**VELRAJ.R - DIRECTOR**

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*Anna University*

*In this paper, it is explained about the investigation on the power generation through the combination of two promising and intermittent sources of wind and solar with suitable storage system to improve the overall system's efficiency and reliability. Among the various storage technologies compressed air storage is highly suitable for the integration of wind and solar power generation. The energy generated from the wind turbine will be used to drive the compressor and the compressed air will be cooled before it is allowed to enter into the storage tank. The compressed air at low temperature has high storage capacity in smaller volume. During the time of high demand (or when energy is required), the stored compressed air will be allowed to pass through the thermal storage tank for primary heating. The additional heating is supplied by solar energy using concentrated collector. Though this concept is suitable for all renewable sources which are intermittent, it is particularly suitable for wind energy generation. TRNSYS software is used for the investigation. The system performance under various parametric conditions is evaluated. All necessary design parameters are identified and the optimum values are determined using TRNSYS software.*

**INDEX TERMS:** *Compressed air, Compressed air storage, Thermal storage, TRNSYS, Energy generation, Renewable sources.*

## Detection and Classification of Diabetic Macular Edema from Color Retinal Images using SVM

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*Diabetic macular edema (DME) is an advanced symptom of diabetic retinopathy and can lead to reduced capacity of vision or irreversible vision loss. In this paper the detection of macular edema and classification of DME from color fundus images by SVM (Support Vector Machine) is proposed. DME detection is carried out via a supervised learning approach using the normal color fundus images. A feature extraction technique is used to capture the global characteristics of the fundus images not the local characteristics and discriminate the normal color fundus images from DME images. Disease severity is also assessed. The performance of the proposed methodology and features are evaluated against several publicly available datasets. The MESSIDOR and DMED datasets are used. The detection and Classification are done by using SVM Classifier. The SVM Classifier is having high accuracy Compared to other classifiers. The other advantages are it gives a unique solution and it takes less time than classification by Artificial Neural Network.*

**INDEX TERMS**—*diabetic retinopathy, diabetic macular edema, hard exudates, Support vector machine, region of interest*

## **AUTOMATION OF UNMANNED LEVEL CROSSINGS IN INDIAN RAILWAYS USING HIGH PERFORMANCE RFID**

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**R. ELAVARASAN**

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*Accidents at level crossing in India have claimed the lives of 1539 people over the past decade. Of these 1125 deaths have occurred in unmanned level crossing which goes to an average of 112 people per year. The main reason behind this is that the unmanned level crossing numbering 21,792 is a shocking 55% of the total number of level crossing. This definitely puts road users in great peril. The government of India is hesitating to make these level crossing manned considering the huge capital it needs to invest i.e. approx. 2450 crores towards labour cost per annum. Other options like constructing bridges or subways may amount to 400,000 crores. The golden solution to this problem seems to lie in the hands of the simple technology of RFID. The basic plan is to place individual RFID tags with unique ID in each train. These tags will be read by readers placed adjacent to the tracks strategically positioned a definite distance away from the level crossing. Signals are transmitted from the readers to the level crossing to either open or close it.*

**INDEX TERMS:** HP-RFID, 2.45GHZ RFID, Unmanned Level Crossing, Obstacle Detection, EPC, ETC, Microcontroller AT89C52, LAN, IR LED, Stepper Motor.

## PERFORMANCE MONITORING OF A SOLAR PANEL USING SCADA

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**J.KAMALA**

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*Solar panels are gaining an ever increasing foothold in society, especially on the roof of the houses for feeding domestic electrical appliances in recent times. In many situations, the expensive solar panels stop working due to some external nuisances which goes unnoticed to the users. There is a need of a low-cost monitoring system to get information of the defected solar panels for timely repair and maintenance. The design, development, and trial work of a performance monitoring system of solar panels using scada to help the current situation. The design system with 100w, open circuit voltage 17.5 and short circuit current 6A solar panel performance such as voltage, current are continuously monitor by scada.*

**INDEX TERMS-***Defect of solar panels, I-V-P curve tracer, maintenance, maximum power tracker, performance monitoring, solar panels, scada.*

## WIRELESS USB FLASH DRIVE

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*The aim of this paper is to design a Wireless USB flash drive in which the USB flash drive can be used without connecting using the dongle. This makes the data transfer using USB more sophisticated. It also provides speed upto 1 Mbps.*

## A NOVEL APPROACH ON PERFORMANCE IMPROVEMENT IN ADAPTIVE WIRELESS SENSOR NETWORK

**DEEPTHI G B**

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*G M Institute of Technology*

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*Wireless Sensor Networks (WSNs) consists of small nodes with sensing, computation and wireless communications capabilities. Evolution in wireless sensor network has broadened its pervasive and ubiquitous applications in numerous fields. These applications often require accurate information collecting as well as uninterrupted, prolonged active service. Routing protocols have significant impact on the overall energy consumption of sensor networks. Suitable energy-efficient routing algorithms are required to the inherent characteristics of these types of networks are needed. Due to resource limitations in wireless sensor networks, prolonging the network lifetime has been of a great interest. Most of the energy of sensor nodes is utilized for transmission of data to the base station. Thus, it makes them to deplete their energy much faster. In this paper, Centrality based Cluster approach is used along with a fixed base station to reduce the energy consumption of cluster heads to enhance the lifetime of the network. The proposed scheme also shows improvement in performance of WSN compared to other routing scheme.*

**INDEX TERMS-** *wireless sensor network, cluster head, base station, routing protocols.*



## FUZZY TUNED PI CONTROLLER FOR SHUNT ACTIVE POWER FILTER

**KARTHIK KUMAR.R**

*Applied Electronics*

*Dr. MCET, Pollachi.*

*This paper focuses on a Fuzzy Logic controller (FLC) in coordinating with proportional integral controller (PI) for Shunt active power filter. The main objective is to make conventional PI into more adaptive. The compensation of harmonics produced by nonlinear loads is controlled using fuzzy-PI. Switching signals to the voltage source inverter is obtained through hysteresis band current controller. The performance of shunt active power filter is evaluated through Mat lab/Simulink simulation under different steady state and transient conditions using PI and Fuzzy-PI. A fuzzy-PI based controller is developed to control the voltage of the DC Capacitor. The Total Harmonics Distortion (THD) of the source current after compensation is well below 5%, the harmonic limit imposed by the IEEE-519 standard.*

**INDEX TERMS** – *Power Quality Improvement, Shunt Active Power Filter (SAPF), PI controller, Fuzzy-PI Controller, Hysteresis Band Current controller.*

## LOW COST DIGITAL OSCILLOSCOPE

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**ADITYA S SRIDHAR**

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*Amrita School of Engineering*

*Coimbatore, India*

*In this paper, we have proposed an idea to develop a low cost digital oscilloscope which incorporates majority of the functions of a conventional laboratory oscilloscope. Conventional analog oscilloscopes use a Cathode Ray Tube (CRT) to display the waveforms whereas in the proposed model, a Graphical Liquid Crystal Display (GLCD) is used which consumes much less power than the CRT. We have used TM4C123GH6PMI micro-controller to display the signals in the JHD12864E GLCD. The analog input signals are converted to digital domain using ADC modules in the Tiva C Series Launch pad which uses the above mentioned micro-controller. A signal conditioning circuit is used to acquire the input analog signal and implement certain controls.*

***Index Terms— Oscilloscopes, Analog-digital conversion, Displays***

## **IMPLEMENTATION OF UNMANNED AIR VEHICLE (UAV) NAVIGATION SYSTEM STABILIZED USING KALMAN FILTERING ALGORITHM**

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***BALAJEE. U***

***BALA VIJAY. R***

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*Amrita School of Engineering*

*Coimbatore, India*

*Quad rotor vehicles are gaining prominence as a platform for Unmanned Air Vehicles (UAV) owing to their simple structure, reduced complexity in building it, easy maintenance and their vertical takeoff. This paper reduces the complexity with the navigation system, used to control it so far, that comprises of RF module by replacing it with glove, which consists of an accelerometer and Xbee module. We will be using Kalman filtering algorithm to stabilize the values from accelerometer.*

***INDEX TERMS –Accelerometer ADXL335, multiwii lite v1.0, Xbee series1 module, Arduino uno R3***

## PERFORMANCE ANALYSIS OF DC SERIES AND SHUNT MOTOR USING MATLAB

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**Prof. V.ARUN KUMAR**

*Mechatronics Engineering*

*Kongu Engineering College*

*Erode*

*This paper aims to analyze the efficiency of DC shunt and DC series motor and also to control the speed of those two motors efficiently. The reason for analyzing is that DC shunt motor is mainly used in constant speed application and DC series motor is used in high torque applications. By carrying out load test, optimal efficiency of the DC shunt and DC series motor can be analyzed with the help of fuzzy controller. First the load test on DC shunt and DC series motor was conducted. In order to find the optimal input values, fuzzy controller was developed by considering various ranges of input. Based on the readings memberships functions are framed for each input. These membership functions represent the experimental readings which help to find out the optimal input values. By considering membership function fuzzy rule base is created based on the pre-defined relations of input and output. Based on the results inferred from fuzzy tool box performance of the motor is analyzed.*

## TRANSFORMER FAULT DIAGNOSIS USING SVM METHOD WITH KERNEL FUNCTION METHODS

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*Power Electronics and Drives*

**Prof. A.VENKATASAMI**

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*Power transformers are important equipments in power system. Smooth functioning is the key to ensure hassle-free operation Dissolved Gas Analysis (DGA) is a well known technique to analyze faults in Transformers. Rogers ratio method was attempted for transformer fault diagnosis and the same is reported. To improve the diagnosis accuracy soft computing techniques are generally used. There are several soft computing Techniques available for diagnosis. This work proposes a new method of DGA diagnosis based on Support Vector Machine (SVM) method. SVM can change a non-linear learning problem into a linear learning problem to reduce the algorithm complexity. Experimental data from TC 10 database will be used to illustrate the performance of the SVM method.*

**INDEX TERMS-***component DGA diagnosis, IEC TC 10, gas ratio, new method*

## HUMAN IDENTIFICATION USING THERMAL INFRARED IMAGING BASED ON SIMILARITY MEASUREMENTS AS A BIOMETRIC APPROACH

**V.RAJKUMAR**

*Applied Electronics*

*Jayam College of Engineering and Technology,  
Dharmapuri*

*A new thermal imaging framework with unique feature extraction and similarity measurements for face recognition is presented. The research premise is to design specialized algorithms that would extract vasculature information, create a thermal facial signature, and identify the individual. The proposed algorithm is fully integrated and consolidates the critical steps of feature extraction through the use of morphological operators, registration using the Linear Image Registration Tool, and matching through unique similarity measures designed for this task. The novel approach at developing a thermal signature template using four images taken at various instants of time ensured that unforeseen changes in the vasculature over time did not affect the biometric matching process as the authentication process relied only on consistent thermal features. Thirteen subjects were used for testing the developed technique on an in-house thermal imaging system. The matching using the similarity measures showed an average accuracy of 88.46% for skeletonized signatures and 90.39% for anisotropically diffused signatures. The highly accurate results obtained in the matching process clearly demonstrate the ability of the thermal infrared system to extend in application to other thermal-imaging-based systems.*

**INDEX TERMS:** *Biometric, face recognition, image registration, image segmentation, thermal imaging.*

## **AUTOMATED PLASTERING MACHINE**

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*Manakula Vinayagar Institute of Technology*

*Puducherry, India*

*Plastering is the plasterwork which is known as ornamentation done by plasterers on walls by manually in most parts of the world. The plasterwork needs more effort of humans and also consumes more time in manual process. This is an intention to implement an innovative process with a development of “Automated Plastering Machine”. Automation is one of the significant and evolving disciplines among all technologies. Our aim of this innovative idea is to render the plasters on walls automatically.*

*This idea aims in reducing the work of plasterer. It is feasible, light weight, inexpensive and simple structure comparing to the existing machine. This innovative process keeps up with the ever changing world of building automation.*

**INDEX TERMS** – *Automation; Plastering; rendering; cement mix; mechatronics.*

## HIGH EFFICIENT DC-TO-DC CONVERSION USING SOLAR RESONANT CONVERTER

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*PG Scholar*

**DR.T.GOVINDARAJ**

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*Muthayammal Engineering College, India*

*This project introduces a high efficient resonant converter for DC-DC conversion. The proposed resonant converter provides very efficient power conversion due to low electromagnetic interference, low switching losses and light weight of components. The proposed topology consist of a PV cell as a DC input source, two capacitors at input side acts as a voltage divider, a half bridge inductor-capacitor-inductor (L-C-L) parallel resonant inverter and a bridge rectifier, the output stage of proposed resonant converter is filtered by a low pass filter . The PV cell at the input will compromise with current energy demand. Converter output voltage is effectively utilized for driving a PMDC motor; here speed of motor is regulated by controlling the output voltage of converter with the help of a PI controller.*

*Index terms- LCL resonant inverter, Zero Voltage Switching, Photovoltaic (PV) system. PMDC motor*



## **FLC SCHEME FOR A FOUR-SWITCH THREE PHASE INVERTER-FED INDUCTION MOTOR EMULATING THE SIX-SWITCH THREE PHASE INVERTER OPERATION**

**MURUGAVEL.K**

*PG Scholar*

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*This paper proposes a torque control strategy for induction motor (IM) drives fed by a four switch three-phase inverter (FSTPI). The introduced strategy is based on the emulation of the operation of the conventional six switch three-phase inverter (SSTPI). This has been achieved thanks to a suitable combination of the four unbalanced voltage vectors intrinsically generated by the FSTPI, leading to the synthesis of the six balanced voltage vectors of the SSTPI. The proposed scheme use the fuzzy logic controller and PI controller to maintain the steady state operation of the Induction motor. Simulation results have revealed that, thanks to the proposed fuzzy control strategy, FSTPI-fed IM drives exhibit interesting performance.*

***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.

## DESIGN OF PRINCE ALGORITHM USING NULL CONVENTIONAL LOGICAL CIRCUITS FOR CRYPTOGRAPHIC SECURITY

**S.ABITHA**

*PG Scholar*

**Prof. DEVARAJU**

*Electronics and Communication Engineering*

*R.M.K. Engineering College*

*Wide spread application for timing robust asynchronous circuits having key challenge of designing automation technique. In this paper a new methodology NULL Convention Logic (NCL) is proposed from mapping multi rail logic expression. The recently proposed Conventional mapping approach is compared to a new TCR (Transistor Combinational Reduction) methodology which demonstrates that the new methodology can improve the delay and reduce the area of NCL circuits. This work also presents the design, performance analysis of PRINCE algorithm implementation, which presents a block cipher that is optimized with respect to latency when implemented in hardware and also encryption of data within one clock cycle with a very competitive chip area compared to known solutions. The number of rounds must be moderate and rounds must have short delays in hardware. Thereby, the proposed design leaks less information than normal approaches.*

**INDEX TERMS:** *Automation, factoring, gate mapping, grouping, NULL convention logic (NCL), technology mapping.*

## DESIGN OF AN XBEE BASED WIRELESS SENSOR NETWORK FOR AIR POLLUTION MONITORING

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*PG Scholar*

**B.SARALA**

*Assistant Professor*

**Prof. DR.S.RAMASAMY**

*Electronics and Communication Engineering*

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*Air pollution is a major problem in a growing country. An air pollutant is a substance in the air that can have adverse effects on humans and the ecosystem. Air pollution is due to chemical substances, particulates, organic resources, or other damaging materials into the World's atmosphere, possibly producing sickness, death to human being, damage to other living organisms such as food crops, or the natural or built environment. To avoid or minimize the air pollution the online air pollution monitoring system is proposed in this paper. The online air pollution monitoring system implemented by using the LPC 1768 ARM processor and the wireless sensor network is formed by the Xbee protocol. The pollution sensor values are displayed in the internet using the Ethernet port of the LPC 1768 development board.*

**INDEX TERMS:** *LPC 1768, Sensor network, Bee protocol, Air pollution*

## LUNG TUMOR CLASSIFICATION USING SVM IN CT IMAGES

**M.AMRITHA PREETHI**

*PG Scholar*

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*SSN College of Engineering*

*Lung cancer is the most important cause of death for both men and women. So, early detection of lung cancer is very important to enhance a patient's chance for survival. This paper explains a Computer Aided Diagnosis System (CAD) for early detection of lung cancer nodules from the Chest Computer Tomography (CT) images. The processes involved in this CAD system are image pre- processing, image enhancement, segmentation of lung region from computer tomography image, taking region of interest (ROI) and morphological operation, feature extraction from the segmented region, classification of lung cancer as benign or malignant. Initially median filter is used for image denoising, and contrast limited adaptive histogram equalization (CLAHE) is used for image enhancement, and then segmentation is performed using FCM clustering. Region of interest and morphological operations are done. Textural features are extracted from image using Run length algorithm and also gray level concurrence matrix (GLCM). For classification, SVM classifier is used. The main aim of the method is to develop a CAD (Computer Aided Diagnosis) system for finding the lung tumor using the lung CT images and classify the tumor burden.*

*Index term: Computer Aided Diagnosis (CAD) System, Fuzzy-c- mean (FCM) clustering, gray level co-occurrence matrix (GLCM), run length based algorithm, Support Vector Machine (SVM)*

## OPTIMAL LOCATION OF STATIC VAR COMPENSATOR IN POWER SYSTEM USING GENETIC ALGORITHM

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*PG Scholar*

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*Electrical & Electronics Engineering*

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*Davangere, Karnataka*

*This paper presents the optimal allocation of FACTS devices in a power system. The optimal location of FACTS devices in power system is needed, the facts controllers in the form of Static Var Compensator (SVC) is presented by evolutionary technique, i.e., Genetic Algorithms (GA) constraint violation, thus increasing the utilization of lowest cost generation in power system. The FACTS device location should be reasonably chosen based on their contribution to the general objective of power system economic generation and dispatch. The Objective Cost function consisting of the investment cost for the type of FACTS device and the generation cost is minimized*

**Index Terms— Genetic Algorithms, FACTS, Optimal Location, Optimal Power Flow and SVC**

## DYNAMIC WDM NETWORKS

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**MANISHA CHOWDARY**

**S.SUGUMARAN**

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*Energy consumption of communication networks is an important contributor to the Information and Communication Technology (ICT) sector. Internet greening is one of the main challenges for the research community. Optical networks can provide a solution to this in terms of energy, but it has become crucial to assess its power efficiency. In this paper dynamic operation of WDM networks is expected to provide significant power savings when compared to static operation. And a general framework for evaluating energy consumption in WDM networks is introduced. The proposed framework enables the analysis of node architectures, link capacities and network topologies. The case of dynamic optical node (DON) architecture is discussed. Results show that dynamic operation can significantly reduce power consumption when either the traffic load is below 0.4 or when short-reach transponders consume significantly lower power than long-reach ones. In the latter case, dynamic operation shows significant benefits compared to the static case for traffic loads.*

**INDEX TERMS:** *Optical network, Energy efficiency, Power consumption.*

## A NOVEL APPROACH FOR DETECTION AND RECONSTRUCTION OF BUILDINGS BY USING SINGLE VHR SAR IMAGES

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*The space borne synthetic aperture radar (SAR) systems Cosmo-Sky Med, Terra SAR-X, and TanDEM-X acquire imagery with very high spatial resolution (VHR), supporting various important application scenarios, such as damage assessment in urban areas after natural disasters. To ensure a reliable, consistent, and fast extraction of the information from the complex SAR scenes, automatic information extraction methods are essential. Focusing on the analysis of urban areas, which is of prime interest of VHR SAR, in this paper, we present a novel method for the automatic detection and 2-D reconstruction of building radar footprints from VHR SAR scenes. Unlike most of the literature methods, the proposed approach can be applied to single images. The method is based on the extraction of a set of low-level features from the images and on their composition to more structured primitives using a production system. Then, the concept of semantic meaning of the primitives is introduced and used for both the generation of building candidates and the radar footprint reconstruction. The semantic meaning represents the probability that a primitive belongs to a certain scattering class (e.g., double bounce, roof, facade) and has been defined in order to compensate for the lack of detectable features in single images. Indeed, it allows the selection of the most reliable primitives and footprint hypotheses on the basis of fuzzy membership grades. The efficiency of the proposed method is demonstrated by processing a 1-m resolution Terra SAR-X spot beam scene containing flat and gable-roof buildings at various settings. The results show that the method has a high overall detection rate and that radar footprints are well reconstructed, in particular for large buildings.*

## WORKING OF MULTIPLE INPUT DC-DC BUCK-BOOST CONVERTER FED PMDC MOTOR BASED ON MODIFIED TIME SHARING SWITCHING TECHNIQUE

**SHILPA SUSAN ABRAHAM**

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*In this paper a switching strategy for multiple-input converters (MICs) fed PMDC motor is presented and analyzed. MICs have been identified to provide a cost-effective approach for energy harvesting in hybrid systems, and for power distribution in micro- and nano grids. The basic principle of the proposed switching strategy is that the effective duty ratio of each switch is an integer multiple of a common duty ratio (CDR), the CDR being the duty ratio of a common switching function that is generated at a higher frequency by frequency division. The proposed strategy enables switching functions for MICs that have a greater number of input legs to be generated with relative ease. Another benefit of this scheme is that it allows an MIC's output voltage to be regulated by employing the CDR as the only control variable, irrespective of the number of input legs present. Essentially, the strategy transforms an MIC into an equivalent single-input single-output system for analysis, which simplifies controller design and implementation. Without loss of generality, this technique is demonstrated by analyzing a multiple input buck-boost converter. Photo voltaic cell and fuel cell is given as multiple inputs to the buck boost converter. In output we are giving a permanent magnet dc motor. A PI controller is shown to regulate the MIC's operating point. The analysis is verified by simulations*

**KEY WORD:** Multiple Input Converters (MIC), PV Cell, Fuel Cell, PI Controller



## AN EDGE DETECTION METHOD BY COMBINING NEURAL NETWORK AND FUZZY LOGIC

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**N. RAMU**

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*Panimalar Engineering College*

*An edge detection method by combining fuzzy logic neural network is proposed in this paper. First, the distance measures the feature vector in 4 directions and the six edge prototype vectors for each pixel are taken as input pattern and fed into input layer of the self organizing competitive neural network. Classifying the type of edge through this network, the thick edge is obtained. After classifying, we utilize the competitive rule to thin the thick edge image in order to get the fine edge image. At last, the speckle edges are discarded from the edge image, thus the final optimal edge image is got. We compared the edge images got from our method with that from Cranny's one and Sorel's one in our experiments. The experiment result shows that the effect of our method is superior to other two methods and the robust city of our method is better.*

## **SVM CONTROL SCHEME FOR VOLTAGE SAG COMPENSATION IN MEDIUM-LEVEL DVR**

**C. MAHENDRA RAJ**

**C. KARTHIKRAJ**

*PG Scholars*

**Prof. Dr. M.SASIKUMAR**

*Electrical & Electronics Engineering*

*Jeppiaar Engineering College*

*Soft-switching techniques are very attractive and often mandatory requirements in medium-voltage and medium frequency applications such as solid-state transformers. In this paper a control method is used to improve efficiency for a wide range of loads for a single switch forward fly back converter. In this paper a newly suggested with high step up topology which has high boosting voltage transfer gain has been used in this paper. To demonstrate feasibility of the proposed control method, experimental results are presented for a 12-to-380 V, 120-W, prototype converter which has 97.4% peak efficiency and maintains greater than 90% efficiency over a load range between 20 and 120 W. Also comparison of efficiency between dual active bridge converter and forward fly back converter is analyzed.*

**INDEX TERMS-** *Dual active bridge converter, Forward and Fly back converter, Multi winding transformer.*

## A NEW SINGLE PHASE VOLTAGE SOURCE INVERTER FOR PHOTOVOLTAIC SYSTEM

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*This paper presents a new single phase voltage source inverter (VSI) used for photovoltaic (PV) system. The maximum power point tracking (MPPT) is capable of extracting maximum power from PV array connected to DC link voltage level. The MPPT algorithm is solved by incremental conductance method (INC). Sinusoidal pulse width modulation (SPWM) uses a simple mapping to generate gate signals for the inverter. A new digital proportional resonant (PR) current control algorithm is used to remain the current injected into the grid sinusoidal and to achieve high dynamic performance with low total harmonic distortion (THD). The validity of the system is verified through MATLAB/Simulink and results are compared with proportional integral (PI) algorithm for PV system in terms of THD.*

***Index Terms—Photovoltaic (PV) system, Maximum power point tracking (MPPT), Voltage source inverter (VSI), Total harmonic distortion (THD)***

## ADVANCED NUCLEAR SYSTEMS – HEAT TRANSFER ISSUES & TRENDS

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*Almost 450 nuclear power plants are currently operating throughout the world and supplying about 17% of the world's electricity. These plants perform safely, reliably, and have no free-release of byproducts to the environment. Given the current rate of growth in electricity demand and the ever growing concerns for the environment, the US consumer will favor energy sources that can satisfy the need for electricity and other energy-intensive products (1) on a sustainable basis with minimal environmental impact, (2) with enhanced reliability and safety and (3) competitive economics. Given that advances are made to fully apply the potential benefits of nuclear energy systems, the next generation of nuclear systems can provide a vital part of a long-term, diversified energy supply. The Department of Energy has begun research on such a new generation of nuclear energy systems that can be made available to the market by 2030 or earlier, and that can offer significant advances toward these challenging goals [1]. These future nuclear power systems will require advances in materials, reactor physics as well as heat transfer to realize their full potential. In this paper, a summary of these advanced nuclear power systems is presented along with a short synopsis of the important heat transfer issues.*

## COMPACT ULTRA WIDE BAND U-SLOT MICROSTRIP ANTENNA FOR WLAN APPLICATIONS

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*In this paper, the design of a co-axial feed U-slot micro strip antenna for 5.5 GHz WLAN application is presented. The VSWR (Voltage Standing Wave Ratio) and the return loss of this proposed structure are studied and analyzed using Computer Simulation Technology (CST) microwave studio, which is a commercially available electromagnetic simulator, based on the method of finite difference time domain techniques to achieve the desired specification. The proposed antenna based on co-axial feed configuration has the maximum achievable bandwidth obtained about 260 MHz (5.36-5.62 GHz) at -10db reflection coefficient which corresponds to WLAN 5.5 GHz frequency band and maximum achievable gain is 5.3db at 5.5 GHz centre frequency. The stable VSWR and low return loss are obtained across the frequency band compared to the existing system.*

**INDEX TERMS-** *U-Slot Micro strip antenna, Wide band, WLAN, Return loss, VSWR*

## ANALYSIS QUALITY OF TOMATOES USING IMAGE PROCESSING

**K.CHRISTY BAI**

*PG Scholar,*

*Department of MCA*

*Francis Xavier Engineering College*

*Tomatoes are one of the most common fruit in the world. Quality analysis is the most important work in the food industry. Identify quality of tomatoes are difficult work in food industry because it depend upon the high labour cost and time consuming. To overcome this problem Food industry using automatic sorting machine. To increase a production in tomatoes we want to improve the quality of tomatoes it can be done through the methods are image acquisition, preprocessing, segmentation, edge detection and feature extraction. After analyzing these techniques Collected all related dataset and compared the several trained dataset. Finally we get a result of the quality analysis for the Tomatoes is good and bad tomatoes. It can be done by the classification using support vector machine.*

**INDEX TERMS-***Median filter, canny edge detection, Segmentation GLCM and support vector machine.*

## SPEED CONTROL OF INDUCTION MOTOR USING PHOTOVOLTAIC MICRO INVERTER AND PI CONTROLLER

**SREEMA.R.S**

*PG Scholar*

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*Namakkal, India*

*This proposed work intends to design, simulate and investigate a photovoltaic powered micro inverter to feed an induction motor. The micro inverter proposed here, can be used for boosting up the small output voltage from photovoltaic panel. The proposed system under study consists of a PV panel, micro inverter and an induction motor. The micro inverter includes a high step up converter and a three phase inverter. The high step up dc- dc converter is provided with a Maximum Power Point Tracker (MPPT) system which automatically varies duty cycle in order to generate the required voltage to achieve maximum power. Three phase voltage source inverter is used to convert DC voltage to AC voltage. An induction motor is connected at the output of this system and a PI controller is used to control the speed of the motor. Matlab software is used to simulate and to investigate the behavior of the proposed system.*

**INDEX TERMS: MICRO INVERTER, MPPT, PERTURB AND OBSERVE METHOD**

## ZVS BASED DC/DC CONVERTER FED PMDC MOTOR

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*PG Scholar*

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*This project proposes a novel method of secondary side phase shift DC/DC converter fed PMDC motor. Here zero voltage technique used for to reducing voltage stress of a power electronics component, the output of a converter is given to motor, here motor speed controlled with help of controller. The proposed converter topology reduces voltage stress and conduction losses using zero voltage switching technique and also performs speed control of PMDC motor using PI controller. Proposed converter provides very efficient power conversion due to low voltage stress, less switching losses and requirements of power devices less. The proposed converter topology permits all switching devices to operate under zero voltage switching technique. Moreover, the voltage stress of the primary switches is reduced by using voltage divider which makes the low-voltage rated power devices available to improve the circuit performance and speed control of PMDC Motor using PI controller.*

**Index Terms—** Three Level Inverter (TL), Zero Voltage Switching technique (ZVS), PI controller, Permanent Magnet DC motor.



## HOME AUTOMATION AND SAFETY SYSTEM USING GSM

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*The aim of this paper is to show the benefits of smart living systems, their areas of usage. This paper mainly focuses on the controlling of home appliances remotely and providing security when the user is away from the place. Home safety has been a major issue where hazards are increasing and everybody wants to take proper measures to prevent accidents. So it is necessary to automate home so that user can take the advantage of technological advancement. Home automation can be achieved not only with household robots but with embedded computing power. The system is SMS based and uses wireless technology to revolutionize the standards of living. This system is wireless therefore more adaptable and cost-effective. This system provides security against intrusion as well as automates various home appliances using SMS. The system uses GSM technology thus providing access to the system for security and automated appliance control. The rapidly advancing mobile communication technology and decrease in costs make it possible to incorporate mobile technology into home automation systems.*

**INDEX TERMS:** *smart living, automation with embedded computing power, GSM technology, cost effective, sms based and wireless.*

## VOICE CONTROLLED FIRE FIGHTING CYBORG

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**J.JANANI**

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*This paper demonstrates the research and implementation of voice automated fire extinguisher vehicle. The vehicle is controlled through connected speech input. The language input allows a user to interact with the robot which is familiar to most of the people. The advantages of speech activated robots are hands free and fast data input operations. The medium of interaction between humans and computers is on the processing of speech. The complete system consists of three subsystems- the speech Recognition system, transmitter section and the receiver section. It is evident to study various factors such as noise which interfere speech recognition and distance factor. The proposed vehicle has a camera mounted on it and a water jet spray connected to it whose direction can be controlled using voice commands. The proposed robot is capable of controlling fire, avoiding obstacles and understanding the meaning of speech commands.*

**INDEX TERMS- Transmitter, Receiver, Speech recognition system**

## MULTIBAND INTEGRATED LOOP ANTENNA FOR WIRELESS ROUTERS

**VANDANA. B**

*PG Scholar*

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*Sri Sairam Engineering College*

*The paper presents an internal loop antenna for access points and wireless routers. The antenna is a low profile and chip antenna. It uses the Multi Input Multi Output (MIMO) technology. The design has four meandered loop antennas integrated together on a single chip. Thus provides a multiband functionality. The antenna has return loss greater than -6 dB matching criterion. The antenna radiates omni directional covering the frequency bands of LTE- Long Term Evolution band (1.8-2.7) GHz, UMTS 3G mobile band (0.85-1.25) GHz, WiMAX bands of 2.5GHz and 3.3GHz and Wi-Fi/Wireless LAN bands of 2.5GHz and 5GHz.*

*The design is in 1×2 MIMO configuration. It is a coplanar waveguide antenna of 150mm×150mm and the ground plane of 150×120 mm. The dielectric used is FR-4 material with permittivity or dielectric constant of 4.4. The prototype is fabricated, tested and measured.*

**INDEX TERMS-** *Loop antenna, MIMO (multi input-multi output), internal antenna, on chip antenna, meandered loop antenna*

## ALLEVIATING FLOODING WAVES IN MANETS THROUGH ENERGY EFFICIENT ROUTING TO IMPLEMENT SDR

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**Leones Sherwin Vimalraj**

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*Since there is more energy efficient protocols have been developed. However, if these protocols are designed carelessly, the energy efficient protocol performs worse than the normal protocol. Specifically the important things like the route-overhead, route maintenance and route setup time should be taken care by the energy efficient ones, since these are the major factors that make the difference in the performance of a protocol. Thus, in this paper, we first provide a brief discussion on the problems faced by the protocol and we then propose our PEER (PROGRESSIVE ENERGY EFFICIENT ROUTING) protocol which eliminates the flooding waves and manages the transmission power effectively between nodes. Thus this protocol can reduce up to two-third path overhead delay and saves 50% transmission energy consumption.*

**Key words:** *energy efficient routing; route maintenance; route setup time; PEER protocol; link energy*

## FUZZY CONTROLLER FOR AUTOMATIC DRUG INFUSION IN CARDIAC PATIENTS

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**D.LOGESWARI**

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*Information Technology*

*Panimalar institute of technology*

*Control of mean arterial blood pressure and cardiac output is highly desirable in certain operative procedures and in post cardiac operation. This paper emphasizes on a fuzzy controller to control these two variables within the present limits by administering three drugs dopamine, Sodium Nitro Prusside and Phenylephrine which perform the function of increasing heartbeat rate, decreases, and increases blood pressure respectively. A fuzzy PD controller with 25 rules is designed to achieve this, which controls the drug delivery unit. This work makes use of few mathematical models whose response to these three drugs mimics the human cardiovascular system. This work can be extended by ASIC Fuzzy control system, which is capable of modeling the cardiovascular mechanism. Till now the usual procedure is that the clinical personal (anesthesio logist) will monitor the changes and will accordingly adjust the infusion rates. The main goals of general anesthesia are adequate hypnosis, analgesia and maintenance of vital functions. For some special kinds of operations neuromuscular block is essential. Furthermore the patient safety and cost reduction as a case of minimized drug consumption and shortened postoperative recovery phases are part of the main issues to motivate automation in anesthesia. Since the beginning of the eighties engineers and physician are working together in the field of the development of closed-loop systems for drug delivery. The work gives a short overview about the development of the automation in drug delivery systems over the last years without the claim of completeness and expressed the much more vision.*

## RESONANT DC/DC CONVERTER TO REDUCE VOLTAGE STRESS AND RIPPLES

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*This project proposes a novel method to reduce voltage stresses across switches (IGBT), transformer windings and to reduce the output voltage ripple. Circuit sharing technique is used to reduce the stresses across the transformer windings. Multilevel converter technique is used to reduce the voltage stress across the switches. The switches are turned on using ZVS scheme to reduce stresses further. The current doubler rectifier used to reduce output ripple current which further increases the efficiency. We use phase shift PWM method to turn on and off the switches.*

**INDEX TERMS** – Phase shift pulse width modulation, voltage stress reduction, and output ripple current reduction

## **SENSORS STATE MONITORING IN HYBRID WIRELESS SENSOR NETWORK USING LabVIEW**

**RANGADURAI.G**

*PG Scholar*

*Velammal Engineering College*

*Sensors state monitoring is vital especially in alarm system or mining monitoring system. Traditional method by wire communication exists poor reliability and short transmitting distance. Wireless sensor networks are changing our way of life just as the internet has revolutionized the way people communicate with each other. Wireless sensor networks combine distributed sensing, Computation and wireless communication. This new technology expands our sensing capabilities by connecting the physical world to the communication networks and enables a broad range of applications. A large number of sensor nodes are now being deployed into various environments and provide an unprecedented view of how the world around us is evolving. However, some environments are often too dangerous or inaccessible to humans. For example, a building suspected of hazardous material leak. Although monitoring of sensitive wildlife and habitat has little potential hazard, the intrusion of humans is always a bothering problem. Some environments are also impossible to be accessed by humans or large robots because of terrains and space limitations. In all these situations, the users of wireless sensor networks will face many challenges, such as deployment, network maintenance and repair. The objective of this paper is to design a sensors state monitoring in wireless sensor network using Lab VIEW. This chapter aims at monitoring whether the sensors are in workable condition or not by using hybrid wireless sensor networks and Lab VIEW*

## IMPROVING THE EFFICIENCY OF DATA DELIVERY IN WIRELESS NETWORK USING STREAM CONTROL TRANSMISSION PROTOCOL

**A.R.SURIYAKALA**

*PG Scholar*

**Prof. R.KANTHAVAL**

*Velammal Engineering College*

*Usage of network for multimedia application has increased recently particularly in the field of video transfer. For efficient video transfer huge bandwidth is required. The demand for bandwidth is met by aggregating the bandwidth with help of multi-streaming and multi-homing which are the key features of CMT-QA SNCR. The main aim of this paper is increasing the performance of CMT-QA to make maximum use of the bandwidth for data delivery by avoiding retransmission for lost packets in a heterogeneous wireless environment and using TCP/IP spoofing technique to transmit packets even through failure nodes there by increasing the data delivery efficiency. We evaluate the existing solution using Dot Net and the result shows how its performance is increased.*

*Index Terms—CMT-QA SNCR, multi-homing, multi-streaming, no retransmission, TCP/IP spoofing.*



## ANALYSIS OF IMAGE CHANGE DETECTION IN UNSUPERVISED REGIONS BY SWT USING MODIFIED FUZZY C MEAN

**ADLIN JEENA**

PG Scholar

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*In this paper, we approach unsupervised image change detection for synthetic aperture radar (SAR) images. This approach classifies changed and unchanged regions by Image Fusion rules and modified Fuzzy clustering algorithm. The existing does not reduce the speckle noise efficiently between the images. The content of speckle noise produce blurred image and the intensity of pixel is very low. In order to reduce speckle noise and to get high intensity, we propose the Image Fusion technique using Spatial Wavelet Transform (SWT) rules to generate the image difference. In this approach, the background information is restrained and enhances the information of changed regions in the fused difference image. In addition, Fuzzy Local Information C Means (FLICM) is used to assign membership to each pixel corresponding to each cluster center on the basis of distance between the cluster center and the pixel. Even though the performance of FLICM shows better, there are some more noise exists on the image. So, a Reformulated Fuzzy Local-Information-Means (RFLIM) clustering algorithm is used to incorporate the information about spatial context in a novel fuzzy way for the purpose of enhancing the changed information and of reducing the effect of speckle noise. The membership of each pixel is modified according to a novel form of Markov random field (MRF) energy function through which the neighbours of each pixel as well as their relationship are concerned. Experimental results show that the proposed method gives best result in reducing speckle noise and also shows better change in images than preexistences.*

## BIST ARCHITECTURE BASED ON MULTIPLE SINGLE INPUT CHANGE (MSIC) VECTORS

**N.RAAJA RAJESWARI**

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*R.M.K. Engineering College*

*This paper proposed a test pattern generator for BIST architecture. The test pattern generator usually generates the vectors in which they are to be applied to the circuit under test (CUT) which consumes more power and have high switching activity. TPG usually produces repeated test patterns and are not uniformly distributed. As they are not uniformly distributed their test length gets increased. Repeated test pattern prolongs the test time and reduces the test efficiency. The proposed test pattern generator (TPG) for built-in self-test will generate multiple single input change (MSIC) vectors in a pattern, i.e., the vector given to test the circuit will be of a single input change vectors. It does not contain any repeated test pattern. So that the switching power gets reduced compared to other test pattern generator. The test patterns are given to test the ISCAS benchmark circuits. The result shows the decrease in the switching power.*

**INDEX TERMS:** Built-in-self-test (BIST), multiple single input change (MSIC)

## IMPROVED POWER QUALITY BRIDGELESS CUK CONVERTER FED BRUSHLESS DC MOTOR DRIVE

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**P.L.NAVEEN SAI**

**S.PRAVEEN**

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*R.M.K.College of Engineering and Technology*

*This project presents a bridgeless Cuk converter-fed brushless DC (BLDC) motor drive. A new approach of speed control of BLDC motor is proposed by controlling the voltage at DC bus using a single voltage sensor. The proposed drive utilizes a bridgeless Cuk converter operating in discontinuous inductor current mode (DICM) for the power factor correction (PFC) and improved power quality (PQ) at the AC mains for a wide range of speed control. The bridgeless Cuk converter operating in a DICM gives an inherent PFC and requires a simple voltage follower approach for the voltage control. The bridgeless converter topology is designed for obtaining the low conduction losses and requirement of low size of heat sink for the switches. The proposed system is designed and its performance is simulated to operate over a wide range of speed control with near unity power factor at AC mains.*

## FPGA IMPLEMENTATION OF BASEBAND SIGNAL PROCESSOR FOR SDR

**P.BHAVADHARANI**

*PG Scholar*

**K.R.VETHAVALLI**

**DR.NOORMAHAMMAD.S.K**

*Asst. Professor*

*Electronics and Communication Engineering*

*SKR Engineering College*

*This paper presents a Baseband Signal Processor designed for Software Defined Radio based on Heterogeneous multi-processor architecture. This Processor can supports several wireless modes such as CDMA, WCDMA, LTE etc., High area efficiency is achieved by using Heterogeneous Architecture. In this each processing task is mapped to individual baseband processor or hardware engines. This architecture is task independent and individual cores are provided for specific tasks hence achieve both flexibility and scalability for SDR. Our processor achieves 2.9 times faster baseband processing than conventional systems. We gain better area efficiency while using several wireless modes especially for LTE applications.*

***Index Terms – SDR, LTE, Baseband Processing***

## HIGH SPEED DATA RATE AND FIXED LATENCY FOR SERDES

**V.N.BOOPATHIRAJAN**

*PG Scholar*

**A.MATHIALAGAN**

**DR.NOORMAHAMMAD.S.K**

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*The efficiency of data transmission on a serial link is depending upon the latency fluctuation. Most of the transceivers are not keeping this fluctuation problem as fixed. The latency is fluctuated due to the process of reset and clock specifications. With fixed latency the transmission on data path could be improved. On a bulk transmission of data packets the collision is an unavoidable, in such situation these improved strategy can help efficient transmission. In this paper we present a technique through an architecture model in order to keep this latency fluctuation as getting fixed. The model is embedded with ALTERA cyclone IV E Field programmable Gate Arrays (FPGA) and the efficient transmission is achieved at the rate of its data speed at receiver. By suitably configuring GTP transceivers embedded in FPGA and adding to them control logic in the FPGA fabric, we implemented fixed-latency operation. The implementation of this architecture improves the data path to 3.5Gbps Serial link.*

## **STUDY OF RENEWABLE ENERGY SOURCES CAPACITY AND LOADING USING DATA LOGGER FOR SIZING OF SOLAR-WIND HYBRID POWER SYSTEM**

**S. PREM KRISHNAN**

**SUDIPTO SADHUKHAN**

**R. RAJESH BABU**

**Prof. S.RAJESH**

*Electrical & Electronics Engineering*

*KCG College of Technology*

*If the sizing of renewable energy power plant is planned with a less reliable data of its energy sources, usually in the future, the power system will have poor performance. Such cases often occur in various regions, including Indonesia. This problem can be solved through observation and measurement in the power systems using a data logger. Data logger is the electronic equipment which can record the formation of data accurately. In this paper, the current and voltage formation of solar-wind hybrid power system which is recorded by the data logger will be analyzed. The results then will be used for resizing strategy of the plant, especially which was established but still showed indications of inefficiency. Furthermore, by using the Levelized Cost of Electricity (LCOE), the system energy cost before and after resizing will be compared. The data logger is also used to see the capacity of the energy source by applying the indirect method.*

## **A TWO STAGE HIGH BRIGHTNESS LED DRIVER FOR DOMESTIC LIGHTNING APPLICATION**

**ISHWARYA.R**

**PRIYANKA.K**

**Prof. S.RAJESH**

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*KCG College of Technology*

*This paper presents the two high brightness (HB) LED driver for the application of Low Cost Low Power lighting. This paper focus on the reliability because of the LED's life may last for greater than 50,000 hours but the drivers may not; hence the driver design has to be such that they outdo the life of LED's. The existing two stage HB LED driver is modified here as three stages to improve its reliability as well as the performance. The Two stages are PFC boost converter, asymmetric half bridge converter. Each stage performs separate tasks to improve the efficiency of the driver circuit. This paper focused on life and efficiency of the HB LED driver.*

**INDEX TERMS— AC-DC converters, soft switched converters, HB-LED.**

## POWER FLUCTUATION IS CONTROLLED IN SOLAR AND WIND FARM USING ENERGY STORAGE APPLICATION

**B. NEELAMEGAN**

**A. EZHIL MATHY**

**M. SHANMUGAM**

*PG Scholars*

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*This paper proposes an application of battery energy storage system to compensate the power fluctuation in solar and wind farm. Wind farm are having unstable output because the nature of wind is not constant, so we are having some problems like power fluctuation to control the power fluctuation we are going for energy storage device. And the nature of solar power depends on the sunlight which falls on the photovoltaic cell. The power fluctuation caused by the nature of wind form because uncontrollable output characteristic may create voltage problem for electrical system. To solve those problems, we are going for the application of the large-capacity battery energy storage system (BESS). By using battery energy storage system we are having charging rates and discharging rates, charging rates is called state of charging and discharging rates is called state of discharging, by means of charging the excess power from wind farm and PV cell is stored by means of discharging power from battery is given to grid for the purpose of compensation of power fluctuation. Hence by using battery as compensation of power we can able to control power fluctuation and we can get the optimal power and also uninterrupted power supply.*

*Index Terms—BESS, compensation, power fluctuation, wind generation, State of charging, state of discharging*



## SHORT RANGE WIRELESS SENSOR NETWORK INTERFACE BY USING CMOS TECHNOLOGY

**R.HARISHANKARI**

**P.DHIVYA**

*PG Scholars*

*KSR Institute of Engineering and Technology*

*This paper describes a CMOS interface for short-range wireless sensor networks. The sensor interface is composed of a sensor readout, electronics for processing and control, a memory, a radio-frequency CMOS transceiver for operation in the 2.4-GHz industrial, scientific, and medical bands, and a planar antenna. The receiver has a sensitivity of  $-60$  dBm and consumes 6.3 mW from a 1.8V supply. The transmitter delivers an output power of 0 dBm with a power consumption of 11.2 mW. The application of the CMOS-SRWSN interface is in the automotive industry for the reduction of cables and to support the information, communication, and entertainment systems in cars.*

***Index terms—CMOS-SRWSN, MCM***

## LOW POWER BASEBAND RECEIVER ARCHITECTURE USING STBC-OFDM WITH FLEXIBLE MAPPER AND FLEXIBLE DEMAPPER FOR MOBILE WMAN

**S.NARENDRAN**

*PG Scholar*

**Prof. Mrs.C.THIRIPURASUNDARI**

*Electronics and Communication Engineering*

*Madha Engineering College*

*This paper introduces a space-time block-coding orthogonal frequency-division multiplexing downlink baseband receiver for mobile wireless metropolitan area network. The introduced baseband receiver applied in the system with two transmit antennas and one receive antenna aims to provide high performance in outdoor mobile environments. It provides a simple and robust synchronizer and an accurate but hardware affordable channel estimator to overcome the challenge of multipath fading channels. Recently, space-time block-codes (STBC) have gained much attention as an effective transmit diversity technique to provide reliable transmission with high peak data rates to increase the capacity of wireless communication systems. Introduce a space-time block-coded orthogonal frequency-division multiplexing (STBC-OFDM) scheme for frequency-selective fading channels the following of the Flexible mapper and Flexible demapper is being proposed instead of signal mapper and signal demapper since signal mapper and signal demapper uses only fixed QAM where as using the Flexible mapper and Flexible demapper We can choose any of the QAM mode (4, 16, 32 and 64) for providing the high speed transmission of data.*

**INDEX TERMS—** Baseband receiver, channel estimator, space time block code orthogonal frequency division multiplexing (STBC-OFDM) system, WMAN

## SLIDING MODE CONTROL TECHNIQUES OF DISTILLATION COLUMN

**VIMALA STARBINO.A**

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*Sliding Mode Control is an effective control among nonlinear systems. It provides systematic approach to control the system against parametric and modeling uncertainties. In this paper, various sliding mode control techniques are compared for the complex chemical processes. Distillation column is known for high nonlinearities and the composition of top product is controlled by various first order sliding mode controllers and the results are compared in time domain specifications. The main advantage of Sliding mode controller is to maintain stability in the face of modeling imprecision.*

**INDEX TERMS:** *Sliding Mode Control (SMC), chattering, distillation column, control law, Simulation.*

## HOME NAVIGATION SYSTEM WITH AUTOMATED VOICE AND THE PHYSICALLY CHALLENGED AND THE ELDERLY

**RAJA RAGHAVAN.M**

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*In this paper, we propose an Intelligent Home Navigation System (IHNS) which comprises of a wheelchair, voice module and navigation module. It can be used by an elderly or physically challenged person to move inside the home without any difficulty. It's common that the elders forget the way to the different rooms in house and the physically challenged people find it hard to move the wheel chair without external aid. By making use of IHNS, elderly and the physically challenged can go to different rooms in the house like kitchen, living room, dining room etc by just speaking a word which is predefined to that particular room. The voice of the person is detected by voice capture module which will be compared by voice recognition module with predefined voices loaded in to the system. According to the received voice, the destination is automatically understood and the wheelchair moves according to the route which is predefined. It is also equipped with obstacle avoidance technique, where the person may not be able to provide proper voices at the right time. The wheel chair can automatically navigate from one point to the other in the home as per predefined route based on the voice received. Thus the above proposed system can be used by elderly and physically challenged people in day to day life even if they are alone at home.*

## DATASTREAM INTEGRATION AND CONTENT ENRICHMENT IN ACTIVE DATAWAREHOUSE USING GENETIC ALGORITHM

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**Prof. S.SUDHA**

Department of MCA

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*Data integration is the transformation of the source data to a required format. Content enrichment is a special form of data translation in which additional information is injected into the current message. Data warehouse is an integrated, time variant and non-volatile collection of data it's used to store huge amount of data that's why it is called as multidimensional. In Genetic Algorithms (GA) we apply an evolutionary approach to inductive learning. GA has been successfully applied to problems that are difficult to solve using conventional techniques such as scheduling problems, traveling salesman problem, network routing problems and financial marketing. Genetic algorithms are examples of evolutionary computing methods and are optimization-type algorithms. MESHJOIN performs worse with skewed distributions. X-HYBRIDJOIN algorithm stores the most used portion of the disk-based relation, which matches the frequent items in the stream, in memory. This paper shows using GENETIC ALGORITHM concepts we explored the potential improvement for stream-based joins. Thus X-Hybrid join performs more efficiently than mesh join.*

**INDEX TERMS:** Natural selection, crossover, mutation, clustering, fitness, etc.

## CONTROL OF PROCESS USED IN PRODUCTION PLANT FOR TRACKING DEFECTIVE ITEM

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*The Statistical Process used to improve the quality of manufacturing at any things. The production lines concerned are modelled by a succession of placement machines. The major goal of Statistical Process Control (SPC) is to improve the quality of manufacturing at production plant. The production lines concerned in this project are modeled by a mobile phone assembling machines, which assemble all components to make a final product. The new Process Control tool moves the process control towards active handling of the data. The project is to develop the new process control tool which helps the tester in the production line to test mobile phones that only quality assured mobile phones go to sales.*

**INDEX TERMS**—*statistical process control or process control unit, production line*

## AN ALTERNATIVE DISTRIBUTED CONTROL USING LABVIEW

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*PG Scholar*

**Mr.B.RAMESH**

*Asst. Professor*

**Prof. Dr.T.KALPALATHA REDDY**

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*The distributed process control is done through Distributed control system (DCS). DCS is a computerized control employed in the industry to monitor and control the production line. These industries include Petrochemical industries, Fertilizers manufacturing industries, oil industries, where it requires continuous monitoring and controlling. DCS is one among the Industrial Control System Technique (ICS), the other ICS techniques includes supervisory control and data acquisition (SCADA) system, distributed control system (DCS) and programmable logic controllers (PLC). The aim of the proposed project is to analyze process of Reverse osmosis plant DCS using Lab VIEW. The leading companies in DCS business today are Honeywell, Rockwell, Yokogawa and Siemens. The proposed approach is the distributed control for an industrial plant using Lab VIEW. The mode of operation employed in the designed VI includes AUTO MODE and MANUAL MODE. Auto mode is not user interfaced and the process takes place automatically with the assigned Manual operation. In addition to that the other two proposed approach involves the creation of Database management and Alarm management.*

**INDEX TERMS: DCS, Lab VIEW, IMC, RO, SENSORS.**

## LATENT TO FULL FINGERPRINT MATCHING USING DESCRIPTOR BASED HOUGH TRANSFORM

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*Identifying suspects based on latents which are lifted from crime scenes is extremely important to forensics and law enforcement agencies. Latent's are the partial fingerprints usually smudgy and blurred with small area, and contain large distortion. Due to these characteristics, they have a considerably smaller number of minutiae points compared to full fingerprints and therefore it can be extremely difficult to automatically match latent's to plain or rolled fingerprints that are stored in law enforcement databases. The goal is to develop a latent matching algorithm that uses only minutiae information. The proposed latent matching algorithm consists of three modules: (i) Align two sets of minutiae with a descriptor based Hough Transform; (ii) Establish the correspondence between minutiae; and (iii) Compute a match score.*

**INDEX TERMS—** *Fingerprints; Hough Transform; Latent's; Minutiae; Matching*



## SECURED MEDICAL IMAGE TRANSMISSION OVER THE WEB USING REVERSIBLE WATER MARKING AND DYNAMIC HISTOGRAM SHIFTING

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*We propose a new reversible watermarking scheme. One first contribution is a histogram shifting modulation which adaptively takes care of the local specificities of the image content. By applying it to the image prediction-errors and by considering their immediate neighborhood, the scheme we propose inserts data in textured areas where other methods fail to do so. Furthermore, our scheme makes use of a classification process for identifying parts of the image that can be watermarked with the most suited reversible modulation. This classification is based on a reference image derived from the image itself, a prediction of it, which has the property of being invariant to the watermark insertion. In that way, the watermark embedded and extractor remain synchronized for message extraction and image reconstruction. The experiments conducted so far, on some natural images and on medical images from different modalities, show that for capacities smaller than 0.4 bpp; our method can insert more data with lower distortion than any existing schemes. For the same capacity, we achieve a peak signal-to-noise ratio (PSNR) of about 1-2 dB greater than with the scheme of Hwang et al., the most efficient approach actually.*

**Index Terms:** Medical image, reversible/lossless watermarking, and signal classification

## ADDING EFFECTIVE FEATURE IN GRAPHICAL PASSWORD TO INCREASE THE CAPACITY OF KBAM

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*PG Scholar*

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*Associate professor*

*Department of MCA*

*Panimalar Engineering College*

*Most of the existing authentication system has certain Draw backs for that reason graphical passwords are most preferable authentication system where users click on images to authenticate themselves. An important usability goal of an authentication system is to support users for selecting the better password. User creates memorable password which is easy to guess by an attacker and strong system assigned passwords are difficult to memorize. So researchers of modern days gone through different alternative methods and conclude that graphical passwords are most preferable authentication system. The proposed system combines the existing cued click point technique with the persuasive feature to influence user choice, encouraging user to select more random click point which is difficult to guess.*

**INDEX TERMS:** *Authentication, graphical passwords, images, usable security.*

## **A 1-V, 10-BIT, 40MS/S CMOS PIPELINED ANALOG TO DIGITAL CONVERTER**

**POOVARAGAVAN.S**

*PG Scholar*

**KEERTHI KUMAR.D.N**

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*Kingston Engineering College*

*Analog-to-digital converters (ADCs) are required in almost all communication and signal processing applications. This paper describes a 1-v, 10-bit, 40-Msample/s pipeline Analog-to Digital converter in 45nm CMOS technology. The entire circuit architecture is built with a modular approach consisting of identical units organized into an easily expandable pipeline chain. The ADC consumes a 1.14mw at a sampling rate of 40MS/s. Comparator is designed using latch type voltage sense amplifier. The ADC will help to reduce the power consumption of system-on-a-chips (SOCs) for digital consumer products and wireless communication equipment.*

**INDEX TERMS:** *Analog to Digital Converter (ADC), Digital to Analog Converter (DAC), Sample and Hold circuit, Comparator, system-on-a-chips (SOCs), Operational Amplifier.*

## ANALYSIS OF POWER IN UNCOOLED INFRARED SENSOR ARRAY

**V.YUVA PRIYA**

*PG Scholar*

**M.VILASINI**

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*KPR Institute of Engineering and Technology*

*This paper gives the analysis of power when the resolution is varied with temperature in readout integrated circuit (ROIC) used for IR detector in forward looking infrared (FLIR) camera. The infrared sensor array in different array sizes are implemented using Micro wind and Dsch2 tool and the power at various temperatures are observed. The 4x4 infrared arrays are implemented. The resolution of the infrared array is increased to 8x8, 16x16 and 32x32 sensor array and the output characteristics are analyzed. The characteristics of the sensor array are obtained and the power at various temperatures is compared. This design provides uniform output over a wide range of temperature.*

**INDEX TERMS-** *ROIC, IR detector, pixel, and readout circuit.*

## DEFENDING AGAINST RESOURCE DEPLETION ATTACKS USING M-DSDV

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*PG Scholar*

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*Associate Professor*

*Jeppiaar Engineering College*

*Ad-hoc sensor networks and routing data in them is a significant research area. Vampire attack is a resource depletion attack under denial-of-service attack. Vampire attack is draining of node life from wireless ad-hoc sensor networks. Resource depletion attack permanently disables networks by quickly draining nodes battery power. Vampire attacks are very difficult to detect because they attack the node only by sending protocol-compliant messages. PLGP with attestations (PLGP-a) is used for identifying malicious attack. M-DSDV routing protocol is used to detect and eliminate the resource depletion attack from the network.*

*Index Terms—Ad-hoc networks, Denial of Service, Resource depletion attack, Routing protocol, Sensor networks*

## POWER PRODUCTION BASED ON OSMOTIC PRESSURE AND BOOSTING ITS POTENTIAL BY USING NANOTUBES

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**AARTHI.V**

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*We can't continue using several of our energy sources from where we gain energy today. For example fossil fuels contaminate our environment and we are also running out of them. It is therefore necessary to find other ways of producing energy. This paper focuses on one of those alternatives; osmotic energy. Osmosis means passage of water from a region of high water concentration, like freshwater, through a semi permeable membrane to a region of low water concentration, often NaCl. Osmotic powers excellent environmental performance and CO<sub>2</sub>-free power production will qualify for green certificates and other supportive policy measures for renewable energy. The estimated energy cost is comparable and competitive with the other renewable energy sources. For both the commercial power companies and technology suppliers Osmotic Power represents an attractive new business potential. Also the potential developed by this process may be boosted several times by using nanotubes made of various materials. However Boron nitride yields the best output. It can be claimed that it is 1000 times the yield of other known techniques for harvesting osmotic energy and this makes Boron nitride nanotubes an extremely efficient solution for harvesting the energy of salinity gradients and converting it immediately into usable electric power.*

**INDEX TERMS:** *Osmosis, salinity gradient, boron nitride nanotubes, semi permeable membrane*

## DETECTION OF BACKLASH PHENOMENA OF INDUCTION MOTOR USING MEMS ACCELEROMETER

**LOGANATHAN.P**

*PG Scholar*

**T.S.GEETHA**

*Associate Professor*

*Sri Krishna Engineering College*

*MEMS accelerometers are one of the simplest but also most applicable micro-electromechanical systems. They became indispensable in automobile industry, computer and audio-video technology. The system used MEMS sensors to monitor the vibrations generated in the gear system of the engine. Every fault that occurs in shaft will result in generation of vibration by monitoring the vibration level of the gear system and the system can detect the fault in basic symptoms itself. This project is based on detecting fault in gear system using MEMS sensor. In industries most of the mechanical works are done by motors. In these motors 90% are Gear motors. Fault measurements are done by invasive methods (direct and indirect). These methods decrease the systems performance. In this project a new method to implement and monitor fault without reducing systems performance. The objective of this work is to explore the feasibility of MCSA for continuous monitoring and diagnostic purposes. For signal processing we use Fast Fourier Transform. In summary, the findings show promising results which could lead to better reliability performance of the induction motor and lower maintenance costs.*

**INDEX TERMS—MEMS Accelerometer, Induction motor, Fault measurement**

## ARTIFICIAL INTELLIGENCE FOR THE BLIND BY CONNECTING A TELEVISION CAMERA TO THE VISUAL CORTEX

**S.GAYATHRI**

**V.DIVIYA**

*Veltech Multitech Dr.Rangarajan Dr.Sakunthala Engineering College*

*Blindness is most feared by the public than any other ailment. Artificial vision for the blind was once the stuff of science fiction .But now, a limited form of artificial vision is a reality. Now we are at the beginning of the end of blindness with this type of technology. In an effort to illuminate this perceptually dark world of the blind, researchers are tuning to technology. They are investigating several electronic based strategies designed to bypass various defects or missing links along the brain's image processing pathway and provide some form of artificial sight.*

*This paper is about curing blindness. Linking electronics and biotechnology, the scientists has made the commitment to the development of technology that will provide or restore vision for the visually impaired around the world. This paper describes the development of artificial vision system, which cures blindness to some extent. This paper explains the process involved in it and explains the concepts of artificial silicon retina, cortical implants etc. The roadblocks that are created are also explained clearly. Finally the advancement made in the system and scope of this in the future is also presented clearly*



## ADVANCED FUEL INDICATOR USING FLOW SENSOR

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*Fuel is one of the most important and needed commodity in everyone's day to day life. And in today's scenario, especially in a country like India where majority of fuel is imported, the economy of fuel is a major objective. Every day in newspapers we see advertisement indicating us to use fuel economically. Apart from these advertisements the price hike in fuel is much shocking news.*

*So there is no point in cursing the price rise as it is an inevitable act by the government rather it is our duty to use the fuel economically and lessens the import burden in our nation's economy.*

*So what is needed at the point is a fuel meter that indicates accurate fuel level and fuel usage statistics.*

## DESIGN TO DETECT CONCENTRATION GLUCOSE LEVEL IN BLOOD

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*Asst. Professors*

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*Glucose is the primary source of energy for the body's cells, and blood lipids (in the form of fats and oils). Glucose is primarily a compact energy store. When blood glucose levels fall below a certain level, the body begins to use stored sugar as an energy source through glycogenolysis, which breaks down the glycogen stored in the liver and muscles into glucose, which can then be utilized as an energy source. Insulin regulates blood glucose which the body senses and responds to rise in blood glucose by secreting insulin. Today technologies provide invasive and non-invasive method of glucose measurement. The purpose of this project to provide non-invasive reliable method of blood glucose level measurement, heart beat and to monitor healthy glucose level concentration This project implements near-infrared light of wavelengths 1450nm to 2040nm through the use of light emitting diodes and measure transmittance through the use of light emitting diodes, also measure transmittance through solutions of distilled water and d-glucose concentration of 50mg/dl, 100mg/dl, 150mg/dl and 200mg/dl.*

**Key words:** *Microcontroller, LCD, LED, Temperature sensor, LM35 transistor, Heart rate sensor*

## EE-HYBRID HART MAC PROTOCOL FOR WIRELESS SENSOR NETWORKS

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**JAYESH SUNDAR GOPINATH**

*St. Joseph's College of Engineering*

*MAC protocol design in Wireless sensor networks becomes vibrant research field for the past several years. In this paper an EE-Hybrid HART MAC protocol (Energy efficient hybrid HART Medium Access Control) has been proposed, which is energy efficient and low latency MAC protocol, which uses interrupt method to assign priority for certain wireless sensor nodes assumed to be present in critical loops of industrial process control domain. EE-Hybrid MAC overcomes some of the limitations in the existing approaches. Industrial wireless sensor network require a suitable MAC protocol which offers energy efficiency and capable of handling emergency situations in industrial automation domain. Time critical and mission critical applications demands not only energy efficiency but strict timeliness and reliability. Harsh environmental condition and dynamic network topologies may cause industrial sensor to malfunction, so the developed protocol must adapt to changing topology and harsh environment. Most of the existing MAC protocols have number of limitations for industrial application domain in industrial automation scenario, certain sensor loops are found to be time critical, where data's have to be transferred without any further delay. The proposed EE-Hybrid HART MAC protocol is simulated in OMNET++ environment, from the result it is observed that proposed protocol provides better performance compared to the conventional MAC protocols.*

## DETECTION OF ALZHEIMER DISEASES IN EYE

**R.THANIKASALAM**

*PG Scholar*

*Kingston Engineering College*

*This paper describes our concept early detection of Alzheimer diseases' in eye. There is evidence suggesting that visual disturbances in patients with Alzheimer's disease (AD) are due to pathologic changes in the retina and optic disc. A number of RVPs were found to be different in AD. Two of these RVPs, venular branching asymmetry factor and arteriolar length-to-diameter ratio. Retinal photographic analysis shows potential as an adjunct for early detection of AD or monitoring of AD-progression. The Next important feature is optic disc ratio value; it can be based on region growing method to find the inner to outer ring value of optic disc. Normal human optic ratio value is within 0.5mm. RVPs are calculated by using the clinical status study work and 16 sample of images can be using to calculate the optic disc ratio to analyzing and progressing the eye status.*

**Key words:** *Alzheimer diseases, optic disc, RVPs, region growing, statistical*

## NON-UNION FRACTURE HEALING DEVICE USING LOW INTENSITY ULTRASOUND

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*Dhanalakshmi Srinivasan Institute of Technology  
Trichy*

*Tissue-engineered systems involve the use of cells, growth factors, and scaffolds to repair and restore tissue function. Ultrasound is used as a treatment for clinical fracture repair. Evaluating the mechanism behind the efficacy of low intensity pulsed ultrasound (LIPUS) for fracture repair has revealed that the existence of a small mechanical force that may be beneficial to repairing musculoskeletal tissues using tissue-engineered scaffolds. Using the elements of a collagen hydrogel scaffold synthesis, ultrasound, and principles of musculoskeletal tissue regeneration, a fracture repair device has been designed. The proposed device is a bone fracture repair system that works with a scaffold component as well as an ultrasound component. This device is designed to enhance current techniques of bone formation in a more efficient and a minimally invasive way. It will serve as an alternative solution to surgical methods of healing bone fractures, especially since the medical industry is shifting towards least invasive methods of treatment. This device will also serve as the answer to healing non-union fractures, or fractures that do not heal on their own for unknown reasons.*

**INDEX TERMS:** Non-union fracture, LIPUS, Collagen hydrogel scaffold.

## DETECTION AND CLASSIFICATION OF HARD EXUDATES INHUMAN RETINAL FUNDUS IMAGES USING CLUSTERING AND RVM METHODS

**T.AKILA**

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*Madras Institute of Technology*

*Anna University*

*Diabetic Retinopathy (DR) is a vascular disorder where the retina is damaged because fluid leaks from blood vessels into the retina. One of the primary lesions of diabetic retinopathy is exudates, which appear on retinal images as bright patches with various borders. In this work an image processing framework is presented to automatically detect and classify the presence of hard exudates in the human retinal fundus images. A total of 50 images have been used to detect the hard exudates from the Messidor database. Digital image processing methods help to extract the location and level of abnormalities in retinal fundus images. The contrast adaptive histogram equalization is used for preprocessing stage and Fuzzy C-Means (FCM) and K-means clustering algorithms are applied to segment the exudates in abnormal images. A set of features such as the standard deviation, mean, energy, entropy and homogeneity of the segmented regions are extracted and fed as inputs into relevance vector machine (RVM) classification to discriminate between the normal and pathological image. The proposed method achieved 91.95% accuracy for early detection of DR*

*Index Terms—Hard Exudates, k-means clustering, Fuzzy c means, relevance vector machine.*

## POWER CALCULATION FOR SAC-OCDMA AND THEIR PERFORMANCE IS ANALYSED USING MATLAB

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*In the Present Scenario, demand for high data rate and secure data transmission has inspired an extensive interest in optical communications. OCDMA (Optical Code Division Multiple Access) transmission offers extraordinary network capabilities, allowing a large number of users to share the same transmission bandwidth for a secure communication. . The SAC - OCDMA techniques are suggested to be a more flexible solution over optical local area networks (LANs) because the multiple access interference (MAI) is significantly cancelled. The system model to analyze the performance of OCDMA with Spectral Amplitude Coding (SAC) technique is simulated in MATLAB. In this, the system model to analyze the performance of OCDMA with Spectral Amplitude Coding (SAC) technique is implemented using Fiber Bragg Grating in which it increases the system capacity. The power consumed in SAC-OCDMA system is calculated by the loss produced due to coupler, splitters, and circulator, attenuator and delay lines. The power consumed in transmitter, receiver and the fiber is also calculated. The power budget analysis is obtained by calculating the dispersion loss, link loss, splice loss and connector loss. Finally the efficiency of the system is determined.*

**INDEX TERMS-***component; SAC-OCDMA, coupler loss, connectors loss, Power budget.*

## **WHEELBOT - AN INTEGRATED ROBOTIC RAIL TRACK INSPECTION AND SURVEILLANCE SYSTEM**

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*This project introduces the automation at affordable cost, which can be used by every small stations and thus avoiding the dependencies. It can also be employed for track surveillance, which is currently done manually. The system is made possible by employing the high resolution night vision camera mounted on a wheelbot. This robot will move on the track and do the inspection. Wireless control is provided to robotic system, which can be operated from the remote station. Video storage is provided for future reference. It is essential to track the location of the robot which is achieved through GPS (Global Positioning System) attached to the wheelbot. Live transmission is done through high speed 3G internet or 2G internet and the same is used to control the wheelbot also. To protect the wheelbot, obstacle detection sensors, emergency alarms are being provided to the robot to enhance the smartness of the system. In case of emergency the wheelbot can be setup within a short while thereby making it possible to be used in critical time. The power utilized by the entire system is low due to intelligent algorithms that control the system. The principles of green computing and signal processing applied in the system help in the development of a green smart system. The total cost of the system is low hence most of the stations can have it and thus improving the safety standards and QoS of railways.*



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