# International Conference on Recent Trends in Aero Science and Engineering & Technologies (Techzilla '19).

# Proceedings

## *On*

## 6<sup>th</sup> September 2019

## *Organized by*

## Jeppiaar Institute of Technology

# JEPPIAAR INSTITUTE OF TECHNOLOGY

"Self - Belief | Self Discipline | Self Respect"



## Vision

"Jeppiaar Institute of Technology aspires to provide technical education in futuristic technologies with the prespective of inovative, industrial and social application for the betterment ofhumanity."

## Mission

- To produce competent and disciplined high quality professionals with the practical skills necessary to excel as innovative professionals and entrepreneurs for the benefit of thesociety.

- To improve the quality of education through excellence in teaching and learning, research, leadership and by promoting the principles of scientific analysis, and creativethinking.

- To provide excellent infrastructure, serene and stimulating environment that is most conducive tolearning.

- To strive for productive partnership between the Industry and the Institute for research and development in the emerging fields and creating opportunities for employability.

- To serve the global community by instilling ethics, values and life skills among the students needed to enrich theirlives.

# ABOUT THE ORGANIZATION

Jeppiaar Institute of Technology was established in 2011, to provide futuristic technical education with the perspective of innovative social and industrial application for the betterment of humanity. Since the launch, Jeppiaar Institute of Technology propels relentlessly towards fulfilling its vision. Jeppiaar Institute of Technology is the first institution in India to establish a laboratory with the incorporation of „Innovative Cloud Computing Technology". All the classrooms are CAI (Computer Aided Instruction) enabled with wall mount Multimedia LCD Projectors, to make full use of the modern teaching aids. Presently, the college offers five popular professional under-graduate engineering programs namely B.E. Computer Science and Engineering, B.E. Electronics and Communication Engineering, B.E. Electrical and Electronics Engineering, B.Tech Information Technology and B.E. MechanicalEngineering.

Computer Society of India (CSI), one of the professional societies in our college shares knowledge and exchange the ideas in the ever progressive world of technology. ASME, SAE and the Big-Data Research Center of the college support the career needs of the students. The IEEE students" chapter and IEEE Women in engineering on the campus are vibrant in connecting to breakthrough technical information and put them in an open platform for regular updates. Students" passion for robotics is commendable. National Cadet Corps (NCC), National Service Scheme (NSS) and Youth Red Cross (YRC) are also offered for the holistic development of the students. Our college offers value-added courses like JAVA, PCB Design, Robotics and Embedded system interfacing with Arduino, Rapid prototyping – 3D printing, Drone, Machine learning, Android applications development, Internet of Things and Robotics to make the students technically and practically strong.

In the field of sports and games, the college ranks among the top ten in the state. The college organizes Jeppiaar Trophy, a national level basketball tournament every year in which all the potential basketball teams in the country take part. The standard of the tournament is obvious and it is recognized by Doordarshan with its live telecast. About 75% of students of the 2011 batch have been placed in the reputed Multi-National Companies like Wipro, Infosys, IBM, Cognizant, InfoView, Mindtree, and Mphasis which are the premier recruiting partners of the institution. In the same way, in the following next two years, 82% of the students have been placed and the count is expected to increase in the years to come.

To make the students involved in industrial relationship and development, our college has signed MOU with leading international and National companies like COMSTAR, Infosys Campus Connect, JIT Global Info System Pvt. Ltd. and for students higher education in abroad, the institution has signed MOU with Life Abroad Consulting Service (p) Ltd, Singapore to link more than 40 Universities in abroad. Every year, the academic toppers will get the fully funded scholarship for International Immersion Programme. Another creative embodiment is the „Design Thinking Club" which nurtures the culture of design thinking in all aspects of life focussing on preparing the design mind in association with the School of Design Thinking, Intellect.

# ABOUT THE CONFERENCE

The international Conference on "Recent Trends in Aero Science and Engineering & Technologies (Techzilla"19)" is organized by Jeppiaar Institute of Technology, Kunnam, Sunguvarchatram, Sriperumbudur Taluk, Chennai, in Association with Indian Technology Congress, Bengaluru, Karnataka. The objective of the conference is to share knowledge and to bring together competencies from the relevant disciplines for finding practical solutions for Aero science and Engineering & Technologies future and will be a major forum for researchers and Professionals to present their latest research, results and new ideas in all areas of Engineering and Technology. The conference is intended to emphasize the issue of harnessing aero science, satellite technologies, to meet the emerging need of the country and to highlight the latest technological advancements. The conference is committed to bringing together scholars, experts and researchers in one platform to discuss global and regional issues related to aero science and Engineering and Technologies for growth and development. It is proposed to have several parallel sessions with invited keynote lecture by eminent academicians and experts from various fields. The selected papers will be published in the international Journal of Recent Technology and Engineering. The papers have been selected from diverse fields like data analysis, Machine learning, Artificial intelligence, Internet of Things, Advanced wireless communication, Embedded systems, Digital signal and image processing, VLSI inventions, alternative fuels, fuels and combustion, heat transfer, environmental systems, modelling and optimization of energy systems, composite materials and manufacturing processes. The conference hopes to bring out the multi-disciplinary field of aero sciences and Engineering & Technology under a singleroof.

# MESSAGE FROM MANAGINGDIRECTOR

On behalf of Jeppiaar Institute of Technology I extent my warm and heartfelt welcome to the International Conference on Recent Trends in Aero Science and Engineering & Technologies (Techzilla '19). I am excited to see the level of interest in the conference and I hope that you will enjoy your time with us and gain much from your engagement, participation and the researchers you will meet. I believe that this conference will guarantee a successful technical platform to enrich technical knowledge in various streams of Emerging EngineeringTechnologies.

Techzilla '19 provides an opportunity for the meeting of International Researchers, Engineers, Scientists, and specialists in the various research and development fields of Engineering and Technology. The conference offers a premise for global experts to gather and interact intensively on the topics of Mechanical, Electrical and Electronics, Electronics and Communication, Computer Science and Information Technology. I hope eminent speakers will cover the theme on computation and innovation from different perspectives. I am privileged to say that this conference will definitely offer suitable solutions to the global issues.

I hope that the conference serves as a locus for interdisciplinary, a space for discourse and collaboration. I would like to express my appreciation to the organizing committee for their dedicated efforts to materialize the conference. I hope all the participants will have a fruitful and beneficial experience. In a nutshell, the conference promises to transcend to a new and unprecedented level of excellence.

**Dr.N.Marie Wilson.B.Tech., MBA.,Ph.D**
Managing Director
Jeppiaar Institute ofTechnology

# MESSAGE FROM PRINCIPAL

Warm and Happy greeting to all. I am immensely happy that of our college is organizing an International Conference on "Recent Trends in Aero Science and Engineering & Technologies (Techzilla '19)" on 6th September.2019 and is going to present a collection of various technical papers in theproceedings.

I am confident that the conference discussions and the publication of the conference proceeding will bring opportunities among the academicians, corporate delegates, research scholars and students to present their innovative ideas, most up-to-date findings, and technical proficiency in the various fields of Research trends in Aero Science and Engineering &Technologies.

On behalf of Jeppiaar Institute of Technology, I heartily welcome the Honorable Keynote Speaker, eminent academicians, corporate delegates and all the paper presenters to Techzilla '19.

**Dr.L. M.Merlin LivingstonME.,Ph.D**

Principal

Jeppiaar Institute ofTechnology

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Department of Mechanical Engineeing.

# KEYNOTE SPEAKER

## Padmashri Prof.R.M.Vasagam

Outstanding Scientist of ISRO,
Chairman, Aerospace Engineering Division Board, The Institution of Engineers (India)
Former Vice Chancellor, Anna University & Dr. M.G.R. University, Chennai
Immediate Past Chairman – National Design & Research Forum (NDRF)
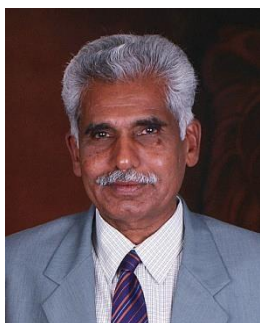
**He**hasservedasProjectDirectorforAPPLE,India‟sfirstexperimental Geostationary Communication Satellite Project during 1977-83 time frame. He had professional training/background in Avionics, Navigation, Guidance, and Control & Systems Engineering areas. He had been working for Indian Space Programme since it‟s inception in early 60‟s. He was an Outstanding Scientist of ISRO. He was the Director of the Directorate of Advanced Technology & Training at ISRO Head Quarters, Bangalore during1986-1996.

He served as Vice Chancellor of Anna University, Chennai during the period 1996-1999.Also he was the Chairman of Tamil Nadu Institute of Technology, Chennai between 1999-2001. He was the Director(Information Technology), Karunya Institute of Technology & Sciences, Coimbatore (2001 – 2003). He was also the Vice Chancellor of Dr. M.G.R. Deemed University, Chennai, during the period 2003-2007. He was the Chairman of National Design and Research Forum (NDRF) during 2010-2013. He obtainedB.E. (Hons)from University of Madras (1963) and M. Tech from IIT, Madras (1965).

He was the recipient for many awards &honors - „**Vikrama Sarabhai Award** (1981), „**Padamashri'**(1982)‟,DistinguishedAlumnusAward–PSGCollegeofTechnology(1982), IEEE Centennial Medal (1984), Biren Roy Award for Space (1988) , Om PrakashBhashin Award (1988) , C-DAC PARAM Award (1991), Distinguished Alumnus Award – IIT, Madras (1996), and Systems Gold Medal – Systems Society of India (1999). He has Served as Visiting Scientist atInstitute of Space and Astronautical Sciences, University of Tokyo, 1967; Centre for Space Research / Lincoln Lab, MIT, Boston, 1970 ; and NASA Goddard Space Flight Centre, Maryland, USA,1971.

He is a Fellow ofInternational Academy of Astronautics, Paris; National Academy of Sciences, Allahabad; Aeronautical Society of India; Fellow of Institute of Electronics and Telecommunication Engineers; Life Member of Astronautic Society of India; Fellow of the Institution of Engineers (India) and Senior Member of IEEE. Serving asMember / Convenor in the Steering Committee on Science and Technology, State Planning Commission, Tamil Nadu ; Member in the Standing Committee of the Department of Ocean Development, Government of India ; Member of the Natural Sciences Sub-Commission of Indian National Commission for UNESCO, Ministry of Science & Technology, New Delhi ; and Member of the 10th Five Year Plan Working Group for Department of Space. He is the Chairman of Aerospace Engineering Division Board of The Institution of Engineers (India) living in Bangalore.

# KEYNOTE SPEAKER

## Ms.LucilleBaudet

Customer Engagement Manager,
Open Cosmos, UK

She has been graduated from a business school in France (Toulouse) in Aerospace Management (2016), and she was working at Airbus Defence & Space while completing her MSc, in a Marketing & Business Development position for 2 years. She was supporting the development of a business line for space equipment.

She has been then employed by Thales Alenia Space (equivalent ofthegraduateprogram)forayearandahalfbetweenUKand Italy in a Strategic Marketing position (working on market analysis and business cases for Small Sats platform, in-orbit services, SSA).

She currently working for Open Cosmos for more than a year as Customer Engagement Manager, mainly engaging with education and institutions, bringing them the tools that we have been developing, supporting their development of technologies and finding potentials areas of partnerships/collaborations. She is also supervising some universities projects, to support students in developing demo payloads.

# KEYNOTE SPEAKER

# Dr.ChaimEshed

**(Former) Head of the Space Program in the M.O.D.**

**Space Committee, Israel National Council for R&D**



## Profile

1966 - Graduated from the Technion, Israel

1969 – Master In Electrical Engineering

1979 – Head of R&D in the intelligence.

1983 – Co founder of the Israel Space Agency.

1984 – Co founder of the Space ResearchInstitute.

1985 – Promoted to Brig. General in MAFAT M.O.D

1988 – Ph.D. in Aeronautics and Space Engineering.

1988 – 2010 - Head of Space program in the M.O.D

2011 – Israel Space Agency – SteeringCommittee.

2012 – National Committee for R&D – Space Committee Chairman.


## Recipient of prestigious awards and honours including:

Chief of Staff citation of outstanding performance.

Three Israel Defence Awards.

## Presentation:

Creativity and Innovation in the Dawn of the "New Space"

# REVIEW COMMITTEE MEMBERS

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# TABLE OF CONTENTS

# PERTAINING CNN STRUCTURE USING SINGLE AND MULTIPLE DISTANT MICROPHONE FOR SPEECH RECOGNITION

**P. Vijayalakshmi[1], G. Meenakshi[2], P. Ashok[3], G. Vinithra[4]**

*UG Scholar [1,2]*
*Assistant Professor [3,4]*
*Department of Computer Science and Engineering*
*Sri Sai Ram Institute of Technology, Chennai,TamilNadu,India*

## ABSTRACT

Convolution Neural Network (CNN) is used to show the out performance of the fully connected Deep Neural Network (DNN) within the hybrid Markov Model (HMM). In this paper we discuss in detail about the CNN architecture, full and limited weight sharing, convolution along time and frequency axes and stacking of several convolution layer. Later we discussed about the soft-max pooling layer through which we can learn about the size in the pooling layer. And then, by using convolution version of RBM we can explore the effect of the CNN pretraining. CNN architecture has extracted the basic form of the DNN for both phone recognition and speech recognition tasks. In comparison with full weight sharing architecture, limited weight sharing architecture is more predominant. Here, we all deal with single distant microphone and multiple distant microphones which are used for large vocabulary distant speech recognition. In MDM, we pass a beam formed signal as an input representation and compare the input with parallel input of the CNN. Here also we give significant role for the WER (word error rate).The WER of conventional DNN and GMM baseline with CNN and thus it gives the best accuracy. At last, CNN pertaining produces notable results on large vocabulary speech recognition tasks.

**Keywords:** CNN, MDM, SDM, Soft-max pooling layer, DNN.

# PREVENTING SELECTIVE PACKET DROPPING ATTACK USING PUZZLE HIDING APPROACH IN WIRELESS NETWORKS

**S. Sudha Mercy,**

*Assistant professor,*
*Department of CSE,*
*Jeppiaar Institute of Technology, Chennai, Tamil Nadu, India*

## ABSTRACT

The wireless medium is susceptible to attacks, such as Packet dropping which can be used as a platform for raising Distributed Denial-of Service attacks on wireless networks. This occurs when a node becomes compromised due to various causes. This attack exploits the knowledge of network secrets and protocol semantics to selectively and robustly targeting the critical network functions. At the time of injecting this attack, the adversary is active only for a short period of time, scrupulously aiming at messages of high significance. The malicious node can also accomplish this attack, selectively dropping packets for a particular network destination, at a specific duration of the day, $n$ packets for every $t$ seconds, or an arbitrarily chosen portion of the packets which is harder to detect. The selective dropping attacks can be instigated by carrying out real-time packet classification. To mitigate these attacks, asymmetric encryption technique together with puzzle hiding approach has been developed. This scheme will prevent real-time packet classification by coalescing cryptographic primitives with physical-layerattributes.

**Keywords**— Hiding scheme, packet classification, RSA, selective packet dropping, wireless networks.

# SECURE CLOUD STORAGE OF AUDITING FILES USING QR CODE

**N.R Gladiss Merlin (Research Scholar, Au),**

*Associate Professor,*
*Department of CSE,*
*Jeppiaar Institute of Technology, Chennai, Tamil Nadu, India*

## ABSTRACT

The main goal of our project is to design a mobile application for Auditing and Data Sharing through cloud storage service, users can remotely store their data to the cloud and data can be shared with other users. For this remote data integrity auditing is proposed in the cloud to guarantee the sharing data. In some common cloud storage systems, cloud file might contain some sensitive information.  So, for encrypting the shared file, sensitive information hiding is realized, but it will make this shared file unable to be used by others. In this paper we propose a remote document reference id which automatically converts to the QR code, then we have to scan user module and then download the particular document integrity that realizes sensitive information hiding for the shared file. Signatures are used to verify the file in the phase of integrityauditing.

**Keywords**— Android; Auditing files; QR code; Encryption; Scanner.

# SMART WATER MANAGEMENT SYSTEM USING THE MICROCONTROLLER ZR16S08 AS IOT SOLUTION

## Fredha Carnelian.F[1], Hemalatha.S[2], Kavusalya.M[3], Revathi.R[4]

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## ABSTRACT

This paper presents a smart water management system using the microcontroller ZR16S08 as IoT solution, for water distribution support and losses prevention. The system operates through the smart monitoring of the water flow in pipes of the water distribution network, aiming to ensure quality of the water supply, knowing that water losses characterize one of the great problems in the world, as pipe holes may be open doors to water contaminants. As an alternative to circumvent this issue, a series of experiments were taken to create a network of sensors capable of monitoring water pipes in real time. Adopting criteria such as low consumption and low cost, the use the ZR16S08 microcontroller in the design of wireless sensor nodes that will be coupled in the water pipes was adopted. Complementing the system, a central processing unit, composed of a Raspberry Pi microcomputer, manages the traffic of the information collected by the sensor nodes and routes it to a web server. All data addressed by the central unit are available on-line by means of a supervisory platform. Considering the size of the sensor nodes, their power consumption, and regulatory issues, a link between the sensor nodes, operating at a frequency of 433 MHz, was defined. Preliminary results show the effectiveness of the proposed architecture for sensor nodes, allowing application for the monitoring of water and controllinglosses.

**Keywords**—Water losses control, Water management using IoT concepts, Wireless sensor nodes, ZR16S08 microcontroller

# AN INTELLIGENT IOT BASED PEOPLE EVACUATION GUIDANCE MODEL FOR FIRE HAZARD

## Faritha Banu.J[1], Suvetha.B[2], Yuvarani.K[3], Nyle.S[4]

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## ABSTRACT

With the development of science and technology, the design of modern architecture is becoming more and more attractive. The large-scale public buildings such as shopping malls, office buildings, Research centers and education centers are increasing dramatically. In case of sudden disasters and the overloaded electricity may easily cause fire and the fire smoke, fire in large buildings spread over a wide range of areas and produces physical damages, several hazard to life and property and atmospheric pollution. This paper proposes An Intelligent IoT based People Evacuation Guidance Model for Fire Hazard to guide the people by constructing shortest evacuation path dynamically based on the real time situation to reach the safety exit quickly in large public buildings using their Personal Digital Assistant like mobile phone, tabs etc. Whenever a fire breaks out, IoT module alerts the people to find the shortest safety exit. The artificial intelligence techniques, Improved ant colony algorithm is used to construct the shortest path based on their location, crowd in the current location in real time and avoids the congestion in the nearest exist. Under the fire hazard all people will rush towards the exit unknowingly and congestion will happen in that exit. The proposed system reduces minimize danger and economic losses by guiding the optimized evacuation path. The performance of the proposed system was experimented and assessed under the early stage of fire, growth stage, Growth with obstacle. From the experimental results, it is evident that the length of the optimal evacuation path is also increasing under growth of fire, obstaclesincrease.

**Keywords**—Internet of Things, Artificial intelligence, Fire Evacuation model and Fire hazard

# SURVEY ON AIR AND WATER QUALITY FOR INDUSTRIAL APPLICATION UNDER IOT ENVIRONMENT

## Revathi R

*Assistant Professor, Department of CSE*
*Jeppiaar Institute of Technology, Chennai, Tamil Nadu, India*

## ABSTRACT

The conventional methods of monitoring involve the manual collection of water and air sample from different locations. Such approaches are time consuming and are no longer to be considered to be efficient. As a variation in the value of this parameter points towards the presence of pollutants.

**Keywords**:IoT (Internet of Things), WSN (Wireless Sensor Network), pH (power of Hydrogen), GPRS (General Packet Radio Service), Water Quality, ADC (Analog to Digital Converter), LoRa (Low Range)**.**

# AUGMENTED REALITY: DATA CAPTURE FROM MEDICAL DEVICE

**Manimala.G[1], Kavitha.V[2], Abinaya.V[3], NishaG.Mathur[4]**

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## ABSTRACT

An alternative to building custom medical devices that connect to hand held devices via Bluetooth or USB, we present a new approach using Augmented Reality (AR) and machine vision to digitally recognize a biomedical device and capture readings. Augmented Reality is used to create 3D imaging of tumours and human organs accurately by superimposing anatomic structures segmented from tomographic images (e.g., CT, MR) on the intraoperative video images. It is then integrated with EMR's, clinical information feeds and medical imaging systems to support clinical decision making through a combined AR view. This enhancement may be in the form of labels; 3D rendered models or shaded modifications. It uses everyday technology such as computers, tablets or smart phones with cameras /which can be used to connect surgeons in real time, anywhere in the world. AR can be used to capture medical device data on a mobile phone and help automate the data recording tasks performed by health workers in developingcountries.

Keywords: Augmented Reality, Electronic Medical Record (EMR), 3D imaging

# AN IOT BASED SMART WINDOW AND TEMPERATURE CONTROLLING SYSTEM

**Sudha Mercy.S[1],Sivasubramanian A[2], Lokesh G[3],Jerald Vinfrank J[4],Bhuvan B Natesh[5]**

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## ABSTRACT

As India is moving towards Smart City, many of the processes have been already made automatic in various sectors like Industries, Hospitals even in Homes. Thus Smart window is an automatic as well as manual operation for windows in Houses, Industries, Schools, Hospitals, Orphanages, etc. This Prototype will use IoT to sense the temperature of a closed environment continuously and adjust the Temperature of that closed Environment by opening or closing the window. This process will update the data gathered for the temperature and upload it to a dedicated server so that we can easily monitor the temperature in a closed environment remotely. This process can also be controlled Manually (by using the application) by sending a message to the device to Open/Close the window remotely. If both the temperature (Inside & outside the room) is not suitable for the room temperature, then the appliances like Air conditioning, Fan, etc. will automatically start operating to adjust the room temperature. Additionally, this process will sense the environment for movements in other unoccupied rooms. So if there are no movements in the room then the appliances operating in that room will automatically be turned off. Similarly, if persons who are walking to that room, automatically the appliances in that room will automatically be turned on. Thus this operation will help us to maintain the temperature level in a closed environment and we can implement the Smart Window Operations without the help ofManpower.

**Keyword**s- IoT, Temperature and Humidity Sensor, Temperature Range, Sensing & Monitoring, etc.

# FUNDUS DETECTION IN RETINOPATHY USING IMAGE PROCESSING

**R. Dayana[1], M. Suganya[2]**

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## ABSTRACT

Diabetic retinopathy happens because of diabetes which causes damage in the blood vessels of the retina. It can cause a serious damage to the retina which is the light – sensitive lining at the back of the eye and can also affect the retinal structure in some ways. Diabetic Retinopathy is the major cause for the vision loss among the people who are diagnosed with diabetes which can also cause vision impairment and blindness with working age adults. The Technological advances using image processing helps in early detection of retinopathy and the analysis can be done to diagnose and detect the severity ofthedisease.

**Keywords**:-Diabetic Retinopathy, blood vessels, retina, blindness, vision.

# AN IOT-BASED TEMPERATURE MONITORING SYSTEM FOR UNDERGROUND CABLE TUNNELS

**Alan Ronald Arasu M.C[1], Bala Krishnan S[2], Lokesh L[3], Revathi R[4]**

*[1,2,3]UG Scholar, [4]Assistant Professor,*
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## ABSTRACT

Underground power transmission cables often have to face the challenge of poor ventilation, which decreases power transmission capacity and damages the materials of the cables in a high-temperature environment. It is necessary to take a heat dissipation measure to ensure not only the safety but the efficiency of power transmission systems. Currently, for underground tunnels, two temperature reduction methods have been used. One is to exhaust heat by improving air circulation and the other is to employ chilling devices. However, even with the devices little information can be used to determine when these devices should be activated. Overusing the devices may cause high energy consumption. Additionally, underusing the devices might lead to the decrease of transmission efficiency. Therefore, this paper proposes an IoT-based underground tunnel temperature monitoring system in which the wireless transmission method used is after the experiment. Temperature sensing nodes are placed in an underground tunnel, and then a gateway collects sensed data and sends them to a database, so management personnel can monitor the temperature distribution in the tunnel in real time to determine whether ventilation devices should beactivated.

**Keywords** – IoT, temperature monitoring, underground cable tunnel,

# SERVER BACKUP AND WI-FI MAC AUTOMATION USING BOTS IN ROBOTICS PROCESS AUTOMATION

**M. Suganya[1], V. Vignesh[2]**

[1]*Department of Computer Science &Engg,*
[2]*Department of Information Technology*
*Jeppiaar Institute of Technology Chennai, Tamil Nadu, India*
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## ABSTRACT

Robotics Process Automation is an emerging technique for Business Process Automation with software Robots. In traditional system automation tools, the developer automate the task by writing scripts and providing interface to the back end system. But software bots can be trained in such a way it watches the human doing a particular task in user interface and performs automation on a repeated basis in the Graphical User Interface (GUI). Software bots are trained to automate the day today task by reducing human intervention. Nowadays data has become an essential resource, the server backup automation helps to maintain daily records of individuals by saving the data useful for the organizations. In-order to achieve this, Robotics Process Automation is implemented and data backup is taken on a routine. The traditional backup system requires a human intervention where the network administrator usually runs a module to back up the data. Additionally to avoid manual method a bot is trained using Automation Anywhere tool which adds on the MAC with simple E-mail message to the system. It automatically adds the MAC address of the user to the router's authenticated list and send e-mail to thebot.

**Keywords:** Robotics Process Automation, Automation Anywhere, Graphical User Interface, Software BOTS, MAC address, JARVIS.

# REGISAPP: AN APP FOR RECOGNIZING THE PLACEMENT RELATED CONTEST AND POST

[1]Dr. N. Marie Claude, [2]S. Sudha Mercy

[1]Associate Professor, [2]Assistant Professor

[1,2]Department of CSE, Jeppiaar Institute of Technology.

## ABSTRACT

In today's hi-tech circumstances even though there was a less process to do on all the works there are still some basic works need to be done by humans. In that case, registering the links and undergo the preparation for the placements in the Engineering Colleges and Universities place hypothetical role on each student as well as professors. Professors are more likely to spend three to four hours for making to students to interact with registrations and procedures appropriately. Also, students would face struggles in some details what need to be filled. Again, overcoming those scenarios, the professors have to make sure how many students have registered and proceeded further and also who have not yet started the process. This monitoring process would increase them more work and time spending. In order to make easier an application which would decrease their workload and their valuable time. This application would be notified to the students after the professors update the corresponding instructions. The students once viewed and registered to the appropriate websites are insisted to attach the registered page screenshots and mark it as done. As immediate response, this would be saved in separate pages as registered with their names. This would contribute to less much more work complexity for the professors when there is more than one post to be registered. No need of resending the post again and again, it would be saved permanently.

# SMART ATTENDANCE

[1]*Gladiss Merlin J N*, [2]*H. Shine*

[1]*Associate Professor,* [2]*Assistant Professor,*

[1,,2]*Department of CSE, Jeppiaar Institute of Technology.*

## ABSTRACT

The main idea of the project is to simplify and digitalize the manual attendance monitoring and maintenance of attendance record using AI and Robotic process automation tools. The project consists of two phases Attendance monitoring (record making) and attendance record processing. The first phase Attendance Monitor consist of capturing live video(frames) from camera and processing each frame with face recognition module (using ML and AI), Face recognition modules compare all frame faces with trained dataset (authorized people face) and make entry in centralized database with timestamps. The second phase is record processing, record processing phase consist of monitoring the attending strength of all induvial, salary allocation based on attendance mailing attendance details to higher authorities etc.,

# AGRICULTURE FARMING USING ROBOTICS PROCESS AUTOMATION

[1]Suganya. R, [2]R. Dayana

[1,2]Assistant Professor

[1,2]Department of CSE, Jeppiaar Institute of Technology.

## ABSTRACT

Robotics is the confluence of engineering and science that includes mechanical engineering, electrical engineering, computer science also it is no more an emerging field as it has evolved so much in the last 10 years and it is nearing an apex point .It is an ever growing field and many avenues have opened up in recent past. The promise of robotics is easy to describe but hard for the mind to grasp. The implementation and design of a robotic lawnmower, yardbot is represented is to craft a lawn mower that can mow the grasses in a specific area automatically within less than 20 minutes. It should also able to avoid collisions with the obstacles that may locate in that area. Usually the obstacles that are present in a lawn and therefore must take into consideration are flowerpot, fenced area, table and so on. In case the lawnmower comes in contact with any moving objects then it will engage the mover for 30 seconds and then move off from the field area. It is a tedious job to mow a field using a lawn mower and usually a person tends to avoid it.

# BUS TRACKING APPLICATION USING IOT

[1]*Pranav S,* [2]*Alan Ronald Arasu M C,* [3]*M. Muralikrishnan*

[1,2]*Student,* [2]*Assistant Professor*

[1,2,3]*Department of CSE, Jeppiaar Institute of Technology.*

## ABSTRACT

In recent days, IOT is an emerging technology that make our lives easier. Tracking the current location of the college bus enables the students to find out their college bus current location's information so that they do not get delayed. The main aim of this proposal is to collect the data from GPS and deliver it to the server from where it will be fetched by days, an android application and the real-time location of the can be viewed on Google map, which is integrated into this android application. The students can log on to this application and can know about the scheduled routes of their college bus. This application is user- friendly and flexible to use as it is a time-saving application to the user. This helps the students to predict their bus arrived at the stops along with the route. Waste of time on waiting for the bus, getting delay to reach the place on time can be avoided.

# PERSON/WHEELCHAIR FALL DETECTION USING IOT

*s. Balaji, M. Muralikrishnan*

*Student, Department of CSE, Jeppiaar Institute of Technology.*

*Professor, Department of CSE, Jeppiaar Institute of Technology*

## ABSTRACT

When it comes to old age, it becomes necessary to monitor our old ones for their health and safety. Due to weakness and weak joints they have a great risk of falling. Now it is important to know if an old age person has fallen so that he/she can be helped on time. Also, people on wheelchair need to be checked for fall detection. For this purpose, we propose a smart fall detection system. The system uses accelerometer and gyro sensor to detect person movements, It can be mounted on persons hand or wheelchair for detection. The sensor is connected to a microcontroller in order to constantly transmit the acceleration data. Now the system keeps monitoring for fall detection and abrupt movement changes in person. A sudden abrupt change with jerk in the system is treated as a fall. Now in case the person did not fall and alarm was false, the system allows to snooze the alert if person presses snooze button in 5 seconds. If person does not press the snooze, system detects person has fallen and automatically triggers alert through wifi connection to alert the loved ones of the person about the situation instantly.

# IOT BASED INTELLIGENTGAS LEAKAGE DETECTOR USING ARDUINO

*S. Shanu, Vinothini, Dr. N. Marie Claude*

*Student, Department of CSE, Jeppiaar Institute of Technology.*

*Associate Professor, Department of CSE, Jeppiaar Institute of Technology.*

## ABSTRACT

Many accidents occur in day to day life like explosion because of LPG leakage. Major harm is caused, if gas leakage is not detected early. But now we can detect the gas leakage using the MQ5 gas sensor. In this IOT gas leakage detector, device will get connected to WIFI, the minimum and maximum parameter can be set accordingly. Such IOT as well as Arduino based gas leakage detector systems can be installed in homes, hotels LPG gas storage areas. In this LPG gas detector system senses the LPG gas using MQ5 gas sensor. This device will continuously monitor the level of LPG gas present in the air. While monitoring, if the value of LPG gas in air is within the set limit then the RGB LED on the circuit will glow green giving a safe sign. And whenever the gas exceeds above the predefined limit than the RGB LED will glow red and simultaneously solenoid value will turn off and update it over IOT. This Arduino and IOT project will help in detecting gas leakage in the surrounding.

# HEALTH CARE SYSTEM USING IOT

*Gladiss Merlin J N,*

*Associate Professor, Department of CSE, Jeppiaar Institute of Technology.*

## ABSTRACT

Nowadays our people should concentrate more about health care during a society and over the past years, this sector has been evolving to provide a more efficient and computerized system. India has also made an enormous improvement within the health care system over the years. This presents the event of an online application for the general public of India where they're going to store their own medical data and access it anytime, from anywhere. within the web Health Care (OHC) system, users can register as patients to store their medical data within the database.

# ONLINE STUDENT EDUCATION SYSTEM USING MOBILE APPLICATION

*Ronni Bert, M. Muralikrishnan*

*Student, Department of CSE, Jeppiaar Institute of Technology*

*Assistant Professor, Department of CSE, Jeppiaar Institute of Technology.*

## ABSTRACT

In today's hi-tech circumstances even though there was a less process to do on all the works there are still some basic works need to be done by humans. In that case, registering the links and undergo the preparation for the placements in the Engineering Colleges and Universities place hypothetical role on each student as well as professors. Professors are more likely to spend three to four hours for making to students to interact with registrations and procedures appropriately. Also, students would face struggles in some details what need to be filled. Again, overcoming those scenarios, the professors have to make sure how many students have registered and proceeded further and also who have not yet started the process.In order to make easier an application which would decrease their workload and their valuable time. This application would be notified to the students after the professors update the corresponding instructions. The students once viewed and registered to the appropriate websites are insisted to attach the registered page screenshots and mark it as done. As immediate response, this would be saved in separate pages as registered with their names. This would contribute to less much more work complexity for the professors when there are more than one post to be registered. No need of resending the post again and again, it would be saved permanently.

# PROPERTY PRICE EVALUATION SYSTEM USING AMENITY DETECTION ALGORITHM

[1]Suganya. R, [2]R. Dayana

[1,2]Assistant Professor, [1,2]Department of CSE, Jeppiaar Institute of Technology.

## ABSTRACT

Machine learning applications are used worldwide in a variety of regression problems. Yet it is to be implemented in real estate to predict the price of a place. This regression problem can easily be solved using machine learning, but things get complicated when u start considering the furniture present in the real estate. Now the real estate is bound to sell for a much higher price and the traditional machine learning algorithm will fail as the learning dataset is drastically different from the real-world problems. Our algorithm approaches this problem in a different manner, instead of taking the furniture and other amenities in the real estate into account of the actual value of it, the algorithm identifies these assets using Python Image Processing (PIP) and increases the price of the property by the real time price of the amenities. The algorithm also takes the wear and use of the amenities into consideration before deciding upon the final price. This algorithm will revolutionize the real estate industry by providing next-to-accurate prices for a property.

# SAFETY MANAGEMENT SYSTEM USING IOT TECHNIQUE

*Dr. Faritha Banu, Abilash. S, Vignesh .M*

*Professor, Department of CSE, Jeppiaar Institute of Technology.*

*Student, Department of CSE, Jeppiaar Institute of Technology.*

## ABSTRACT

Our proposed system is about saving all home appliances that where been used by ourselves. This is about how IoT is used in handling all appliances in the home. First, we must do some hardware operations using the required hardware devices. Connecting all home appliances based on IOT (internet of things) and operating all appliances with a single device at any time and any whereby IOT.

# SMART PARKING SYSTEM USING IOT TECHNIQUE

[1]*S. Sudha Mercy,* [2]*Desmukh*
[1]*Assistant Professor,* [2]*Student*

[1,2]*Department of CSE, Jeppiaar Institute of Technology.*

## ABSTRACT

The IoT provides a wireless access to the system and therefore the user can keep a track of the supply of the parking lot. With increase within the population of the vehicles in metropolitan cities, road congestion is that the major problem that's being faced. The aim of this paper is to resolve this parking issue. The user usually wastes his time and efforts in search of the supply of the free space during a specified parking lot. supported the supply of the slot user registration is allowed and supported the slot allocated OTP are going to be issued to the corresponding user

# GAME BASED MOBILE APP TO LEARN PROGRAMMING LANGUAGES

*S. Sudha Mercy*

*Assistant Professor,  Department of CSE, Jeppiaar Institute of Technology.*

## ABSTRACT

This project portrays about an assortment of programming dialects questions. Test the coding abilities. There are three distinct levels such as simple, medium and hard. This is helpful particularly for developers or the individuals who need to improve their aptitudes and find out about programming. Client likewise love the possibility they can play and gain some new useful knowledge simultaneously. This application venture for test on coding dialects. More assortment of inquiries ought to be included like different choices. It is a decent game to prepare the coding information. Extraordinary approach to learn while playing. The primary concern in this task is on the off chance that you got under 8 you didn't go the following level else you will be passed on next level. This task is appropriate for tenderfoots, attempting to get familiar with the programming language that an incredible application while playing. this application is additionally useful for getting ready for interviews. This venture is a best stage to learn.

# ORGANIC FOOD SHOPPING

*Ms. R. Dayana*

*Assistant Professor, Department of CSE, Jeppiaar Institute of Technology.*

## ABSTRACT

Though there is a drastic change in the Technology, there is nothing solve the problem of "Hunger". Different varieties of food products are now available in the market. But not all the food products are good for health. There are even hybrid varieties. But still some people prefer organic foods directly from the farm fields. But they cannot get it or do not know the way to get it. They believe and buy the food products sold by the vendors. This must change. Main objective of this project is to deliver the food products directly from the farm field to the people. This can be done like Zomato deliveries, Swiggy deliveries etc. People can order the food products or ingredients to prepare food from the Mobile Android App developed by this project. They can search the product in the app and can order it. Every order should be at least at the minimum cost of Rs.50. By this process, people who are preferring for 'Organic food' will get benefitted. Also, they will feel free and relieved to buy the original 'Organic foods.

# WI-FI LIBRARY BOOK LOCATOR

[1]*Mohan Raj*, [2]*Thalariventhan*,[3] *Dr. N. Marie Claude*

[1,2]*Student*, [3]*Associate Professor*

[1,2,3]*Department of CSE, Jeppiaar Institute of Technology.*

## ABSTRACT

A library is a vast collection of books. This requires a proper arrangement and placement of books in an order that makes it easy for the user to find a book. But in very large libraries having a huge collection, locating a book becomes quite a task. Even though all books are arranged in categories, the location of category must first be known so that the user gets to know where that category of books are placed. In such a condition there needs to be a way through user can precisely locate the location of any book by just typing its name. Here we a propose a server-based system using an android application to achieve this task using Wi-Fi technology. The library operator just needs to add the location of a book in the system such as "3rd row| Right side | History Section | Fourth Book" and a map of the book along with its status of weather it is currently available or issued to someone else. All this data is stored o the server. Now members are provided an android application that serves the book finding purpose. Whenever user within WIFI range of server types the book name through the android device, it sends a request to server for the book location. The server thus queries the database and returns the book location details and availability to the android user. Thus, it allows to automate the library book finding as well as availability checking functionality in a library.

# LOOK BASED MEDIA PLAYER

*Jeflin.A, Dr. J. Farithabanu*

*Student, Department of CSE, Jeppiaar Institute of Technology.*

*Professor, Department of CSE, Jeppiaar Institute of Technology*

## 'ABSTRACT

When a person is watching a video and someone calls, they must look somewhere else or go away from pc for some time, so miss some part of the video. Later the user needs to drag back the video from where you saw it. Well here is a solution to this problem. A look-based media player that pauses itself when user is not looking at it. The player starts running again as soon as the user looks at it again. This is done using the camera or webcam on top of the computer. If the camera detects the users face looking at it, the media is played. The player pauses as soon as users face is not completely seen. So, Users cannot miss any part of the video. The video stops as user changes their view from the video thereby no need of users to keep on dragging back to the point from where they missed. The user can also forward and backward the video if required. It saves time and electricity. It gives accurate result.

# REMOTE SENSING ON SELECTIVE ENERGY EFFICIENCY IN CLOUD IOT

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*[1,2,3,4]Department of Information Technology*
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## ABSTRACT

The Owners of complex and premises are often perplexed by the amount data collected and maintenance of Building management system. This data arises from the need to lower maintenance costs, increases their return on investment on energy management systems and decrease energy bill. Imagine a world where don't need to invest time, money and resources in running the IT server, This would help to focus on your core function of realizing of energy savings goals and increasing saving to invest on energy efficiency strategies where Cloud computing is a highly hope giving technology that could handle great amount of data. In a huge scale IoT framework, ideal assignment of virtual machines to the physical hosts prompts lessen vitality utilization of server farms. In addition, it might avert contamination of nature and improve theefficiency.

**Keywords**— IoT, Cloud, Machine learning.

# A SEGMENTATION AND CLASSIFICATION OF SKIN LESIONS FOR DISEASE DIAGNOSTICS

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## ABSTRACT

Occurrence of skin malignant growth has been increasing over the decades and early treatment is becoming more and more important. Detection of skin cancers is complicated due to the confusing appearance of wide variety of skin lesions. Melanomas and nevi are difficult to be differentiated. Even with dermoscopy, which uses a magnifying glass with polarization filter and a light source that is uniform, the accuracy of melanoma diagnosis by expert dermatologist's remains at 75-84%? Biopsy provides a definitive detection; however, it can cause metastasis and is followed by surgical operation within a month. These operations are invasive make unpleasant experiences to thepatient.

**Keywords:** Segmentation, ABCD, Melanoma, Features, Image Processing, Dermatoscopy.-Skin Cancer, Melanoma, CAD.

# AGRICULTURE GUIDANCE APPLICATION USING VIRTUAL ASSISTANT AND CROP ROTATION

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## ABSTRACT

A virtual assistant is a guidance application that can perform tasks or services for an individual or a group of people. Sometimes the name "Chatbot" is employed to talk over with virtual assistants typically or specifically those accessed by on-line chat (or in some cases on-line chat programs that square measure for entertainment and not useful purposes).Apple and Google have large installed bases of users on smart phones. Microsoft features a massive put in base of Windows-based personal computers, good phones and good speakers. Alexa features a massive install base for good speakers. Information and communication technology in agriculture additionally called e-agriculture is developing and applying innovative ways that to use ICT within the rural domain, with the first target agriculture. Information technology offers a wide range of solutions to some agricultural challenges. We all know soil and water is the key element of agriculture, but continuous cropping changes soil physiochemical parameters, enzymes and microorganism which causes replant problem. So farmers are pushed leave the cultivable land into non-cultivable land. To overcome this problem we are proposing one system which help to analyze the soil parameters with the support of sensors and machine learning techniques. The soil test is done in such land and the information is stored in the database, final analysis give information about the best crop to be planted based on the current market demand which yield more profit to the farmers. The

proposed system also help the farmers to find the current demand of crop cultivated in their own land, which result in awareness about the crop rotation and farmer's growth.

**Keywords**—Virtual Assistant, machine learning, Crop Rotation, Data Mining.

# INDIAN CURRENCY DETECTION AND RECOGNITION USING CONVOLUTION NEURAL NETWORK MODEL AND DEEP LEARNING

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## ABSTRACT

The human visual framework could be utilized for perceiving and validating cash notes. Notwithstanding, the perception powers of our eyes are constrained, and it is regularly hard for us to perceive authentic cash with no innovative help. Profound learning strategies have demonstrated to be successful and predominant for some applications. They have been especially fruitful in outperforming human visual acknowledgment abilities when enormous information is utilized. In this manner profound learning has been utilized to improve the precision of cash acknowledgment. In the wake of considering the current cash distinguishing proof writing, we present an extensive diagram of money acknowledgment. We likewise examine the basic issue of expanding the restricted sum of information accessible. This technique is in view of Deep Learning, which has seen colossal achievement in picture order assignments as

of late. This procedure can support the two individuals and machine in recognizing a phony cash note progressively through a picture of the equivalent. The proposed framework, AFCRS can likewise be conveyed as an application in the cell phone which can push the general public to recognize the phony and unique moneynotes

**Keywords:** Currency recognition, Deep Learning, Future directions.

# AN AUTOMATED LEARNING MODEL FOR SENTIMENTALANALYSISOFTWITTERDATA USING MACHINE LEARNINGALGORITHMS

## S.Neelakandan[1], R.Annamalai[2], J.Arunajasmine[3],S.S Vasanthraja[4]

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## ABSTRACT

On social media platforms say, Twitter, Facebook, etc, people express their views, arguments,andemotionsofmanyeventsinday-by-daylife.Twitterstandsasaninternational micro-blogging servicewhichfeaturesbriefmessagestermed–tweets‖indifferentlanguages.Its texts often comprise noise mostly in the form of freestyle, incorrect grammar, typographical errors, and abbreviations. Feeling examination means to catch the differing supposition data communicated by creators in given normal language writings, and it has been a center research subject in numerous man-made brainpower territories. The current AI based feeling examination approaches for the most part center around utilizing mainstream printed include portrayal strategies, e.g., term recurrence backwards report recurrence (tied), n-gram highlights, and word embedding, to build vector portrayals of archives. These methodologies can display rich syntactic and semantic data; however, they generally neglect to catch the conclusion data that is integral to assessment examination. To address this issue, we propose a quantum-enlivened estimation portrayal (QSR) model. This model can speak to the semantic substance of reports as well as catch the opinion data. Since descriptive words and qualifiers are great pointers of abstract articulation, this model first separates slant states that match the planned feeling examples dependent on modifiers and intensifiers. At that point, both single words and supposition states in the records are displayed as an accumulation of projectors, which are at long last epitomized in thickness lattices through greatest probability estimation. These thickness lattices effectively incorporate the supposition data into the portrayals of records. Broad examinations are led on two generally utilized Twitter datasets, which are the Obama-McCain Debate (OMD) dataset and the Sentiment140 Twitter dataset. The exploratory outcomes demonstrate that our model essentially outflanks various best in class baselines and show the viability of the QSR model for assumption investigation.

**Keywords:** Slant examination · Sentiment portrayal · Quantum hypothesis · Density grid

# Secure Naïve Bayesian Classification over Encrypted Data in Cloud

**Daya Mary Mathew [1], Ancy S [2]**

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[2] *Assistant Professor, Jeppiaar Institute of Technology*

## ABSTRACT

To enjoy the advantage of cloud service while preserving security and privacy, huge data is increasingly outsourced to cloud in encrypted form. Unfortunately, encryption may impede the analysis and computation over the outsourced dataset. Naïve Bayesian classification is an efficient algorithm to predict the category label of unlabeled samples. during this paper, we investigate naïve Bayesian classification on encrypted dataset in cloud and propose a secure scheme for the challenging problem. In our scheme, all the computation task of naïve Bayesian classification are completed by the cloud, which may dramatically reduce the burden of knowledge owner and users. supported the theoretical proof, our scheme can guarantee the safety of both input dataset and output classification results, and therefore the refore the cloud can learn nothing useful about the training data of knowledge owner and the test samples of users throughout the computation. Additionally, we evaluate our computation complexity and communication overheads intimately .

# An Internet of Things Approach for Motion Detection using Raspberry Pi

**Daya Mary Mathew [1], Aruna Jasmine [2]**

*[1]Assistant Professor, Jeppiaar Institute of Technology,*

*[2] Assistant Professor, Jeppiaar Institute of Technology*

## ABSTRACT

Internet of things is that the communication of anything with the other thing, the communication mainly transferring of useable data, for example a sensor during a room to watch and control the temperature. it's estimated that by 2020 there'll be about 50 billion internet-enabled devices. This paper aims to describe a security alarm using low processing power chips using Internet of things which helps to watch and obtain alarms when motion is detected and sends photos and videos to a cloud server. Moreover, lnternet of things based application can be used remotely to look at the activity and obtain notifications when motion is detected. The photos and videos are sent on to a cloud server, when the cloud isn't available then the info is stored locally on the Raspberry Pi and sent when the connection resumes. Therefore, advantages like these make this application ideal for monitoring homes in absence.

# Secure Data Sharing in Cloud Computing Using Revocable-Storage Identity-Based Encryption

*Daya Mary Mathew [1], Scinthia Clarinda S [2]*

[1]Assistant Professor, Jeppiaar Institute of Technology, [2] Assistant Professor, Jeppiaar Institute of Technology

## ABSTRACT

Cloud computing provides a versatile and convenient way for data sharing, which brings various benefits for both the society and individuals. But there exists a natural resistance for users to directly outsource the shared data to the cloud server since the info often contain valuable information. Thus, it's necessary to put cryptographically enhanced access control on the shared data. Identity-based encryption may be a promising cryptographical primitive to create a practical data sharing system. However, access control isn't static. That is, when some user's authorization is expired, there should be a mechanism which will remove him/her from the system. Consequently, the revoked user cannot access both the previously and subsequently shared data. to the present end, we propose a notion called revocable-storage identity-based encryption (RS-IBE), which may provide the forward/backward security of ciphertext by introducing the functionalities of user revocation and ciphertext update simultaneously. Furthermore, we present a concrete construction of RS-IBE, and prove its security within the defined security model. The performance comparisons indicate that the proposed RS-IBE scheme has advantages in terms of functionality and efficiency, and thus is possible for a practical and cost-effective data-sharing system. Finally, we offer implementation results of the proposed scheme to demonstrate its practicability deal for monitoring homes in absence.

# FINGERPRINT IMAGE ENHANCEMENT USING FILTERING

# TECHNIQUES

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*Mr. S. Neelakandan, AP / IT, Jeppiaar Institute of Technology*

## ABSTRACT

Fingerprints have been utilized for longer than a century and are the most broadly utilized type of biometric recognizable proof. Unique mark recognizable proof is normally utilized in scientific science to help criminal examinations, and in biometric frameworks, for example, nonmilitary personnel and business distinguishing proof gadgets.

Unique mark pictures are once in a while of impeccable quality. They might be debased and ruined with components of clamor because of numerous elements remembering varieties for skin and impression conditions. This debasement can bring about a critical number of deceptive particulars being made and veritable details being disregarded. A basic advance in considering the measurements of unique finger impression details is to dependably extricate particulars from unique finger impression pictures. Along these lines, it is important to utilize picture upgrade methods before particulars extraction to acquire an increasingly solid gauge of details areas.

The essential point of this theory work is to actualize a progression of methods for unique finger impression picture improvement. Investigations utilizing both manufactured test pictures and genuine unique finger impression pictures are utilized to survey the exhibition of the actualized procedures.

# An IoT Based Temperature Monitoring systems in Industries

# And Transportations

**Aruna Jasmine , Ancy S**

[1]*Assistant Professor, Jeppiaar Institute of Technology,* [2]*Assistant Professor, Jeppiaar Institute of Technology*

## ABSTRACT

Estimating temperature is one of the most widely recognized procedure utilized in light of the fact that it is significant for some activities and errands to be performed like in any businesses where warmers are utilized, heat up to a specific temperature is required. With regards to detecting temperature, a temperature sensor is utilized that is introduced at a spot whose temperature is to be detected. The temperature of that spot can be observed through web utilizing web of things.

Observing is utilized in different applications,including temperature, pressure, stream rate, limit, quickening, etc. As indicated by the amounts, dispersion and identified recurrence of the observed items, there are diverse checking techniques to secure the estimations. A few issues as a rule happen during the checking procedure of the temperature in a room. For instance, a server room must be kept between 15 to 20 degree Celsius to screen a temperature in or, in all likelihood the server may crash and can cause lost hundreds thousands. The executives needs to pick either to put an individual to screen the temperature, or to save money on human capital by building up a framework that can screen the temperature from different spots at some random time.

# Optimizing Cat Swarm Algorithm for Clustering

**Scinthia Clarinda S, Daya Mary Mathew**

[1]*Assisant Professor, Jeppiaar Institute of Technology,* [2]*Assistant Professor, Jeppiaar Institute of Technology*

## ABSTRACT

Cat swarm optimization (CSO) is one of the new heuristic improvement calculation which dependent on swarm insight. Past exploration shows that this calculation has better execution contrasted with the other heuristic streamlining calculations: Particle swarm optimization (PSO) and weighted-PSO in the instances of capacity minimization. In this exploration another CSO calculation for grouping issue is proposed. The new CSO grouping calculation was tried on four diverse datasets. The alteration is made on the CSO equation to get better outcomes. At that point, the exactness level of poposed algorith was contrasted with those of K-means and PSO bunching. The alteration of CSO equation can improve the exhibition of CSO bunching. The correlation demonstrates that CSO grouping can be considered as an adequately precise bunching technique.

## Applications of deep learning to MRI images: A survey

**Scinthia Clarinda S, Ancy S**

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## ABSTRACT

Profound learning gives energizing arrangements in numerous fields, for example, picture investigation, regular language preparing, and master framework, and is viewed as a key technique for different future applications. By virtue of its non-obtrusive and great delicate tissue differentiate, as of late, Magnetic Resonance Imaging (MRI) has been pulling in expanding consideration. With the advancement of profound learning, numerous inventive profound learning techniques have been proposed to improve MRI picture preparing and investigation execution. The reason for this article is to give a complete diagram of profound learning-based MRI picture preparing and investigation. Initial, a concise presentation of profound learning and imaging modalities of MRI pictures is given. At that point, regular profound learning models are presented. Next, profound learning utilizations of MRI pictures, for example, picture location, picture enrollment, picture division, and picture grouping are talked about. Consequently, the points of interest and shortcomings of a few regular devices are talked about, and a few profound learning devices in the utilizations of MRI pictures are introduced. At long last, a target appraisal of profound learning in MRI applications is introduced, and future turns of events and patterns concerning profound learning for MRI pictures are tended to.

# Smart Farming Technologies – Description, Taxonomy and

# Economic Impact

**Scinthia Clarinda S, Daya Mary Mathew**

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## ABSTRACT

Exactness Agriculture is a cyclic enhancement process where information must be gathered from the field, broke down and assessed lastly utilized for dynamic for site-explicit administration of the field. Savvy cultivating advancements (SFT) spread every one of these parts of accuracy agribusiness and can be sorted in information securing, information investigation and assessment and exactness application innovations. Information obtaining advances incorporate GNSS innovations, mapping advances, information securing of ecological properties and machines and their properties. Information investigation and assessment advances contain the depiction of the executives zones, choice emotionally supportive networks and homestead the board data frameworks. At long last, exactness application advancements grasp variable-rate application innovations, accuracy water system and weeding and machine direction. In this part, the peruser can locate a specialized depiction of the advances remembered for every class joined by a scientific categorization of all SFT as far as cultivating framework type, editing framework, accessibility, level of speculation and ranchers' intentions to receive them. At long last, the monetary effect that each SFT has contrasted with customary horticultural practices is given

# CONTROLLING RENEWABLE ENERGY BY SENSORS OVER IOT

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## ABSTRACT

The world faces many energy issues and electricity is one. The effects of global warming in the world provides an avenue to harness solar energy rather than reliant on fossil fuel. We come up with a means whereby the abundant sunlight that can be harnessed through solar panels or modules and converted to electricity, which in turn controlled renewable energy usage with sensors; the sensors will be able to power on the light when human motion is detected and shuts down when there is none. It reduces wastage of electricity and global warming because energy used is a renewable energy instead of fossil fuel. The concept will bring into bear the power of IoT (Internet of things) devices, which works, in many ways like (temperature control, lightning detection, voltage stability etc.). IoT devices controlled remotely and they can automatically shut down power when not in use to curtail energy wastage.

**Keywords: s**olar energy, IoT, global warming, electricity, solar panels, temperature, lightning detection, humanmotion.

# ELECTRIFICATION OF RAILWAY SYSTEM USING DC GRID BASED ON RENEWABLE ENERGY SOURCES

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## ABSTRACT

This paper proposes a replacement railway electrification system within which the most block is victimization converters. within the new projected system the design of railway electrification system is finished victimization VSC (Voltage supply Converter) and Cuk device. VSC-based unified theme can considerably facilitate the property among otherwise heterogeneous railway systems, whereas the mixing of distributed generation and storage is achieved in an exceedingly simple fashion. the necessity for a superordinate system, and its role in coordinative native VSC controllers, in order that the ensuing power flows are optimized whereas the curved shape voltage is unbroken at intervals limits, are mentioned. Cuk device is employed to extend or decrease the voltage. The Cuk device is permit to vary dc output magnitude that's either bigger than or but the input voltage magnitude .The projected railway paradigm is compared with existing MVDC(Medium Voltage DC) design compared with the quality 25-kv,ac electrification system by means that of real casestudy.

**Keywords-**voltage source converter (VSC), Cuk converter, medium voltage direct current (MVDC)

# COMPARISON OF DSTATCOM AND UPQC USING PREDICTIVE TECHNIQUE IN MICROGRIDS

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## ABSTRACT

The paper describes the comparison between the distribution static compensator [DSTATCOM] and the unifiedpower quality conditioner [UPQC] used in the mitigation of power quality issues in Microgrids. The control method used for the elimination of problems, is predictive control technique. Controller is added in the Microgrid system with three renewable sources. Filters are also added to the system to mitigate the harmonics. The two custom power devices are modeled with model predictive controller [MPC] and made to control separately the existing Microgrid system. The results are taken and compared in both grid connected and islanded mode of operation. The output is verified using MATLAB/Simulink software. Comparison is shown differently and harmonics values are reduced.

**Keywords** — Power Quality, UPQC, predictive control, Harmonics, STATCOM.

# A LITERATURE REVIEW ON SENSORLESS CONTROL METHOD FOR DFIG BASED WECS

**Priya E[1], Dr. B. T. Geetha[2], Gaja.G[3], Priya. S[4]**

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## ABSTRACT

By raising in power demand and the benefits of utilizing Renewable energies our Power production is mainly demands on Renewable sources. This makes the uncountable development in smart grid and micro grid to enhance power system operations. A sensorless method is adopted to optimal control of power flow in Doubly Fed Induction Generator. A detailed mathematical modelling of DFIG, sensorless control method is explained in this paper. Elimination of sensor cable makes the system to reduce complexity in hardware and in cost. Due to the issues of harvesting wind power, we are generating 2944 MW from 8488 MW. In order to overcome the problems which might be arises during generation an optimal method has beenintroduced.

*Keywords*— Doubly Fed Induction Generator (DFIG); Fixed Speed Wind Turbines (FSWT); Variable Speed Wind Turbines (VSWT) and Wind Energy Conversion System (WECS).

# MODELLING AND SIMULATION OF SELF LIFT LUO CONVERTERS FOR HARMONIC REDUCTION

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## ABSTRACT

In India solar energy source is an indigenous environmental option, economically competitive with conventional power generation. In this paper an ideal solar cell is used and output is stepped up using a single stage DC-DC converter namely self-lift LUO (Positive output and Negative output) converters and a new modified sinusoidal pulse width modulation (MSPWM) triggering technique used for a self-lift LUO converters. The output of the converter provides a voltage which is used for grid connection. The output dc voltage of the converter which is a rectified sine wave inverted and filtered to produce an AC voltage. The modulation technique provides a rectified DC waveform as an output of the self-lift LUO converters; hence the H-bridge is operating at normal frequency (50HZ). The proposed self-lift LUO converters implemented in MATLAB simulation platform and the AC voltage is grid connected to electric utility to measure the output performance isanalyzed.

**Keywords** —Self-lift LUO negative output converter, Self-lift LUO negative output converter, modified sinusoidal pulse width modulation (MSPWM), total harmonic distortion (THD), renewable energy source, and inverter.

# ADVANCED SECURITY SYSTEM FOR WOMEN BY USING GPS LIVE LOCATION WITH ANDROID APPLICATION

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## ABSTRACT

In today's world women are less secure and have many issues regarding their security purpose. So, for their security and safety purpose government has provided security through rules and regulation to the society. Although there are many existing systems for security purpose need of advanced smart security system is increased. In order to overcome such problems smart security system for women is implemented. The proposed system describes about safe and secured electronic system for women which comprises of an ATmega328 controller and emergency button, buzzer, LCD, GSM, GPS and electrode are used in this project. When the women is in threat, the victim press the emergency button , the electrode produce the electricity with the help of relay and it will pass that person body who are threatening the victim and the device gets activated and traces the location of the victim using the GPS module. By using the GSM module of ESP8266 the victim's location is sent to the registered contact number.

**Keywords**— ATmega328 controller and emergency button, buzzer, LCD, GSM ESP8266, GPS.

# SVPWM BASED THREE –PHASE INVERTER FOR A GRID – CONNECTED PHOTOVOLTAIC SYSTEM

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## ABSTRACT

In various Electrical utilities, there has been advanced researches has been growing so much of importance in the field of multilevel inverters. The advanced version of single DC source in three phase inverter controlled using space vector modulation (SVPWM) has been presented in this paper. The field – programmable gate array has been implemented through SVPWM technique and generates high quality gate pulses to the converter switches. The proposed topology reduces the total harmonic distortion (THD), reduces the number of switches and transformers. The perturb and observe maximum power point algorithm was used to gain the maximum power from the PV panel in all atmospheric conditions. The performance of the proposed system is validated through MATLAB/Simulink model. The comparison with the existing model has caused reduction in the switching power loss and the overallcost.

**Keywords:** Multilevel inverter (MLI), PV, single DC source, MSVPWM, FPGA

# A CLOSED LOOP PWM BASED NOVEL MODEL FOR SPEED CONTROL AND POWER FACTOR CORRECTION OF BLDC MOTOR

## B.T.Geetha[1], Priya.E[2], Gaja.G [3], Priya.S[4]

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## ABSTRACT

This paper proposed the speed control of brushless dc engine drive utilizing PWM method utilizing computerized signal processor and the speed control of a BLDC engine utilizing shut circle. The hall sensor signals are utilized to detect the rotor position. A shunt resistor is utilized to detect the actual current going into the engine. These hall signals, phase current detecting signal and the speed order are the contribution to the DSP. Both the external speed control circle and internal current control circle utilizes PI controller that has been executed. The yield of the driver is free PWM beats that must be given to the comparing entryway of the six IGBTs control switches utilized in the three-stage connect inverter whose yield is given to the stator of the BLDC engine. BLDC engine has different application utilized in businesses like in boring, machines, turning, electric bicycles and so forth. The speed control of the DC engines is fundamental. This proposed framework gives an exceptionally exact and viable speed control framework. The client can enter the ideal speed and the engine will keep running at that precisespeed.

**Keywords-**Brushless DC Motor, PWM, Hall sensor, DSP

# TRANS-Z-SOURCE BASED FOUR SWITCH THREE PHASE INVERTER FOR GRID CONNECTED WIND ENERGY SYSTEM

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## ABSTRACT

With the development of wind energy systems(WESs), various techniques are created for them. Conventional Z source inverters are used by these technologies. The Conventional Z source inverters has its own limitations such as high switching losses, peak harmonic, low boost conversion capability. In this paper, trans-Z-source based four switch three phase inverter is proposed. The proposed trans-Z-source inverter gives the continuous input current, low switching losses, low harmonic and a higher boost voltage inversion capability. The proposed inverter can switch and filter the input harmonic by parallel capacitors are used to replace the conventional semiconductor switches.Instead of conventional construction, four switches able to produce the three phase power with grid synchronization. This paper, analyses the simulation results with compares them in conventional Z-source inverters.To prove the performance of the proposed inverter, a hardware prototype was constructed based on a PIC16F877a digital signal processor with harmonic analyser.

**Index Terms**—Boost inversion capability, parallel operation state, trans Z-source inverter, four switches, Z-source inverter.

# BUILD-IN CULTIVATION

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## ABSTRACT

According to Indian food and agriculture organization the population will increase by 2 billion by 2030. However only 6% additional land will come under cultivation. In this built in cultivation use of latest technology solution to make farming more efficient remains one of the greatest imperatives while artificial intelligence (AI) sees a lot of direct application across sector it can bring a paradigm shift in how we see farming today to do more with less it will also improve quality and ensure faster go to market for crop. This project comes up with protection and cultivation of the extinct crops like Navara rice, kichili samba, wild wheat, black rice, which are highly nutritious and medicinal rice varieties. In order to protect and increase the yield, we are using some techniques like temperature control structure, soil nutrition testing and irrigation, which are controlled and monitored using Artificial Intelligence. Temperature control structure has cooling pad, natural ventilation, shadow system curtains to cool the agriculture land and hot water pipes, forced ventilation to warm the same agriculture land. Arch shaped structure is built around the agriculture field to control the temperature according to need of the plant. The structure can be built used by various material like plastic sheets, fiber glass etc. In this project, mainly two sensors are used - Nitrogen Phosphorus Potassium (NPK) and color sensor are used to measure the nutrition in soil. Soil moisture sensor is used to know the need for water. In order to cooperate all this technology to increase the efficient growth of the crops this helps to develop the agriculturefield.

**Keywords** —Artificial Intelligence, soil sensors, temperature sensor, Nitrogen Phosphorus Potassium (NPK) sensor, tent structure.

# DESIGN AND IMPLEMENTATION OF PERTURB & OBSERVE MPPT ALGORITHM UNDER PARTIAL SHADING CONDITIONS (PSC) FOR DC-DC BOOST CONVERTER BY SIMULATION ANALYSIS

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## ABSTRACT

This manuscript proposes an implementation of Perturb & Observe the MPPT algorithm to a DC-DC boost converter under Partial Shading conditions (PSC). In order to avoid the oscillations in the Photovoltaic (PV) system, P&O method is introduced whereas in the traditional MPPT algorithm by name Particle Swarm Optimization (PSO) was not up to the level of the need. Compared with the PSO the performance characteristics of P&O have been optimal in operation under PSC. In PSO the operation under PSC cannot be implemented where the global peak and local peak cannot be operated because the power flow will be constant with less efficiency. In P&O the existence of global peak and the local peak will achieve to operate with better efficiency compared to PSC. To prove the performance of the proposed system theoretical analysis is provided. To confirm the benefits, the proposed system is built by utilizing MATLAB/Simulink software for the power rating of 1kW.

**Keywords:** MPPT Algorithm, Perturb & Observe, Particle Swarm Optimization, Partial Shading Conditions, DC-DC boost converter.

# AUTOMATIC RAILWAY PATH TIDINESS METHOD WITH ARDUINO

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## ABSTRACT

India is going towards the fantasy "Clean India". The serious issue we have in the railroad framework is four one is trash in the station from this thought we have built up a robot to clean trash between the rail route tracks and we had conquered these weaknesses in the defensive way. This paper means to introduce a model for a cost productive track cleaning machine which would demonstrate to be a brilliant option in contrast to the present framework set up whenever executed. The proposed model is intended to defeat detriments of the accessible machine. The current cleaning process on the tracks at Indian railroad stage is manual, however it defeats via programmed way. In this, the procedure of suction the track squanders by vacuum siphon philosophy. Sanitation at the railroad stages is the principal, significant prerequisite of creating rail lineframework.

**Keywords:** Clean India, Railroad, Robot, Track, Vacuum Siphon, Track squanders.

# PROGRAMMED BOOKING SCHEME TO CHARGE POWER-DRIVEN VEHICLE AT CHARGING STATION

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## ABSTRACT

The rapid growth of the Electric vehicles leads to the essential prerequisite for a magnanimous number of recharging stations in the short radius. Unfortunately, there is no sufficient number of recharging stations in India, so it results in the vehicle traffic in the station. To improve the existing charging infrastructure, we have come with a solution by establishing the system developed through SQL and PHP platform to allocate the charging slots based on projected battery parameters, which uses data communication with recharging stations to receive the port availability information. The app displays the number of ports which is available and it automatically books the available port but if the port is not available it shows the port which will be available within 30 minutes and wait for the user command to book the port or search for another chargingstation.

**Keywords-** Electric Vehicles, E-Ports, Charging, Automation, Reservation, Automatic Notification

# STRIDE CREATION WITH SMOOTH CHANGE OVER FOR GAS DETECTION IN SIX DRAKE ROBOT

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## ABSTRACT

The necessity to utilize the usage of the robot cannot be denied since they are used everywhere around the world. The robot that can be used in any situation may be a remotely controlled by human or moves autonomously. Hexapod robot is one of the robots used in this situation because of its stability and flexibility during the motion on any type of surface. Hexapod robot that has six legs to walk or move. Since the robot has many legs, the robot is easily programmed to move around because it can be configured to many types of gait such as alternating tripod, quadraped and crawl. There are various designs of hexapod robot with certain function and advantages. In this project, a hexapod robot is designed and developed. The decisions for the robot to use legs is based on the sensory devices and the program develops at the controller attached to the robot. The control method on central pattern generator (CPG) for hexdrake robot to achieve gait generation with smooth transition. And also it proposes visual servo hexdrake where the body is designed using 3D printer and it is equipped with embedded system, servo controller, obstacle detector and camera controlled usingZIGBEE.

*Keywords-*Hexapod Robot, Arduino, ZIGBEE, CPG(Central pattern generator).

# Cascade cockroft-walton voltage multiplier applied to transformer less high step up DC-DC converter

## D.Thaniga

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## ABSTRACT

This research proposes a change of magnitude dc-dc device supporting the Cockcroft-Walton (CW) voltage number while not a transformer, providing continuous input current, with low ripple, high voltage, quantitative relation and low voltage stress on the switches, diodes, and capacitors. The projected device should be appropriate for applying to low-input-level dc generation systems. In this study, the projected management strategy employs 2 freelance frequencies, one that operates at high frequency to attenuate the scale of the inductance and an opposite one that operates at the comparatively low frequency in keeping with the required output voltage ripple. Keywords: Cockcroft-Walton (CW) voltage multiplier factor, high voltage quantitative relation, structure electrical converter, increase dc-dc device. The n-stage CW-voltage multiplier is applying low input AC voltage to high output DC voltage. It provides continuous input current with low ripple, high voltage gain, reduced switching losses, low voltage stress on the switches, diodes and capacitors and also improving efficiency of the converter. Step-up dc-dc converters have been proposed to obtain high voltage ratios without extremely high duty cycle by using isolated transformers or coupled inductors. In order to obtain low input current ripple and high voltage ratio current-fed converters are used.

**Keywords-**Transformers, switching loss, converters

# INTRUSON DETECTION SYSTEM FOR AMI

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## ABSTRACT

This paper investigates current industrial and academic efforts to address detecting security events across the range of advanced metering infrastructure (AMI) networks and devices. The document is intended to give AMI vendors and asset owners a clear understanding of monitoring requirements of AMI and to identify key research challenges related to intrusion-detection technology and large-scale deployment.

The effective design and deployment of intrusion-detection systems (IDSes) in a utility's AMI environment have several characteristics that differentiate them from design and deployment in traditional information technology environments. For example, deploying a perimeter IDS might not provide the coverage necessary for an AMI system. Because there tends to be mesh networks in addition to IP-based backhaul networks, positioning an IDS at the AMI head-end system could miss malicious activity in the mesh network. In addition, there can be scalability issues as some utilities deploy millions of meters in their service territories. The goal of this study is to help utilities and vendors to understand intrusion detection requirements, gaps in existing approaches, and research problems that need to be solved to build and deploy a scalable and comprehensive security monitoring solution.

**Keywords-**IDS, AMI environment systems and detection technology.

# STAMPING AUTOMATIC AND PAD PRINTING MACHINES

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## ABSTRACT

Stamping and pad printing Machine is one of the principle machines in stamping industry & printing industry. It is mainly used as the name indicates to stamp the logo or any other symbols. So we are going to make a machine for "and make it with minimum cost and for profitable output.The machine is simple to maintain, easy to operate. Hence we tried our hands on "automatic stamping machine." Automatic stamping machine is working on the principle of microcontroller.By using this machine we can easily print our logo or name on leather, card board, papers, and plastic articles crafts by using pad printing tool.

**Keywords-**Microcontroller, card boards, plastic articles

# Implementation of PI controller for fourth order Resonant Power Converter with capacitive output filter

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## ABSTRACT

A closed loop control of the fourth order (LCLC configuration) resonant converter has been simulated. The PI controller has been used for closed loop operation and the performance of proposed converter has been estimated with the closed loop and the open loop condition.

 The steady state-transient responses of nominal load, sudden line and load disturbances have been obtained to validate the controller performance.The proposed approach is expected to provide better voltage regulation for dynamic load conditions.

**Keywords-**Open loop systems and closed loop systems, resonant converters.

# NEXT GENERATION NARROW BAND (UNDER 500KHZ) POWER LINE COMMUNICATION (PLC) STANDARDS

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## ABSTRACT

In the past decade, several efforts around the world were started with the goal of introducing "smart metering" capabilities into the power grid. The Power Grid is a commodity delivery system where the commodity (electric power) has a production-to-consumption cycle time of zero: generation, delivery and consumption must happen all at the same time. This requirement creates unique challenges for sensing, communications, and control. These efforts have spurred renewed interest in the design of next generation Narrowband Power Line Communications (NB-PLC) transceivers. In the past few years, ITU-T and IEEE have standardized a family of next generation OFDM-based NB-PLC transceivers some of which are today being considered for massive deployments in Europe and Asia. This paper addresses the important role that PLC has not only for smart metering but also for many other Smart Grid applications, and also gives an overview of the main differences between these next generation NB-PLC standards.

**Keywords-** Narrowband Power Line Communications, Smart Grid applications

# A SINGLE PHASE ACTIVE DEVICE FOR POWER QUALITY IMPROVEMENT OF ELECTRIFIED TRANSPOSITION

## Mrs.L.Pattathurani

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## ABSTRACT

Performance investigation of Active Power Filter for harmonic elimination is interdisciplinary area of interest for many researchers. This paper presents performance improvement of 3-phase Series Active Power Filter (SeAPF) with Hysteresis Current Control technique for elimination of harmonic in a 3-phase distribution system. The shunt active filter employs a simple method called synchronous detection technique for reference current generation. proportional-integral (PI) and Fuzzy Logic Controller (FLC) are designed to adjust the parameters of the SePF system. The proposed system has achieved a low Total Harmonic Distortion (THD) which demonstrates the effectiveness of the presented method. This paper presents B4inverter topology which give reduced number of switches and switching losses. The simulation of global system control and power circuits is performed using Matlab- Simulink and Sim Power System toolbox. The simulation results presented demonstrate improved performance of the SePF system with the proposed fuzzy logic control approach.

**Keywords-** Fuzzy Logic Controller, Total Harmonic Distortion

# SMART WASTE BIN MANAGEMENT SYSTEM, USING ARDINO CONTROLLER

**Mrs.L.Pattathurani**

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## ABSTRACT

System is introduced to manage waste in big cities effectively without having to monitor the parts 24×7 manually. Here the problem of unorganized and non- systematic waste collection is solved by designing an embedded IoT system which will monitor each dumpster individually for the amount of waste deposited. Here an automated system is provided for segregating wet and dry waste. A mechanical setup can be used for separating wet and dry waste into separate containers here sensors can be used for separating wet and dry. For detecting the presence of any waste wet or dry can be detected using an IR sensor in the next step for detecting wet waste a moister sensor can be used. In this process, if only IR is detected motor will rotate in the direction of the dry waste container if both the sensor detects the waste then it will go to the wet container. Both these containers are embedded with ultrasonic sensors at the top, the ultrasonic sensor is used for measuring distance. This makes it possible to measure the amount of waste in the containers if one of the containers is full then alert message will be sent to the corresponding personal.

**Keywords-** Ultrasonic sensors, IR modules

# DESIGN AND IMPLEMAENTATION OF LOW COMPLEXITY ADJUSTABLE FILTER FOR EFFICIENT HEARING USING EMBEDDED SYSTEMS

**Mrs.L.Pattathurani**

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## ABSTRACT

The emerging demand for personalized hearing aids requires the filter bank of a hearing aid system to be capable of decomposing the sound waves in accordance with the characteristic of the patient's hearing loss. In this paper, an efficient adjustable filter bank is proposed to achieve this goal. By careful design, the number of the sub bands as well as the location of the sub bands can be easily adjusted by changing a 4-bit control signal. The proposed filter bank has extremely low complexity due to the adoption of fractional interpolation and the technique of symmetric and complementary filters. Only one prototype filter is needed for each of the stages, the multiple pass bands generation stage and masking stage. We show, by means of examples, that the proposed filter bank can meet different needs of hearing loss cases with acceptable delay.

The auditory system is a very sensitive and complex network. Diseases, drugs, noise, trauma and aging may have resulted in varying degrees of hearing loss, which makes hearing impairments one of the most common sensory disturbances in the world. The most effective way to compensate hearing loss is to employ a hearing aid system which is an integration of voice amplification, noise reduction, feedback suppression, automatic program switching, environmental adaptation, and etc. The basic function of a hearing aid system is to amplify sounds selectively and then transfer the processed signal to the ear.

**Keywords-** Amplification, noise reduction

# LOW COST MICROCONTROLLER BASED QUADCOPTER

## Mr.A.Antony Charles

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## ABSTRACT

Technological advancements in fields of rescue operations as well as in remote package delivering systems has led us to the development of a quad copter. In this modern age of technology, quadcopter has become one of the most popular inventions in the field of science. A quadcopter, also known as UAV (Unmanned Aerial Vehicle) uses four propellers for lift and stabilization. The rotors are directed upwards and they are placed in a square formation with equal distance from the center of mass of the quad copter. The quad copter is controlled by adjusting the angular velocities of the rotors which are spun by electric motors. Nowa-days, quadcopters have received considerable attention from researchers as the complex phenomena of the quadcopter has generated several areas of interest.

The quad copter's flight controller is an Arduino microcontroller and its flight movements can be controlled using a transmitter-receiver setup. The quad copter is designed mainly for the purpose of search & rescue operations as well as for remote package delivering operations. On the quad copter is attached a pressure, temperature and humidity sensor which gives the readings of a particular place. Also, there is a magnetometer attached which indicates the direction of the quad copter to where it is facing. These readings are being sent from the quad copter to a base station using a server-client concept. For this, a Wi-Fi module, namely ESP8266 has been used.

**Keywords-** UAV, Quad copter.

# NOVEL ENERGY STORED QUAZI Z-SOURCE CASCADED MULTILEVEL INVERTER

## Mrs.T.Muthukumari

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## ABSTRACT

The quasi-Z-source cascade multilevel inverter (qZS-CMI) presents many advantages over conventional CMI when applied in photovoltaic (PV) power systems. For example, the qZS-CMI provides the balanced dc-link voltage and voltage boost ability, saves one-third modules, etc. However, the qZS-CMI still cannot overcome the intermittent and stochastic fluctuation of solar power injected to the grid. This paper proposes an energy stored qZS-CMI-based PV power generation system. The system combines the qZS-CMI and energy storage by adding an energy stored battery in each module to balance the stochastic fluctuations of PV power.

This paper also proposes a control scheme for the energy stored qZS-CMI-based PV system. The proposed system can achieve the distributed maximum power point track for PV panels, balance the power between different modules, and provide the desired power to the grid. A detailed design method of controller parameters is disclosed. Simulation and experimental results verify the proposed system and the control scheme.

**Keywords-** CMI, P-V cells

# ENERGY GENERATION USING ARDUINO BASED MOTOR DRIVEN SYSTEM

**Dr.Prajith Prabhakar**

*Assistant Professor, Department of EEE, Jeppiaar Institute of Technology*

## ABSTRACT

In the field of motor vehicle manufacture the development and production of economical and dependable power plants and fuels there for are desirable. To such end accomplishment different characters and kinds of power sources and fuels have been developed and employed, though insofar as I am aware, the majority thereof have been either costly, expendable or consumable, entailing the costs of continuing production. In contradistinction to such, it is the purpose of my invention to provide and utilize a natural source of perpetually available and economical motive power, to wit, airflow course and treated in such coursing flow to create ram pressure which is applied to and operates or activates the propellers of ganged electric generators suitably mounted and housed within a vehicle carried and exposed air tunnel. With forward movement of the thus-equipped vehicle, air is gathered and entered into the forwardly disposed air tunnel scoop, converted to ram pressure and flow-contacted with the propellers of the generator battery thereby driving them and generating electric current which, in turn, is conducted to, charges and maintains a vehicle-carried storage battery at the desired or required voltage for operating the vehicle electric motor.

**Keywords-** electric generators, storage battery

# Speed Control of PMDC Motor Using Bridgeless Sepic Converter

**Mrs.L.Pattathurani**

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## ABSTRACT

The bridgeless SEPIC converter design is used for the speed control of permanent magnet DC motor. This paper focuses the design of Bridgeless SEPIC topology having reduced switching and conduction losses with improved power factor. It is designed to work in Discontinuous Conduction Mode (DCM) to achieve the speed control of DC motor by varying the input supply to the armature. This converter is investigated theoretically and the performance comparisons of this proposed converter is verified with MATLAB simulation. The design example of a low voltage and PMDC Motor is developed.

**Keywords-** Discontinuous Conduction Mode (DCM), MATLAB simulation

# FPGA Based Real-Time Image Segmentation for Medical Systems and Data Processing

## Mrs.T.Muthukumari

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## ABSTRACT

Medical imaging often involves the injection of contrast agents and subsequent analysis of tissue enhancement patterns. X-ray angiograms are projections of 3D reality into 2D representations there is a fair amount of self occlusion among the vessels. Hence one cannot extract the vessels directly using the image intensities or gradients (edge) alone. Vessel extraction from angiogram images is useful for blood vessels measurement and computer visualizations of the coronary artery. This project describes the algorithm for automatic segmentation of coronary arteries in digital X-ray projections (coronary angiograms) .The pattern recognition technique used in this project is K-Means clustering. In this technique clusters are formed based on the minimum distance criteria with random seed point selection. As the dataset's scale increases rapidly, it is difficult to use K-means and deal with massive data, so an improved K-means algorithm is proposed.

**Keywords-** X-ray angiograms, 2D representations

# Design and Implementation of Single Stage Integrated Buck-Fly back Converter Based Power Supply

## Mr.A.Antony Charles

*Assistant Professor, Department of EEE, Jeppiaar Institute of Technology*

## ABSTRACT

This paper investigates the integrated buck- fly back converter as a good solution for implementing low- cost high-power-factor ac-dc converters with fast output regulation. It will be shown that, when both buck and fly back semi stages are operated in discontinuous conduction mode, the voltage across the bulk capacitor, which is used to store energy at low frequency, is independent of the output power. This makes it possible to maintain the bulk capacitor voltage at a low value within the whole line voltage range. This project implements a buck converter for the first stage and fly back converter for output stage. These topologies are very good solution for fast output dynamics. Another advantage of this integrated buck-fly back converter is that switch handles the highest of buck or fly back current not addition of both currents. The remaining current is handled by the diodes of the integrated switch, which gives lower losses. The buck capacitor voltage is independent of load, duty cycle, and switching frequency and it only depends on the ac input voltage and the ratio of the two buck and fly back inductance. This is an important feature of the integrated converter operating in discontinuous mode, which allows them to provide fast output voltage regulation. The simulation has been performed to verify the feasibility of the proposed LED lamp driver.

**Keywords-** LED lamp driver, bulk capacitor voltage.

# An Energy Stored Quasi Z Source Cascaded Multilevel Inverter

## Ms.D.Thaniga

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## ABSTRACT

In the world today, there is a huge demand of power, although we have sufficient energy generation technique, renewable energy power generation plays a major role, like solar. This paper is about the control technique which includes ES-QZSI combined with CMI and energy storage in order to get constant output power without fluctuation from the solar panel. Combines cascaded multilevel inverter and quasi Z source inverter. Battery is used to balance the fluctuations of photovoltaic systems and achieve high voltage/high power. Solar power presents the intermittent and unscheduled characteristics, so energy storage is always added in PV system to get a smooth power. Energy stored QZSI (ES-QZSI) has already been proposed for PV system application. If combining the ES-QZSI with the CMI together, the ES-QZS-CMI based PV system will inherit all the merits of the energy storage and QZS-CMI based PV system. Moreover, comparing to the QZS-CMI based PV system, the new system can send the balanced power to the grid, and at the same time each module ensures separate MPPT to collect maximum solar power.

**Keywords-** QZSI (ES-QZSI),CMI

# A Voltage Controlled DSTATCOM for Power Quality Improvement

**Dr.Prajith prabhakar**

*Assistant Professor, Department of EEE, Jeppiaar Institute of Technology*

## ABSTRACT

Due to increasing complexity in the power system, voltage sag is becoming one of the most significant power quality problems. Voltage sag is a short reduction voltage from nominal voltage, occurs in a short time. If the voltage sags exceed two to three cycles, then manufacturing systems making use of sensitive electronic equipment's are likely to be affected leading to major problems. It ultimately leads to wastage of resources (both material and human) as well as financial losses. This is possible only by ensuring that uninterrupted flow of power is maintained at proper voltage levels. This project tends look at the solving the sag problems by using custom power devices such as Distribution Static compensator (D-STATCOM).Proposed scheme follows a new algorithm to generate reference voltage for a distribution static compensator (DSTATCOM) operating in voltage-control mode. The proposed scheme ensures that unity power factor (UPF) is achieved at the load terminal during nominal operation, which is not possible in the traditional method. Also, the compensator injects lower currents therefore, reduces losses in the feeder and voltage-source inverter. Further, a saving in the rating of DSTATCOM is achieved which increases its capacity to mitigate voltage sag. Nearly UPF is maintained, while regulating voltage at the load terminal, during load change. The state-space model of DSTATCOM is incorporated with the deadbeat predictive controller for fast load voltage regulation during voltage disturbances. With these features, this scheme allows DSTATCOM to tackle power-quality issues by providing power factor correction, harmonic elimination, load balancing, and voltage regulation based on the load requirement.

**Keywords-** DSTATCOM, UPF

# A Single Stage ZVS-PWM Inverter for Induction Heating Applications

## Mrs.T.Muthukumari

*Associate Professor, Department of EEE, Jeppiaar Institute of Technology*

## ABSTRACT

This paper deals with a single phase AC/DC/AC soft switching utility frequency AC to high frequency AC converter. Single phase half bridge inverter is used to provide continuous sinusoidal input current with nearly unity power factor at the source side with extremely low distortion. The proposed converter can operate with zero-voltage switching during both switch-on and switch-off transitions. Moreover, this topology doubles the output voltage, and therefore, the current in the load is reduced for the same output power.The working of the high frequency inverter using the latest MOSFETs are illustrated, which includes high frequency AC power regulation ranges based on zero voltage soft switching (ZVS) operation ranges are compared with those of the previously developed high frequency inverter

**Keywords-** MOSFET , zero voltage soft switching.

# A BL-CSC Converter fed BLDC Motor Drive with Power Factor Correction

**Dr.Prajith prabhakar**

*Assistant Professor, Department of EEE, Jeppiaar Institute of Technology*

## ABSTRACT

This paper presents a power factor correction (PFC) based bridgeless-canonical switching cell (BL-CSC) converter fed brushless DC (BLDC) motor drive. The proposed BL-CSC converter operating in a discontinuous inductor current mode is used to achieve a unity power factor at the AC mains using a single voltage sensor. The speed of BLDC motor is controlled by varying the DC bus voltage of the voltage source inverter (VSI) feeding BLDC motor via a PFC converter. Therefore, the BLDC motor is electronically commutated such that the VSI operates in fundamental frequency switching for reduced switching losses. Moreover, the bridgeless configuration of CSC converter offers low conduction losses due to partial elimination of diode bridge rectifier at the front end. The proposed configuration shows a considerable increase in efficiency as compared to the conventional scheme, a combination of switch, capacitor (C1) and diode (D) is known as a 'canonical switching cell' and this cell combined with an inductor (Li) and a DC link capacitor (Cd) is known as a CSC converter. With proper design and selection of parameters, this combination is used to achieve PFC operation when fed by a single phase supply via a DBR (Diode Bridge Rectifier) and a DC filter.

**Keywords-** Diode Bridge Rectifier, power factor correction

# Bidirectional Dc-Dc Converter for Micro Wind Turbine

## Dr.Prajith prabhakar

*Assistant Professor, Department of EEE, Jeppiaar Institute of Technology*

## ABSTRACT

The paper presents the application of low cost boost rectifier for micro wind turbine generator using Bidirectional dc-dc converter. The proposed system with battery storage and micro wind generating system provides energy saving and uninterruptable power within distribution network. Hardware can be implemented using a low cost microcontroller.

**Keywords-** micro wind generating &microcontroller.

# CYCLOCONVERTER BASED UPS WITH ZVS AND ZCS SWITCHING FOR HARMONICS REDUCTION

**Mr.A.Antony Charles**

*Assistant Professor, Department of EEE, Jeppiaar Institute of Technology*

## ABSTRACT

A new conversion system for a UPS (Uninterruptible power supply) using a high frequency link is described. The proposed UPS consists of a high frequency inverter, a high frequency transformer, high frequency cycloconverter using phase shift modulation is proposed. Zero current switching commutation for full bridge active power switches and zero voltage switching operation for cycloconverter bi-directional switches are obtained. Soft switching operation is provided in a wide range of voltage regulation without utilizing an auxiliary inductor in the primary side of an isolating transformer. Based on the simulation and experimental results, the steady – state operation principles of the converter are analyzed. The simulation is done using MATLAB 7.3 under Simulink. Experimental results from 2KHz fixed switching frequency is presented to introduce the switching operation

**Keywords-**- Frequency , Phase shift modulation , Zero-Voltage switching (ZVS) , Zero-current switching (ZCS)

# RISK FREE COAL MINES USING WIRELESS SENSOR

## Dr.Prajith prabhakar

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Technology*

## ABSTRACT

To design a monitoring system for coal mine safety based on wireless sensor network. Humidity, temperature and unwanted gases like methane, carbon monoxide are the major factors which affect the miners. In this project detecting temperature, humidity values in case of abnormal conditions and finding the leakage of unwanted gasses using different sensors. Detected values can be transmitted to ground station using zigbee protocol and intimate to the miner using lcd display . Health monitoring of the miner can also be done through heart beat monitoring using vibration sensor. Here carbon monoxide is taken as a important factor and made a brief research on how it is affecting the miners. Counting system can be designed using infrared and it is used to calculate the number of persons entering and existing the working area.

**Key Words***: ZIGBEE protocol, Wireless Sensor Network

# IMPLEMENTATION OF Z-SOURCE INVERTER FED INDUCTION MOTOR FOR CONTROLLING SPEED

**Dr.Prajith prabhakar**

*Assistant Professor, Department of EEE, Jeppiaar Institute of
Technology*

## ABSTRACT

Traditionally Voltage Source Inverter (VSI) and Current Source Inverter (CSI) fed induction motor drives have a limited output voltage range. Conventional VSI and CSIsupport only current buck DC-AC power conversion and need a relatively complex modulator. The limitations of VSI and CSI are overcome by Z-source inverter. The Z-source inverter system employs a unique impedance (LC) network at the main circuit. By controlling the shoot-through duty cycle, the Z-source can produce any desired output AC voltage, even greater than the line voltage (i.e. 325V for 230V AC) regardless of the input voltage. The proposed Z-source inverter system provides ride-through capability during voltage sags, reduces line harmonics, improves power factor and reliability, and extends the output voltage range. Analysis and simulation results were presented to demonstrate these features. This system reduces harmonics, electromagnetic interference noise.

**Key Words**:current source inverter (CSI), voltage source inverter (VSI), Z-source inverter (ZSI), electromagnetic interference (EMI).

# OPTIMIZATION OF MULTILEVEL INVERTERS WITHCASCADE TOPOLOGY

## Ms.Thaniga.D

*Assistant Professor, Department of EEE, Jeppiaar Institute of Technology*

## ABSTRACT

Multilevel inverters with a large number of steps can generate high quality voltage waveforms, good enough to be considered as suitable voltage template generators. Many levels or steps can follow a voltage reference with accuracy, and with the advantage that the generated voltage can be modulated in amplitude instead of pulse-width modulation. An active harmonic elimination method is applied to laminate any number of specific higher order harmonics of multilevel converters with unequal dc voltages. This paper is focused on minimizing the number of power supplies and semiconductors for a given number of levels. The simulation is done using MATLAB 7.3 under Simulink. Experimental results obtained from an optimized prototype, capable of generating 9 levels of voltage with only two power supplies and 8 transistors per phase, are shown.

**Keywords** — Amplitude (AM), pulse-width modulation(PWM),cascade topology(H-brige).

# IMPLEMENTATION OF MULTIPORT BIDIRECTIONAL C-DC CONVERTER USING EMBEDDED CONTROLLER

**Mr.A.Antony charles**

*Assistant Professor, Department of EEE, Jeppiaar Institute of Technology*

## ABSTRACT

Multiport dc–dc converters are particularly interesting for sustainable energy generation systems where diverse sources and storage elements are to be integrated. This paper presents a zero voltage switching (ZVS) three-port bidirectional dc–dc converter. A simple and effective duty ratio control method is proposed to extend the ZVSoperating range when input voltages vary widely. Soft switching conditions over the full operating range are achievable by adjusting the duty ratio of the voltage applied to the transformer winding in response to the dc voltage variations at the port. Keeping the volt-second product (halfcyclevoltage-time integral) equal for all the windings leads to ZVS conditions over the entire operating range. A detailed analysis is provided for both the two-port and the threeportconverters. Furthermore, for the three-port converter dual-PI-loop based control strategy is proposed to achieve constant output voltage, power flow management, and softswitching.The three-port converter is implemented and tested for a fuel cell and super capacitor.

**Keywords** —Bidirectional converters, fuel cells,multiport converters, soft switching, super capacitors, threeportconverters.

# TOPOLOGY CONTROL BASED POWER AWARE ANDBATTERY–LIFE-AWARE DYNAMIC SOURCE

## Mrs.T.Muthukumari

*Associate Professor, Department of EEE, Jeppiaar Institute of*
**Technology**

## ABSTRACT

As the use of small portable and mobile computing devices increase, the MANET (mobile ad hoc network) is become an increasingly popular topic of research and development activities. MANET is power constrained since nodes operate with limited battery energy. To maximize the lifetime of these networks at the same time of holding the conventional network performance. A new DSR-base energy saving routing is proposed and analyze in this paper. The paper shows that WSN save power by using traffic engineering based approaches, topology control based approaches or reserved based approaches and that all energy saving approaches can be classified under these three main categories. Using these three categories or combinations of them is a key to investigating routing design issue that needs to be enhanced in order to improve the life span of a wireless network. The paper applies the new introduced classification to a number of key routing protocols to show that it provides a distinction in their approaches towards saving power and that it is capable of highlighting the key features related to energy saving in each of these routing.

**Keywords**:MANET, conventional network

# DESIGN OF ADAPTIVE EDGE DETECTION FILTER ON AN FPGA FOR VIDEO IMAGE PROCESSING

**Mr.A.Antony Charles**

*Assistant Professor, Department of EEE, Jeppiaar Institute of Technology*

## ABSTRACT

The embedded system have transform technology product from everyday consumer electronic devices to complex industrial system. As hardware and memory become less expensive and more powerful, embedded system will become even more pervasive .At this time, design will more complex .To meet this demand, designer must find the ways to efficiently develop software and hardware at an even faster rate. Methodologies that address this is model based design. Simulink is an environment for multi domain simulation and model based design for dynamic and embedded systems .It provides an interactive graphical environment and a customizable set of block libraries. So let we design, simulate, implement and test a variety of time varying systems, including communications, controls , signal processing ,video processing and image processing. Edge detection is a terminology in image processing and computer vision, particularly in the areas of feature detection and feature extraction .The implementation of an adaptive edge detection filter on an FPGA using a combination of hardware and software components provides the necessary performance for real time image and video processing ,while retaining the system flexibility to support an adaptive algorithm.

**Keywords:**FPGA, communication protocols

# DESIGN AND REALIZATION OF MODBUS PROTOCOL BASED ON EMBEDDED LINUX SYSTEM

## Dr.Prajith prabhakar

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## ABSTRACT

With the rapid development of the embedded computer technology, the new generation of industrial automation data acquisition and monitoring system, which takes the high performance of embedded microprocessor as its core, adapts well to the application system. It meets the strict requests of the function, reliability, cost, size and power consumption, etc. In the industrial automation application system, the Modbus communication protocol is widespread industrial standard and is used in massive industrial equipment, including DCS, PLC, RTU and the intelligent instrument, etc. In order to reach the demand of the embedded data acquisition monitoring system of the industrial automation application, an embedded data acquisition monitoring platform based on Modbus protocol under the Linux environment is designed in this paper. The serial port Modbus master protocol is realized, which includes two kinds of communication mode: ASCII and RTU.As a result, communicating with various serial Modbus salve protocol equipment can be satisfied. The Modbus master realized by this embedded platform is stable and reliable. It has excellent prospect in the embedded data acquisition monitoring system of new automation applications.

**Keywords:** Embedded system; Embedded Linux; Modbus protocol; Data acquisition; Monitoring and control

# IMPLEMENTATION OF RESTROOM AUTOMATION SYSTEM USING IR SENSOR

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## ABSTRACT

Now-a days, water scarcity is one of the vital issues in India which needs to be resolved at the earliest. This water scarcity problem occurs mainly due to the wastage of water by human and due to leakage in every working environment and in home resulting in inefficiency of water management system. This paper mainly focuses on the prevention of wastage of water in restrooms of household by proposing an automation scheme using IR sensor and implemented in Arduino. Also, this paper brings attention and awareness among the public regarding the usage of water in dailylife.

**Keywords**- Automation, IR sensor, water scarcity.

# POTHOLE DETECTION USING BLYNK APPLICATION

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## ABSTRACT

In country like India, Pothole detection is very important. Potholes on Indian roads are dry or water filled. Vehicle travellers choose best road to reach their destination. Due to pothole on roads many accidents take place. For avoiding accidents and traffic, there are lot of techniques are being used. This paper proposes pothole detection by using Google map and Blynk application. In this approach, Arduino Uno recognizes the pothole and maps on to the Google map. Blynk application is used to get desired output. This setup contain ultrasonic sensor and force sensing resistor. Ultrasonic sensor measures distance of the object by sound wave. Force sensing resistor is used to identify the presence of pothole. When the vehicle is forced to jerk then pressure sensor value goes to high and at the same time ultrasonic sensor value is checked. When the pressure sensor value is high and ultrasonic sensor is remains stable then it is identified as pothole. This information is send to the user end and pothole is plotted over the desiredlocation.

**Keyword**-Blynk application, Google map, ultrasonic sensor

# HAND GESTURE CONTROL WHEELCHAIR FOR DISABLED PEOPLE

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## ABSTRACT

Usually disabled people encounters many issues with their mobility. Present work relates the development of intelligent wheelchair with their hand gesture. The proposed gesture device consists of MEMS based acceleration sensor, which detects the movement of hand direction and sends the signal to the microcontroller. Microcontroller processes these signals and controls the wheelchair by the command given from the microcontroller. Enable sensor is used to detect the position for making the wheelchair to move. If the enable is in off condition the wheelchair does not move. Ultrasonic sensor assists to detect the obstacles for wheelchair navigation. Light intensity detection is used to detect the environmental brightness level. When the environment is dark the lamp will be on. When it is bright the lamp will be off. This would be a boon to the disabled persons.

**Keywords**:- MEMS, Wheelchair, Hand Gesture, Microcontroller.

# A REVIEW OF ENERGY HARVESTING BY USING PIEZO ELECTRIC MATERIAL BASED ON PIEZOELECTRIC EFFECT

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## ABSTRACT

In this paper, we discussed about energy harvesting by using piezoelectric material. Electricity is now an important part of home and industries. Almost whole devices at homes, industries, and others are running because of electricity. The piezoelectric effect in which certain materials have the ability to build up an electrical charge from having pressure and strain applied to it. Piezoelectric materials nowadays play a major role in the so-called smart materials because of their ability to couple mechanical and electrical properties. It is easiest method to get electric charges by this effect.The piezoelectric materials have a neutral electrical balance with positive charges cancelling negative charges. The charges no longer cancel each other out, creating what's called dipole moment and producing a net positive and negative charges on opposite sides (like a battery) of the material's faces that can be collected andstored.

**Keywords**-piezo plate, piezo effect, battery, walking charger, lighting, energy consumption, renewable energy.

# ASSISTIVE STICK FOR VISUALLY IMPAIRED PEOPLE

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## ABSTRACT

Visually impaired people feel tremendously hard to find substances in front of them while trying to walk anywhere, which is too risky. An initiative has been taken to rectify their issue by proposing a smart stick that assists them completely all their way with an intention to enhance their mobility independently. The proposed smart assistive stick, comprised of ultrasonic sensor placed at 30-degree angle to recognize the substances, moisture sensor placed at the bottom of the stick intimates in watery or muddy areas and further two more ultrasonic sensors are fixed in appropriate angles to aid them to move independently. Incorporated RF module helps to find the stick when missed. Few more additional features are enabled with additional components to make it smart. The proposed assistive stick would be a boon to the visually impaired.

**Keywords**: Smart assistive stick, Ultrasonic Sensor, Moisture Sensor, Visually Impaired

# A REVIEW ON SUBSTANTIA ALBA (WHITEMATTER) SEGMENTATION FROM MRI FOR MYELINE QUANTIFICATION

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## ABSTRACT

This paper presents a survey of substantiaalba segmentation techniques. Segmentation is one among the powerful and helpful technique in medical image analysis. The aim of the segmentation is to extract the Region of Interest from the medical pictures. For many years neurohuman believed substantiaalba was merely a support resource for substantiagrisea. From recent studies we all know that substantiaalbadesignis vital in processes like learning and memory. Myelinated nerve fibres will increase a neurons transmission by themaximum.

**Keywords-**segmentation techniques, Myelinated nerve fibres, Myelinated nerve fibres

# A SECURED SYSTEM DESIGN FOR REAL-TIME HEALTH MONITORING OF POST-CHEMOTHERAPEUTIC EFFECTS BASED ON IOT

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## ABSTRACT

In the current healthcare scenario, it is evident that post- chemotherapy causes side effects like anemia, leukopenia, thrombocytopenia; which require a lot of attention to be paid to, from the side of health professionals. Thus work aims at solving this problem by the provision of constant observation of the various physiological parameters of these individuals vulnerable to health issues using various wearable clinical sensors. Here the proposed work is to implement a server based control unit which directly sends the collected information, without the need for an intermediate device to transmit the data, to a mobile application through Wi-Fi. The CC3200 ARM controller is used as a gateway to communicate to the various sensors such as Body Temperature sensor, Blood pressure sensor, SPO2 sensor. The health professionals are notified in case of an emergency, which then compels immediate supportive action to culminate those undesirableeffects.

**Keywords-**Wearable clinical sensors; Post-chemotherapy effects; Server based control unit; Mobile application; Internet of Things.

# DIFFERENT ANTENNA DESIGN TECHNIQUES FOR NANO SATELLITE

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## ABSTRACT

Satellite is one of the most efficient mode for transmission and reception of signals. This paper explains about the micro strip patch antenna used in Nano satellite, microsatellite, and picosatellite. It focuses on the design of micro strip antenna its dimension, frequency spectrum, and its functions and applications. These small satellites are more efficient than the conventional satellite. And the antenna used in this satellite is economically beneficial. This micro strip patch antenna is more versatile. It also explains about the feeding techniques and fabrication process. In recent trend this satellite is used for various purposes.

**Keywords-**picosatellite, micro strip patch antenna, Nano satellite

# SURVEY ON SMART BIKE FOR TRAFFIC POLICE ASSISTANCE

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## ABSTRACT

According to the reports from world health organization (WHO), India is liable for road accidents and nearly all cases are due to two-wheeler accidents. Moreover nowadays, law says that always driving without license is a misdemeanor, sometimes they are punishable by fines or a short time jail in some cases. Accidents due to side stand are also prevailing as a major threat. Hence to provide law abiding and safety system for bike riders, the proposed solution which makes the license and helmet mandatory for the bike riders. There is a QR scanner which scans the QR code in license of the rider. A camera captures the image of the rider in correct angle. A database will be maintained for some definite people. If the captured image matches with the database next the system identifies the use of helmet. Finally, a caution for side stand is initiated. If all the conditions are satisfied the rider is free to drive the vehicle. Hence the proposed system provides the importance of law in society and accident free society. This multiple featured smart bike makes surethat we all obey the rule and regulations of thegovernment.

**Keywords-** Side Stands, Helmet, QR Scanner

# DESIGN, ANALYSIS, MODELLING AND SIMULATION OF THERMAL CONTROL SYSTEMS FOR SATELLITES

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## ABSTRACT

In satellite Communication thermal control plays a vital role. The main function of the Thermal Control System or Subsystem (TCS) is to maintain right operating temperature in the satellite when it is experiencing the extreme temperatures. It may be controlled within the satellite or from the ground. This paper describes an analytical review of design, model, operation, performance and various properties ofTCS.

**Keywords:** Satellite Communication, Thermal Control System or Subsystem (TCS), Operating Temperature.

# DESIGN OF SMART CONTROLLER FOR EFFICIENT DOMESTIC CASHEW NUT CUTTING MACHINE

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## ABSTRACT

India is one of the world's largest countries in terms of exportation of cashews nuts in kernel form. Currently, more number of labors is engaged in the cashew processing industry. This research work, an automotive cashew shelling method is introduced to improve the production efficiency. It is an electronic based system which enables a continuous flow of shell less. After de-shelling the cashew nut, it falls freely beneath the cutter due to gravity and shell less cashew nuts collected in a vessel. Thus the proposed system has the advantage of reducing man power, time consuming and also increases the selling cost. It comprises two processes. They are heating and punching process. Both processes are used to remove the cashew kernel from the shell without damage. Here a servo motor is used to remove the shell from the raw cashew. In addition, here PI controller is used to control the entire operation. Then, two blades are used to split the nut by operating the handle of cutter. Thus the operation forces the shell to crack open without breaking thekernel.

**Keywords-** MATLAB/SIMULINK, Automotive cashew shelling machine, PI Controller.

# SURVEY ON MIMO ANTENNA FOR 5G APPLICATION

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## ABSTRACT

Nowadays, wireless communication technology is facing the explosively increasing demands of high transmission rate, stable communication quality, and complex application scenarios. These demands have triggered the research of the 5th generation (5G) cellular network in the world. 5G is developed to meet the very large growth in data and provide sufficient connectivity to today's urbanized society, this paper gives the brief idea about the advantages, limitations and to overcome the disadvantages of previous generations using Multiple Input and Multiple OutputAntenna.

*Keywords* – MIMO, LTE, 5G, mm-wave.

# DOWNLINK PERFORMANCE IMPROVEMENT SCHEME FOR RAKE RECEIVER ASSISTED CDMA SYSTEM

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## ABSTRACT

In current scenario cellular communication is one of the major role in measuring the quality during the transmission process of continuous active call. To get a better efficient results, Handoff process is deployed which promotes a better facility in transferring an active call from one BS(base station) to the other, where BS is divided into a number of cells. During the transmission of multipath propagation in multiple channels, there exhibits an Inter-path interference along with fading process.To mitigate the effect of fading due to multipath effect, Rake receiver has been introduced incorporating the technology of CDMA. This Rake receiver has been realized between the local recovery carrier and the main path component. Delayed and time varying nature is one of the main features of multiple channel where it leads to the received signal. The difference between the arrival time of the first and the last received signal is termed as delay spread of the single transmitted pulse. In this paper the performance parameters of a downlink system has been calculated for mobile CDMA system at the vertex of adjacent cells. The received signal are coherently dispread and demodulated by rake receiver at the base station. The performance such as error correction and the effects of power control of rake receiver are measured by performing the simulation under the assumption that the received signals undergo Rayleighfading.

**Keywords -** Power Control, CDMA, Rake receiver, Handover, Error Correction, Rayleigh fading.

# OPTICAL CHARACTER RECOGNITION SYSTEM USING RASPBERRY PI3 TO ASSIST IMPAIRED PEOPLE

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## ABSTRACT

People affected by blindness and visual disease need to use special devices to overcome daily tasks. Visually impaired people walk with the help of electronic devices. Implementation of a system using raspberry pi3 is proposed to read printed text on hand- held objects. While the visually impaired person shakes the object the automatic OCR system not only converts the printed books to digital texts, but also reads them as an audio output. The proposed design will be able to determine the distance between the blind people and obstacle using the ultrasonic sensor then the distance will be played through ear phones along with buzzer indication. GPS modules provides good solution in terms of position, speed, accuracy, high insensitivity and tracking competence. As an added advantage GPS module is included to have a track on the blindusers.

**Keywords**—GPS Module, OCR,IoT, Text Localization

# IMPLEMENTATION OF EFFICIENT TESTABLE PATH SELECTION IN VLSI

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## ABSTRACT

Timing-related defects are major contributors to test escapes and in-field reliability problems for very-deep submicron integrated circuits. Small delay variations induced by crosstalk, process variations, power-supply noise, as well as resistive opens and shorts can potentially cause timing failures in a design, thereby leading to quality and reliability concerns. Since the number of paths can be very large for practical circuits, only some selected paths are considered for test generation. The general criterion for the selection of paths is based on their lengths (structural or delay based). This way some of the critical paths can be tested and hence selection of paths is very important for the process of test generation.Faster than at-speed testing provides an efficient way for testing of small delay defects (SDDs). It requires test patterns to be delicately classified into groups according to the delay of sensitized paths. Each group of patterns is managed to be applied at certain frequency. In this paper, we propose to generate tests for faster than at-speed testing based on path delay fault (PDF) model and single path sensitization criterion. An effective testable path selection and grouping method is introduced, which could quickly and accurately identify paths whose delay falls into a given delay span. Several techniques are used to improve the efficiency of the testable path selection procedure. Experimental results c17 benchmark circuits show that the proposed method could achieve high transition fault coverage and high test quality of SDDs with low CPUtime.

**Keyword -**Register-Transfer Level, Testability Metrics, Test Generation

# IOT BASED AUTOMATIC TYRE SORTING SYSTEM

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## ABSTRACT

Tyre sorting is the process of segregating the tyres from different sizes. The sorting process is based on the Geometrical parameter (Inner Diameter, Outer Diameter, Outer Core button Design) of the tyre with the help of Image Processing, Raspberry pi-3 controller with IoT. The overall process data will send to the cloud through WIFI. The problem statement for this framework is to create IoT based automated tyre sorting system to reduce the manpower, manufacturing & process time of the Tyre Industry. An automated tyre sorting is very important process for tyre manufacturing industry to improve the manufacturing process efficiently. The automated tyre sorting processes is based on the Geometrical size of the tyre. The main objectives of this IOT tyre sorting are Sorting Two-wheeler tyres by using image processing and Raspberry pi-3 controller with IoT and Monitoring the conveyor belt, segregate the tyres based on Inner Diameter, Outer Diameter, Outer Core buttonDesign.

**Keywords-**Two-wheeler tyres, Inner Diameter, IoT

# DELAY AND POWER MODEL FOR GATE DIFFUSION INPUT TECHNIQUE BASED ON LOGICAL EFFORT

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## ABSTRACT

An accurate delay and power model is an inevitable component for the circuit simulator and logic synthesizer to evaluate the performance of the circuit. While defining a model it should be simple, compact and accurate to characterize the design parameters. The number of attributes defined in the delay and power model should be less without compromising accuracy. The model parameters should have to match and connect the device parameters for proper measurement independently. This research is aimed at developing the delay and power model for the Gate Diffusion Input Technique keeping the constraint that the model should be simple, compact and accurate. The delay model is developed using RC Logical effort based. The proposed power model consists of dynamic, short-circuit and leakage power. The dynamiccomponentofpowerisexpressedintermsofnodetransitionactivityfactor$\alpha_{0 \to 1}$and capacitive power due to the charging and discharging of driver and drivinggate.

**Keyword -** Logical effect, Dynamic power, static power, RC delay model

# A STIMULATOR TO REPRESS THE NERVOUS PAIN IN DIABETIC NEUROPATHIC PATIENTS

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## ABSTRACT

Peripheral neuropathy is an acute disorder in diabetic patients who are suffering a very agonized pain in their peripheral nerves. Symptomatic relief can be achieved by some analgesic pain killers. One of the best approaches is using an electrical stimulation method where the sensory nerve fibers get excited by the application of pulsed currents at the site of pain. This could block the pain signals from reaching the brain, followed either by the pain gate theory or opioid mechanism. The present study primarily focuses the feedback principle where the stimulus is given with respective to the patient's skin intensity to get rid of skin burning in therapy. The opioid mechanism has been proved scientifically that it provides long-lasting pain relief even after the stimulation. This paper documents the design and operation of feedback system which provide a constant output by varying the width of pulses. Thereby, the patient's pain as well as the sufferings of skin reactions upon stimulus is reduced. As this electrical nerve stimulation strategy is a simple, safe, non-pharmacological, cost-effective it proves to be a better alternative for pain relief.

**Keywords** : Diabetic peripheral neuropathy, Feedback principle, Frequency, Neuropathic pain.

# SURVEY ON BEDSORE PREVENTION IN PHYSICALLY DISABLED BEDRIDDEN PATIENTS

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## ABSTRACT

Though lots of advancements in the medical industry and healthcare, pressure ulcers prevention remains a challenging issue. Pressure ulcers prevails mostly in the patients who stays in hospital for long-term, assisted living at home, paralyzed patients and with other physical disorders excluding of their diagnosis and health care needs. Pressure ulcers are known as a kind of skin lesion which influences the patient's integrity of life and their caregiver become a significant reason of morbidity and in some aspects increase in the mortality. Managing and treating pressure ulcers are too costly. Though many devices have been designed with the aim of pressure ulcer prevention and cure but most of the existing technically complex devices have been exposed to be no more efficient and cost effective. Prevalence of these ulcers can be achieved by reducing pressures at bony prominences since pressure ulcers are high-cost and high adverse event. The intention of this survey is to review recent articles, with particular emphasis on prevention of bedsore in physically disabled patients.

**Keywords:** Prevalence, Pressure Ulcers, Paralyzed Patients, Mortality, Bony Prominences, Pressure Elevation.

# ENERGY HARVESTING AND MOBILE CHARGING FROM AMBIENT RF RADIATION USING MICROSTRIP PATCH ANTENNA

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## ABSTRACT

A mobile charging system using Radio Frequency (RF) energy harvesting technique is explained. This method determines the suitable frequency for power transmission using matching circuits in collaboration with a microstrip patch antenna, which is tuned to a gain of 3.762dB, directivity of 5.906dB and a power density of 7.358dBW/m$^2$. The process flow through three units namely, ac to dc unit, storage unit and charging unit. A Bridge Rectifier circuit helps to convert the incoming RF signal to dc signal which is fed into the battery for storage purpose. Using an efficient rectification process, the output power is improved. The radiation from the receiving antenna is used to charge the mobile without a physical charger. Charging is done on the basis of the obtained gain value in the range of 2.2 dB to 3.762 dB.

**Keywords-** Radio frequency, Microstrip antenna, Gain, Directivity, Power density

# REVIEW AND DESIGN OF ARDUINO BASED WEARABLE DEVICE FOR CHILD SAFETY

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## ABSTRACT

This paper discusses the concept of a smart child wearable device for little children. It is used to track child who are in danger and also in normal situations. Therefore the focus of this system is to have an SMS text enabled communication between child's wearable device and the parents or guardian. It suggests a new technology for a child safety with one touch system using GSM so that children never feel helpless while facing social problems or challenges. The wearable device is made with Arduino UNO, GSM, and Heart beat sensor, MEMS, Temperature and Humidity sensor etc. In such case Heart beat Sensor track the pulse rate for children & sends emergency message using GSM to saved contacts. It is providing complete security to children's wherever we are using it. Such method is very helpful for children since we all have unsafe society. This device does not need manual operation. The device itself will be activated according to the rate of heart beat and will send message. Hence this provides security to children's and secure feeling to parents. This paper describes the available child wearable devices and the design methodology of a rechargeable wearable device.

**Keyword**: Children ,Arduino UNO, Temperature, Wearable Device

# MICROSTRIP ANTENNAS FOR SATELLITE COMMUNICATION

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## ABSTRACT

Communication satellite plays a vital role in wireless communication, Broadcasting, surveillance etc. Number of satellites has been launched for various applications in recent years. These satellites are occupying the different bands of electromagnetic spectrum for transmission and reception of various signals. Nowadays microstrip antennas are used in satellites in order to reduce the size of satellite antenna, and because of its other important properties such as robustness, low cost etc. This paper gives a clear idea about different frequency bands used in satellite communication and various satellite antennas operating on the same frequency bands and their wavelength bandwidth, gain, return loss etc. Also it discuss about how to overcome the limitations of susceptibility in rain fading, by comparing different bands such as L, C, S, X, Ku,, K and Ka band. Ka band is benchmarked to compare to other band, in terms of high throughput, size of the antenna is small, large band spectrum. It shows the best performance than other band, but it had more limitations in rainfading.

**Keyword: satellite** - microstrip antenna – frequency - L, C, S, X, Ka and Ku band – rain fading

# GSM BASED AUTOMATED PARALYSIS PATIENT HEALTH CARE SYSTEM

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## ABSTRACT

There constant demand to improve the basic needs of the paralysis patients. This serves as a motivation to develop a newer technology to overcome these patient's needs. The tasks once performed by big traditional computers are now solved with smaller smart devices. The study here talks about the development of an automatic paralysis patient motion sensing device which is used to convey the needs of the paralytic patients who are unable to talk but can move their fingers using accelerometer device which can detect an intentional movement from a normal movement and convey the message through led panel and through Bluetooth using a Bluetooth Module, which can convey the patient's room number to the nurse whenever the patient is in need of anyhelp.

**Keywords :**Accelerometer , led panel , Bluetooth module

# A NON INVASIVE CUSTOMIZED MOTOR DEVICE FOR DIABETES DIAGNOSIS

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## ABSTRACT

Along with the technological advancements in biomedical filed to cure many common health issues, there is certain lethal disease spanned in the world which has no cure for it. That is Diabetes, though it doesn't have any remedy, at least it has controlling and diagnosing techniques. It is a kind of metabolic disorder where there is a high blood sugar level for sustained periods. Diabetes is a condition in which there happened to be high blood sugar levels over a long time. Symptoms are repeated urination, thirst, and hunger. If left unchecked, it may cause many complications. Acute complications include ketoacidosis, or death. The Diabetes can be analyzed by drawing a drop of blood from test subject and blending it with biosensor. This method is compact and modest, but it happens to be an intrusive and contaminant method as it deals with the usage of blood. This assumption sparked us to progress a non-invasive method of diagnosing the diabetes level for a patient using their foot sensitivity. This advancement helps one to obtain the same test result, but with a non-invasive practice, which gives a painless and non-contaminant diagnosis.

**Keywords**—Diabetes, Motor device, Non-invasive, blood glucose

# PATIENT HEALTH MONITORING SYSTEM USING ARM-7

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## ABSTRACT

In day to day life due to the compulsion of the drastic changes of the environment being more busy and cyclic with vast new technologies, patient health monitoring system using ARM7 is used to overcome the demands for caretaking and monitoring the elderly people and physically challenged people by monitoring their health instantly whenever needed. ARM7 controller is used to control entire section. Sensors used here to monitor the patients are Blood oxygen sensors monitor the oxygen level of blood in patient body, blood pressure sensor monitor the patient heart rate parameter of systolic, diastolic and heart rate and the temperature sensor is used to calculate the body temperature. These sensor are monitor by the microcontroller and the microcontroller collect the data are sending to mobile phone via Bluetooth module and the data are sending to webpage to doctor monitor for give medicine to the patient and the doctor monitor the parameter of those sensor and type the perception on the doctor PC and send to the android mobile and the person give the medicine to the patient.

**Keywords -**Microcontroller- Ipc2148, Blood pressure Sensor, Bluetooth module Temperaturesensor.

# AUTOMATIC DETECTION OF RAILWAY SURFACE DEFECTS

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## ABSTRACT

This paper presents an automatic method for detecting railway surface defects called "squats" using ultrasonic measurements on trains. This method is aimed at improving the infrastructure of railways by providing an enhanced method for detection of abnormalities in rail tracks. The ultrasonic sensor gathers the attributes of the squats by sending echoes. The results of the abnormalities are recorded and are analysed for checking the severity of the damage and further course of action is taken to rectify the damage. Additionally a vibration sensor is used along with the ultrasonic sensor to detect any uneven disturbances in the solid bed of the railway surface. If the vibration sensed is high some adjustment can be made in the speed of train.

**Index Terms—** Squats, Vibration sensor, Ultrasonic sensor

# PH LEVEL MEASUREMENT AND MONITORING VIA WSN

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## ABSTRACT

Internet of Things refers to the concept that the internet is not just a global network for people to communicate with one another using computers, but it is also a platform for devices to communicate electronically with the world around them. This paper deals with Waste water treatment Process using micro controller, sensors and WSN. With the help of pH sensor it sense the contamination of water, so if pH = pH level of water, than Pumping motor starts. If pH > pH level of $H_2O$ than chlorine motor starts and pumping motor stops. And when pH level again comes equal to pH level of water, than again pumping motor starts and chlorine motor stops. If anything happens wrongly it will indicated by buzzer and whole process can be viewed in PC via WSN. Then level measurement and pH measurements can be displayed in LCD. These information's will be automatically updated through the server. As these devices are interconnected through internet, this information can be accessed from any place.

**Index Terms—** pH measurements, LCD, WSN

# ASGR: An Artificial Spider-Web-Based Geographic Routing in Heterogeneous Vehicular Networks

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## ABSTRACT

Recently, vehicular ad hoc networks (VANETs) have been attracting significant attention for their potential for guaranteeing road safety and improving traffic comfort. Due to high mobility and frequent link disconnections, it becomes quite challenging to establish a reliable route for delivering packets in VANETs. To deal with these challenges, an artificial spider geographic routing in urban VAENTs (ASGR) is proposed in this paper. First, from the point of bionic view, we construct the spider web based on the network topology to initially select the feasible paths to the destination using artificial spiders. Next, the connection-quality model and transmission-latency model are established to generate the routing selection metric to choose the best route from all the feasible paths. At last, a selective forwarding scheme is presented to effectively forward the packets in the selected route, by taking into account the nodal movement and signal propagation characteristics. Finally, implement our protocol on NS2 with different complexity maps and simulation parameters. Numerical results demonstrate that, compared with the existing schemes, when the packets generate speed, the number of vehicles and number of connections varying, our proposed ASGR still performs best interm s of packet delivery ratio and average transmission delay with an up to 15% and 94% improvement, respectively.

# AN EFFICIENT AHT ALGORITHM FOR MOBILE IPTV

**A.Parimala**

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## ABSTRACT

The Internet Protocol Television (IPTV) service is becoming more and more popular among telecommunications companies because it can deliver TV programs anytime anywhere. In this paper, we propose and analyze AHT algorithm based on unicast and multi-channel multicasting to enhance not only service blocking probability but also reduce overall bandwidth consumption of the wireless system which has very limited resources compared to wired networks. To show the performance of proposed scheme, we compare it against traditional unicast and multicast transmission.

AN EFFICIENT AHT ALGORITHM FOR MOBILE IPTV

# WIRELESS ROBOT MOVEMENT CONTROL SYSTEM USING MOBILE PHONE/GSM

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## ABSTRACT

Robot is a PC controlled machine and is modified to move,control protests, and achieve work while cooperating with its condition. Robots can perform dull undertakings all the more rapidly, efficiently, and precisely than people. The point of this task is to build up a portable robot, misusing the GSM innovation in a current versatile communication arrange for remote control and correspondence purposes. The point of this paper is to build up a versatile robot, abusing the GSM innovation in a current portable communication arrange for remote control and correspondence purposes. The venture utilizes GSM innovation that encourages the client to control the robot from any area through remote methods. The most imaginative innovation, GSM has been utilized productively for the remote correspondence between the robot and the control module. Additionally supportive for the client since the robot can be utilized for unmanned missions to territories that people can't get to This robot makes certain to improve the manner in which the people live soon .

# EVENT DETECTION IN WIRELESS SENSOR NETWORKS

# BASED ON EMPIRICAL DISTRIBUTION

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## ABSTRACT

Wireless Sensor Networks consists of a large number of sensor nodes. Each sensor node extracts information from the observations and communicates with a fusion center which makes a global assessment. Event detection is a central issue in wireless sensor networks. A sensor observes the environment and samples the input signal for event capture. In distributed detection, sensor nodes arrive at decisions about the event of interest and send their decisions to the central fusion center. The fusion center combines the received sensor decisions and computes a final inference about the presence or absence of the event. For binary sensor decisions, determination of the local sensor decision thresholds is crucial. In this paper, a novel event detection scheme is analyzed, which utilizes the empirical distribution and goodness-of-fit (GOF) test. GOF test is used to measure the distance between the observed data and the empirical distributions of both presence and absence of hypotheses. In the conventional method, the sensor uses energy detection to determine the presence or absence of the event. The  scheme using GOF test provides better detection performance when compared with the conventional method .The performance of conventional detector and the GOF test are analyzed using Monte-Carlo simulation.

**Keywords**- Goodness-of-fit (GOF) , Monte-Carlo simulation, Empirical distributions.

# BiPeD -WALKING ROBOT

## R.Rubala

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## ABSTRACT

"Robot is a PC controlled machine that is modified to move, control protests, and achieve work while cooperating with its condition. The point of our paper is to build up a two-legged strolling robot .The proposed framework is beneficial since the modern types of gear can be all around controlled utilizing this framework. It is utilized to investigate a remote area by detecting the zone boundaries light, temperature and so on.This paper builds up a two-legged strolling robot that can be utilized for unmanned missions, which gather the different sensor boundaries and transmits the gathered information to the control station utilizing remote methods. The robot distinguishes the item/deterrents in its way by confirming the yield from the separation sensors. The robot additionally has a remote camera that transmits the video picture of the environmental factors to the principle station. Zigbee convention is utilized for remote transmission. The proposed framework gives an extremely powerful for enterprises, military and space investigation. Since all the capacities are focused on a solitary chip, they can be checked and controlled without any problem. The segments and gadgets utilized in the circuit are modest and these frameworks propose a financially savvy strategy.

# *F R A M E* - FACE RECOGNISED ACCESS MANAGEMENT EQUIPMENT

**R.Rubala**

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## ABSTRACT

In the current condition, the section to a creation control unit in an industry is limited to approved people as it were. This is physically done by the security individual remaining at the passage of the unit. The personality card of the individual is physically confirmed and the passage is permitted. On the off chance that the business is huge, the security individual continues changing and the quantity of people entering the unit will be more. Thus an unapproved individual can without much of a stretch access the unit by producing the personality card. The proposed framework disposes of every one of these troubles by permitting the section to approved people as it were.This paper expects to build up a gadget that can be fitted in ventures to confine the section of people to high security zones. As enterprises increment in size and unpredictability, security items are developing in advancement and security dangers are getting increasingly astute. There is an expanding familiarity with outside dangers and therefore associations are actualizing answers for shield them from these dangers.

# MICROCONTROLLER DESIGN USING VHDL WITH LCD INTERFACE

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## ABSTRACT

Microcontrollers and field programmable door clusters (FPGAs) both are generally utilized in digitalsystem plan. Microcontroller-based instruments are getting progressively across the board. On onehand, their fast, power and falling costs settle on them a conspicuous decision. On the other hand,the quickly developing notoriety of FPGAs, the accessibility of amazing improvement devices, and theincrease in speed and high thickness have settled on FPGA-based frameworks an elective decision. Due tothe significance of the two advancements to college understudies, this paper talks about the importanceof the two advances and presents the involvement with educating both. The paper depends on the Very Large Scale Integration (VLSI) Design strategy with Field Programmable Gate Array (FPGA) acknowledgment. The paper gives an encounter of fundamental FPGA displaying of Digital coordinated circuit. Presently days practically all control applications depend on miniaturized scale controllers. Be that as it may, the microcontrollers have numerous confinements like fixed equipment structure with predetermined number of ports, pins, modules, registers and so forth. The word length of registers is additionally fixed. So there is no streamlining in equipment acknowledgment of a microcontroller for a specific application.There is no bit constraint, memory can be refreshed .It utilizes 24Hz clock heartbeat and four information and two yield port and three determination bits and have all out 8 exchanging lines.This miniaturized scale controller manages expansion, deduction, division, increase, examination in ALU and PUSH &POP activity in stack .In our task we utilize a LCD yield interface and we can see the yield from LCD screen.

# DIGITAL SET TOP BOX FOR CHANNEL SELECTION USING FPGA REALISATION

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## ABSTRACT

The paper depends on the Very Large Scale Integration Design method with Field Programmable Gate Array acknowledgment. This a model for current patterns in amusement field. Present day TV flagging framework is either utilizing Direct to home or Cable TV framework. Be that as it may, the correct client controls ought to be given in choice of stations so as to accomplish arrangements like Movie on request, Parental controls, Interactive gaming and so on. A FPGA based set top box can understand every one of these functionalities helpfully. Here an extremely straightforward set top box with multi channel select is displayed utilizing a FPGA based controller. As the customary advanced set top box activity, the FPGA based set top box can likewise choose channel recurrence as indicated by client input code.The paper exhibits an advanced set top box utilizing the FPGA acknowledgment .The work incorporates the rationale configuration utilizing VHDL, rationale reproduction utilizing model sim 6.2b, union utilizing Xilinx ISE7.1 web pack and usage utilizing FPGA Xilinx Spartan 3E. The significant goal of this venture is to present bit of leeway over the customary frameworks like high recurrence reaction, more number of ports.

# SensePods: A ZigBee-Based Tangible Smart Home Interface

**V.Yokesh**

*Assistant Professor, Department of ECE,  Jeppiaar Institute of Technology*

## ABSTRACT

Low-cost sensors and ubiquitous wireless networking is enabling novel ways in which homeowners can interact with their smart homes. Many complementary approaches like using voice commands, direct interaction by using touch or weight, or by using body gestures are emerging. This paper shows the design and implementation of a novel low-power, low-cost, hand-held wireless device called a SensePod. SensePods can be used by a consumer to interact with a smart home using simple gestures like rubbing, taping or rolling the device on any home surface like a dining table. The device is only 4.5 cm long, forms an ad-hoc wireless network using the ZigBee protocol, and can be easily interfaced to existing home management systems using a universal serial bus port. The gestures in each device can be programmed to control various objects of a smart home like smart curtains, for example. Hidden Markov models were used to train the device to recognize various gestures. The device was tested with a variety of gestures and has a recognition rate of over 99.7%, and a response time of less than two milliseconds.

# A Quality-oriented Data Collection Scheme in Vehicular Sensor Networks

**V.Yokesh**

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## ABSTRACT

Considerable research attention has been dedicated to Vehicular Sensor Networks (VSNs) because of its great potential in traffic monitoring. By taking advantage of sensors embedded in vehicles, a VSN harvests data while vehicles are traveling along the roads and then updates the collected data to the infrastructure to support Intelligent Transportation System (ITS) applications. To meet the data collection requirements of different ITS applications, a huge number of update packets are generated, which may exhaust the available wireless communication bandwidth. To improve the efficiency of utilization of wireless communication bandwidth, in this study, we propose a Quality-oriented Data Collection (QDC) scheme which aims to effectively support both the accuracy and real-time requirements stipulated by ITS applications, while reducing communication overhead. We formulate a Minimized Communication Overhead (MCO) problem and propose two algorithms, Mixed Integer Linear Programming (MILP) and Deviation-Detection (DD), to solve the MCO problem. MILP can obtain the optimal solution to the MCO problem by having all the data collected by every vehicle while DD could achieve an efficient solution without this impractical assumption. We conducted extensive experiments by using SUMO to simulate vehicle traces in freeway and downtown environments. The experimental results have demonstrated the effectiveness of the proposed solutions.

# DESIGN AND DEVELOPMENT OF AUTOMATIC EASY BILLING SYSTEM

**S.Mary Cynthia**

*Assistant Professor, Department of ECE,  Jeppiaar Institute of Technology*

## ABSTRACT

Nowadays, shopping at big malls is become a daily activity in metero cities. So there is a huge rush at malls on holidays and weekends. On purchasing an item, one needs a trolley to move further as it was much more. After purchasing they have to wait in queue for billing process which consumes much of their time.So,inorder to avoid such time constraint we are introducing this concept "AUTOMATIC EASY BILLING SYSTEM". Here, Microcontroller is the heart of the system.The entire system is fitted in the trolley. When a customer hold the barcode side of the product wrapper in front of barcode scanner, then the corresponding price will be displayed in the display. This process is repeated for all the product.Finally,the bill is generated if the total weight displayed and weighting module measurement synchronizes.

**Keywords --** Barcode Scanner, Development Board, Microcontroller, Billing printer, weighing sensor

# A Mobile Based Application for Women Protection

**Mrs.S.Mary Cynthia**

*Assistant Professor, Department of ECE,  Jeppiaar Institute of Technology*

## ABSTRACT

Women face a lot of problems in their day to day life at almost all places which results in the denial of their security. The complaints regarding harassment of women have been building up rapidly over years. The security and safety of women is now becoming a nightmare. A mobile application will pave way for ensuring their safety. The proposed VARNA app incorporates all the facilities of existing android apps for women safety. The App's vital feature is dynamic GPS tracking. In case of emergency, an alert message along with the current location is automatically sent to police helpline and emergency contact numbers. Camera is also activated for live recording of the environment. All the needed information is stored in a real time database. Other users with access rights can track the location of those using the VARNA app which in turn ensures their safety. The app provides users with information about harassment and how to safeguard them from becoming a victim. Comparison of existing apps with my app shows that the proposed app is best suited in providing safety for women.

**Keywords**—Women Safety; Harassment; Tracking System; SOS; Real Time Database

# A Lightweight and Secure Cryptographic Scheme for IoT based Applications

**Mrs.S.Mary Cynthia**

*Assistant Professor, Department of ECE, Jeppiaar Institute of Technology*

## ABSTRACT

Internet of Things is a collection of devices like home appliances and automobiles considering anything that is fixed with electronics, software applications and sensors which can be used to bridge the gap between physical world and a computerized system allowing direct connections between the two thereby reducing the human efforts and provides future enhancements and other economical benefits. With the recent development in IOT and the increase in the usage of wireless technologies gives us a chance for growth in various applications like Education, Agricultural benefits and other Medical sectors. With the increase in the use of IOT with the incorporation of wireless technologies there is an increase in security threats against secrecy and privacy and are often prone to breaches that cause access points to those data vulnerable to attacks. Therefore we need an authentication scheme that is both energy efficient and not resource clogging which also provides methods to transfer data with no issues to confidentiality which is a major concern to the users. We need a lightweight cryptographic algorithm that offers protection against various attacks including Man in the Middle attack and Masquerading attacks.

**Keywords**—authentication, lightweight cryptography, IOT

# A Flash Flood Early Warning System: Algorithm and Architecture

## Mrs.S.Mary Cynthia

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## ABSTRACT

The flash flood is one of the most lethal forms of natural hazards and every year damages colossal properties and causes human deaths. An early flash flood detection and warning system can provide an effective solution to this problem by giving people sufficient time to evacuate and protect their life and property. On the other hand, presently Wireless Sensor Network (WSN) based systems are widely used as an effective warning system against different hazard scenarios e.g.; fire, tsunami etc. Such WSN based system can also be design to generate an early warning against the Flash Flood and such system is high on demand. This system will be having sensor nodes, processing unit and warning unit etc, for successful prediction and warning generation. Under present work, a WSN based indigenously designed, low cost, accurate and automated Flash Flood Early Warning (FFEW) system has been proposed and studied with technical details. The algorithm of the central processing unit/block for the proposed system has been implemented with MATLAB Simulink and also hardware implemented with PIC microcontroller. Experimental outcomes show that such system will be very much effective to generate a valuable early warning against the devastating flash floods and will be helpful in preventing huge collateral damage.

**Index Terms**—Flash Flood, WSN, Microcontroller, RF Transmitter-Receiver, Rain Gauge sensor

# CANCER LUMP DETECTION USING CONVOLUTION NEURAL NETWORK

**Kalaiyarasan.K [#1], Niranjan.CB[#2], Sanju Rajan.P[#3], Sathish.R[#4], W.Nancy[#5]**

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## ABSTRACT

The problem of skin disease inference can be categorized into three types, from the perspective of data representation. The approaches of the first category describe the skin diseases with pure textual information, in terms of vital signs, verbal complains, demographics, categorical cues, and the presence of some sensory symptoms. The second type of approaches dominates the whole skin disease research community, whereas visual information extracted from skin lesion images is utilized to represent skin diseases, like the variants of texture features. The third one integrates both visual and textual information, such as patient history and patient interaction, to describe the given skin diseases. Early melanoma diagnosis appears to improve patient outcomes and can significantly improve patients survival rate, and skin cancer detection can be improved through approaches such as screening patients with focused skin symptoms using physician-directed total body skin examinations.. In this proposed system we have classified the Benign and Malignant skin cancer using convolutional neural network.

**Keywords:** Demographics , melanoma diagnosis, convolutional neural network(CNN).

# EVALUATION ON MECHANICAL PROPERTIES OF STAINLESS STEEL 316L WELDMENTS WELDED BY GAS METAL ARC WELDING

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## ABSTRACT

In global industrial environment, welding plays a vital role in manufacturing technology. Gas Metal Arc Welding process (GMAW) dominates other welding processes. The selection of shielding gas is a great challenge in industries. The usages of shielding gases have been increased towards productivity, good weldment quality and better mechanical properties. In this study, the shielding gases like pure $CO_2$ and 90% Argon + 10% $CO_2$ were used and experimented. The weldments are produced by multipass welding procedure. The mechanical properties like hardness values, tensile strength and impact energy were tested in parent metal since it was widely used for most of applications like marine, machine tools and structural applications. The welds produced by the shielding gases 90% Argon + 10% $CO_2$ gives the better mechanical properties compared to welds produced by the pure $CO_2$ shielding gas.

**Keywords** – MIG Welding, MultipassWeldments, Mechanical Properties

# APPROACHES FOR MITIGATING BARRIER IMPACTS IN GREEN SUPPLY CHAIN MANAGEMENT

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## ABSTRACT

An overview is provided on various barriers affecting green supply chain management implementation. Few ways are provided for mitigating barrier impacts affecting green supply chain adoption. The work relies on experience and other literature related to barriers affecting green supply chain management adoption. It seeks to integrate works in supply chain management, environmental management and barrier mitigation strategy into one framework. An integrative framework is provided for study, investigation and exploration of green supply chain management implementation barriers. The findings also identify a number of issues that needs to be addressed. A research framework is developed linking barriers, green supply chain management practices and level of implementation. There is limited research in this area and a new model is proposed to propel the level of green supply chain management implementation. Limitations in the proposed model are discussed. Implications of the work are that gaps exist in barrier mitigation strategies and significantly more work needs to be completed in this field. Useful source of information is provided for practitioners, which seek to implement these strategies within and between organizations. Also, path is provided for additional research and to develop research agendas. This paper provides some of the very first insights into development of a model for barrier impacts mitigation. Barrier selection and respective ways to mitigate barriers' impact are significant in any work place. There is an understanding that GSCM level fluctuates from one generation to other and it is not specific for a particular place and period. New insights are given related to ecosystem imbalance and environmentaldegradation.

**Keywords-** Green Supply Chain – Environment management – eliminate barriers for better GSCM- Greener products

# PRODUCTION OF ENERGY FROM ROADWAY SYSTEM

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## ABSTRACT

In today's world, production and conservation of electricity plays a major role. Hence most of the researchers are focusing on production of energy from various sources and it is expected to produce energy to provide power to street lights, hotels, restaurant, schools and colleges etc. Here we proposed a new method that can use the rollers, turbines and back up solar power to generate power from road ways. This paper comprises the requirements, principle, design, services, and challenges of the proposed methodology which can be one of the solutions for generation of power in today'sworld.

**Key words:** Electricity, Rollers, Turbines, Solar power, Road ways.

# EXPERIMENTAL COMPARATIVE ANALYSIS OF A SINGLE AND MULTI RECEIVERS OF A SOLAR CAVITY COLLECTOR

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## ABSTRACT

Solar cavity collector (SCC) is a one which is an improvement of flat plate solar collector (FPC). SCC is an upgraded and advanced version of FPC. The cavity type configuration in-general is used for the Fresnel lens type and concentrating type collectors, but it has been experimented for the improvement of a flat plate collector. For improving the heat transfer characteristics, cavity type collectors are the better choice, since it can be used during cloudy days where intermittent nature of the solar energy is inevitable. It gives the better results even if the solar radiation that has received is of intermittent type. An SCC outer radius of 16 mm has been positioned concentrically and placed into a 50 mm size of a metal box. Five numbers of such cavities with a provision of inlet and outlet water pipes has been fabricated and experimented for its optimal performance. The Experimental investigation was carried out for single, three and five numbers of receivers being used in SCC to heat the water of the cavity collector to finding out which type of receivers would give better results. Also to find the better rate of heat exchange between these two types of receivers. Copper is used as a receiver material. It has been concluded that the single receiver gives better results than the other.

**Keywords:** Solar, Cavity, Cavity collector, Cavity receiver, Single receiver, Multi type receiver.

# MITIGATING EMISSION FROM CRDI ENGINE FUELED WITH WASTE COOKING OIL METHYL ESTER/DIMETHYL CARBONATE BLENDS

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## ABSTRACT

This work inspects the impact of dimethyl carbonate (DMC) alcohol on the emission pattern of the waste cooking oil methyl ester (WCOME) fueled common rail direct injection (CRDi) diesel engine. The test was conducted by one-cylinder, 4 stroke, CRDi diesel engine. The mixture blends of waste cooking oil methyl ester and dimethyl carbonate were set up by utilizing an ultrasonic stirrer. The test fuels, namely such as neat diesel, neat waste cooking oil methyl ester B100 (WCOME100%), B10 (WCOME90%DMC10%) and B20 (WCOME80%DMC20%) (by volume). Tests were conducted at five load conditions like 0, 25, 50, 75 and 100% respectively. This trial effect showed that increasing oxygenate additives to WCOME brought down the many emissions such as unburned hydrocarbon emission (HC) decreased, carbon monoxide emission (CO) decreased, smoke emission decreased in WCOME80%DMC20% compared with other blends, but the NOx emission increased at all blends compared with diesel fuel. This trial was determined diesel with DMC and waste cooking oil methyl ester derived, presents a good-looking chance to reduce emissions and utilize a renewable fuel in dieselengines.

# IMPACT OF DLC COVERING ON TRIBOLOGICAL CONDUCT OF CHAMBER INTERNAL CYLINDER RING MATERIAL MIX WHEN GREASED UP WITH JATROPHA OIL

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## ABSTRACT

The development of present day motors would have been unfeasible without cutting edge grease science and appropriate oil detailing. Presentation of Diamond like carbon (DLC) coatings opens further potential outcomes in improving the execution of motor and transmission parts, which can't longer be accomplished distinctly by grease plan. DLC coatings show amazingly great guarantee for various applications in car segments as they display phenomenal tribological properties. In this paper, the tribological execution of hydrogenated amorphous carbon (a-C: H) DLC covering with Jatropha oil was assessed utilizing a four-ball Tribometer additionally with business manufactured oil utilized as base oil. Test results showed that the hydrogenated undefined carbon (a-C: H) DLC covering displayed better execution with Jatropha oil as far as to wear and grinding under comparative working conditions contrasted with the uncoated pure. In this way, the use of hydrogenated amorphous carbon (a-C: H) DLC covering with Jatropha oil, over the long haul, may positively affect motor life.

# EXPERIMENTAL INVESTIGATION OF BLUFF BODY FLAMES USING SINGLE RING V-GUTTER

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## ABSTRACT

To experimentally analyse and investigate the flame stabilization by varying the shape of the bluff body flame holder into single ring V-gutter in the Combustor. The experiment is conducted in a cubical structured test section which depicts the movement of flame diverging from the single ring V-gutter. The combustion test rig. Comprises a conical diffuser, a hollow cylinder, plenum chamber, fuel injection holder and followed by test section. The flame is elongated from a flame holder into the test section which collaborates the pressurized air. By varying the air fuel ratio, we can obtain different flame length is achieved at the point of highest efficiency. The flame stability is influenced by bluff body diameter, mass flow rate air and fuel which plays a major role in combustion instabilities mixing of air fuel ratio. Five thermocouples are used to identify the temperature at points placed evenly at some distance. The temperature before and at the end of test section is also be determined. The mass of the methane gas cylinder is measured periodically to ensure the supply is a lean mixture. The flame anchoring and blow off state is also determined. The flame characteristics of the flame is recorded by using high-definition camera and processing them using image-Jsoftware.

# INFLUENCE OF REDUCED GRAPHENE OXIDE ON THE MECHANICAL PROPERTIES AND TRIBOLOGICAL PROPERTIES OF NATURAL RUBBER NANO COMPOSITES

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## ABSTRACT

Natural rubber is the major ingredient in major products like rubber bushes, washers, gaskets, tyres etc. The properties of natural rubber can be improved by incorporating nano particles like clay, carbon nano tubes and graphene in NR (Natural Rubber). In this work, the rubber nanocomposite is processed in double roll mill by adding the various additives like Activators , Catalyst, Accelerator, Vulcanizing agent in required proportion , varying phr of reduced grapheme oxide and with or without Carbon Black to the masticated NR. Various tests were performed to evaluate the mechanical properties and rolling wear of rGO – CB reinforced NR hybrid nano composites. The tests performed on NR hybrid nano composites indicated that integration of rGO has improved the properties ofrubber.

**Keywords**- natural rubber, reduced Graphene oxide, carbon black.

# MACHINING OF AL-SIC METAL MATRIX COMPOSITE BY POLY CRYSTALLINE DIAMOND (PCD) TOOL WITH LASER BEAM ASSIST TURNING OPERATION

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## ABSTRACT

An experimental of Al-SiC Metal matrix composites and the materials have a set of mechanical and physical properties that are ideally suited for application in Aerospace and Automobile industries and not widely used because of its poor machinability. However because of these features they are problematic for the conventional turning process. The machining on a classic lathe still requires special polycrystalline diamond (PCD) 1600 grade cutting inserts which are very expensive. In the paper an experimental surface roughness analysis of laser beam assist turning operation (LBT). The surface of work piece is heated directly by a laser beam in order to facilitate, the decohesion of material. Surface analysis concentrates on the influence of laser beam turning on the surface quality of the Al-SiC metal matrix composite (MMC). The machining parameters influence on surface roughness parameters was also examined.

# HEAT TRANSFER ANALYSIS WITH PIN-FIN APPARATUS BY USING CFD

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## ABSTRACT

In this research paper, the computational numerical analysis has been carried out in air flow and heat transfer in a light weight automobile engine with three different morphology pin fins. The numerical study using ANSYS fluent® (Version 14.7) was conducted to find the optimum pin shape based on minimum pressure drop and maximizing the heat transfer across the automobile engine body. The results indicate that the drop shaped pin fins show improved results on the basis of heat transfer and pressure drop by comparing other fins. The reason behind the improvement in heat transfer by drop shape pin fin was increased wetted surface area and delay in thermal flow separation from drop shape pin fin. A three-dimensional conjugate problem has been studied with a three-dimension CFD model. These were greatly simplified by assuming I-column in line pin-fins with axis perpendicular to the flow and isothermal heat transfer surface. At lower values of pressure drop and pumping power, drop shaped fins work best. At highest value, drop shaped fin highest performance. For high Reynolds numbers, the fin thermal efficiency and effectiveness show samebehavior.

**Keywords:** CFD, Fin, Heat transfer, Optimization, Simulation.

# ANALYSIS OF WELDING PARAMETERS OF STAINLESS-STEEL SS 304 BY TUNGSTEN INERT GAS WELDING

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## ABSTRACT

Stainless steel 304 is an austenitic grade stainless steel which used for a wide range of construction applications. It contains 18% Chromium and about 8-10% of Nickel as significant elements. It also used for making tanks containing a variety of liquids and solids. TIG welding is a fusion welding process in which a non-consumable tungsten electrode does welding. It is typically used to weld stainless steel and other non-ferrous metals such as Aluminium and Magnesium, but again it can be applied to all the metals. The welding parameters of TIG welding, such as current, voltage, and filler rod, affects the quality of the weld. In this project, the strength of the weld for different currents compared by conducting various tests like a tensile test, bend test, and hardness test. In the tensile test the stress-strain curve, load-displacement curves plotted. In a bend test, the load-displacement curve plotted. Hardness test, microstructure, and macrostructure studies are also carried out to determine the quality of the weld.

**Keywords -** TIG welding, Stainless Steel 304, Mechanical properties, microstructure.

# INVESTIGATION OF MECHANICAL PROPERTIES BY OPTIMIZING PROCESS PARAMETERS OF SELECTIVE LASER SINTERING OF NYLON 12

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## ABSTRACT

Selective laser sintering is a kind of Rapid prototyping process whereby a three-dimensional part is built layer-wise by laser scanning a powder. The aim of this work is to enhance the physical and mechanical properties of the material through the selective laser sintering process. In this work, the effects of Surface Finish, Hardness, Tensile, and Compressive Strength has investigated on biocompatible material Nylon 12 (Polyamides) which has been laser sintered by using selective laser sintering process. The various process parameters, such as laser power, scan spacing, and Orientation of SLS, has been identified for optimization. Experiments have been carried out by considering L9 orthogonal array by varying the levels of above-said parameters on those sintered specimens. The SN ratio, one-way ANNOVA, and regression model have been generated to predict the Hardness and Surface Roughness. It has found that Laser Power 12.5 W, Scan Spacing 0.13mm and Orientation 90° yields the smaller Surface Roughness and Laser Power 10.5 W, Scan Spacing 0.17mm, and Orientation 45°, yields the more significant Hardness & Tensile. For compressive strength Laser Power 14.5W, Scan Spacing 0.13mm, and Orientation 45° yields the more considerable value of the sinteredmaterial.

**Keywords -** Selective Laser Sintering, Mechanical properties, optimization

# EXPERIMENTAL INVESTIGATION OF ZINCBASED CATALYTIC CONVERTOR

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## ABSTRACT

Emission from automobiles plays a significant role in increasing air pollution at a distressing rate. The incomplete combustion of fuels in the engine overlays a way for the production of toxic agents such as carbon monoxide (CO), hydrocarbons (HC), nitrous oxides (NOx) and particulate stocks. The objective of this work is to fabricate a catalytic converter, where the concentration level of toxic gases controlled through a chemical reaction to a more approachable level. In the current scenario, the automobile sectors use noble metals such as Platinum (Pt), Palladium (Pd) and Rhodium (Rh) as a catalyst which are more expensive. In this work, a catalytic converter with zinc as a catalyst, by replacing noble catalysts is fabricated and fitted in the engine exhaust. Zinc converted into zinc phosphate, and it acts as a catalyst by reacting with orthophosphoric acid with mild steel substrate were applied by using electroplating methods — the OEM catalytic converter based on the noble metal catalyst with honeycomb ceramic substrate. The OEM catalytic converter was tested along with with the zinc-based catalytic convertor for comparison. Detailed review on cost-effectiveness, reduction of emission of a zinc-based catalytic converter in the diesel-fuelled engine and test results have reported withdiscussions.

**Keywords -** Catalytic convertor, Zinc, Emission testing

# GREEN POWER GENERATION USING PERMANENT MAGNET

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## ABSTRACT

It has been found that neodymium magnets are used to generate the power. Nowadays power generation is the main consideration to meet the future   load demand. In this research work, single input electric power was used to generate multiple output electric power. Neodymium Magnets was used to produce the electricity. The system uses permanent magnets to produce repulsion and this repulsive force produces a torque which drives a DC generator. The repulsive magnetic discs consist of two discs which are placed within one another in the form of concentric circles. During the load given to the outer disc to rotate it causes the inner disc to rotate automatically by repulsion technique. The power output from the alternator can be stored in batteries or used to drive any AC loads through an inverter. Thus the free energy can be effectively utilized at no cost.

# CFD FLOW ANALYSIS AND SIMULATION OF TURBOCHARGER COMPONENTS

## ARUN S[1], KANNAN S[1], D.ARUNKUMAR[2]

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## ABSTRACT

When people talk about race cars or high-performance sports cars, the topic of turbochargers usually comes up. Turbochargers also appear on large diesel engines. A turbo can significantly boost an engine's horsepower without significantly increasing its weight, which is the huge benefit that makes turbos so popular. Turbochargers are a type of forced induction system. They compress the air flowing into the engine. The advantage of compressing the air is that it lets the engine squeeze more air into a cylinder, and more air means that more fuel can be added. Therefore, you get more power from each explosion in each cylinder. The purpose of this project is to study and simulate the workings of the turbocharger by designing and analyzing the flow dynamics of compressed air in a compressor wheel of the turbocharger, using the Computational Fluid Dynamics.

# WATER GENERATION FROM ATMOSPHERIC AIR

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## ABSTRACT

In many countries like India it is difficult to obtain water resources for irrigation or other purposes, especially in the arid regions. The problem of water scarcity is also observed in other places of the world due to lack of rainfall. However, in highly humid areas such as places close to the sea, water can be obtained by condensing the water vapor present in air. Here, the paper presents the method to develop a water condensation system based on thermoelectric cooler. The system consists of cooling elements, heat exchange unit and air circulation unit. A solar cell panel unit with a relevant high current output drives the cooling elements through a controlling circuit. Atmospheric Water Generator is a device that can convert atmospheric moisture directly into usable and even drinkable water. It is such a device which uses the principle of latent heat to convert molecules of water vapor into water droplets. It has been introduced a bit before, though it is not very common in India and some other countries. It has a great application standing on such age of technology where we all are running behind renewable sources. This paper also describes the experimental results and the system's performance.

# OPTIMIZATION OF PROCESS PARAMETER TO INVESTIGATE THE MECHANICAL PROPERTIES OF BIOCOMPATIBLE MATERIAL BY RAPID PROTOTYPING

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## ABSTRACT

SLS process is a tool used to convert the powdered material into a solid geometrical structure. The main aim of this experiment is to enhance the physical and mechanical properties of material through selective laser sintering process. In this work the effects of Surface Finish and Hardness has been investigated on biocompatible material (Polyamides) which has been laser sintered by using selective laser sintering process. The various process parameters such as laser power, scan spacing and bed temperature of SLS has been identified for optimization. Experiments have been carried out by considering L9 orthogonal array by varying the levels of above said parameters on those sintered specimens. The outputs such as hardness and surface roughness has been identified and optimized by means of design of experiments taguchi technique to evaluate the best parameter values for the larger harness and smaller surface roughness of the sintered specimens. The SN ratio, one way ANNOVA and regression model has been generated to predict the Hardness and Surface Roughness. It's been found that Laser Power (W), Scan Spacing (mm) and Bed Temperature (°C) yields the smaller Surface Roughness and Laser Power (W), Scan Spacing (mm) and Bed Temperature (°C) yields the larger Hardness of the sintered material.

# INVESTIGATION ON EFFECT OF CRYOGENICS ON LASER SINTERED BIOCOMPATIBLE MATERIALS

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## ABSTRACT

Cryogenic treatment (CT) is the supplementary process to conventional heat treatment process in steels, by deep–freezing materials at cryogenic temperatures to enhance the mechanical and physical properties of materials being treated. In this work the effect of cryogenics has been investigated on biocompatible material (SS 316L) which has been laser sintered by using selective laser sintering process. The various process parameters such as laser power, scan spacing and bed temperature of SLS has been identified for optimization. Experiments has been carried out by considering L9 orthogonal array by varying the levels of above said parameters, and then those sintered specimens are made to freeze in cryogenic temperature at -196°C in order to increase the mechanical properties of the specimen. The outputs such as hardness and surface roughness has been identified and optimized by means of design of experiments taguchi technique to evaluate the best parameter values for the larger harness and smaller surface roughness of the sintered specimens. The sn ratio, one way ANNOVA and regression model has been generated to predict the hardness and surface roughness. It's been found that laser power (62 W), scan spacing (0.10 mm) and bed temperature (103°C) yields the larger hardness and laser power (62 W), scan spacing (0.10 mm) & bed temperature (103°C) yields the smaller surface roughness of the sintered material.

# OPTIMIZED MUFFLER DESIGN FOR LESS NOISE

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## ABSTRACT

The main purpose of a muffler in an automobile is to reduce the engine noise. An automotive muffler is designed and modified to achieve attenuation and back pressure targets. Attenuation and back pressure characteristic of base muffler is altered by changing its internal configuration. The target value was set at the time of conceptual stage and to obtain these targets, the muffler internal construction is modified. The targeted value is a compromise between the transmission loss and the backpressure. CAE tools are used for simulating the environment to achieve targeted TL (Transmission Loss) and back pressure. Experimental test have been conducted to check and correlate with CAE results in order to evaluate the effect of muffler internal construction on both TL and backpressure.

# FABRICATION AND CONCEPTUAL MODEL OF EFFECTIVE TAKE-OFF AND LANDING OF AIRCRAFT USING MAGLEV

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## ABSTRACT

Among the most important problems in an aircraft is the accidents caused during the landing and the take-off. About 48% of the accidents are caused during the landing of an aircraft and 13% of them during the take-off. The main aim of the project is to reduce the number of accidents caused while take-off and landing of an aircraft. The use of magnetic strips or the magnets by the opposite poles used nearby in the runway and the belly of an aircraft this project can be brought to existence. Another method to implement this electrically is the use of superconducting materials in the runway and varying the speed of the aircraft by altering the electricity that is passing through the superconductors or by fabricating the runway such that it is of iron rods covered with the copper wires and electricity can be passed through to make it magnetized and the belly of the aircraft can be of aluminium material. With the use of MAGLEV concept the vehicle is levitated at a short distance away from the guide-way using magnets/strips to create the lift and thrust. In this project the prototype of the Aircraft with magnets attached at the bottom and the runway is also fabricated. By implementing this concept, the length of the runway can be reduced considerably when compared to the normal runways and also the accidents can be minimized to a greater extent and also smooth landing can be experienced.

# AUTOMATIC PNEUMATIC THREE AXIS TRAILOR USING THREE CYLINDERS

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## ABSTRACT

This work titled "3 cylinder based three axis modern trailer" has been conceived having studied the difficulty in unloading the materials. Our survey in the regard in several automobile garages, revealed the facts that mostly some difficult methods were adopted in unloading the materials from the trailer.It has mainly concentrated on this difficulty, and hence a suitable arrangement has been designed. Such that the vehicles can be unloaded from the trailer in three axes without application of any impact force. By pressing the direction control valve activated. The compressed air is goes to the pneumatic cylinder acts as a lifting the trailer cabin.

# Emission impact of DMC on mustard biodiesel propelled diesel Engine

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## ABSTRACT

The emissions characteristics of diesel-engine fuelled with different blends of mustard biodiesel i.e. M100, M90DMC10 (10% Vol of higher-alcohol dispersed in M100) and M80P20 (20% Vol higher alcohol dispersed in M100) at 1500 rpm for compression ratio17.5 were investigated. Results revealed that the NO$x$, HC, CO and smoke emissions were reduced with the increase in the concentration of octanol. Further, PBD80P20 showed effective results when compared to diesel fuel.

# Combined effect of compression ratio and EGR on combustion, performance and emissions characteristics of a common rail direct injection (CRDi) diesel engine fuelled with Karanja oil methyl ester-diesel blend

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## ABSTRACT

This research work was run with three various compression ratios like (16, 17, and 19) and three EGR rates (0%, 10%, and 20%) at the engine rated power output. The results outcome that the BTE for CR16 and EGR0% rate are higher than other test conditions but 10.21% lower than diesel fuel. Oxides of nitrogen (NOx) emission for all the test conditions was lower when compared to diesel, the highest NOx emission reduction was achieved in CR16 and EGR20% rate about 60.91% than diesel operation. Smoke opacity increasing by increase EGR rate, The CR17 and EGR0% rate displayed lower smoke emission about 2.52% than diesel operation. Hydrocarbon (HC) emission for all the test conditions was lower when related to diesel, the CR17 and EGR0% rate displayed the lowest HC emission about 45.82% decreased then neat diesel operation. Carbon monoxide (CO) emission display lower for the EGR0% rate at all the compression ratio, the CR16, and EGR0% rate display lowest HC emission about 11.07% than diesel operation. At all the compression ratio and EGR rate were reduced NOx emission and HC emission then neat diesel fuel.

# Comparative Evaluation And Optimization Of Engine Parameters In Di Diesel Engine Fueled With Higher Alcohol-Diesel Blends

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## ABSTRACT

The present study utilizes higher-alcohols (n-pentanol. n-hexanol and n-octanol) derived from a non-food based source *viz*., ligno-cellulosic biomass in blended form with diesel to power light-duty direct-injection single cylinder diesel engines that are widely used in Indian agricultural sector. In this context, three higher alcohol-diesel blends by up to 30% *by vol*. namely, n-pentanol-diesel (Pen30), n-hexanol-diesel (Hex30) and n-octanol-diesel (Oct30) were prepared.Experiments were conducted at three injection timings (21°, 23° and 25°CA bTDC) and exhaust gas recirculation (EGR) rates (10, 20 and 30%) at the engine's rated power output. In comparison to stock settings of the diesel engine fueled with diesel, the combustion events were found to occur closer to the TDC when the injection timing is delayed from 25°CA to 21°CA bTDC. The blends exhibited higher premixed combustion phasing with higher peaks of pressure and heat release rates.  However, the peak in-cylinder pressures and HRRs dropped gradually as the injection timing was delayed from 25°CA to 21°CA bTDC at all EGR rates.

Modifications to the injection timing, EGR and after-treatment were required to operate the engine under optimum emissions and performance. Reformulation of diesel with higher alcohols derived from ligno-cellulosic biomass feedstock presents an attractive opportunity to reduce emissions and utilize a renewable fuel in diesel engines.

# Use Of Lignin-Derived Advanced Biofuels With The Analysis Of Combustion, Emission And Performance Of Diesel Engines Used In Agricultural Implementations

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## ABSTRACT

There is an attractive opportunity for commissioning bio-refineries in rural areas of US to process ligno-cellulosic biomass or agricultural waste biomass obtained from the country's vast fertile lands to produce value-added bio-fuels for powering diesel engines in agricultural equipment and implementations.

In this background, some lignin-derived advanced second generation biofuels (n-butyl ether, n-octanol, 2,5 dimethylfuran, γ-Valerolactone) could be tested in a single or multi-cylinder diesel engine as blends (upto 50% by vol.) with fossil diesel and an investigation could be carried out to evaluate its impact on the engine's combustion (ignition delay, peak pressure, heat release rate analysis), emission (PM, NOx, HC and CO) and performance (BTE and BSFC) characteristics with and without exhaust gas recirculation(EGR). Optimization studies would be carried out to by modifying engine parameters like injection pressure, injection timing, etc. Results could be beneficial to determine whether potential of these advanced biofuels to replace fully or partially the fossil diesel used in diesel engines under both EGR and non-EGR modes without any damage to the engine. Biofuels being oxygenates may also provide additional benefits of reducing carcinogenic PM emissions which could be confirmed from the experimentation.

# Multi-Objective Optimization And Effective Utilization Of Waste Oil In A Light-Duty Diesel Engine Using Second Generation Biofuels

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## ABSTRACT

Diesel engines are indispensable in the sectors of mass transportation, agricultural & industrial equipment and back-up power generation units due to higher fuel conversion efficiency, reliability, durability and torque capability than gasoline engines. The present study utilizes fuels derived from non-food based sources (a) waste oil (WO) and (b) high carbon alcohols derived from ligno-cellulosic biomass to power diesel engines. Waste oils would be waste transformer oil, waste lubrication oil and waste tallow oil. This strategy presents a sustainable solution for (a) WO management and (b) diesel dependency. This study aims at the effective utilization of WO in a light-duty, water-cooled, four-stroke, direct-injection diesel engine using second generation biofuels as oxygenated compounds.

Preliminary testing was carried out by analyzingthe engine characteristics of the selected diesel engine fueled with neat WO. Diesel engines would be testedwith WO by the addition of oxygenated ligno-cellulosic biomass fuelswith suitable engine modifications like injection timing and diluting intake oxygenusing EGR. Notwithstanding the neat WO operation, it would be again tested individually by blending with high carbon alcohols derived from ligno-cellulosic biomass. A multi objective optimization approach using design of experimentswould be employed to find the optimum combination of EGR, injection timing and blends to minimize emissions with maximum possible performance. Various injection pressures, injection timings and EGR rates would be attempted. By adopting this approach, WO can be effectively reused as an energy source by negating environmental hazards before and after its use in diesel engines, instead of being dumped into landfills.

# Combustion, emission and performance characteristics of a diesel engine fuelled with waste frying oil (WFO), waste frying oil methyl ester (WFOME) and their oxygenated blends.

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## ABSTRACT

Diesel engines are essential in the segments of mass transit, agricultural & industrial equipment and power generation units due to higher thermal efficiency, durability and torque capability than petroleum engines. This study aims at the effective deployment of WFO in a light duty direct-injection diesel engine. For this purpose, WFO collected from restaurants were used. Engine modification and WFO reformulation would be carried out for this purpose. Engine fueled with pure WFO would be tested in the engine to analyse the short comings in emissions, performance and combustion of the engine. WFO modified to biodiesel i.e, Waste cooking oil methyl ester (WFOME) by trans-esterification process would then be tested in the engine. A blend of a lignocellulose derived biofuel and WFO would be the third reformulated fuel to be tested in the engine. Property testing of three fuels would be carried out using ASTM methods and fuel characterization studies using Gas chromatography/Mass spectrometry (GC/MS) methods.

The effect of all these fuels on combustion, performance and emissions of a DI diesel engine was analyzed in comparison with diesel with and without exhaust gas recirculation (EGR). An investigation would bethen carried out to compare the effects of all the above fuel for optimum engine characteristics by employing an optimization software like design expert with engine modifications like injection timing and injection pressure. This approach enable WFO to be efficiently reused as a diesel fuel by offsetting environmental hazards due to dumping.

# Design, Optimization & Analysing on Bullet Proof Jacket for Soldier in a Sandwich Composite

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## ABSTRACT

The protection of life is more important than anything, on that criteria soldier's life are very important who gives their life for the country. This fetches us an idea to "Design, Optimization & Analyzing on Bullet Proof Jacket for Soldier in a Sandwich Composite" with advanced material which protects the impact of bullets without piercing the body. The bullet proof jacket is an advanced composite with major fabric Kevlar and minor materials are aluminium mesh and glass wool. This composite has highest impact strength and energy reflection properties with low weight, such that easy to wear and comfortable. Thus our project involves in designing, optimization on different combination of sandwich composite and impact analysis on the designed jacket to prove that bullet does not impact and valid impact test result on developed composite material which have large impact strength. Hence our project proves to be a new bullet proof jacket that is a life saver for the person who saves our life.

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# Abrasive Wear Studies Of CNT Incorporated Natural Rubber Composites

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## ABSTRACT

In automotive sector, rubber has become an integral component starting from tyres to rubber bushes. Mechanical properties of this rubber can be improved by incorporating nanoparticles like carbon nanotubes in NR (Natural Rubber) instead of SBR. In this work, the rubber nanocomposites is processed in double roll mill by adding the chemical composition . The multiwall carbon nanotubes (MWCNT) is dispersed in the varying proportions (0.5, 1, wt.%) in 6 phr high viscous aromatic rubber processing oil (Apar) using high shear planetary ball mill for a period of 2 hours and then added after catalyst during the processing of rubber nanocomposites. Various tests performed indicated that integration of CNT has improved the mechanical properties of rubber.

# Study on challenges in Spacecraft Propulsion

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## ABSTRACT

Spacecraft propulsion is used to change the velocity of spacecraft and artificial satellites. There are many different methods. Each method has drawbacks and advantages, and spacecraft propulsion is an active area of research. Most spacecraft today are propelled by heating a reaction mass to high temperatures and exhausting it from the back/rear of the vehicle at very high speed. This sort of engine is called a rocket engine. Spacecraft for interstellar travel also need propulsion methods. No such spacecraft has yet been built, but many designs have been discussed. Since interstellar distances are very great, a tremendous velocity is needed to get a spacecraft to its destination in a reasonable amount of time. Acquiring such a velocity on launch and getting rid of it on arrival will be a formidable challenge for spacecraft designers.

# Investigation of hydrogen energy in vehicles

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## ABSTRACT

The use of hydrogen as an energy carrier could help address our concerns about energy security, global climate change, and air quality. Fuel cells are an important enabling technology for the Hydrogen Future and have the potential to revolutionize the way we power our nation, offering cleaner, more-efficient alternatives to the combustion of gasoline and other fossil fuels. A hydrogen vehicle is a vehicle that uses hydrogen as its onboard fuel for motive power. Hydrogen vehicles include hydrogen fueled space rockets, as well as automobiles and other transportation vehicles. The power plants of such vehicles convert the chemical energy of hydrogen to mechanical energy either by burning hydrogen in an internal combustion engine, or by reacting hydrogen with oxygen in a fuel cell to run electric motors. Widespread use of hydrogen for fuelling transportation is a key element of a proposed hydrogen economy.

# Investigation of Cooling and Lubrication of Engines

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## ABSTRACT

Most small two-stroke engines are air-cooled. Air flows over cooling fins around the outside of the cylinder and head, either by the natural motion of the vehicle or from a fan. Many aircraft four-stroke engines are also air-cooled; larger engines have the cylinders arranged radially so that all cylinders are directly in the air stream. Most four-stroke engines, however, are water-cooled. A water jacket encloses the cylinders, water pump forces water through the jacket, where it draws heat from the engine. Next, the water flows into a radiator where the heat is given off to the air; it then moves back into the jacket to repeat the cycle. During warm-up a thermostatic valve keeps water from passing to the radiator until optimum operating temperatures are attained. Four-stroke engines are lubricated by oil from a separate oil reservoir, either in the crankcase, which is a pan attached to the underside of the engine, or in an external tank. In an automobile engine a gear pump delivers the oil at low pressure to the bearings. Some bearings may depend on oil splashed from the bottom of the crankcase by the turning crankshaft. In a two-stroke engine the lubricating oil is mixed with the fuel.

# Study and analysis of Fast Convergence Algorithms for Active Noise Controlling Vehicles

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## ABSTRACT

When reference signal for the FxLMS algorithm is taken from an acoustic sensor convergence can be very slow due to great Eigen value spread. Using a non acoustic sensor, Such as a tachometer, cancellation of narrow band noise in the sensed fundamental frequency and harmonically related ones can be achieved very fast, although other periodic noises and underline broad band noise will remain. Backward prediction errors resulting at the various stages of an adaptive lattice predictor (ALP) represent a a time-domain orthogonalization of the input signal. An ALP structure, with the acoustic reference has input signal, before a FxLMS makes up the FxGAL algorithm. Due to the orthogonalization, FxGAL can be significantly faster compared to FxLMS with reference from a microphone. When compared to FxLMS with tachometer signal, it is not faster but it can cancel every periodic noise, independently of the harmonical relation between them, as well as the underlined broad band noise.

# Study and analysis of Battery Electric Vehicle

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## ABSTRACT

Battery electric vehicle (BEV) is an electric vehicle that utilises chemical energy stored in rechargeable battery packs. Electric vehicles use electric motors instead of, or in addition to, internal combustion engines (ICEs). Vehicles using both electric motors and ICEs are called hybrid vehicles, and are usually not considered pure BEVs. The range of a BEV depends on the number and type of batteries used, and the performance demands of the driver. The weight and type of vehicle also have an impact just as they do on the mileage of traditional vehicles. Electric vehicle conversions usually use lead-acid batteries because they are the most available and inexpensive. Such conversions generally have a range of 20 to 50 miles. Production EVs with lead-acid batteries are capable of up to 80 miles per charge. NiMH batteries have higher energy density and may deliver up to 120 miles of range. New lithium-ion battery-equipped EVs provide 250-300 miles (400-500 km) of range per charge. Finding the balance of range versus performance, battery capacity versus weight, and battery type versus cost challenges every EV manufacturer. With an AC system regenerative braking can extend range by up to 50% under extreme traffic conditions without complete stopping. Otherwise, the range is extended by about 10 to 15% in city driving, and only negligibly in highway driving, depending upon terrain.

# Design, Analysis, Fabrication and Testing of a Composite Leaf Spring

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## ABSTRACT

In order to conserve natural resources and economize energy, weight reduction has been the main focus of automobile manufacturers in the present scenario. Weight reduction can be achieved primarily by the introduction of better material, design optimization and better manufacturing processes. The suspension leaf spring is one of the potential items for weight reduction in automobiles as it accounts for 10% - 20% of the unstrung weight. This achieves the vehicle with more fuel efficiency and improved riding qualities. The introduction of composite materials was made it possible to reduce the weight of leaf spring without any reduction on load carrying capacity and stiffness. Since, the composite materials have more elastic strain energy storage capacity and high strength to weight ratio as compared with those of steel, multi-leaf steel springs are being replaced by mono-leaf composite springs. The composite material offer opportunities for substantial weight saving but not always be cost-effective over their steel counterparts.

# HEAT TRANSFER ENHANCEMENT OF NANOPARTICLES (Al2O3)

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## ABSTRACT

Performance is one of the great significance needs of many industries. However, low thermal conductivity is a primary limitation in developing energy-efficient heat transfer fluids that are required in many industrial applications. In order to avoid this limitation, "Nanofluid" (Heat transfer fluid + nano particle) which is engineered by suspending metallic nano particles in conventional heat transfer fluid. The resulting Nanofluid will exhibit high thermal conductivities when compared to those usually used heat transfer fluids. In this study it reveals that the currently used heat transfer fluid takes more time than the AL2O3 suspended Nanofluids. The time taken to reach $50^oC$ for currently heat transfer fluid (Shell Thermia B) is 100 seconds, whereas for Nanofluid the same temperature is attained in less than 65 seconds. This shows that the Nanofluids have substantial higher thermal conductivity when compared to currently using heat transfer fluid.

# PERFORMANCE OPTIMIZATION OF CONDENSER IN THERMAL POWER PLANT

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## ABSTRACT

In thermal power plant the efficiency and performance of its individual equipment and component plays a very vital role in deciding the overall power plant efficiency. As he efficient operation of a turbine depends on the effective performance of the condenser. For full load generation, vacuum must be maintained inside the condenser. The most of the heat loss in any power plant occurs at the condenser side. This heat which is lost cannot used for further work done in turbine to rotate the turbo generator and produce electricity. So, the performance of the condenser plays a very vital role on deciding the overall performance of power plant. Therefore or aim in this project is to study, analyse and various factors and parameters which are effecting the condenser performance and efficiency calculate its performance and hire its optimum performance can by achieved. The condenser its am heat exchanging device, which is used to condense the steam. While condensing the steam, scales are formed on the inner surface of the condenser tubes. Scaling in the condenser tubes reduces the heat transfer rate and hence the vacuum in the condenser tends to be poor. To curb this problem many techniques are available in both "ON LOAD" & "OFF LOAD " condenser tube cleaning system. Here we briefly discuss the both cleaning system and optimize the performance of condenser.

# PERFORMANCE OPTIMIZATION OF COUNTER FLOW COOLING TOWER

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## ABSTRACT

Cooling towers play a very important role in thermal power plants as the output of the plant is directly dependent on the performance of the cooling water systems. In addition this, the cooling system itself consumes 1.5 to 1.8% of the output of the power plant. Cooling tower is an evaporative cooler. It is used to reduce the temperature of the hot water steam coming out from the condenser and recirculating it to the water tank. Heat exchanger is a process equipment for the effective transfer of heat energy between a hot fluid and a coolant. Heat transfer enables the device to remove the maximum amount of heat energy from a hot bod and leaves it to the atmosphere. In which the process of heat transfer takes place either through conduction, convection or radiation. The main objective of the test rig is to remove the maximum amount of heat from the hot fluid and to provide enhanced cooling effect to the cooling water system. This enables to increase the life of the power plant. For which the counter flow principle of heat exchanger is adopted inside the cooling tower for the better increase in the heat transfer coefficient and cooling efficiency.

**Keywords** : Cooling tower , Heat energy, Heat Transfer

# Woven Hemp and Glass Fiber Hybrid Composite - A Comparative Study on Flexural and hardness Properties with and without NaOH Treatment

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## ABSTRACT

In recent years, the natural fiber reinforced polymer composites have more attention and interest for development of environmental friendly material and partly replacing currently used synthetic fibers. The natural fibers are easily available, low price, recyclable, high specific strength and enough modulus material. Present Experimental investigation deals with the Mechanical behavior of Alkaline treated Hemp and E-Glass fiber hybrid composite. Hybrid composites were fabricated by hand lay-up technique in a mould. The Mould is designed based on the ASTM Standards. The Fiber hybrid composite are also subjected to the Water Absorption test. The mechanical performance of the composite fiber is investigated by varying the following parameters such as alkaline treatment of Hemp and E-Glass fiber, Stacking sequence of composite plate. The various Mechanical tests done here show the improvement in strength of the fibers. Weight measurement gives the results for the water absorption tests. The mechanical performance like flexural and hardness of hybrid composites showed a positive consequence with NaOH treatment and stacking sequence of woven fibers.

**Keywords**: Natural fibers, NaOH treatment, Hemp, Glass fibers

# EXPERIMENTAL INVESTIGATION ON COTTON SEED OIL DERIVED FUEL BY CATALYTIC CRACKING PROCESS IN DI DIESEL ENGINE

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## ABSTRACT

In this study, the biofuel produced from the cotton seed oil through catalytic cracking process. In this process the Lignite Fly Ash (LFA) selected as a catalyst material for cracking process and the cracking process was conducted on a fixed bed catalytic cracking reactor at the temperature range of 450-500ºC. By analyzing the LFA through EDS (Energy Dispersive Spectroscopy), it reveals the presence of oxide of aluminium, silicon and iron in it. The morphology and surface texture of fly ash is figured out by using SEM image. The cracked cotton seed oil is subjected to GC-MS (Gas Chromatography – Mass Spectrometry) analysis, which shows the presence of olefins, saturated and unsaturated acids in the cracked oil. The performance and emission characteristics of cracked oil are evaluated with diesel blends in single cylinder, four stroke, water cooled DI diesel engine. The experimental results reveals that the Brake Thermal Efficiency (BTE) at B25 show the closer to neat diesel. The exhaust emission of oxides of nitrogen ($NO_x$) is decreased with increasing the maximum load for B100 than neat diesel. However, the emission of HC and CO slightly increasing with increasing the percentage of load than the neatdiesel.

**Keywords-**Cotton seed oil, Catalytic cracking, Lignite fly ash and Combustion

# INTOXICATION BY IRON: A GEOCHEMICAL ASSESSMENT OF RIVER KORTALAIYAR USING VARIOUS POLLUTION INDICES

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## ABSTRACT

Pollution of the riverine system is an inevitable consequence of urban, rural and industrial development**.** River Kortalaiyar is one of the three rivers that flow in the metropolitan city of Chennai. It is in to highlight in the recent days owing to its intoxication by various metals. In this study, the concentration of Iron (Fe) in surface waters and sediments of the river Kortalaiyar is examined and its contribution towards the toxicity of the river is analyzed using Pollution Indices like Geo-accumulation index (Igeo), Enrichment factor (EF) and Contamination factor (CF). The study was carried out in thirty sampling locations along the river in the pre-monsoon (PRM) and post-monsoon (POM) seasons of two consecutive years. In the sediments, the average concentration of Fe is found to be 42093.8 ppm with a maximum composition of 116500 ppm recorded in PRM. In the surface water samples, the concentration of Fe varies from 0.09 ppm to 1.3 ppm. From the present study it is sensible to conclude that river Kortalaiyar is intoxicated with Fe and further ignorance towards the subsequent monitoring may worsen thesituation.

**Keywords-** River Kortalaiyar, Geo-accumulation index, Enrichment factor, Contamination factor, Intoxication

# ENERGY EFFICIENT LED LIGHTING SYSTEM FOR RESIDENTIAL APPLICATION

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## ABSTRACT

Nowadays, saving of energy has become one of the challenging issue, considering the inefficient usage of electrical appliances. Among various lighting systems available in current markets, Light Emitting Diode (LED) has been widely discussed in residential, industrial and commercial applications. This paper proposes an efficient LED lighting system for residential applications. The major objective of the proposed work is to satisfy the customers with efficient energy. This system uses multi-sensors and wireless communication technology to control the intensity of LED light based on the demand of the consumers. The performance of the system has been analysed by using proteus software. The proposed LED lighting system reduces the power consumption and enhances both energy efficiency and customer satisfaction.

**Keywords-** Light Emitting Diode, proteus software, compact fluorescent lamps

# SPECTROSCOPIC STUDIES OF 2-AMINO-6-METHYLPYRIDNIUM 4-HYDROXY BENZOATE

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## ABSTRACT

Single crystals of 2-amino-6-methylpyridnium 4-hydroxybenzoate (2A6MP4HB) were grown from water using solution growth technique by isothermal solvent evaporation technique. The solid state Fourier Transform Infrared (FTIR) spectrum of the grown crystal shows a broad absorption extending from 3450 down to 400 $cm^{-1}$, due to H–bond vibrations and other characteristic vibrations. Fourier Transform Raman (FT-Raman) spectrum of 2A6MP4HB shows Raman intensities ranging from 3100–100 $cm^{-1}$ due the characteristics vibrations of functional groups present in 2A6MP4HB. The proton and carbon positions of 2A6MP4HB have been described by $^1H$ and $^{13}C$ NMR spectrum respectively.

**Keywords -**FTIR; FT–Raman; NMR, Nonlinear

# FOREBODE: FORECASTING BASED ON DYNAMIC TRUNCATED BACK PROPAGATION AND ENHANCED L1 REGULARIZATION

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## ABSTRACT

The rapid proliferation demand of exploring the big data has urged the use of data-hungry algorithm like deep learning. Deep learning is one of the cornerstone technology behind emerging real-time applications include image and speech recognition, natural language processing, recommender systems, autonomous vehicles, etc.A notable consequence of development in such applications has been the capability of utilizing computing to better awareness and predict the evolution of weather data in prediction analytics. The great success of deep neural networks in the prediction analytics relies on the precise selection of neural network architecture with the optimal.It performed the prediction through the dynamic truncated back propagation and enhanced L1 regularization method. The dynamic truncated back propagation eliminates thevanishing gradient issue by selecting the back propagation time steps regarding the error function and deterministic weight. It allows the convergence of the system within a reasonable time. The enhanced L1 regularization method employs Particle Swarm Optimization (PSO) method to select the optimal features through the penalty term ($\lambda$) that helps to avert the over fitting of data even with the advent of recent data. The experimental framework illustrates that the FOREBODE approach surpasses the existing Anticipated Reweighted Truncated Back propagation (ARTBP) approach in terms of precision by 10.25%.

**Keywords:** deep learning, neural network, LSTM, back propagation, over fitting, vanishing gradient, prediction

# PERFORMANCE OF EFFECTIVE REDUCTION WITH ROUGH SET THEORY

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## ABSTRACT

The Rough set theory (RST) is a method proved its efficiency and simplicity in machine learning and successfully developing now a days vastly and rapidly. Many extensions and hybrid algorithms are proposed so far which pavement solutions for many mining issues. In this paper the performance of RST is studied in the sense how it carried out in the process of data mining. The Rough set theory is well known for its simplicity in attribute reduction. This paper experiments the caesarian data to investigate the performance of RST in small dimension data counter to the other data mining algorithms and their performance consequences based on the accuracy of the classifications were discussed.

**Keywords-** Rough set theory, Machine learning, caesarian data

# LINEAR PROGRAMMING PROBLEM SOLUTION USING FUZZY VIKOR METHOD

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## ABSTRACT

In this paper the applications of mathematical programming problem has been described in three states. It helps to recognize irrelevant data and noise data. The computation results help to minimizing the error in the training problem which leads for survival of column rectum cancer from the medical data base. A novel approach of solution of Linear Programming Problem discussed using Fuzzy VIKORmethod.

**Keyword:** Minimizing, mathematical programming, cluster Analysis. Fuzzy VIKOR method

# VIRTUAL REALITY (HOLOGRAM) BASED SUPPLY SYSTEM MANAGEMENT POST FLOOD

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## ABSTRACT

Virtual Reality is seen as the high-end of human-computer interactions and it has the potential to target a wide range of applications. To improve the standardization and automation of disaster operation management, a new method of emergency management based on the activity network technology is presented. Firstly, the emergency plan is built upon emergency response activities by using the activity network technology. While a virtual trajectory may be represented using straight lines connecting waypoints of interest, this simple model does not accurately represent typical user behavior. We implemented the model within a framework that can be used for redirect food distribution within different virtual and physical environments. It is useful for the evaluation of redirected of parameters under varyingconditions.

**Keywords-**Hologram, Virtual Reality,virtual trajectory

# PROPAGATION OF SOLITARY WAVES IN PERIODIC SYMMETRIC POTENTIAL SYSTEM

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## ABSTRACT

We consider optical pulse propagation in an inhomogeneous optical fiber with symmetric potentials, which is governed by a system of Generalized Inhomogeneous Nonlinear Schrödinger (GINLS) equation. Multisoliton propagation is studied analytically by means of deriving associated Lax pair and the soliton solutions are obtained using Darboux transformation. The impact of symmetric potentials on soliton dynamics is investigated. Our result shows that symmetric potentials have strong influence on soliton dynamics.

**Keywords-** Generalized Inhomogeneous Nonlinear Schrödinger, Darboux transformation

# EVALUATION OF POLYPARAPHENYLENE TEREPHTHALAMIDE REINFORCEMENT ON ZINC PHOSPHATE COATED ALUMINIUM COMPOSITES

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## ABSTRACT

In pursuit of attaining light-weight aircraft assemblies, high design stress levels have to be implemented and materials with high specific strength such as Aluminium etc. are to be installed. However, a widespread spectrum of fatigue load exists at the aircraft wings and other aerodynamic machineries that may cause instigation and proliferation of fatigue cracks and clinches in a catastrophic rupture. In this perspective the contemporary research exertion emphasis on the preparation of a laminate using polyparaphenylene terephthalamide fibre reinforced composite in 0º-90º orientation by using epoxy resin as adhesive and to analyse the mechanical properties. And to improve the adherence of this lamination deposition of zinc phosphate composite coating was coated as a prior coating by chemical conversion coating process which improves the durability of this polyparaphenylene terephthalamide fibre reinforced lamination. Main objective of this work is to make a composite laminate with high strength, high stiffness, and low weight for various applications. A major enhancement in the fatigue performance was witnessed by shielding polyparaphenylene terephthalamide fibres with Aluminium using epoxyresins.

**Keywords-** light-weight aircraft, polyparaphenylene, terephthalamide

# VOYAGE OF HISTORY AND THE ELEMENT OF EXISTENCE IN THE SELECT NOVELS OF AMITAVGHOSH

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## ABSTRACT

History has always been an integral part of Life in the select novels of AmitavGhosh. The interconnectivity has intimacy and relationship towards man kind that makes the novels of AmitavGhosh unique and vital. This paper focuses on history and the element of existence as represented by AmitavGhosh in his novels with a wide vision on bringing humanity. Historical events bought out by AmitavGhosh paves way back into the past of a Burmian Dynasty that long lived through the novel The Glass Palace and a forgotten community called Girmityas in the novel The Sea of Poppies. Ghosh weaves the central theme of human existence in the damp period of live and its existence through a ide sense of imagination that travels with flawless time and space. The Paper views historical events through the magnifying glass of imaginative characters. A critical study of Characters through historical events, title and the theme have been viewed to understand the high perception of a change in through the course of history, and a rethinking of its time. The two novel dealt in the paper are The Glass Palace and Sea of Poppies. AmitavGhosh, living author is a Writer, Anthropologist, a Traveller and a Professor, born in Calcutta presently known as Kolkata in the year 1956. He moved from Kolkata to Dhaka and Colombo in his young age as his father shifted from place to place. Ghosh, at his grown up age further moved to East Pakistan which now called as Bangladesh, Srilanka, Iran and northern India. The novels of AmitavGhosh has a greater association with the lives of ordinary people caught in the midst of  post colonial Period, bringing out humanity, using historical events and his own imagination. Ghosh, being an extensive travel writer comments on the present scenario of the world that has passed through history and penetrates the psychological aspects of people in varied backgrounds. The select novels are of great importance in the post-colonial vision which also portrays the untouched parts of history. Ghosh, through a detail study of Anthropology, history and elements of past scenarios it is found that there has been personalities which bought out cultural fragmentation, colonial and neo colonial power structures find some post-modern traits such as cultural fragmentation, colonial and neo-colonial powerstructures,

cultural degeneration. In the paper the element of existence have bought out the fundamental understanding modern civilization, human relationships, facts and information, search for love and land etc., The fundamental qualities of postmodernism are predominantly shown throughout the select novels of AmitavGhosh. Rethinking and reframing the historical event with imagination blended with nationhood and reality as Ghosh's technique. The select novels acclaimed with high volumes they have been awarded with many prestigious awards and has won many people for its untouched projections. The attempt to re-identify the existence of a dynasty and a lost community has been critical bought out which has been blended with the novel and its major change towards the identity of a common human life. The elements of Existence bought in the paper show extreme reidentity of the Burmian Dynasty and the Lost community Girmitiyas though fictional character that questions the minds of people. Ghosh attempts in re-reading of history from a unique bowl of dimension, blending different fictional characters and the historical events are studied in this paper to highlight the various aspects of humanity and theirexistence.

**Key words:**History, Imagination, Re- Identify, Community, Gender, Rethinking History, Humanity

# SELECTION OF CUSTOMER'S ORDER PREFERENCE BY FUZZY INTERVAL VALUED EDAS METHOD

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## ABSTRACT

The selection of order preference of the customer in a lab is a multi-criteria decision making problem. If the assignment of customer follows the order preference, then it will minimize the time and hence maximize the utility of the lab. In this paper the customer with their expectation are considered as the alternatives. The data was analyzed and given the fuzzy interval valued based on triangular fuzzy membership functions. For selecting the order preference EDAS - Evaluation based on distance from average solution method was applied. The weights of the criteria was calculated using average distance formula.

**Keywords:** Fuzzy Interval Valued set, EDAS, positive average measure, negative average measure, normalized weighted sum, score values.

# A STUDY ON CONTRA L – FUZZYGENERALIZED PREREGULAR TOPOLOGICALSPACE

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## ABSTRACT

The concept of fuzzy had a great influence on complexity in the recent decades. Fuzzy logic on set gives us a framed work than that of the classical concept. Fuzzy topology is all about the study of ordered and topological structure on fuzzy sets. This paper deals withContra L-Fuzzy approximation, Contra L – Fuzzy quasi approximation, Pairwise contra fuzzy generalized pre-regular connected space, Pairwise strongly contra fuzzy generalized pre-regular connected Space, Pairwise extremely contra fuzzy generalized pre-regular Disconnected space. Also few of its properties are verified.

**Keywords:**Contra L-Fuzzy, Generalized Pre-regular, Pairwise contra, Connected space, Disconnected space.

# TECHNIQUES FOR EVALUATING MICROSTRUCTURE AND MECHANICAL PROPERTIES OF LASER WELDED JOINTS: A REVIEW

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## ABSTRACT

This review summarizes the up to date progress on the various research activities carried out laser welding joints of homogeneous and dissimilar welding of different combination of mainstream industrial materials. Microstructure and metallurgical examinations of laser weld joints using Optical Microscope (OM), Scanning Electron Microscope (SEM), Transmission Electron Microscope (TEM), Scanning Transmission Microscopy (STEM) and Neutron Scattering/X-ray scattering (XRD) techniques are included in the literature study. Hence, it is correlating those studies help the researchers to understand the joint integrity in sub atomic ranges. The destructive testing methods such as Hardness Test, Tensile Test, Impact Test and Bend Test are taken for the survey in order to gain the knowledge onto evaluate mechanical strength of the weld sample whether joint strength is replicating the properties of parent materials or not. Mainly, it is also focused on the ultrasonic testing is a nondestructive method used for discovering the existence of flaws, discontinuities, leaks, contamination or imperfections that may occur in the laser weldjoint.

**Keywords-** Scanning Electron Microscope (SEM), Transmission Electron Microscope (TEM), X-ray scattering (XRD), Tensile Test, Impact Test, Bend Test, Ultrasonic Test.

# STRONGLY *(i, j)(fgsp)*[*] CLOSED SETS INFUZZY BITOPOLOGICAL SPACE

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## ABSTRACT

In this paper, we defined the strongly closed sets in fuzzy bi-topological space $(X, \mu$ i, j) comparing with the (gsp)* closed sets in bi-topological space (X, i, j). The defined sets are proved with their properties by examples. Finally the application of Stongly (i,j) fuzzy closed sets in fuzzy bi-topological spaces are overviewed. Throughout this paper, we used X=[] as the universal space and the member value set as the subset of fuzzy bi- topologicalspace.

**Keywords** -Bi-topological space,Fuzzy pre-open, Fuzzy pre- closed, fs-open and closed set, fg-closed set, fgs-closed set, fgsp-closed set.

# PREDICTING ONLINE SHOPPERS INTENSIONS BY FUZZY PETRI NETS CONSTRUCTION

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## ABSTRACT

The development of online stores nowadays is extremely speedy. This can be supported by quicker and higher internet infrastructure. The increasing growth of online stores makes the competition tougher during this business field. It's necessary for online stores to have a website or an application that is ready to measure and classify consumers spending intentions, so that the customers will have eyes on things on the sites and applications to form purchases eventually. Fuzzy Petri nets are powerful specifications as they cover concurrency and management of impreciseness of any real time application domain .Researchers use this tool for interpreting the results obtained in data mining. Data mining helps selling professionals improve their understanding of client behavior. In turn, this higher understanding permits them to focus on selling campaigns a lot of accurately and to align campaigns more closely with the wants, desires and attitudes of shoppers and prospects. In this paper, fuzzy Petri nets and classification mining techniques have been implemented using online shoppers intention data.

**Keywords:** Data mining, high level fuzzy Petri nets, classifications, selected attributes, search methods, online shoppers intentiondata.

# A SYMMETRIC ENCRYPTION SCHEME BASED ON FERMAT'S TWO SQUARE THEOREM AND IRRATIONAL NUMBERS

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## ABSTRACT

In this paper, the new encryption scheme based on Fermat's two square theorem and irrational numbers is implemented for secure message transmission. It is a mutually authenticated scheme which is secure against all known standard attacks. The main feature of this scheme is that, it is robust and key is dynamic for each transmission. This new scheme employs the linear transformation to encrypt the message and uses the XOR-mod operation to confuse the relationship between the plaintext and ciphertext. The theoretical and statistical tests are carried out with detailed examinations, demonstrating the high level security of the newscheme.

**Keywords:** Fermat's two square theorem; Moore-Penrose inverse; XOR mod operation; Irrational number.

# DRAMA AS AN EFFECTIVE TOOL FOR TECHNICAL TEACHING

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## ABSTRACT

Drama, a unique genre of literature, has the potential to act as an effective tool for technical teaching. Drama incorporates sounds, actions, movement, gesture and images. The complete understanding of the idea is achieved watching it in performance rather than reading a text. The didactic aspect of drama gains more ground in performance than in a mere play text. Thus dramatic communication has the richness that lends itself to semiotic investigation.The concentration and intensity of emotion is caused by actually seeing and observing the events represented. While anything that can be represented on the stage is conveyed to the audience with much greater intensity than by any other literary means. Drama is thus an expression of instinctive desires, a valuable outlet and a rich educationalexperience.

# $\pi-$ELECTRONENERGYVALUEOFCHEMICAL MOLICULES

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## ABSTRACT

In this article, Minimum Domination energy value and Minimum neighborhood energy value of Benzoxepine derivatives has studied. By using these derivatives are useful intermediates for the synthesis of many natural products and biologically active molecules. These molecules are an essential objective in modern organicsynthesis.

**AMS Subject Classification (2010): 05C69**

**KeyWords:** Minimum Domination energy value and Minimum neighborhood energy value.

# A NOVEL SEGMENTATION METHOD USING JSEG ON PAVIA CENTER HSI

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## ABSTRACT

Hyperspectral image study is an intricate and demanding mission owing to the intrinsic scenery of the image. At this point, we put forward a novel approach entitled as a novel segmentation method using JSEG. One band is picked out from the hyperspectral image as a preprocessing and then renovate into false color image. The JSEG algorithm is segregate the false color image appropriately devoid of manual parameter fine-tuning and reword texture and color.

**Keywords -**Cluster, Region growing, hit ratio region, class-map, quantize.

# Configuration of laser induced downward increasing vapor region in autogenously welding of AISI 316L Stainless Steel joint using pulsed Nd:YAG laser

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## ABSTRACT

A 500 Watts PC controlled Nd: YAG laser beam with wavelength of 1.064µm was used to weld the autogenous butt joint of AISI 316L stainless steel sheets which is an extra-low carbon version of AISI 316 stainless steel that minimizes harmful carbide precipitation due to welding. This paper briefed about the physics of laser - AISI 316 stainless steel interaction stage by stage including the formation of plasma at the possible regions in keyhole during the laser welding. During the study of volumetric heat source model proposed by JaoHwa Kuang et al, it found by an accident that the cone shaped vapour and melt regions near the bottom of the keyhole are looking slightly deviated from as proposed volumetric heat source model due to a downward expanding vapour region at the bottom. At the same time, expanding the vapour region at the bottom leads to loss of material by producing downward plasma that will cause the root concavity as a result. Therefore, it concluded to identify and control the expansion of vapour region at the bottom by optimizing the operating parameters, mainly the input power.

**Keywords**: Laser Welding, Stainless Steel, Keyhole, Plasma, Vapour, Melt Flow

# Selection and Precised Application of Operating Parameters of Nd:YAG Laser for Material Processing

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## ABSTRACT

An Nd:YAG laser has been a flexible device for assortment of material handling in the advanced assembling businesses. Aside from the simple control and vigor of Nd:YAG laser pillar, its frequency consumed by wide scope of materials. Consequently, the chance of controlling and preciesed values for unmistakable working boundaries, for example, normal pinnacle power, normal pinnacle power thickness, mean force, beat length, beat vitality, beat repetittion rate ,interaction, beat cover hypothesis and its scientific relationship were talked about for beat and nonstop wave. Subsequently, the determination of palatable mixes of related boundaries to deliver proficient and viable material handling with diminished deformities.

**Keywords:** Nd:YAG Laser, Continuous Laser, Pulsed Laser, Operating parameters, Material Processing

# Degradation of Acid Orange -7 by Fenton and photo Fenton Oxidation Process

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## ABSTRACT

This article reveals the degradation of Acid Orange 7 by fenton and photo fenton oxidation process. Variation of the rate of degradation of dye was analysed by the process variables such as initial dye concentration, irradiation time, catalyst loading, pH of the bath solution and the percentage of interfering hydroxyl scavengers. The catalytic activity of zinc oxide was retained and reused without much loss in its activity. UV-Visible spectrophotometer was used to measure the amount of adsorption which is used to enumerate the percentage of degradation of Acid Orange - 7 by fenton and photo fenton oxidation process.

**Keywords:** Acid Orange - 7, Photo catalyst, Decolourization, Degradation

# Effect of Surface Nano crystallization of H11 Steel by Surface Mechanical Attrition Treatment on the Kinetics of Formation of Phosphate Coating and its Corrosion Resistance

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## ABSTRACT

The effect of surface nanocrystallization of H11 grade tool steel induced by surface mechanical attrition treatment (SMAT) on the kinetics of formation of zinc phosphate chemical conversion coating is studied. SMAT of H11 steels using 8 mm $\varnothing$ steel balls for 30 min increased the surface roughness and provided a surface, which is highly amenable for the formation of phosphate conversion coatings. SMAT increased the extent of metal dissolution during phosphating and enabled an increase in the kinetics of phosphating. The morphological features, phase content and corrosion resistance of the resultant zinc phosphate coatings were evaluated. Coatings formed on coarse grained H11 steels were used as controls. In spite of the similarity in phase composition, the increase in reactivity of SMAT treated steel has resulted in formation of phosphate coating with a higher coating weight with a larger crystallite size. Compared to untreated H11 steel, a cathodic shift in Ecorr along with a corresponding decrease in icorr is observed for SMATed H11 steel after phosphating. The deleterious effect of an increase in surface roughness by SMAT on the corrosion resistance of H11 steel is partly compensated by the formation of phosphate coatings with a higher coating weight.

**Keywords:** Surface Mechanical attrition treatment, H11 steel, chemical conversion coating

# APPROACHING DOMINATION SET OF A GRAPH VIA IDEAL GRAPH OF THE CORRESPONDING GRAPH

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## ABSTRACT

Abstract: Strong vertices of any graph G with respect to its the ideal graph $I_d(G)$ is defined as the vertices of G which are present in the ideal graph $I_d(G)$ of G and the weak vertices are the vertices of G which are not in $I_d(G)$. In this paper we analyze the relationship between the set of strong vertices of the graph G and a domination set of vertices of the graph G via ideal graph $I_d(G)$ of G. Also we discuss the relationship between ideal number and domination number of a graph G.

**Keywords**: Ideal Graph, Domination, Ideal Number

# MODULATION INSTABILITY OF A FIBER SYSTEM WITH VARIABLE GVD , NONLINEARITY AND GAIN PARAMETER

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## ABSTRACT

In optical fibers, MI occurs as a result of the conservative interaction between nonlinear and dispersive effects. This happens when a perturbed continuous wave experiences an instability that leads to an exponential growth of its amplitude or phase during the course of propagation. In this work a theoretical model to describe wave propagation in a fiber with varying GVD, nonlinearity and gain/loss is presented. Linear stability analysis approximation to obtain MI gain of GINS system is employed .The influence of GVD, non linearity and gain parameter on MI gain is also examined. This analysis will be helpful for generation of solitons.

**Keywords**: Inhomogeneous Scrodinger Wave Equation, Modulation Instability, Soliton, Group Velocity Dispersion

# A REVIEW ON THE POLLUTION STUDY OF THE KORTALAIYAR RIVER, TAMILNADU, INDIA

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## ABSTRACT

In the present study, an attempt is made to rediscover the study area, Kortalaiyar River. Kortalaiyar river is one of the main sources of water in the Thiruvallur district and it is one of the three rivers that flows in the Chennai metropolitan

A review is presented on the sedimentology, Geo-chemistry and the water -Chemistry of the river. An effort is made to include the various techniques and methods involved in the study of the sediment and water characteristics of the Kortalaiyar River along with the description of the materials and equipment used for analysis. The results of the various study is analyzed and compared using statistical data like Cluster analysis, ANNOVA and box plots. The contamination of the river is assessed using the data obtained from various research and concluded the presence of heavy metal contamination along with major and minor metals. The effect of the concentration of major metals and trace metals are also evaluated in the study.

**Keywords**: Kortalaiyar River, Cluster analysis, Contamination, Sedimentology, Geochemistry, Water Chemistry, Heavy Metals

# ECOTOXICOLOGY OF THE RIVERINE SEDIMENTS OF KORTALAIYAR RIVER, TAMILNADU, INDIA

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## ABSTRACT

The growing competition in the quantitative and qualitative demand of water from domestic, industrial and economic sector seek the approach to water resource management. Rivers are the carriers of the contaminants due to the flocculation of metals in the sediments.

Urban and industrial activities in metropolitan cities all over the world have grown very rapidly in recent years and a significant number of contaminants are introduced in aquatic regions especially in the rivers. The contamination level is increasing day-by day without any major process to control the level of pollution. This type of contamination disturbs the aquatic environment severely and also affects the adjacent area with major ecological degradation. A variety of physico-chemical effects takes place in aquatic region with major environmental changes with no effective monitoring system and it also makes it difficult to draw any major conclusions on the long-term effects of human activities

The objective of the present study is to assess the contamination level in Kortalaiyar River which plays an inevitable role in the water supply, food security and economic development of the Chennai city. Samples of sediment and water were collected from 30 locations starting from Poondi Lake to Ennore creek to analyze the geochemistry of the river. The geochemical analysis was carried out for Pre Monsoon and Post Monsoon seasons for two consecutive years. The trace metals and the major metals analyzed are considered for the ecotoxicolgy by evaluating their availability and interrelationships using Pearson's correlation matrix and Cluster analysis. The level of contamination is figured out to be notably high in certain areas which are above the standards considered. The River is found to be contaminated with heavy metals from various anthropogenic inputs. Hence, measures are to be taken to conserve this fluvial system.

**Keywords**: Kortalaiyar River, Geochemistry, Pearson's Correlation matrix, Cluster analysis, Heavy metals, Ecotoxicology.

# IMPERATIVE STABILITY OF QUADRATIC AND QUARTIC FUNCTIONAL EQUATION IN COMPLEX BANACH SPACES

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## ABSTRACT

In this paper, the authors established the solution of the complex quadratic functional equation and quartic functional equation

$$f(2x+iy) + f(2x-iy) = f(x+iy) + f(x-iy) + 6x$$

and

$$f(2x+iy) + f(2x-iy) = 4[f(x+iy) + f(x-iy)] + 24f(x) - 6f(y)$$

in Banach space in the sense of Ulam, Hyers, Rassias.

**Keywords :** Additive functional equations, generalized Hyers - Ulam – Rassias stability.

# ULAM-HYERS STABILITY OF n- DIMENSIONAL QUADRATIC FUNCTIONAL EQUATION AND ITS SOLUTION

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## ABSTRACT

In this paper, the authors investigate the solution and Ulam - Hyers stability of a n-dimensional quadratic functional equation

$$f\left(\sum_{a-1}^{n} ax_a\right) + f\left(\sum_{a-1}^{n-1} ax_a - nx_a\right) = 2f\left(\sum_{a-1}^{n-1} ax_a\right) + 2n^2 f(x_n)$$

in Banach spaces and its solution.

**Keywords and phrases :** quadratic functional equation, General Solution, Generalized Ulam-Hyers stability, Banach Space.

# A STUDY ON THE CONNECTEDNESS PROPERTIES OF $\alpha$-ARY CLOSURE OPERATIONS IN DIGITAL TOPOLOGY

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## ABSTRACT

The closure operations which is commonly used as a basic topological structure in digital topology. The generalized topological structures, called closure operations, that are associated with $\alpha$-ary relations ($\alpha > 1$) are explained with its properties.Some $\alpha$-ary are suitable for applications in digital topology are discussed. In particular, for any natural number $n > 1$, a closure operation on $Z \times Z$ which is obtained as a product of two copies of Z with special $n$-ary relation on Z. In the case $n = 2$ this closure operation coincide with the khalimsky topology.Generalized topological structures shows that can provide suitable framework within which to compare various approaches to digital topology with an ordinary topology.

**Keywords**: Closure operation on $Z \times Z$, Generalized topological structures, $\alpha$-ary relations, Digital topology.

# COMPARITIVE STUDY OF BIBD AND HADAMARD MATRICES IN COMBINATORIAL DESIGNS

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## ABSTRACT

Combinatorial design theory concerns with the possible arrangement of elements of a finite set into the decomposed subsets, so that certain "balance" properties are satisfied. Design theory has its roots in recreational mathematics. Applications of Designssuch as lotteries, mathematical biology, tournamentscheduling, networking, group testing,algorithm design analysis and cryptography. Combinatorial Design theory makes use of tools from linear algebra, groups, rings,fields and number theory combinatorics. The basic concepts of design theory are quite simple, but the mathematics used to study designs arevaried rich and ingenious. Here we mainly discussed about the balanced incomplete block design which begun in the 1930s by Fisher and Yates [1].Hadamard matrices also specific selected topics on these days.Hadamard Matrices are present in our daily life and which is discussed about block designs. The other topic explained in this paper is Balanced Incomplete Block Designs (BIBD) arose several interesting and defying problems within Combinatory Mathematics. Applications of BIBD based on new technologies and codes of figures such as Quick Response Codes (QR Codes) are notable in today's context. This paper mainly compares the properties of BIBD and Hadamard matrices with their properties and applications.

**Keywords**: Combinatorial design, Hadamard matrices,Balanced Incomplete Block Designs (BIBD), QR Codes.

# A COMPARITIVE STUDY ON DOMINATION IN PETERSEN GRAPH WITH FUZZY PETERSEN GRAPH

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## ABSTRACT

The concept of fuzzy had a great influence on complexity in the recent decades Fuzzygraph set gives us a framed work than that of the classical concept. Fuzzy graph is all about thestudy of ordered and graph structure. This paper deals with Domination in Fuzzy Petersen Graph. Mainly discussed the fuzzy graph with domination properties and it is applied in Fuzzy Petersen graph. Finally compared the properties of domination in ordinary Petersen graph with Fuzzy Petersen graph.

**Keywords**:Fuzzy graph, Domination, Ordinary Petersen graph, Fuzzy Petersen graph.

# A STUDY ON THE CHARACTERIZATION OF ARKOVSKII'S THEOREM AND IT'S CONVERSE IN CHAOS THEORY

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## ABSTRACT

In this paper, first we will prove Sarkovskii theorem and then it's converse. Sarkovskii's theorem provides a great deal of information about the periodic behavior of the iterates of continuous functions. The necessary and sufficient condition for a topological space X are discussed so that X can replace R in Sarkovskii theorem. It's an important theorem in Chaos theory of Topology. One of the implication of this theorem is that if a discrete dynamical system on the real line has a periodic point of period 3, then it must have periodic points of every other period.

**Keywords**: Sarkovskii theorem, Converse, Chaos theory, Dynamical system, Periodic points, Lorentz curve.

# Spectroscopic studies of Hydrazonium L–Tartrate: An Organic Nonlinear Optical Material

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## ABSTRACT

The proton positions and carbon positions have been identified through nuclear magnetic resonance (NMR) spectrum. The vibrational spectroscopic investigations have been carried out for this material by Fourier Transform Infrared (FTIR) and Fourier Transform Raman (FT–Raman) spectra. The powder second harmonic generation (SHG) efficiency of the HLT analysed using Nd: YAG laser was about 1.5 times that of potassium dihydrogen phosphate (KDP), which is higher than the reported value. Optical transmission studies performed in the range 190–1100 nm revealed that the undeuterated HLT crystal could be suitable for NLO applications. The dielectric behaviours such as dielectric constant, dielectric loss and *ac* conductivity and emission properties of HLT have been studied for the first time.

**Keywords:** SHG; NMR; FTIR; Raman; Dielectric

# Vibrational and NMR Spectroscopic studies of N-Succinopyridine

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## ABSTRACT

Single crystals of N–Succinopyridine (NSP) have been grown using solution growth method by isothermal solvent evaporation technique with water as a solvent. X-Ray Diffraction (XRD) studies confirm the crystallization of NSP in non-centrosymmetric space group. Extensive spectroscopic investigations have been carried out using Fourier Transform Infrared (FTIR) and Fourier Transform Raman (FT–Raman) spectra to identify the functional groups in NSP. The proton and carbon positions of NSP have been revealed by $^1H$ and $^{13}C$ NMR spectrum respectively. These studies have been studied to explore and identify the NLO properties and applications.

**Keywords:** FTIR; FT–Raman; NMR; NLO; XRD

# Photoluminescence and third-order nonlinear optical properties studies of HLT

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## ABSTRACT

Undeuterated Hydrazonium L-tartrate (HLT) single crystals were grown by solvent evaporation method using water: methanol (5:1) solution as a solvent. ^{1}H and ^{13}C NMR spectra of HLT have been analysed. Photoluminescence spectrum of HLT analysed to obtain its energy emission behaviour. The nonlinear refractive index ($n_2$), nonlinear absorption coefficient ($\beta$) and third order nonlinear susceptibility ($\chi^3$) of HLT single crystal were estimated by using Z-Scan technique. The predicted first hyperpolarizability of HLT is found to be 1.09 times greater than that of urea and suggests that HLT could be an attractive material for NLO applications. These investigations have been analysed for the first time, to the best our knowledge, in order to study the nonlinear optical properties of HLT and to enhance its usefulness for NLO applications.

**Keywords:** NLO, Raman, NMR, Z-Scan; Photoluminescence

# Quantum Chemical calculations of an organic nonlinear optical material: NSP

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## ABSTRACT

*Ab initio* quantum chemical calculations have been performed by density functional theory (DFT) calculations using B3LYP method with 6–311++G (d,p) basis set to derive the optimized geometries, first order hyperpolarizability and dipole moments. The predicted first hyperpolarizability suggests that the title compound is an attractive material for nonlinear optical applications. The calculated HOMO–LUMO energies show that charge transfers occur within the molecule and their related molecular properties were also discussed. These studies have been confirmed that N-Succinopyridine exhibits Nonlinear optical properties.

**Keywords:***Ab initio*; NLO; HOMO–LUMO; Hyperpolarizability

# Diasporic Elements in Amitav Ghosh's The Glass Palace

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## ABSTRACT

The paper deals with diasporic elements in the select novels of Amitav Ghosh the two major feature Exile and slavery were considered a major issues in the parts of Asia and Africa, during the period of Colonialism. This paper focuses on Exile and Slavery as depicted by Amitav Ghosh in his novels with a wide vision on bringing identity and native belonging in the common people, Historical events during the post colonial period are interconnected relationship and the revival of humanity makes Amitav Ghosh's novel more unique and vital. The Paper views post colonial period through the telescope of imaginative characters depicted in the select novels of Amitav Ghosh. A detailed study of Characters through historical events, title and the theme have been viewed to understand the high sense of a change in history, and a rethinking of its time. The two novel dealt in the paper are The Shadow Lines and The Glass Palace. Amitav Ghosh being a living author is a Writer, Anthropologist, a Traveller and a Professor, born in Calcutta presently known as Kolkata in the year 1956. He moved from Kolkata to Dhaka and Colombo in his young ages as his father shifted from place to place. Ghosh, at his grown up age further moved to East Pakistan which now called as Bangladesh, Srilanka, Iran and northern India. The novels of Amitav Ghosh has a close link with the lives of ordinary people caught in the midst of war and the freedom struggle, bringing out humanity, using historical events and his own imagination. Ghosh, being an extensive traveller he comments on the present scenario of the world that is passing through in his novels and penetrates the psychological aspects of people from varied backgrounds his novels are of great importance in the post-colonial vision.

**Keywords:***History, Imagination Rethinking History, Humanity*

# Freedom of Isabel in Henry James in the novel the Portrait of a Lady

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## ABSTRACT

The paper deals with the freedom of Isabel in the novel the Portrait of a lady by Henry James. The theme of psychological realism is involved to bring out the existence of the novel in the Portrait of a Lady by Henry James. The character of the novel is a girl who comes to her aunt's house after the death of her father and mother. The girl 'Isabel' who comes to her aunts place seeks for more freedom and wants to live the way she likes. Warburton who talks her aunt feels that he needed a unique girl to be his partner and when he finds Isabel he needs her as his life partner, but Isabel disagrees. She disapproves him because she thought her freedom would be lost because of that. Later she is followed by Casper who wants her to be a part of his life. Even after two years Casper leads to her. Isabel was very strong in her mind that she would not like to get into such kind of commitments. She finally gets hold of Gilbert who is self centered which she understand later and at the end she **realizes** that it was all her decision and she would like to follow it. Henry James tries to bring out the, then existing Reality in the **American and European society**. The **reality** was deeply analyzed through logical and emotional aspects by Henry James in the novel the Portrait of a Lady. The character brings a new dimension of living in the 19$^{th}$ century. The Psychological realism used in the novel is hard and bold though they are subtle or in-between lines Henry James carefully brings out the need due to this realism. The reality is understood, the part of psychology is still a question that Henry James brings out through his character Isabel. Henry brought a new dimension to the realism of the 19$^{th}$ century, also to the 20$^{th}$ century American people.

**Keywords:** Psychological realism, Reality, Freedom and responsibility, American and European Society Realization

# The Freedom of Helena in the Drama Look Back in Anger

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## ABSTRACT

The paper deals with the Freedom of a Feminine character depicted in The <u>Look Back in Anger</u>" the play is a painful Angry young man's play by John Osborne. It is about Jimmy Porter, a university graduate who comes from a low class background, and runs a sweet stall finding no other way to earn his livelihood. He lives in the Midlands with his friend Cliff Lewis and his pretty wife Alison Porter whom he bullies all the time. Alison is vicious, and often gives self-pitying speeches. He has married above his status, apparently out of spite against middle class respectability. Jimmy is an extremely "Angry young man" of the post World War II age. A young man who spits venom against everything and everybody, Porter is apparently convinced that for the young generation of today the world is rotten place, never be lived with the changing generation. The character Helena is a actresses who meets her friend Alison and finds her life completely disgusted. The presentation is reference to women empowerment in the times of war and their life stuck between the home and society.

**Keywords**: Freedom, Kitchen sink realism, Women empowerment, Angry young man.

# Exploitation Of Women In Magesh Dattani's Bravely Fought The Queen

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## ABSTRACT

The play Bravely Fought the Queen by Dattani, depicts women who are exploited in the modern society through their surrounding, but also by their own spouse and close relatives at home. The character Baa, the widower mother of Jiten Trivedy and Nitin Trivedy and the unnamed mother of Praful and the two sisters Dolly and Alka represent the first generation. The husband of Baa is a drunkard and he frequently beats Baa . Now, Baa becomes old and her husband is dead but his remembrance is still affecting her seriously. The mother of Praful and his two sisters marry for the second time without proper divorce from the first husband and therefore, she is taken as a whore. She (Baa) forced her son to beat up his pregnant wife. As a result, the baby, Daksha is born deformed prematurely at seventh month; she represents the third generation of women's victimization and stands as the symbol of Jiten's torture on Dolly. For Alka also the suffering is indeed extreme. Her brother, Praful arranges for her marriage to Nitin. In fact, Nitin and Praful are homosexuals who keep a close sexual relationship. To continue their relationship he (Praful) lets her sister to suffer throughout her life. Lalitha with her obsessive love for Bonsai. Actually, bonsai symbolizes these Indian women of India whom the patriarchal society has never given the chance to grow freely. Her creations of bonsai show that she is also a victim of the society with many unfulfilled wishes and suppressed feelings and longings since the society does not let her to have them for her being a woman.

**Keywords:** Victim, Patriarchal ,Oedipus Complex Homosexual, Gay, Bonsai, Claustra phobia, Chauvinistic

# The Nature of Mathematics through Real investigation

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## ABSTRACT

This paper will concentrate on the development of scientific ideas, from the number line and essential tasks, to their increasingly broad useful definitions. Themes will incorporate the genuine numbers, fields, and measurements spaces, with a concentration upon the need for exacting definitions and confirmations.

**Keywords:**Real Analysis, Measurements space, real valued finite set, Fields

# A Study on the Linear Algebra and Matrix in Mathematics

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## ABSTRACT

An investigation on the straight variable based math and lattice in science. Direct polynomial math is the part of arithmetic worried about the investigation of vectors, vector spaces (likewise called straight spaces), direct guides (additionally called straight changes), and frameworks of straight conditions. Vector spaces are a focal topic in current science; along these lines, straight polynomial math is generally utilized in both theoretical variable based math and utilitarian investigation. Direct variable based math additionally has a solid portrayal in systematic geometry and it is summed up in administrator hypothesis. It has broad applications in the characteristic sciences and the sociologies, since nonlinear models can frequently be approximated by direct ones.

**Keywords:**Linear Algebra, Matrix, Lattice, Polynomial, Non Linear Models.

# Limited Graphs and amiability- a review

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## ABSTRACT

Hyper finiteness or agreeability of quantifiable comparability relations and gathering activities has been examined for very nearly fifty years. As of late, unforeseen utilizations of Hyper finiteness were found in software engineering with regards to testability of graph properties. In this paper we propose a bound together way to deal with hyper finiteness. We build up some new outcomes and give new confirmations of hypotheses of Schramm, Lovász, and Newman–Sohler what's more, Ornstein–Weiss.

**Keywords:**Amenability; hyper finiteness; Graphs; Graphing, Properties.

# Edge-Colouring and f-Colouring for Various Classes of Graphs- a review

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## ABSTRACT

In a common edge-shading of a chart each shading shows up at every vertex at most once. A f-shading is a summed up edge-shading in which each shading shows up at every vertex v at most $f(v)$ times where $f(v)$ is a positive number appointed to v. This paper gives proficient successive and equal calculations to discover normal edge-colourings and f-colourings for different classes of charts, for example, bipartite diagrams, planar charts, and charts having fixed decline, tree-width, family, arboricity, unicycle list or thickness.

**Keywords:** Colouring, Edge- colouring, Planar, Euler graph. Tree.

# Two-distribution centre incomplete accumulating stock models for crumbling things under expansion

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## ABSTRACT

In some genuine circumstances, the functional encounters uncover that a few yet not all clients will hang tight for accumulated things during a deficiency period, for example, for trendy wares or innovative items with short item life cycle. The more extended the holding up time is, the littler the multiplying rate would be. As indicated by such marvel, considering the multiplying rate is important. Two-distribution centre stock models for breaking down things with deficiencies under swelling.

**Keywords:** Stock models for crumbling, deficiency period, short item life cycle, holding up time, multiple rates

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# Stock models with stock level-subordinate interest: A complete survey and binding together hypothesis

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## ABSTRACT

Advertising specialists and professionals have since a long time ago perceived the interest of numerous retail things is corresponding to the measure of stock showed. As of late, two unmistakable sorts of stock control models mirroring this relationship have showed up in the writing, models in which the interest pace of a thing is a component of the underlying stock level and those in which it is subject to the prompt stock level. We present a thorough diagram of this writing and exhibit the equality of the two sorts of models using a basic, occasional audit model. An elective way to deal with affectability examination for stock models with stock level-subordinate interest is additionally introduced.

**Keywords:** Stock level-subordinate interest, stock control models, measure of stock, occasional audit model, complete survey hypothesis

# Integrated vendor–buyer cooperative inventory models with controllable lead time and ordering cost reduction
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## ABSTRACT

This study manages the lead time and requesting cost decrease issue in the single-merchant single-purchaser incorporated stock model. We consider that purchaser lead time can be abbreviated at an extra slamming cost which relies upon the lead time length to be diminished and the requesting part size. Also, purchaser requesting cost can be decreased through further speculation. Two models are introduced in this examination. The principal model expects that the requesting cost decrease has no connection to lead time slamming. The subsequent model accepts that the lead time and requesting cost decrease are collaborated. An iterative system is created to locate the ideal arrangement and numerical models are introduced to represent the aftereffects of the proposed models.

**Keywords:** Inventory models, lead time, Controllable lead time, Ordering cost, ideal time,

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# Ideal reorder point stock models with variable lead time and rebate contemplations

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## ABSTRACT

Lead time decrease has been one of the central points in the fruitful usage of the mainstream in the nick of time stock framework. In numerous reasonable circumstances, this controllable lead time can be disintegrated into a few parts, each having a smashing expense for the decreased lead time and the related slamming costs contains a fixed expense and a variable expense for each unit item. In the event that a thing is unavailable in a stock framework in which lack is permitted, the provider may offer a debatable value rebate to the reliable, patient and hostage clients to make up for the burden of delay purchasing. This paper considers the incorporated stock frameworks with the target to at the same time advancing the request amount, lead time, and delay purchasing and reorder point. There are two stock models proposed in the paper, one with ordinarily dispersed interest, and another with by and large conveyed request.

**Keywords:** Ideal reorder point, variable lead time, rebate contemplations, slamming costs, delay purchasing cost

# IOT BASED UBIQUITOUS HEALTH CARE SYSTEM

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## ABSTRACT

In most of IOT-based patient monitoring systems, especially at smart homes or hospitals, there exists a bridging point between a sensor network and the Internet which often just performs basic functions such as translating between the protocols used in the Internet and sensor networks to be transmitted through the Internet. A successful implementation of Smart e-Health Gateways enables massive deployment of ubiquitous health monitoring systems especially in clinical environment. Our proof-of-concept design demonstrates an IoT-based health monitoring system with enhanced overall system energy efficiency, performance, interoperability, security, and reliability.

**Keywords -**patient monitoring systems, e-Health Gateways

"There is always space for improvement, no matter how long you've been in the business. Throw your dreams into space like a kite, and you do not know what it will bring back, a new life, a new friend, a new love, a new country. Between stimulus and response there is a space."

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