

INTERNATIONAL CONFERENCE
on
**Emerging Trends in Science and
Engineering**



10 & 11 JULY 2020

SOUVENIR



SMVITM

**SHRI MADHWA VADIRAJA
INSTITUTE OF TECHNOLOGY AND
MANAGEMENT**

(A Unit of Shri Sode Vadiraja Mutt Education Trust®, Udupi)
Accredited by NAAC with 'A' grade | Affiliated to VTU, Belagavi
Vishwothama Nagar, Bantakal - 574115, Udupi District, Karnataka.

About SMVITM

Providing Value-added, Holistic Engineering Education:

SHRI MADHWA VADIRAJA INSTITUTE OF TECHNOLOGY & MANAGEMENT,
BANTAKAL, UDUPI

Founded in 2010 by H. H. Shri Vishwavallabha Theertha Swamiji of Shri Sode Vadiraja Mutt – one of the 700 plus years old Ashta Mutts associated with the world famous Shri Krishna temple of Udupi in Karnataka – Shri MadhwaVadiraja Institute of Technology & Management (SMVITM), situated at Bantakal in Udupi has carved a niche for itself in imparting quality engineering education in the coastal Karnataka region. Shri Swamiji started the institute with the sublime objective of providing quality higher education to the needy student community at affordable costs. The motto Engineering your Career and Character with Care well reflects the objectives and philosophy of the institute. Despite, being the youngest institute in the region, SMVITM has made remarkable strides in its journey towards excellence and has emerged as the most promising engineering institute with its well-qualified and motivated faculty, state-of-the-art infrastructure and distinguished learning-centric facilities.

At present, SMVITM, with a total student intake of 441 per year, offers Bachelor of Engineering (B.E.) courses in Civil Engineering, Computer Science & Engineering Electronics & Communication Engineering and Mechanical Engineering. SMVITM ensures that its students are well trained in existing engineering practices and acquainted with the latest industrial trends.

The campus is conveniently located at Bantakal, which is about 6 km off the stretch of NH 66 that connects the coastal cities of Mangaluru (Mangalore) and Udupi. The campus is just 18 km away from Manipal, one of the well-known educational hubs in South India and 12 km away from Udupi town. Udupi is well connected by road, rail and air to all the major cities across the country. The institute has well-furnished in-campus as well as off-campus hostels with all modern amenities, separately for boys and girls. The institute is affiliated to Visvesvaraya Technological University, Belagavi; approved by the All India Council for Technical Education, New Delhi and recognized by the Government of Karnataka. The institution is not accredited till now.

The accomplishments of SMVITM have already garnered well-deserved recognition and widespread praise from eminent personalities across the spectrum. Late Dr. A. P. J. Abdul Kalam, former President of India, having admired the vision and value addition to engineering education taking place at the institute, made a visit to the campus and appreciated the holistic education imparted at SMVITM and inspired the students in 2014. Shri A. S.

Kiran Kumar, Chairman, ISRO; Dr. B. N. Suresh, Distinguished Scientist, ISRO; Justice Dr. M. Rama Jois and many more renowned scientists, technocrats and educationists have visited the institute to motivate and guide the students.

Adding feather to its cap, SMVITM which is celebrating its decennial year in 2020, was recently accredited by NAAC with A grade, which certifies the quality of education offered in the institute.

Vision of SMVITM

To Establish an Excellent, Value-based Higher Educational Hub to Meet the Challenges of Global

Competitiveness

Mission of SMVITM

To impart holistic education with state of the art infrastructural facilities and conducive academic ambience, at affordable costs, leading to the creation of Centers of Excellence with best brains collectively interacting for total personality development and intellectual growth

About the conference

The primary objective of ICETSE-2020 is to bring together experts and researchers from Academia, R&D centers and industries working in the emerging fields of science and engineering and provide them a platform for interacting and sharing their research findings. The conference aims at creating interest in the minds of young graduates to pursue research as their career. We sincerely hope that ICETSE-2020 will facilitate as a platform to increase the scope and promote interdisciplinary research among researchers and helps in presenting technological advancements in the emerging areas of science and engineering.

Organizing Committee

Chief Patron

His Holiness Shri Vishwavallabha Theertha Swamiji,
Shri Sode Vadiraja Mutt, Udupi | President, SSVMET

Patrons

Shri P Shrinivasa Tantry, Vice President, SSVMET, Udupi.
Shri Rathnakumar, Secretary, SSVMET, Udupi.

Conference Chair

Dr. Thirumaleshwara Bhat, Principal, SMVITM, Bantakal.

Organizing Chair

Dr. Ganesh Aithal, Vice Principal, SMVITM, Bantakal.

Conveners

Dr. Balachandra Achar H V, Professor & Head, Dept. of E&C Engineering, SMVITM
Dr. Sudarshan Rao K, Professor & Head, Dept. of Mechanical Engineering, SMVITM

Coordinators

Dr. Gajanan Anne, Dept. of Mechanical Engineering.
Ms. Deepika B V, Dept. of Civil Engineering.
Mr. Manoj T, Dept. of Computer Science & Engineering.
Dr. Sachin S Bhat, Dept. of Electronics & Communication Engineering.
Ms. Renita Sharon Monis, Dept. of Mathematics.

Advisory Committee

Dr. Mohammad Ali Ghorbani, Department of Water Engineering, University of Tabriz, Iran
Prof. Ahmed El-Shafie, Department of Civil Engineering, University of Malaya, Malaysia
Dr. Diwakar P G, Director of Earth Observations Applications and Disaster Management Programme, ISRO, Bengaluru
Prof. Pallavi H Agarwal, Principal, Babaria Institute of Technology, Vadodara, Gujarat
Dr. G D Ransinchung R N, Civil Engineering Department, IIT Roorkee, Roorkee
Dr. A Gowri, Department of Civil and Environmental Engineering, IIT Tirupati
Dr. Chakradhara D, Department of Mechanical Engineering, IIT Palakkad
Prof. Udupi Srinivas, Former Professor, II Sc., Bengaluru
Prof. Somashekar Bhat. Associate Director, MIT Manipal
Prof. Niranjana N Chiplunkar, Principal, NMAMIT, Nitte
Prof. Indra Rajasingh, Dean (SAS), VIT, Chennai
Prof. Laxminidhi T, Department of Electronics & Communications Engineering, NITK
Dr. Ramesh M R, Department of Mechanical Engineering, NITK Surathkal
Prof. S M Hegde, Department of MACS, NITK Surathkal
Prof. Nagesh Prabhu, Department of Electrical & Electronics Engineering, NMAMIT Nitte

Dr. Surya Prakash R, Department of Mechanical Engineering, IIT Dharwad
Prof. Rio D'Souza, Principal, St. Joseph Engineering College Vamanjoor, Mangaluru
Prof. Abdul Sharief, Principal, PA College of Engineering, Mangaluru
Dr. Nityananda Shetty, Department of Chemistry, NITK Surathkal
Prof. Rajesh G D'Souza, Principal, Yenepoya Institute of Technology, Moodabidri
Dr. M.S. Balakrishna FRSC, Professor in Chemistry, IIT, Powai, Mumbai



Computer Science and Engineering

An Integrated User Interface as Farmer's Assistant System

Shwetha¹, Sangeetha P Nayak², Prathiksha P Shenoy³, Shreya Rajesh⁴, Priyanka⁵
shwetha.16cs089@sode-edu.in¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Agriculture is the science or an art of cultivating the soil, raising livestock, crops growing and harvesting. Agriculture is also a technique of producing land with higher productivity which is being utilized throughout the globe using many procedures with the help of some science and technology which is highly produced in daily life. Despite the fact that the mobile phones are being made use by individuals who are living in certain rural areas, nevertheless there are barely any similar applications for them to account their affairs to the government during the times when they face any problems or any several obstacles. There are many existing applications related to agriculture. These applications are used to solve problems of farmers such as finding the exact location, area of their land and to know further details about their land. After seeing all these applications our survey revealed that there is no such feature which provides farmers to lodge their agricultural issues and request funds from the government. Here the concept of geo tagging is used for capturing the exact location of destructed land. In this proposed methodology, the problems faced by the farmers during destruction of agricultural field are solved in an unique way. According to this methodology, the farmers can lodge their issues in this web application and they can request fund from the government whenever they face agricultural loss due to natural calamity.

Keywords — Geotag, Web Application System.

Parallelization of Tim Sort Algorithm Using MPI and CUDA

Siva Thanagaraja¹, Keshav Shanbhag², Ashwath Rao B³, Shwetha Rai⁴, and N Gopalakrishna
Kini⁵

sivathangaraja174@gmail.com¹

Department of Computer Science and Engineering

Manipal Institute Of Technology, Manipal, Karnataka, India-576104

Abstract— Tim Sort is a sorting algorithm developed in 2002 by Tim Peters. It is one of the secure engineered algorithms, and its high-level principle includes the sequence S is divided into monotonic runs (i.e., non-increasing or non-decreasing subsequence of S), which should be sorted and should be combined pairwise according to some specific rules. To interpret and examine the merging strategy (meaning that the order in which merge and merge runs are performed) of Tim Sort, we have implemented it in MPI and CUDA environment. Finally, it can be seen the difference in the execution time between serial Tim Sort and parallel Tim sort run in $O(n \log n)$ time .

Keywords — Hybrid algorithm, Tim sort algorithm, Merge sort algorithm, Insertion sort algorithm.

Dip Techniques To Detect Skin Cancer

Keerthan Acharya¹, Akhilesh Shastry K², Gauriprasad K³, Ali Naveed⁴, Venugopala Rao A.S⁵

keerthan.16cs028@sode-edu.in¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— In recent times, skin cancer has become one of the most dangerous forms of cancer found in humankind. Skin cancer can be found in a variety of forms, such as melanoma and squamous cell carcinoma, of which melanoma is the most unpredictable. Early detection of melanoma cancer can help with treatment. Computer vision plays an important role in medical image diagnosis and has been demonstrated by many existing systems. In this paper, we offer software using image processing techniques for detecting melanoma skin cancer using image processing tools. The input to the system is an image of the skin and then analyzed to make conclusions about the existence of skin cancer, using novel image processing techniques. For image segmentation and facilitation steps, check the Lesion Image Analysis tool for various melanoma parameters such as disparity, border, color, diameter, (ABCD), PCA, etc. by texture, shape, and size analysis. Based on the extracted features the image is classified as normal skin and melanoma cancer lesion.

Keywords — Digital Image Processing, Computer Vision

A Survey On Paddy Leaf Disease Detection And Classification Using Deep Learning Techniques

Nisha J¹, Amod Shetty², Ajay³, Nishmitha Shetty⁴, Manoj T⁵
nisha.16cs045@sode-edu.in¹

Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— India's agriculture has a proven history of growing a plethora of crops, with the foremost food staples being rice. Agriculture has been the backbone of the Indian economy and it will still stay there for an extended time. Paddy is one of the most important and widely cultivated crops in the Asian continent. It accounts for marketable production. Unfortunately, paddy cultivation is facing numerous challenges these days because of the infestation and different factors on paddy leaf inflicting rice leaf diseases. The diseases are mainly classified into Rice blast, Brown spot, and Bacterial leaf blight. These diseases have a great impact on both the quality of the rice crop and its yield. This ends up in a huge loss for the farmers, which leads to reduced interest in cultivating the paddy crop and eventually suicide. In this survey paper we present a different deep learning approach which can be used for paddy leaf detection and classification from their images.

Keywords — Convolutional Neural Networks, Deep Learning, Paddy Leaf Disease

Load Balancing in Software Defined Networking

Chaithra Naik¹, Keethana Bhat², Chaitra C Kamath³, Rukmini B⁴

chaithranaik11@gmail.com¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— In this current era, usage of the internet is increasing drastically. Digitization has led to high network traffic which makes the overall management of network highly complex and expensive as traditional networks are non programmable. As a solution for these issues in traditional networks, Software Defined Network (SDN) has been introduced. SDN decouples the data plane and control plane there by making the network programmable. SDN allows network administrators to manage the network services by separating the control plane which is called as the brain of the network by data plane where packet forwarding is done. Load balancing in SDN is done to ensure effective management of resources as per client's request. Some of the load balancing parameters are throughput, transaction rate, response time and the algorithm used. In this paper, the need for load balancing in SDN is discussed and for load balancing we have used the least connection algorithm with Dijkstra's algorithm.

Keywords — Software Defined Network (SDN), load balancing algorithms, openflow, controllers.

A Review on Land Use Land Cover Classification of Satellite Images using Deep Learning Approach

Archana Hebbar KV¹, Harshitha D N², Jayalakshmi³, Pooja⁴, Dr. Nagraj Bhat⁵
hebbar.kn@gmail.com¹

Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Land cover and land use and its change is the most important, as well as the most widely researched topic in remote sensing. Land cover and land use have been used extensively to derive human and climate activities. The deep neural network today is playing a very important role in the classification of images, which is required in some popular applications like Urban planning. This paper focuses mainly on a deep learning approach i.e. especially the deep convolution neural network (DCNN) for the classification of photogenic images i.e., acquired from mostly satellites. So here in this paper, the different architectures or neural networks of DCNN like Alexnet, VGG, Cascaded cross channel Pooling, etc., how these architectures work better in the classification of satellite images are discussed. The result of this architectures is compared with other classification algorithms like Support vector machine and maximum likelihood classification. One advantageous result that is found from this study is that some of the architectures like cross channel pooling and average pooling with DCNN can automatically construct the training dataset and classify images. And finally, the accuracy is observed between the different architectures of DCNN compared and the accuracy of some of this architecture is compared with SVM, MLC, and RF.

Keywords — Deep Learning, Satellite Images, Machine Learning

Review On Smuggling Detection And Prevention System For Trees In Forest Using IoT

Pradeepa Acharya¹ , Prajwal K² , Niveditha³ , Shilpa⁴ , Dr. Nagaraj Bhat⁵
pradeepa.16cs054@sode-edu.in¹

Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— The smuggling of trees such as red sanders, sandalwood, and teak wood is still an existing problem. These trees are made used for medicinal purpose. Trees are cut down and sold in illegal market threatens the rare tree species population. These trees are extremely costly and less possibly available in the market[1]. The sandalwood trees are said to be imperial in recent times of India, the Indian government has already set some measures to protect these trees from smugglers but implementing it over a large area like forest is ineffective. Fencing the forest area. This is one of the oldest methods used but the cost required to build it increases proportionally to the area of forest. Manual monitoring of forest by enforcing the security personals in specific forest region is one of the methods to control the cutting of trees. But it is hard to monitor the entire area by humans and providing continuous over day and night is impossible. Tagging of trees using RFID just like tagging the animals is employed. However, this does not provide real-time information when the problem occurs. It leaves a message only when the tree is moved from its original position. CCTV camera installation in the forest is again very costly and hard to implement. To address these issues we are using smoke sensors to detect the fire catches and for the movement of any object we are using PIR sensors, for the vibration detection we are using vibration detection, to differentiate between the many causes of vibrations we are using pattern matching, By this we can get when naturally the tree falls as well as Is anyone cut the trees. We are using image processing to differentiate between the human and the animal.

Keywords — Machine Learning, Internet of things, Support Vector Machine

Application to Aid Hearing and Speech Impaired People

Akshatha Patkar¹, Steve Martis², Anupriya³, Rakshith⁴ and Deepthi G Pai⁵
akshatha.16cs006@sode-edu.in¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— One of the most priceless gifts to a natural being is the capability of vision, hear, express and react correspondingly to the situations. Interaction between deaf-dumb and ordinary beings is an inspiring mission. The hearing-impaired and the mute society depends mainly on the hand gestures known as the Sign Language for communication. The Sign Language Identification is one of the revolutions for serving the specially-abled society. The exploration of identifying sign gestures is successful, but involve an exclusive charge to be commercialized. For the Sign Language Identification System to be used widely, the data acquisition process varies largely depending on the cost of the system, the methods used, limitations, etc. The course of learning, recognizing the signs and interacting via the ISL can be simplified by the proposed system that converts speech to the sequence of sign language symbols. Speech processing embraces Speech Recognition, the learning of identifying the vocabularies being vocalized, irrespective of who the orator is. The proposed system practices template-based detection as the key tactic where the Voice to Sign (V2S) system initially requires to be skilled with a dialogue plan based on the predefined database of signs. It correspondingly translates speech to text via the dictation recognizer of the Unity 3D tool, processes the text and maps the phrases to animations that will assist to convey the desired message. Employing the proposed system trainers will be able to teach sign language effortlessly without explicit training.

Keywords — Communication Technology, Indian Sign Language (ISL), Sign Language Recognition, Speech to Text, Text to speech.

A Survey of Cardiac Arrhythmia Classification using Deep Learning Approaches

Trivikrama Bhat¹, Shrikara², Akanksha³, Shreya Bhat⁴, Manoj T⁵
trivikrama.16cs099@sode-edu.in¹

Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Cardiovascular diseases contribute to the majority of mortality worldwide. One in every four deaths that occur every year is due to heart related ailments. As a result, it is of prominent importance to study the symptoms, features and cures for heart diseases so that timely action can be taken to prevent the occurrence of preventable and detectable fatalities. Arrhythmia is a type of heart ailment where the heart rate is irregular. It occurs as a result of the erratic behaviour of the electrical impulses that control heartbeat. Although arrhythmias do not result in immediate physical problems, it could be a preliminary stage of serious conditions like stroke and heart failures which could ultimately yield a person incapacitated or even cause death. Therefore, timely detection of arrhythmias proves to be of great value. The electrocardiogram (ECG) is extensively used to study the functions of the heart and detect possible issues. Early machine learning techniques have produced impressive results in automatic arrhythmia detection and classification. But these methods suffer from the drawback of manual feature extraction and strenuous preprocessing. This requires in depth knowledge of the various technicalities of the biological and electrical functioning of the heart. But the deep learning techniques which include automatic feature extraction are yielding better results in recent years. In this paper, we present a survey conducted on features of ECG, the characteristics of various types of arrhythmia, and the deep learning techniques involved in detecting a particular type of arrhythmia by analyzing the ECG waveform.

Keywords — Arrhythmias, Convolutional Neural Networks, Electrocardiogram, Deep Learning

Prediction of Chronic Kidney Disease Using Machine Learning

Preethi K Sanil¹, Anusha², Prajna Kotian³, K Shravya⁴ and Shrinivasa Naik⁵
preethisanil30@gmail.com¹

Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Machine learning has earned a good position in healthcare center because of its capability to enhancing the disease prediction in healthcare center. Machine Learning and Data Mining techniques are used in healthcare center. Nowadays most dangerous health related problem is kidney disease. It is increasing day by day because of not having proper food habits, drinking less amount of water and lack of health consciousness. So we need some technique to decrease Chronic Kidney Disease. Chronic Kidney disease is a serious problem that is introduced by either kidney pathology or reducing the kidney function. In India according to health station 63538 kidney disease cases has been registered. Usually the kidney disease occurs between the age of 48 to 70. According to survey male having more Chronic Kidney disease than female . In 2015 , India ranks 17th position in CKD. The main focus of work is to analyze the dataset of chronic kidney failure and perform the classification of CKD and non CKD cases. Dataset is preserved to the learning techniques. The training dataset to the selected features is fed into various classifiers to determine which classifier play a accurate role in detection of chronic kidney disease. The proper dataset is classified using various algorithm like Linear Regression, K-NN, Naïve Bayes, Support Vector Machine, Random Forest, ANN,C4.5.

Keywords — Machine Learning, Data Mining, CKD - Chronic Kidney Disease, GFR - Glomerular Filtration Rate (GFR) , Decision tree, ANN - Artificial Neural Network, Naïve Bayes Classifier, SVM - Support Vector Machine, Logistic Regression Algorithm, Random Forest , C4.5, KNN - K- Nearest Neighbor, Gradient Classifier

Helmet Detection using Image ProcessingShreya¹, Rakshitha², Vaishali³, Shreya⁴, Shrinivasa⁵
itsshreya83@gmail.com¹Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— As time passes new concepts come into existence and replace the old methods. Usage of computers, making machines to work are common nowadays. Machine Learning, Image processing are the trending subjects in this era. All the new work is based on these concepts. Even this paper uses the concept of Machine Learning, Image processing and Computer Vision to detect the presence of a helmet while a rider is riding. Haar features are used to detect the helmet and cascade classifier is used to give a positive or negative result based on whether the helmet is present or not. This further gives warning to the rider if the result is negative, so that the rider wears the helmet and has a safe ride. If this is ignored after a few more warnings then, using a relay switch which is connected to the Raspberry Pi and the DC motor the two wheeler is stopped accordingly.

Keywords — Machine Learning, Image Processing, Raspberry Pi, Helmet Detection

An Energy Efficient Street Light System

Gudinho Diana Minine¹, Pratiksha Prabhu², Soumya Bhandary³, Sushmitha⁴, Archana Priyadarshini Rao⁵
diagudinho@gmail.com¹

Department of Information Science and Engineering
Canara Engineering College, Benjanapadavu, Mangaluru

Abstract— This project focuses on one of the many ways in which piezoelectric materials can be used to produce electrical energy. A well-designed energy-efficient street light system should permit traffic and pedestrians to travel with great visibility in safety and comfort while reducing cost and energy consumption. This project requires an LDR to detect day or night. In this system, we put into light the piezoelectric effect in which certain materials have the ability to build up an electrical charge from having pressure and strain applied to them. This system is focused on the applications of auto street light for transportation facilities using that energy. When the roads are engineered with piezoelectric technology, the energy produced by the pressure of moving vehicles is captured by piezo sensors and converted into electrical charge by a Piezoelectric Transducer (PZT), then the energy is stored and used as an energy generation source. This energy source can be used for auto street lighting as a source of roadside power generation units. The power is generated as a result of pressure due to the movement of vehicles on the road to control street lighting on highways and also automating their process. It provides a sustainable solution in terms of environment, economy and social needs.

Keywords — Energy, Light-dependent Resistor(LDR), Piezoelectric transducer(PZT), Pressure, Street Light

Smart Complaint Redressal System Using Ethereum BlockchainAkhilesh R¹, Rachith R Naik², Suhani³, Vineeth Kumar⁴, Sneha N S⁵akhilesh.15cs118@sode-edu.in¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— In today's world, more focus is given on the availability of the websites and also the various applications present in the android market. People will manage their daily work on time, precisely, very fast and with satisfaction. So various technologies are used to fulfill the daily work. In India, there is no direct and efficient way of communication between the government and the public, for solving a problem i.e for getting a problem solved at any place, people may have to wait for three months, but it can probably be solved sooner. Nowadays, the scenario has changed. Many applications are available, which allow users to register their complaint. But there are some problems related to its transparency. This paper proposes an Ethereum blockchain application that will help people to register their complaints and get updates about the complaint. Adoption of blockchain technology makes the application more secure, transparent and immutable.

Keywords — Energy, Light-dependent Resistor(LDR), Piezoelectric transducer(PZT), Pressure, Street Light

Time Table Management System using Genetic Algorithm

Ashwini P Devadiga¹, Chaitra R K², Kripa³, Manasa S⁴, Dhanya Shenoy⁵
ashudevadiga16@gmail.com¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Timetabling is the assigning of an event to a particular time slot in a timetable. Timetable construction is a hardworking and complicated task when there are a large number of courses and limited resources. As a result, some institutes tend to solve this issue manually even when the results may not always be fully optimal. Timetabling is the assigning of an event to a particular time slot in a timetable. Many solutions exist in the search space of a timetabling problem, but few of them are not feasible. Genetic Algorithm is a meta-heuristic algorithm that has been successfully applied to many optimization problems such as scheduling and timetabling problems. By using Genetic algorithm, we are able to reduce the time required to generate timetable which is more accurate, precise and free of human errors. Finally, the genetic algorithm was applied in the development of a viable timetabling system in which timetables that can be generated based on user specified constraint and requirements.

Keywords — Genetic Algorithm, Timetable, Constraints

Video Surveillance Using Deep Learning

Sreelakshmi Ramchandran¹, Nezmi K², Shreya Nair³ and Joseph George⁴
sreelakshmi.academicmail@gmail.com¹

Department of Computer Science and Engineering
Adi Shankara Institute of Engineering and Technology, Kalady, Kerala

Abstract— A large amount of digital data from social media, research, agriculture, medical records and other IoT related applications are consumed in research and industry for big data applications. Video footage from surveillance cameras also add to the example of big data. Surveillance videos contribute to unstructured big data. In the places which are prone to many crimes and attacks, security is assured by implanting CCTV cameras. Cameras and recording equipment are relatively expensive and require human intervention to monitor the camera footage. Along with it, there is a large amount of data generated which requires vast storage. All this, demands more manpower and increased cost. In an era where we have smart gadgets, it is time to get our surveillance cameras smart as well. To do so we empower our surveillance cameras with deep learning algorithms. Our goal is to focus on automatic identification of unauthorized entries in an area by alerting the authorities. The paper discusses different deep learning methods that are used for surveillance. Our model is based on the deep learning technique in which the live video stream is taken from an IP camera. From that video footage, the faces of authorized and unauthorized one are recognized automatically which gives an accuracy of 99.93%. If any unknown person were found in a frame, a message notification along with the person's image is sent to the registered mobile number of the officials. Hence this method reduces manpower and saves a lot of time. This implementation has a wide range of applications which includes personnel identification, bank security, company security, shop security etc. Also, it helps with instant crime detection which helps the community to identify the culprit easily. Finally, we suggest some directions as part of future work.

Keywords — Big data, Video surveillance, Deep learning

Food Wastage Prevention And Donation

Kousheel Jatin¹, Madhura², Praveen M Naik³

kousheel.16cs031@sode-edu.in¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Our country facing some common problems like food wastage.it is very crucial as it develops our environmental and economic sustainability. To reduce this wastage of food we have introduced mobile application on android platform. This android mobile application helps to donate remaining foods and leftovers from restaurants, house and other mediums to the people who are in need of it.Our app allows users to register, login, view items, add items, add items to the cart, remove an item from the cart and log out. The user can add all donated food images and add them to the cart. Food-sharing mobile apps are becoming increasingly popular, but little is known about the new social configuration of people who use them, especially apps that serve as voluntary intermediaries in supply chains. This study focuses on longitudinal social network data from 54,913 food-sharing events in 9054 people and is 10 months and vasoactive. Current challenging theories of mutual sharing (mutuality, relative selectivity, tolerance and costly signaling) suggest that donor-recipient reprimanding and costly signaling are not sufficient. The findings have important implications for managers.

Keywords — App Development ,Android

Efficient Image Processing Technique for Authentication of Indian Paper Currency

Rencita Maria Colaco¹, Rieona Fernandes², Pooja Acharya³, Reenaz⁴, Sowmya S⁵
rencitacolaco@gmail.com¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Now a days due to the development in color printing technology the rate of counterfeit notes is increasing. This is a massive problem which is faced by almost all the countries. According to the research country like India has been facing this problem badly. Due to the highly advanced technology that is adopted by the counterfeiters it is becoming hard to track the counterfeiters. This has been resulted in becoming a very critical problem. The issue of fake currency has been increased due to this. The only one solution for this problem by a common man is to detect the fake currency by using the fake currency detector machine. This paper gives the complete methodology of fake note detector machine. By using the applications of effective image processing techniques we can find out whether the notes are fake or not.

Keywords — Segmentation, Edge detection, Feature extraction, Grayscale conversion, pre-processing.

Disease Prediction in Paddy Crop Using Machine Learning

Swathi¹, Sushma², Sneha Nayak³, Rakshitha M⁴, Deepak Rao M⁵
swathi.16cs096@sode-edu.in¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— India is a country mainly based on agriculture. Paddy is one of the major crops of India. Millions of people in India are depended on paddy so as to live by means of farming and later on processing. As population of our country is increasing, starvation and demand for the food is also increasing. One major problem in meeting this demand is disease to the crop in general and particularly leaf diseases of paddy crop. These diseases will greatly decrease the productivity of the plant and directly impact on economy of the nation. The major problem of these diseases is identifying them at the early stage. Though experts are available in some areas, disease detection is mostly performed by naked eye which causes inappropriate recognition most of the times. To address this issue in this paper, an automated system is proposed for identifying three common paddy leaf diseases namely Brown spot, Leaf blast, and Bacterial blight. K-means clustering is used for separating affected part from paddy leaf image. Visual contents color, texture, and shape are used as features for classification of these diseases. The type of paddy leaf diseases is recognized by Support Vector Machine (SVM) classifier.

Keywords — Machine Learning, image acquisition, median filtering, K-means clustering, ANN - Artificial Neural Network, Naïve Bayes Classifier, SVM - Support Vector Machine, KNN - K- Nearest Neighbor, Gradient Classifier.

Early Flood Detection and Avoidance System Using IoT

Shwetha Shivaji Ghorpade¹, Nithesh², Vinaya³, Deepthi G Pai⁴

shwetagr25@gmail.com¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Flooding is one of the biggest natural disasters occurring in various parts of the world. Flood disaster usually occurs due to improper irrigation method in a housing area or the sudden increase of water volume in a river or dams. It often causes loss of property, damages and lives. Well Developed sensors are used to identify the level of water present in dams, rivers, lakes and heavy storage areas. Thus, this project is about designing about the system that can measure the speed of the rise of the water level at the potentially flooded area. This paper intends to understand the security necessity and security design of Internet of things innovation for urban flooding avoidance the executive's framework, what's more, talked about the interest and by and large plan of flooding anticipation the executive's framework. The Internet of Things or IOT gives the capacity for human and machines to communicate from billions of things that incorporate sensors, administrations or other Internet associated things.

Keywords — Dams, Flood disaster, Internet of Things, Urban flooding avoidance, Rivers, Sensors, Security, Water level.

Brain Tumor Segmentation with Parallel Implementation of Fuzzy C-Means using Multi-Core CPU

Nikhil V Acharya¹, Anish S Jathan², Narendra V³, Prajwal M Gatti⁴, Sahana Karanth⁵
nikhilacharya098@gmail.com¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Magnetic Resonance Imaging (MRI) is extensively utilized in medical practice. Segmentation of the MRI brain image is important for the detection of anomalies in the brain. However, due to the symbiosis of intensity and noise, Magnetic Resonance Imageing has become a difficult task to divide the brain's image into distinct groups. Brain Tumor Division aims to differentiate tumor tissue from activated cells, necrotic cores and edema from white matter (WM), gray matter (GM) and cerebrospinal fluid (CSF). MRI-based brain tumor segmentation studies in recent years are gaining more attention due to the enhanced soft tissue contrast of non-invasive imaging and Magnetic Resonance Imaging (MRI) images. With nearly two decades of development, innovative approaches to use computer-aided techniques to the field of brain tumors are becoming more mature and approaching common clinical applications. In this paper, an enhanced observational fuzzy c-instrument (FCM) method based on similarity measurement is proposed to improve the segmentation performance of MRI brain images. However, High computational requirements when working with big data sets are the principal problem with these algorithms. Nvidia's GPU today plays a major role in implementing such time-consuming algorithms to decrease the complexity of time . For dissection of the tumor area, the mechanism of the sliding window is applied to the CPU (host), in which a 45x45 dimensional window is taken to classify whether the tumor area is present in the specific window. For optimal segmentation on the GPU (device), the fuzzy C means method is applied to obtain the exact location of the tumor. The algorithm implementation on the CPU achieved a speed of 17.6 for the BRATS data set.

Keywords — Magnetic Resonance Imaging, Fuzzy C-Means

Hand Gesture Recognition System For Physically Disabled/Deaf and Dumb

Vidisha P Shet¹, Sakshi V Kamath², Vijayatha Nayak³, Tanushree Anchan⁴, Praveen M Naik⁵
vidisha.16cs105@sode-edu.in¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Physically disabled or deaf and dumb people are equally important as normal people of the society but they have not yet received the same opportunities as others in the society. Wherever the physically disabled people such as deaf and dumb wants to communicate, it was done through sign language which was difficult for a normal people to understand. So, it is very important for the normal people to figure out the sign language made by the disabled person through the hand gesture. Here the concentration is given to track the human hand gestures using natural human computer interface. Earlier there was no particular model for the betterment of the physically disabled persons or deaf and dumb. If they want to communicate, it was to be done by normal hand movements. Where it was very difficult for the other person to judge the real outcome and even it was very difficult to the person to convey. There are certain techniques being used to convey these messages. But there is no respective portable device which can be used by the people.

Keywords — Hand Gesture Recognition, Human Computer Interface

Super Stick

Swathi Kindre¹, Priyadarshini P², Pratiksha R³, Ashwini⁴, Ramyashree⁵
swathikindre98@gmail.com¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— The Blind stick system is capable of operating in user friendly manner, so that the blind person can walk independently without getting help from others. This system assists the blind to navigate on their own. In case of emergency situations such as high traffic density or the person feels unsafe and is in need of help, the location of the member is shared with the family members. The prototype model consists of a stick and a hand glove with vibrator motor. The stick with sensors deployed can detect obstacles in front with sensors and it will produce vibration on a finger depending upon the direction. The vibration would alert the user. The Blind stick system is equipped with in built GPS and GSM equipment, so that if the blind person needs help from the family he can press the emergency button which is present on the stick and then his location will be shared with his family. By trial and error method the system can detect obstacles such as pedestrians, objects with greater accuracy. This system is very user friendly and safety as well.

Keywords — GPS, GSM

Mobile Data Protection Using AES Algorithm

Prateek R K¹, Sharan², Shreyas Prabhu³, Varun Tendulkar⁴, Priyanka⁵
prateekrk57@gmail.com

Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— The term ‘Mobile security’ consists of protecting personal and business information which is stored on and sent via mobile devices. Mobile security also involves reducing various types of risks. It even refers to protecting mobile devices and the data that is present in it in the case of various kinds of data theft, unauthenticated access or even sudden or accidental erasing of data of the mobiles. In the current world mobile security is significant as it directly influences the trust among users and other entities and on the reliability of mobile phones therefore there is a need for a way to store various kinds of sensitive data and a secure way to retrieve it.

Keywords — Advanced Encryption Algorithm, Data Security

5G Cellular Network in Cyber Physical System: An Overview

Shrikara¹, Trivikrama Bhat², Vinaya³, Rama Moorthy H⁴

shrikara.16cs088@sode-edu.in

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Cyber-physical systems are becoming more and more commonplace nowadays. It's expected that the cyberphysical systems revolution will be more transformative than the IT revolution of the past four decades. The world is expecting over 50 million sensors to be connected to the internet by 2020. This explosive increase in the number of connected 'things' needs to be accommodated in the available network architecture and infrastructure. Such a move is bound to be ridden with challenges that the cellular providers need to handle in order for all the millions of devices to work seamlessly. In this paper, we present an analysis of the current architecture of the connected CPS devices and mainly focus on how the next-generation 5G cellular networks enable CPS communications. (Security write)

Keywords — 5G, Cyber-Physical System, IoT

Smart and Secured ATM Transaction Based On Fingerprint Identification

Nidhishree¹, Devika², Jyoti Shet³, Megha⁴, Dhanya Shenoy⁵
nidhishree.16cs043@sode-edu.in¹

Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— ATM (Automated Teller Machine) is an electronic telecommunication device that is used to perform financial transaction device that is used to perform financial transaction without need for human clerk or bank teller. ATMs extend traditional banking hours by dispatching cash and making other transaction available 24 hours a day. In ATM machines, the user is identified by inserting an ATM card and authentication is provided by the customer entering a PIN. The PIN provided to the customer is compared with recorded reference PIN number in the bank server. In the existing system, the user has to insert the card and the PIN number. If the PIN is correct, the system allows for the transaction. Otherwise, the system asks for the PIN again and it allows maximum of three times to enter it. After three trials the ATM card will get blocked. To reactivate the card user need to visit the bank and do the bank formalities, which is tedious and time consuming job. The proposed system to increasing the safe and security by introducing fingerprint system. The advantage of finger-scan technology is accuracy. By using fingerprint system many disadvantages are rapidly, initially we will store the fingerprint in the bank database. So, we have planned to implement such a system where in the worst case if user forgot his PIN number even after three attempts, he will be given another option where he can use his fingerprint to withdraw money. This will help in preventing misuse/blocking ATM cards.

Keywords — Automated Teller Machine, Fingerprint Identification

Image Steganography using Sudoku: A Combined Approach

Shreya¹, Shrikari², Shreya Bhat³, Ramamoorthy H⁴
shreya.16cs084@sode-edu.in¹

Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— ATM (Automated Teller Machine) is an electronic telecommunication device that is used to perform financial transaction device that is used to perform financial transaction without need for human clerk or bank teller. ATMs extend traditional banking hours by dispatching cash and making other transaction available 24 hours a day. In ATM machines, the user is identified by inserting an ATM card and authentication is provided by the customer entering a PIN. The PIN provided to the customer is compared with recorded reference PIN number in the bank server. In the existing system, the user has to insert the card and the PIN number. If the PIN is correct, the system allows for the transaction. Otherwise, the system asks for the PIN again and it allows maximum of three times to enter it. After three trials the ATM card will get blocked. To reactivate the card user need to visit the bank and do the bank formalities, which is tedious and time consuming job. The proposed system to increasing the safe and security by introducing fingerprint system. The advantage of finger-scan technology is accuracy. By using fingerprint system many disadvantages are rapidly, initially we will store the fingerprint in the bank database. So, we have planned to implement such a system where in the worst case if user forgot his PIN number even after three attempts, he will be given another option where he can use his fingerprint to withdraw money. This will help in preventing misuse/blocking ATM cards.

Keywords — Automated Teller Machine, Fingerprint Identification

An Efficient Approach for Detection of Lung Cancer through Image Processing

Lavanya N¹, Gautham Naik², Apoorva³, Zaheen Ayesha⁴ and Sharath Kumar⁵
lavanya.16cs033@sode-edu.in¹

Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— Lung cancer is one of the most common diseases in the world. It is very difficult to detect lung cancer at early stages. Early detection of lung cancer is very important for successful treatment. In recent years the image processing mechanisms are used widely in several medical areas for improving early detection and treatment stages, in which the time factor is very important to discover the disease in the patient as fast as possible, especially in lung cancer. Along with image processing, we can also use machine learning techniques for the detection of lung cancer. Various machine learning algorithms are considered and the machine is trained to detect the processed CT scan images. An efficient algorithm is chosen. In this paper, we describe the image processing of the CT scan images and the machine learning techniques applied to obtain an efficient method for early and accurate detection of lung cancer.

Keywords — Image Processing, Lung Cancer, Machine Learning

A Survey On Human Activity Recognition

Chaithra¹, Asiri², Dhanashree³, YashaswiniJogi⁴
chaithra.16cs017@sode-edu.in¹

Department of Computer Science and Engineering
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract: Human Activity Recognition is identifying the movement or the actions that are performed by the person based on sensor data. Movements are of typical activities that are performed indoors, outdoors and in vehicles. Recognition of activities is in research area of health. Performance is computed by using K-nearest neighbours, support vector machine, naïve Bayes, feed forward backward propagation and neural network. The appearance and motion features are extracted using the open pose library. Introduced a sigma based features for the better capture of activity thereby improve recognition accuracy and collected the accelerometer, magnetometer and gyroscope temperature of the user's mobile phones. Activity performed on both indoor and outdoor location. And introduced a sigma based features for the better capture of activity thereby improve recognition accuracy and collected the accelerometer, magnetometer and gyroscope, temperature of the user's mobile phones and arterial oxygen saturation sensor (spo2) data collected. There are four AI algorithms in those three different algorithms for Human Activity Recognition using motion sensor. Human Activity Recognition tells us about walking, standing, running and soon and one Acoustic Scene Classification to tell about whether persons are indoor, outdoor or anywhere you go based on environment captured by microphone.

Keywords — Human Activity Recognition, Machine Learning

Predicting Congestion in Network using Machine Learning Techniques

Y V Sneha¹, Vimitha² and Adesh N D³

yvsneha.16cs115@sode-edu.in¹

Department of Computer Science and Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract— When a burst of packets enters the network, the existing capacity of the network may not be sufficient to support the traffic which leads to congestion in the network. The main problem of congestion is the loss of packets during transmission which affects the performance of the system. The packet loss can be avoided if congestion is detected prior and reduces the packet generation rate at source with effective measures. In the current protocols, there is a predefined mapping between the observed state and the corresponding action. For example, when there is a packet drop in the network (observed state), the congestion window is reduced (action) irrespective of other parameters related to the networking environment such as resource utilization by each user, moving average, etc. Therefore, these protocols are unable to adapt their behaviour in the new environment or learn from past experience for better performance. To overcome these issues, the Machine Learning (ML) technique is required in the field of networking to learn from past experience and analyze the current network scenario to take certain actions. ML has the ability to deal with huge amounts of complex data which becomes one of the reasons for applying ML in the field of networking.

Keywords — Router based congestion control, Machine learning, Supervised learning, Congested network, Queue overflow.

Civil Engineering

CHARACTERIZATION OF RESIDUAL CHEMICALS IN IRRIGATED SOIL FOR IMPROVING FERTILITY RATE AND CROP YIELD

Shridhar Yallurkar¹, Sandeep Nayak², Prashantha Achar³

¹Research Scholar, Civil Engineering department, Anjuman Institute of Technology and Management Bhatkal Karnataka, India-581320. Email: shridharmy@gmail.com

²Professor, Vivekananda college of Engineering and Technology Puttur- Mangalore. -Karnataka India- 574225. Email: sandeejn1@gmail.com

³ Assistant Professor, Vivekananda college of Engineering and Technology Puttur- Mangalore. -Karnataka India- 574225. Email: pkpura@gmail.com

Abstract— In agriculture, a soil test is the analysis of a soil sample to determine nutrient and contaminant content such as macro nutrients and micro nutrients. Tests are usually performed to measure the expected growth potential of a soil. Soil test measures fertility, indicates deficiencies that need to be remedied and determines potential toxicities from excessive fertility and inhibitions from the presence of non-essential trace minerals. To undertake this study, four different areas have been selected to collect the soil samples from paddy field. Two villages namely Kadavinakatta and Shirali located in Bhatkal taluka of Uttar Kannada district from Karnataka state and two villages Meenangadi and Ambalavayal located in Sultanpatry taluk in Wayanad district of Kerala state were selected purposely considering their location, geographical similarities, proximity to cropland and the distance from the coast. During the study period soil samples have been collected as per the standard procedure, tested in laboratory and analyzed for macro and micro nutrients. Results indicate that there is a marked variation in nutrient and contaminants in soil.

Key words: Nutrients, contaminant, fertility, trace elements, soil, NPK, macro elements, micro elements.

Effect of Land use and Land cover on soil properties of Puttur Taluk
Sowmya NJ¹, Apoorva² Deviprasad², Anunaya² , Kiran ² Prasad Pujar³

Abstract

The study on land use and land cover is important to know the impact of it on climate change, soil properties and socio-economic changes. Many studies reported that land-use changes can contribute to soil degradation and deterioration of soil physical and chemical properties. Hence in this study, an attempt is made to know the impact of land-use changes on soil properties. After land use land cover study, soil samples were taken from a soil depth of 15 cm. For these soil samples, the soil properties such as pH, Organic Carbon, Electrical Conductivity, dry density, nitrogen and potassium were analyzed. The result shows that soil properties of urban land significantly have large variation compared to forest land. The study concludes that land-use changes have a negative impact on soil properties of the study area.

Key words: LULC, soil properties

SELF PURIFICATION AND MINERALISATION OF WATER BODIES

Vijeth.P.A¹, Sowmya NJ², Yogesh DS³

1 Student, Dept of Civil Engg, Vivekananda College of Engg and Technology, Puttur

2. Professor, Dept of Civil Engg, Vivekananda College of Engg and Technology, Puttur

3. Asst. Professor, Dept of Civil Engg, Vivekananda College of Engg and Tec

ABSTRACT

Self purification is the process in which balance restoration of the aquatic environment takes place through simultaneous participation or in some sequence of the physical and chemical factors, biological, hydraulics and morphological characteristics of the river. Rapid urbanization and population growth have led to the exploitation of the water resources, thus polluting the rivulets and streams running through it. In this project, an attempt has been made to study the characteristics of selected water bodies. Various laboratory tests are carried out on water samples to establish the self-purification phenomenon of the selected water bodies. The study shows that minerals such as manganese, sulphur and silica along with temperature and flora have their role in self purification of water.

Key words: Self purification, minerals

Study on the effect of Partial Replacement of Recycled Plastic Aggregates in Concrete

Pavan T S¹, Sowmya NJ², PavanNayak C³, Pavankumar H S³, Sachin ShivanandGouda³

Abstract

Coarse aggregate is the main material contributes to its role in the strength of the concrete structure. The recent increasing population increased concrete structure, thereby increased consumption of concrete ingredients. All over the world to reduce the impact of natural aggregates on the geology of the earth, many researchers tried to use waste materials in concrete. In this paper also an attempt is made to examine the use of a recycled waste plastic aggregates in a concrete mix by partial replacement. A paired comparison test was carried out examining different partial replacements of Cement Plastic Concrete (CPC) mixes against a plain concrete control sample. This paper investigates the effect of the replacement of normal weight Coarse Aggregate by recycled Coarse Plastic Aggregates (CPA) at 0%, 10%, 20%, 25% and 50% on the compressive strength including bonding and cracking.

Key words: Coarse plastic concrete, compressive strength, bonding strength

Monitoring and Predicting the Project Progress using Earned Value

Analysis: A case study in Mangaluru

Akshaya Krishna N¹, Pushparaj Naik²

1 Assistant Professor, Civil Engineering Department, Mangalore Institute of Technology and Engineering Moodabidri,, Karnataka, India

2Assistant Professor, Civil Engineering Department, NMAM Institute of Technology, Nitte, Karnataka, India

Address

lakshayakrishna@mite.ac.in , 2pushparajmanai@nitte.edu.in,

Abstract — Considering the various challenges existing in construction activities, the earned value tool has a lot of theoretical and practical significance. The entrepreneurs, project managers and experts can apply this technique to minimize the problems arising in the construction field. This paper focuses on monitoring and predicting the project progress using earned value technique. In order to prepare schedule and estimation easily, Primavera P6 software is used.

Keywords— Earned value, Scheduling, Primavera, Planned cost, Tracking, Actual cost.

Review on strength properties of cement concrete mixed with partial replacement of cement with granite powder and granite cutting waste water instead of potable water

P.Charan Kumar¹, T.Shantala², M.Ravi Shankar³,

¹ Assistant Professor, Department of Civil Engineering, SRIT, Ananthapuramu.

² Assistant Professor, Department of Civil Engineering, SRIT, Ananthapuramu.

³ Assistant Professor, Department of Civil Engineering, SRIT, Ananthapuramu.

Abstract: In our project we are finding the mechanical properties (like strength, ductility, wear resistance etc) of concrete using M20 grade by partial replacement of cement with granite powder with 0%, 10%, 15%, 20% and using granite cutting waste water instead of potable water. Numerous tests such as compression test, split tensile, flexural qualities and acid (H₂SO₄ and HCL) curing test specimens are tested and these qualities are compared with the ordinary cement. Samples are prepared with the partial replacement of cement with 10%, 15%, 20% of granite powder and granite cutting waste water is used instead of potable water. The samples are tested for 7, 28 and 90 days by conducting the various tests like compression test, tensile and flexural strength test and Acid attack test (H₂SO₄, HCL) and compared with conventional concrete. Values obtained for different mix proportions of granite powder and cement are analyzed and compared with the strength features of mix. By this, we can know the strength properties of different mixtures. The three mix proportions have more compressive strength at 7 days when compared to conventional mix, so we can adopt this mixture in the field. So that we can reduce the usage of natural resources and we can yield high strength concrete. The main purpose of the replacement is to reduce cost, to improve environmental protection, and usage of waste material in place of natural resources. Standard cube of 150x150x150 will be casted and tested for compression. Standard cylinder of 150mm diameter and 300mm height will be casted and tested for split tensile . Standard beam 500x100x100mm will be casted for flexural strength. Different shape specimens are casted and tested for 7 days and 28 days.

Keywords: Metakaolin, Granite powder, granite waste water

Review on Strength Properties of Concrete with Partial Replacement of Cement as Metakaolin by Using Natural and Recycled Aggregate

¹P.Charam Kumar, ²D.Lakshmi Shireesha, ³G.Ramanjineyulu

¹Assistant Professor, Civil Department, SRIT Ananthapuramu.

²Assistant Professor, Civil Department, SRIT Ananthapuramu.

³Assistant Professor, Civil Department, SRIT Ananthapuramu.

Abstract - Concrete is a construction purpose material composed of cement, fine aggregates (sand) and coarse aggregates along with water which hardens with time. It has relatively great compressive behaviour than tensile quality. Metakaolin has pozzolan property. Metakaolin is developed by calcination of kaolin at a temperature of 650 – 800 0c. Metakaolin is obtained from industrial wastes. As metakaolin is cost effective, fine and pozzolanic in nature as well as utilizing as substitute for cement material. The mix proportion of the concrete is adopted as 1:1.5:3 for the M20 grade concrete. The partial supplant of cement by metakaolin with 5%, 10%, 15% and 20% by weight of cement is done and checked for compression, tensile, and flexural strengths and acid curing (HCl, H₂SO₄) for 7 and 28 days. At the same time mix proportion done with recycled aggregate, a concrete product with recycled aggregate is obviously more sustainable and economical than conventional natural aggregate concrete. The effect of 100% recycled aggregate concrete on a range of durability properties have been established and assessed its suitability for use in a series of various applications.

Keywords: Compression Strength, metakaolin, flexural strength and Split Tensile Strength.

**INTEGRATED SOLID WASTE MANAGEMENT – A CASE STUDY ON
SHIRVA PANCHAYAT****Charithra¹, Dhanik S Shetty², Nagarjuna S G³, Safaa Kulsum Sayed
Nawaz⁴, Deepika B V⁵***1,2,3,4 Students, 8th semester, Department of Civil Engineering, Shri Madhwa Vadiraja
Institute of Technology and Management, Bantakal**5 Assistant professor, Department of Civil Engineering, Shri Madhwa Vadiraja Institute of
Technology and Management, Bantakal*

Abstract— Solid waste management is of prominent concern and very much required to lead a healthy life. Solid waste management and handling rules are about the systematic method for the collection, segregation, treatment, and disposal of solid waste. In the present study, Shirva panchayat is considered as a study area for the proposal of solid waste management. Shirva is a village situated in the Udupi district of Karnataka State which falls in India. The geographical coordinate's latitude and longitude of Shirva are 13.357215 and 74.798355 respectively. The total area of Shirva is 32km² and it is the second biggest village by area in the sub district which is facing problems in waste management. The Shirva Panchayat indicates that there is an unpredictable rise in the population intern the solid waste generation is also being increased. Unscientific handling due to negligence in collecting waste, inadequate standards of transportation, storage, treatment and disposal which causes risk to surroundings, the health of people, and social issues. There is no systematic way of managing solid waste. The present study gives the methodology for well- organized collection, treatment, and disposal of solid waste for the panchayat.

Key Words: Solid waste management; collection; treatment; disposal

SYNTHESIS OF NANOPARTICLES USING MEDICINAL HERBS AND UTILIZATION IN WATER TREATMENT

Shilpa Acharya, Shetty Pavan Anand, Sheethal B.R, Shreya, Mr. Rohith.P. Veigas,
Dr. K.K. Srinivasan.

Shri MadhwaVadiraja Institute Of Technology And Management, Bantakal.

Abstract: Over the years, many methods have been developed for the treatment of water. Among those the use of nano-particles has gained significant importance in recent years. The chemical synthesis of nano-particles however, comes with the disadvantage of the production of chemical waste. Though an alternative method has been devised where the plant extract is used instead of a chemical as a base for the reaction, which subsequently reduces the production of chemical waste in considerable amounts, making it more eco-friendly. Such efforts have been made for synthesizing metal nano-particles of silver, gold, copper etc. using the extracts of herbs and plants like Neem, Aloe vera, Tea leaves etc. In the present study, we propose the extract of Tulsi leaves (*Ocimum sanctum*), for the synthesis of zinc nano-particles. Results conclude that extract and zinc nitrate of lesser concentration helped in synthesis of nanoparticles with size of around 200-300nm and they have been effectively showing activity against microbes like *Staphylococcus aureus* and *E.coli*.

Electronics and Communication Engineering

Development of classification of rice disease using image processing technique

M Sachin, Mr.Nidheesh P

Electronics & Communication Engineering, Coorg institute of Technology, Ponnampet,
India-57121

Abstract-Currently rice disease caused by various weather disorders and pests are serious problems. In this research, we develop a system to classify healthy rice plant and diseased rice plants by processing images from rice planted in paddy field. Rice blast is one of the most limiting factor in rice yield the purpose of the study is the timely and rapid diagnosis of rice blast based on image processing technique in field technique. Color images are prepared using image processing technique and improved by KNN algorithm by K means was used to classify images in lab color space to detect diseases spots on rice leaves. Otsu method was used to perform an automatic threshold of images based on shape or to reduce grey level in binary images. Finally, to determine the efficiency of design algorithm, sensitivity, specificity and overall accuracy were examined.

Keywords-rice, blast disease, image processing, k-means algorithm, KNN algorithm

SaviourDrone: The Drone Designed To Help In Medical Emergencies

Rahul Adiga C1, Sameeksha U Raikar2, Suma S H3, Sumanth S4, and Dr. Balachandra Achar5

Department of Electronics and Communication, SMVITM Udupi, Karnataka, India.

Abstract—Engineering and technology play an important role in the healthcare sector for the betterment of lives on earth. The project, SaviourDrone deals with the same, i.e., for the betterment of our society. The drone being developed will be completely driverless, equipped with a robotic arm and a two-way video communication feature. SaviourDrone will be interfaced with a fully customized mobile application for user benefits. The proposed robotic arm will be equipped with different sensors and nodes which can track the necessary vitals of a patient in need. The working of the project being built can be explained as follows, whenever a victim feels sick, the person himself / the people around can make use of the mobile application to inform the situation to the emergency services. The drone which is near to the patient receives the GPS coordinates of the patient and arrives at the spot in very less time. Even the ambulance nearby will receive the coordinates. Through the video communication feature, a doctor from the hospital can observe the condition of the patient. The mechanical arm measures the parameters like pulse rate, BP, emotional stress levels and these details are passed to the doctor. The doctor after examining the vitals can suggest the first aid to be done before the ambulance arrives. The basic first-aid will be available in the drone which can be used based on the instructions given by the doctor through video communication service.

Index Terms—Internet of Things, Aircraft navigation, Public healthcare, Telemetry, Global Positioning System, Image processing

Coal Mine Safety Monitoring Device using Wireless Sensor Network

Rishma M George*, Mahita Bangera, Abhishek A., Zaid Mohammed

Electronics and Communication, Mangalore Institute of Technology and Engineering,
Moodabidri, Mangalore – 574225, Karnataka, India

Abstract— Coal mine safety monitoring system and personnel positioning system are essential to save hundreds of people's life in mining sector. The conventional coal mine safety monitoring systems uses wired network to transmit the signals. Coal mining workers are facing accident with poisonous gas leakage, fire explosion, flood while mining, pressure variation and it is impossible to lay only on cable based safety system. Hence, the present study implemented sophisticated wireless coal mine safety monitoring system with gas, temperature, fire and pressure sensors. The design used STM32 microcontroller and gives an alert when the parameters exceed the desired level. Experiments show that the designed system is highly stable in performance, accurate in measurement, and helpful to improve mine safety and we hope this system can reduce the accident rate.

Keywords— Coal-mining, Mesh topology, Star topology, Wireless sensor network, monitoring Device

A New Design System of Quadcopter with Autonomous Flight Control

Y Suhas Kumar¹, Darshan G Shetty², Yajnesh Anchan³, Shreyas⁴, and Rajashree Nambiar P
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, India

Abstract - An Uninhabited or unmanned Aircraft System (UAS) is composed of four main components: the air vehicle, the payload, the control station and the data link. The operators interact with the UAS through the data link and are usually located in the control station. The focus of this project is on the vehicle itself (UAV) and more precisely on rotorcraft. Indeed, rotary wing aircraft have a very wide range of applications, thanks to their Vertical Take-Off and Landing (VTOL), hover and low speed capabilities. In addition, since they do not require a runway or any heavy facilities, they are more often used than fixed wing aircraft for research in aerial robotics. Therefore, a very wide variety of rotorcraft concepts have been invented. This creativity has been reinforced by the blossoming and rapid expansion of UAS projects, due to their reduced cost and risk of development, compared with inhabited aircraft. From the past 10 years most of the drones created are RC-controlled and the design of quadcopters haven't changed. The only changes that are taking place is the variety of devices or sensors mounted on the drone. So, we are creating an entirely new design. Its built in such a way that it offers much more stability (co-axial rotors with two axis rotation), can lift higher payload and includes tight manoeuvrability. It includes obstacle detection and avoidance system, Advanced GPS location tracking and survey, it also provides protection against natural aerial threats using zoned frequency emitter.

Keywords- UAV, Drones, Quadcopter, Ergonomic Flight Design, Co-Axial Motors, 2 Axis Rotation, Autonomous Flight Control, Zoned frequency emitter circuit, Payload, Pixhawk, Telemetry, QGC, Mission planner, CATIA V5.

Secured product delivery UAV based WindcopterSushmitha¹, Rashmitha², Sneha³, Priyanka Dsouza⁴, Ms. Renita Pinto⁵^{1,2,3,4}Dept. of Electronics and Communication Engineering, Shri Madhwa Vadhiraaja

Institute of Technology and Management, Bantakal-574115, (Karnataka), India

⁵Assistant Professor, Dept. of Electronics and Communication Engineering, Shri Madhwa Vadhiraaja Institute of Technology and Management, Bantakal-574115, (Karnataka), India

Abstract— Wind copter is a Quadcopter, which is commonly known as Drone. Due to rise in demand for commercial deliveries within cities, companies are facing problem in case of home delivery because of heavy traffic in road transport. Drones will solve the problem by exploring the transport opportunities in vertical dimension above the road [5]. This paper discusses about the design of scalable delivery drone which includes flight efficiency, energy consumption, noise and safety, that are the key parameters in delivery viability. This paper also discusses about the design and implementation of quadcopter-based UAV system for delivery operation using a camera.

Keywords—Quadcopter, Flight controller (Pixhawk), camera, GPS, Electric speed controller, keypad matrix, Raspberry pi

Bus Tracking System Using GPS & Android Application

Shwetha, Sowmya, Tejas Upadhya K C, Vikhyath N V, Ranjith Bhat

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi, India

Abstract— Bus tracking system is the technology to find the exact location of the buses using an android application. Data of the location is stored in the cloud and is retrieved from the cloud to the app. The system consists of hardware and software components. The tracking system mainly consists of three parts namely mobile vehicle unit, fixed base station and, database and software. Vehicle unit is hardware component consists of GPS (Global Positioning System)/GSM (Global System for Mobile Communication) modules. The function of this unit is to receive the signals from GPS module and using a controller or processor converts the data and sends the location data to the server. Fixed base station consists of a wireless network to receive the data and sends the data to the user. It mainly concentrates on the tracking software and geographic maps helps to find the vehicle location. Maps of every city are available in the system that has an in-built server. Database and software unit deals with the position information stored in database. It can be seen in display screen using maps. The bus location is transmitted to the server and will be retrieve in the app. So app will become handy and simple to track the location of the bus.

Index Terms— Database, Fixed base station, GPS /GSM, Server, Software.

Sentimental analysis using speech streams

Akshatha B Bhat K , Elein Jisha Lewis, Branda, Amitha Kundar, Laxmi Shetty

Electronics and Communication, SMVITM, Udupi

Abstract: Sentimental analysis has evolved over past few decades, most of the work in it revolved around textual sentiment analysis with text mining techniques. But audio sentiment analysis is still in a nascent stage in the research community. In this paper, sentimental analysis is performed on speaker discriminated speech transcripts or data to detect the emotions of the individual speakers. VADER algorithm is analysed in order to perform sentimental analysis.

Understanding the mood of a person can be very useful in many instances. For example, computers that possess the ability to perceive and respond to human non-lexical communication such as emotions. In such a case, the machine after detecting humans' emotions could customize the settings according to his or her needs and preferences.

Demand Side Management of Renewable Energy Integrated Smart Grid using Load Shifting Techniques

Kiran¹ and H. Ravishankar Kamath²

*1*Department of Electrical Engineering, Manipal University Jaipur *2*School of Electrical, Electronics & Communication, Manipal University Jaipur

1kiranchaurasia314@gmail.com, 2ravi.kamath@jaipur.manipal.edu

Abstract— The Paris Agreement on Climate Change has led to introduction of new reforms for clean power plan such as decarbonization of power sector, planned decommissioning of thermal power plants and inclusion of renewable energy sources for power production. The integration of renewable energy resources to power system faces two technical challenges: variability and uncertainty. An effective energy management with help of smart grid engineering can be the key for its beneficial use. Demand Side Management (DSM) is a valuable function for energy management in smart grid. It supports numerous smart grid functionalities such as electricity market control, Load scheduling, management of decentralized distributed energy resources. Energy consumption patterns and electricity load profiles can be achieved through numerous DSM based programs. Load shifting based DSM is generally related with the behavior of consumers and how their electricity use is. Here, the applied demand side management techniques are based on load shifting to maximize the power efficiency, reliability, and resiliency of energy-driven from renewable sources. This paper reviews the various energy management strategies developed to minimize the impact of renewable energy intermittency using Load Shifting Demand Side Management.

Index Terms— Load Shifting Technique, Demand Side Management, Energy Management, Renewable Energy, Smart Grid.

The Future of Noiseless Automotive Communication: Geo-Horn

Rizwan M A#1, Vaishnavi P N#2, Ramanath Kini M G*3

#Department of Electronics and Communication Engineering,

Coorg Institute of Technology, Kodagu, India

1rizwan7298@gmail.com

2vaish372@gmail.com

*Assistant Professor, Department of Electronics and Communication Engineering

Coorg Institute of Technology, Kodagu, India

3mgramnathkini@gmail.com

Abstract— In today's world, the vehicular horn remains unruly with no developments and is a large benefactor of noise. Yet, it is impossible to eradicate the horn in emergencies and untoward incidents. There is a desperate need for a solution. In this paper, we design an on-board apparatus which implements horn from the host vehicle to the leading vehicle remotely uninterrupted to the external environment integrated with geofencing technology as the center of activation.

Index Terms— Automotive horn, Noiseless, Geofencing, Wireless communication

Finger Spelling Recognition of Indian Sign Language Using Artificial Neural Network

Mrs. Nisha G R, Mrs. Prabha G S, Mrs. Nirupama K,

Department of Electronics and Communication

Vivekananda College of Engineering and Technology, Puttur, 574203

Abstract— Sign Language is a fundamental communication means for dumb and deaf community people. Indian Sign Language (ISL) is possibly the predominant sign language in South Asia used by several hundred dumb and deaf signers. It is different in the phonetics, grammar and syntax from other country's sign languages. The hearing people never try to learn the sign language. This causes the isolation of deaf and dumb people in the society. Therefore, a system that automatically recognizes the sign language is necessary. The implementation of such a system provides a platform for the interaction of dumb and deaf people with the rest of the world without an interpreter. In this paper, we propose a method for the automatic recognition of fingerspelling in Indian sign language. The proposed method uses digital image processing techniques and artificial neural network for recognizing different signs. The feature vector obtained from the feature extraction step is used as the input of the classifier that recognizes the sign. Artificial neural network is used as the classification tool.

Keywords- *Indian sign Language, Hand segmentation, Distance transform, Kurtosis, Artificial neural network*

A combination of Wireless and Optical Mode Communication in sensor networks for efficient data transmission

Akshatha Hari Bhat¹, Dr. Balachandra Achar H V ²

1Assistant Professor, Vidyalkar Institute of Technology, Mumbai, Research Scholar, Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi, India, akshathahbhat@gmail.com

2Professor and HOD, Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi, India, hvbachar@gmail.com

Abstract: Wireless sensor network which is a subset of wireless technology derives significant interest from various fields of engineering. They can be used in remote terminal unit which may be in remote location for data aggregation, SCADA operation, data collection. WSNs have an advantage of low-power consumption and low-cost rapid positioning which have many applications like disaster recovery, military surveillance, health administration, environmental & habitat monitoring, target-tracking etc..., and do not require human intervention. Nodes in wireless sensor network constitute of sensor devices, whose primal job is to sense the measuring parameters and pass to a transceiver unit for forwarding to a remote monitoring location for controlling operations. Wireless communication has an advantage of long range transmission using Multi-Hop topology. The interference causes degradation of data quality and makes it difficult to control the distributed units through automation. It is important to preserve the data accuracy with fast rate transmission, for appropriate data exchange in the network. Hence, among various advancement in different mode of communication, optical fiber communication has gained importance due to offered large bandwidth and interference robustness to multi access communication. The proposed solution is concentrated to develop a spectrum allocation in WSN Optical Communication model with reference to offered service rate and therefore the interference margin. The dynamic behavior of modulation control, leads to a higher resource utilization, lower computation overhead, higher accuracy and higher offered throughput.

Index Terms: Multi-Hop topology, Optical Fiber Communication (OFC), Wireless Sensor Networks (WSN)

Smartphone Based Attendance System for Staff

Carol DSilva, Lavanya, Manisha S Jogi, Prajna, Ms. Shashikala R

Department of Electronics and Communication Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal - 574115

Abstract: Attendance systems are used to track and monitor when employees start and stop work. The attendance system has been known for a long time, ranging from manual system to automated and complicated system such as attendance system using biometrics. All those attendance system have several weakness. A traditional attendance system requires a cumbersome and time consuming process requiring unnecessary paper work and higher maintenance efforts. We are in the era, where we have to think about sustainable development of an institute or a country. The other method of maintaining the attendance of the staff is by implementing the fingerprint based sensor device placed at one position. This will eliminate the proxy of attendance. But the disadvantage is that the person has to wait in a long queue until his turn comes. This is very time consuming. Designing a better attendance management system for staff so that records are maintained with ease and accuracy was an important key behind motivating this project. This project mainly works with the help of android smartphone and Wi-Fi. The application will be installed on the user's android phone. Initially the user can register himself/herself using his phone number only once. The smartphone of the user can be accessed only through college Wi-Fi while marking the attendance in attendance system so that no cheating takes place. By using this system the employee can avoid standing in a queue and save his/her time by using their smartphone.

Keywords: Wi-Fi, android application, MySQL database, android phone, android studio.

Extraction of Human Body Measurement Using Green Screen Segmentation

Sachin Bhat, Thejashree, Thrishna, Chaithra, Vidyashree,

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi – 574115, India

Abstract—In this fast-phased world, the fashion industry is changing and tries to give confidence to people who wear their clothes. The fit of the garment depends on accuracy of measurements. The traditional method of measuring may provide wrong information if the tools are inappropriate. Even though 3D body scanning can give accurate results, they cannot be afforded by small business setups. 3D imaging makes the process expensive. Not all can afford a stylish to measure and stitch 4-5 sets of outfits and select the best. The working community has no time to visit stores/tailoring shops regularly. This project proposes inexpensive method for extracting human body measurements from 2D images which helps the society to reach out to the different styles and fitted garments of their taste. Human body measurements are extracted with the help of - Affine and Metric correction, Green Screen Segmentation, Heuristics for detection and pixel to real world distance. It is a 2D image based system which takes one front view, side view and front view with checkerboard. This method involves manual annotation technique.

Index Terms—Affine and Metric correction, Perspective Transformation, Green Screen Segmentation, Chroma Keying Technique.

Mechanical Engineering

Experimental Analysis of Influence of Injection Timing on Compression Ignition Engine with Blend of Biodiesel and Nanoparticles

Sharun Mendonca^{1*}, Thirumaleshwara Bhat², Ravikantha Prabhu¹, Rudolf Dsouza¹

¹Assistant Professor, Department of Mechanical Engineering, St Joseph Engineering College, Vamanjoor, Karnataka, India-575028

²Professor, Shri MadwaVadiraja Institute of Technology and Management, Bantakal, Karnataka, India-574115

*Corresponding author: Sharunmendonca@gmail.com

ABSTRACT

Discovery in nanoparticles has opened up new options in fuel additive. The conventional diesel fuel blended with biodiesel is dispersed in aqueous aluminium oxide nanoparticles using an Ultrasonicator. The nanoparticles used are in the size range of 0-50nm. The engine performance and emission characteristics are measured for 3 different dosing levels of aqueous aluminium oxide nanoparticles with simarouba biodiesel blend. Injection timing plays an important role in CI engine performance and emission characteristics. Therefore, the influence of injection timing is also studied experimentally. The delay in injection timing reduces most of the emissions along with slight increase in performance characteristics.

DESIGN AND FABRICATION OF GEARLESS POWER TRANSMISSION WITH ELBOW

Harshith Shetty, Deepa, Karthik A.V., Prakhyath, Rajesh Rai P

**^{1,2} Student, Department of Mechanical Engineering,
A.J. institute of Engineering and Technology, Mangalore
^{3,4,5} Assistant professor, Department of mechanical,
A.J. Institute of Engineering and Technology**

Abstract -Power transmission for slant shafts is with the assistance of either crossed helical apparatus or worm gear or hypoid outfits in a machine, yet the assembling of these rigging is mind boggling, power misfortune in gears because of sliding movement and the pole directions is extremely restricted, so need emerges for a superior framework. In Gearless force transmission for slant shafts which diminish the misfortunes, cost and spare the existence. This framework permits the changing in the direction of shafts during movement which is intriguing and entrancing about this system. Right now no. of pins or connections utilized must be odd 3,5,7,9... Pins or connections are fixed in the penetrated gaps at the both shaft finishes because of which movement is moved. The Working of this game plan is smooth and work successfully with an extremely least measure of intensity misfortunes, which is able and is having something exact in transmitting influence at right point with no apparatuses being fabricated.

Key Words: Gearless mechanism, Skew shaft, Component of the model and its operation, Design of Shaft, Hub, Elbow rod

Bio-Based Lignin Carbon Nanofibers as high performance anode material for Li-ion battery

Prathviraj Upadhyaya[a], Mario Culebras[b], Maurice N. Collins[b]

^aSEAM research Centre, Department of Engineering, Waterford Institute of Technology (Ireland),

^bStokes laboratory, Bernal Institute, School of Engineering, University of Limerick

Abstract— Increased implementation of lithium ion batteries for all the electronic purposes has created a demand to develop more cost efficient and increasingly efficient sustainable materials for energy storage devices, such as Li-ion batteries. In this following, the preparation of carbon nanofibers (CNF) from biopolymer blends of lignin, with polylactic acid (PLA) is described. The microstructural surface morphology of these carbon nanofibers were analyzed using a field emission scanning electron microscope after each processing step (electrospinning, stabilization and carbonization). The porosity of the nanofiber is determined using miscibility/immiscibility rule between lignin and the additive polymer (PLA). PLA blend generates porous structure when carbonized. Electrodes produced from 30% PLA blend have specific capacitance of 572 mAhg⁻¹ after 50 charge/discharge cycle; high for sustainable electrodes for Li-ion batteries. This work will promote the development of lignocellulose waste material as high performance energy storage materials

Index Terms—Biopolymer, Carbon Nanofibers, Carbonization, Capacitance, Electrode, Lithium-ion battery, Scanning electron microscopy.

Effect of Ash Filler on Thermo-Mechanical Properties of Natural Fiber Reinforced Composites

*Sudarshan M.L.1,**, *Vaibhav N Poojary2*, *Sukesh Anant Achari2*, *Dr.*

Sudarshan Rao K3

¹Assistant Professor, Department of Mechanical Engineering, Vivekananda College of Engineering and Technology, Puttur, Karnataka, India.

* Research Scholar, SMVITM, Bantakal.

²Student, Department of Mechanical Engineering, Vivekananda College of Engineering and Technology, Puttur, Karnataka, India.

³Professor & Head, Dept. of Mechanical Engineering, SMVITM, Bantakal

Abstract: As natural fiber composite materials are environmentally friendly & economical, now a day's most of the researchers & engineers started their researches on composites. Composites are low weight & high resistance to corrosive which is another reason to use it in the first place. when component weight is critical we cannot use metallic components. This study helps in selection of the natural fiber composites materials based on the tensile test, compression test, HDT test, the fire test, impact test & flexural test. The composite materials which are tested are produced by reinforced natural fiber such as sugarcane bagasse, areca husk, & coconut coir. The orientation of the reinforcement is discontinuous & random with the matrix as epoxy & hardener. Varied amount (0, 5, 10 and 15) % of ash is used as filler material to compare the heat & resistance of composites. Matrix with higher percentage of ash provided high resistance to heat. Composites with higher thermal resistance can be used in various fields such as Automobiles, pavements, etc.

Keywords: Natural fibers, filler materials, reinforcement, resin, and hardener.

Effect of TiO₂ Nanoadditives on Emission, Combustion and Performance Parameters of CI Engine with Pongamia Biodiesel blends

Rolvin S Dsilva Department of Mechanical Engineering St Joseph Engineering College, *Affiliation: VTU, Belagavi*
Mangaluru , India rolvsun@gmail.com

Binu K.G Department of Mechanical Engineering St Joseph Engineering College, *Affiliation: VTU, Belagavi* Mangaluru ,
India binuk@sjec.ac.in

Thirumaleshwara Bhat Department of Mechanical Engineering Shri Madhwa Vadiraja Institute of Technology and
Management *Affiliation: VTU, Belagavi* Udupi, India tbhatsmvitm@gmail.com

Abstract—In this research work Titanium dioxide nanoparticles are dispersed in Pongamia Pinnata biodiesel as nano additive. Experimental work is carried out on three blends B10, B20 and B30. The performance parameters, emission and combustion parameters are recorded using a computerized CI engine test apparatus and exhaust gas analyser. It is observed that the nanoadditive improves engine performance and also helps in reducing exhaust gases. Among the fuel samples tested B20T75 has a maximum increase in BTE of 1.47% and maximum decrease in BSFC of 7.29% with the addition of TiO₂ nanoadditive. NO_x reduces by 4.3%, 3.9% and 4.2% and Unburnt hydrocarbons reduce by 20%, 13.6% and 11.1% when nanoadditive are added to B10, B20 and B30 respectively. Smoke opacity value of B10, B20 and B30 reduces in the presence of TiO₂ nano additives by 9.2%, 11.04% and 7.9% respectively. Among the fuel samples tested, the maximum cylinder pressure is 66.02 bar occurs in case of B10T75. B30T75 is showing maximum heat release of 47.27 J/deg.

Keywords—Biodiesel, Titanium dioxide nanoparticles, emissions, combustion, performance, CI Engine

Experimental Characterisation of a McKibben-type Pneumatic Bending Actuator

Adithya R Upadhya¹, Mohith S1, Navin Karanth P1

*¹Department of Mechanical Engineering, National Institute of Technology Karnataka,
Surathkal, Mangalore – 575025*

Abstract - Soft robotics is a growing, fresh area that relies on these mechanical characteristics and the inclusion of components, buildings and applications. Just as animal movements are based on the close integration of neural and mechanical controls, soft robotics aims to accomplish better and simpler processes by exploiting ‘mechanical intelligence’ of soft materials. One such soft pneumatic bending actuator is developed here. It is then fabricated using latex tube, braided sleeve and strain-restraining material. The McKibben Pneumatic Bending Actuator (MPBA) was characterised after several tests. The actuator tested here shows a bending angle of 130.8° for air pressure of 2.5 bar. It exerted a maximum force of 8.52 N for the same air pressure.

Keywords – McKibben Pneumatic Bending Actuator, MPBA, Pneumatic Actuator, Soft Robotics.

Experimental investigation in determining optimum working temperature for a 4-stroke air-cooled motorcycle engine

Mr Mallya Ananth Mohan¹, Dr Narasimha Krishna Bailkeri²

1 Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi, India. 2 Nitte Mahalinga Adyanthaya Memorial Institute of Technology, Nitte, Karkala, India

Abstract— Almost every motorcycles on Indian roads is of the commuter variant and typically use air cooled single cylinder four strokes. Depending on the type of usage, these engines are optimized for fuel efficiency, rather than for outright power. Yet, the Indian obsession with fuel efficiency makes the riders run the engines very lean with the sole purpose of extracting the maximum possible mileage. Without sufficient airflow over the fins, these engines characteristically overheat in traffic conditions, affecting fuel efficiency drastically. This work aims at determining the optimum working temperature of an air cooled engine, where maximum fuel efficiency is obtained under static conditions.

Index Terms—engine, temperature, optimum working temperature

Electrospinning: The Latest Technique for Fabricating Functional Nanofibers for Advanced Sensor Applications

Amith V.1, Sridhar R.2, Gangadhar Angadi.3, Narasimha Murthy H.N.4

[1] Research Scholar, Department of Mechanical Engineering, R.V. College of Engineering, Bengaluru,

Visvesvaraya Technological University (VTU) Belagavi, Karnataka, India

[2] Associate Professor, Department of Mechanical Engineering, R.V. College of Engineering, Visvesvaraya Technological University (VTU) Belagavi, Bengaluru, Karnataka, India

[3] Assistant Professor, Department of Mechanical Engineering, R.V. College of Engineering, Visvesvaraya Technological University (VTU) Belagavi, Bengaluru, Karnataka, India

[4] Professor, Department of Mechanical Engineering, R.V. College of Engineering, Bengaluru, Visvesvaraya Technological University (VTU) Belagavi, Karnataka, India

Abstract—This work reports the optimization of various experimental parameters for electrospinning Polyvinylidene Fluoride nanofiber mats in order to maximize their performance in sensing applications. Due to growing demand for ultra-low power wearable technology, piezoelectric nanofibers are getting special attention for energy harvesting applications. Polyvinylidene Fluoride based piezoelectric nanofibers are particularly promising because of their bio-compatibility and low cost. In this work, a detailed study is carried out to optimize the electrospinning parameters to control the morphology and maximize the piezoelectric property of Polyvinylidene Fluoride nanofibers mats. Application of optimized nanofiber mat has been demonstrated in the end which will find applications in wearable technology and other passive sensing applications.

Keywords—Polyvinylidene Fluoride (PVDF); Electrospinning; Nanofiber; Piezoelectricity; Sensor

An Investigation into the Effect of Fused Deposition Modeling Process Parameters on Mechanical Properties of Thermo-Plastics

Ravi Shekhar Kinja¹, Bhuvnesh Dave², Dr. Kailash Chaudhary², Dr. Dinesh Shringi²

¹Department of Mechanical Engineering, MITS Jadan, Pali, India ² Department of Mechanical Engineering, MBM Engineering College, Jodhpur, India

Abstract- Fused deposition modeling (FDM) process is an additive manufacturing. Additive manufacturing process is also referred as 3D printing. In 3D printing process the product is developed by use of layer by layer technology. In FDM process thermoplastic parts are fabricated by extrusion process and deposition of the heated material layer by layer manner. The main objective of this article is to provide review of various developments in the FDM process and the overview of various type of parameter by which the FDM process is get affected.

*Keywords-*Additive manufacturing, 3D Printing, Fused Deposition Modeling, Process Parameters and optimization

Review on Additive Manufacturing

Arpit Vijaywargiya¹, Pankaj Sankhla², Dr. Kailash Chaudhary¹

1. Department of Mechanical Engineering, MBM Engineering College Jodhpur (Rajasthan), India

2. Department of Mechanical Engineering, RAJ Engineering College Jodhpur (Rajasthan), India

arpit.vijay98@gmail.com

Abstract—As Additive Manufacturing technology is rapidly developing; designers are being enabled to make better products faster and cheaper. Additive Manufacturing techniques offers major advantages due to the fact that they adapt to compact design and geometrical complexity of product to be manufactured. The following may also be attained according to Scope of application; multimetal product, lighter weight products, lower tool investment costs, fewer assembly errors and, therefore lower associated costs, an optimised use of materials, a combination of different manufacturing processes and a more sustainable manufacturing process. Additive Manufacturing is seen as being one of the major industrial revolutionary process of the next upcoming years. This paper reviews the various types of additive manufacturing technologies, development of additive manufacturing technology with an emphasis on its impact on the design process and how it is moving from prototyping into production. There will also be a focus on applications of additive manufacturing in automotive sector. The outcome of this paper show that the use of additive manufacturing in product development is necessary for companies to compete with industry standards, future aspects of additive manufacturing technology are also explored.

Keywords—additive manufacturing, automotive industry, 3D printing, rapid prototyping.

Study of Performance and Emission analysis of

IDI Diesel Engine using Methanol and Ethanol blends

Manjunatha S1, Ramakrishna N Hegde2, Chethan S Rao3, Deekshith D N4, Ananth Kamath K5 and Alok6

1Asst prof, Dept of Mech Engg, SMVITM,

2Professor and HOD, Dept of Automobile and Aeronautical Engg, SIT, Mangaluru

3456,final year, Dept of Mech Engg, SMVITM

Abstract— past two decades, most of research work is concentrated towards direct injection (DI) diesel engine. In DI diesel engine, fuel is directly spread into cylinder after compression stroke, whereas, fuel is spread into swirl chamber incorporated in cylinder head in indirect injection (IDI) diesel engine. Lower unburned HC & CO emissions are the advantages of IDI diesel engine and it has simple injection system and lower injection pressure because of high turbulence in swirl chamber. Biofuel are one of the low carbon fuels which can replace depleting fossil fuel in future. An experimental investigation has been carried out to study the performance of naturally aspirated, IDI diesel engine with two biodiesel blend (methanol and ethanol) with diesel fuel. Methanol and diesel fuel blend (20%, 40% and 60% by volume) was tested. The results showed the increase in SFC as the calorific value of the biodiesel is less compared todiesel fuel. The emission test results showed the decrease of NO_x emissions in methanol and ethanol respectively. the study concludes that the methanol and ethanol blends can be used effectively to operate IDI diesel engine without compromising the efficiency.

Index Terms—Indirect Injection, methanol, ethanol

DEVELOPMENT OF WET FOOD WASTE CONVERTER FOR CLEAN INDIA MISSION

Fardin Ahamed¹, Mohammad Abrar², Mohammed Affan³, Mohammad
Fahim⁴, Karthik V⁵

*Shri Madhwa Vadiraja Institute of Technology and Management
Bantakal, Udupi, Karnataka, India.*

Abstract—Food waste contains high water and organic matters. In addition, it contains a variety of unsaturated fatty acid. The matters are easy to decompose. It is easy to grow bacteria. But after drying, food waste will be good organic fertilizer. It not only reduces health and pollution problems, but also bring economic benefits. General method to make food waste to organic fertilizer: Separation and Dehydration, crushing, drying, pelleting, cooling and package. Food waste water content is more than 80%. After separation and dehydration, the moisture will be less than 60%. It needs to be dried to be organic fertilizer. For drying it more evenly, food waste gets crushed with air delivery system, and it will be delivered to the belt conveyor and sent to drying unit. After the food material reaches cylinder: Firstly, the wet material will be scattered into small pieces by rotary harrow in the process of falling, and then, it is repeatedly & thoroughly grabbed, lift, fallen and beaten. The surface area of the shattered materials increased rapidly, and contact with hot air is sufficient to transfer heat and mass. In the last cylinder of organic fertilizer drying, the temperature is cooler than the first and second cylinders, food waste organic fertilizer cools down, which reduces water content further.

Index Terms— Wet Food Waste, Clean India, Hygiene, Organic fertilizer, Dehydration.

Dynamic Programming Technique for Manufacturing Systems

Arpit Jain, Dr. Kailash Chaudhary

Department of Mechanical Engineering, MBM engineering college Jodhpur (Rajasthan), India

Abstract—Dynamic programming is a powerful technique that can be used in manufacturing systems. In modern manufacturing systems it is critical to perform maintenance, management and calibration problems where objective is to find best solution of the problems. Dynamic programming divides the problem into sub problems and finds the optimum solution of the problem and their result can be reused. it reduces the computational time. In this paper we propose dynamic programming approach, characterization, classification, mathematical formulation and its applications to manufacturing purposes. Some researches are sprinkled through the paper illustrating the specific type of problems and also discuss how dynamic programming is applied to the manufacturing system. The major contribution of this paper includes a simple and powerful abstraction of dynamic programming applications and implementation. Our paper results show the basic idea of dynamic programming and how it is important and how to approach it and the results for application demonstrates the applicability of algorithm to variety of optimization problems.

Keywords—dynamic programming, manufacturing system, optimum problem

Performance Study of Fin Type Absorber using Solar Parabolic Dish

1Bhaskar Kulkarni 2Sunil B Lakkundi 3Santosh B Kunnur 4Ashwithkumar M S

*1,2,3,4. Assistant Professor, Department of M. E., Vivekananda College of Engg. & Tech.,
Puttur*

□

Abstract—In the present work a Fin Type Absorber is used to absorb the heat with the help of solar parabolic disc concentrator which converts solar energy in to heat and same can be used for domestic and commercial applications. With use of manual Tracking Solar Parabolic Disc Concentrator some experiments were conducted. Results were tabulated and studied. During analysis it is observed that a fin type absorber gives higher temperature than the absorber without fin. Maximum temperature 260o C is obtained for air heating with fins , between 10.30 am - 2.30 pm. The temperature obtained from fin type absorber gives good results for especially domestic applications.

Index Terms—Fin type absorber, Domestic heating purposes, Solar Parabolic Disc Concentrator.

CLOUD MANUFACTURING: AN EMERGING TREND IN TODAY'S WORLD

Chandan Singh Chouhan¹, Mr. Pankaj Sankhla², Dr. Kailash Chaudhary¹

1. Department of Mechanical Engineering, MBM Engineering College, Jodhpur (Rajasthan), India

2. Department of Mechanical Engineering, RAJ Engineering College, Jodhpur (Rajasthan), India

chandanchouhan792@gmail.com

Abstract- For the past eight years, cloud manufacturing as a new manufacturing paradigm has accomplishing a huge amount of attention worldwide. More than eight hundred papers have been published on cloud manufacturing. However, during the past two years many articles, review papers on Cloud Manufacturing (CM) have been published in order to speed up the research and to identify future trends. Cloud manufacturing is an emerging customer centric and service oriented model to solve existing problems in traditional manufacturing. The aim of CM is to deliver and share ubiquitous on demand manufacturing service to consumers over internet which will enhance overall efficiency, reduce product cost and allow for optimal resources. This is an innovative and web-based new paradigm which uses core information technology such as Cloud Computing, IOT, Virtualization, radio frequency identification and service-oriented technology to solve complex manufacturing problems. However, the industry adoption of CM is still limited. The objective of this paper is to present fundamental concept model, participants and architecture of cloud manufacturing. The paper also focuses on current status of CM, benefits of implementation CM model in industry and the future developments trends in particular area.

Index Terms- cloud manufacturing, customer-centric, paradigm, web-based, cloud computing, architecture.

Determinants of Entrepreneurial Intention among Engineering Students: Application of Theory of Planned Behaviour

Madhukara Nayak¹, Narasimha Marakala², Vasanth Kamath³

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi¹.

NMAM Institute of Technology and Management, Nitte, Udupi².

T. A. Pai Management Institute (TAPMI), Manipal, Udupi

Abstract: Entrepreneurs are "the engines of economic growth." They also contributed immensely to the constructive commitment of a nation to economic prosperity and social progress. Contributions include the invention and creation of employment opportunities. Since entrepreneurship is associated with self-employed individuals, it is perceived to be an effective approach to address the challenge of employability, especially among young people. Therefore, recognizing the variables that determine entrepreneurial motivation is important since entrepreneurial behavior is the result of purpose. This research aims to identify the factors of entrepreneurial inspiration and purpose between final year engineering students. As most research suggests that entrepreneurial motive may be calculated through the use of Planned Behavior Theory (TPB), this principle is utilized as a theoretical foundation in this research. The main parameters of this research are personal behaviors, perceived social guidance, and perceived behavioral management. This theoretical paradigm has been tested with 372 final year engineering students at engineering colleges in the coastal Karnataka part of India. Findings have shown that personal perception, presumed behavioral influence, and perceived social assistance are indicators of entrepreneurial motive. This research will assist policy departments, organizations, researchers, business students, advisors, and other stakeholders in identifying suitable ways to promote entrepreneurship in higher education institutions and, ultimately, in the community.

Index Terms: *Entrepreneurial* intention; Theory of Planned Behavior; perceived relational guidance; personal perception; and perceived behavioral management.

Development of Seat Actuated Parking Brake Using Rack and Pinion

**Prajath P Sherigar¹, Sushan P Poojary², Sanath B Shetty³, Preran P
Shetty⁴, Mallya Ananth Mohan⁵**

Shri Madhwa Vadiraja Institute of Technology and Management, Udupi, Karnataka, India.

ABSTRACT

Brake is among the protection devices of an automobile. A typical car consists of two kinds of brakes, one for retarding vehicle speed when in motion, and another for keeping the vehicle in place while still. It's essential before beginning the vehicle, to disengage the handbrake. People sometimes forget to engage or disengage the brakes when they park the car, to be able to solve the downsides of this modern method, we've introduced launch system and a universal parking brake, where the Brakes are actuated using the Rack and Pinion arrangement and Solenoid, so the brake can be engaged or disengaged accordingly automatically by seating or getting up from the Seat.

KEYWORDS: Automobile, Brakes, Handbrakes, Universal Parking Brakes, Rack and Pinion, Solenoid, Seat.

Design and Numerical Analysis of Friction Stir Processing Tool for Magnesium Alloy Based Surface Composites

Lingaraj Ritti¹, Thirumaleshwara Bhat²,

*Shri Madhwa Vadiraja Institute of
Technology and Management, Bantakal, Udupi*

Abstract—Friction stir process is a solid-state process in which the grain refinement of the base material will take place below the recrystallization temperature. The surface composites are produced by mixing the reinforcement particles on the surface layer of the base material at a certain thickness by using a suitable reinforcement strategy which improves the surface properties of the composites. The success of the process depends on the tool shoulder design, and pin design. In the present work, an attempt has been made to design a suitable tool by using analytical models based on the torque capacity of the motor used in the Computerized milling machine. The tool shoulder diameter of 20 mm is obtained based on the yield strength of the tool material, and the taper pin average diameter of 4 mm is obtained based on the maximum shear strength of the tool material with suitable safety factor. The axial and transverse forces in the process are determined by an analytical method. The axial force-induced during the plunging phase is 28.7kN on the contact surface of the tool shoulder and in travelling phase the maximum transverse force-induced is 3kN at the pin side of the tool. The structural stability and the reliability of the tool are studied by structural and fatigue analysis using ANSYS software. The result shows that the negligible deformation and stresses induced during the process are less than the yield strength of the tool material, and the tool endure 14×10^3 cycles of fatigue load-induced during the process.

Index Terms—Friction Stir Process (FSP), Tool, Magnesium Alloy, Structural and Fatigue analysis, ANSYS software

Retractable Stabilizer Wheel Supported Bicycle

Pranav Mohan¹, Sachin Salian², Sharan³, Dr Sudarshan Rao K⁴

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi, Karnataka, India

Abstract- The present work relates to the design and fabrication of stabilizer wheel supported bicycle. Rider operable and retractable stabilizer wheels are designed to be used as a rider's assistance to support weight of the rider during impending, slowing and stopping the bicycle. The rider engages support wheels to obtain assistance while seated. To engage and constrain the mechanisms manually, hand-lever mechanism is used. The retractable wheels are mounted on the stand, with a provision of raising and lowering the wheels as per requirement.

Index Terms- Hand lever mechanism, Retractable stabilizer wheels

Solar hybrid energy water pumping system for agricultural irrigation

Prathik Chandrakanth Shenoy¹, Srinidhi Udupa A², Sharath Kumar E³, Abdul Ahad⁴ and Ganesh R Kalagis

^{1,2,3,4} M.E students, Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

⁵ Senior Assistant Professor, Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract- This paper throws light on development procedure of an embedded system for solar based OffGrid irrigation system. Solar power is absolutely perfect for use with irrigation systems. Using Solar Panel, the sun energy will converted to electrical power and is saved into batteries. The objective of our project is to reduce this manual involvement by the farmer by using a smart irrigation system whose purpose is to enhance water use for agricultural crops. The inspiration for this project came from the countries where economy is based on agriculture and the climatic conditions prime to shortage of rains & scarcity of water. The farmers are only dependent on the rains and bore wells for irrigation of the land. Even if the farm land has a water- pump, manual involvement by farmers is required to turn the pump on/off when needed. The project is intended to cultivate an smart irrigation system which controls the pump motor ON/OFF on sensing the moisture content of the soil. The advantage of using this technique is to reduce human intervention and still certify proper irrigation. This paper presents the controlling and monitoring the level of the water and detecting the soil moisture content.

Key Words: Smart irrigation system, Solar panel, Soil moisture sensor

An Engineering student's viewpoint on the implementation of active learning techniques and modern tools for the teaching-learning process

Kishor Kumar Aroor, Prof. Dr. Thirumaleshwara Bhat.

Shri Madhwa Vadiraja Institute of Technology & Management, Bantakal, Udupi.

Abstract— Large number of graduates coming out of higher educational institutions, especially the technical institutions facing tough competition in the job market, which demands high quality education for preparing competitive graduates coming out of their institution. In view of this Accreditation by National Board of Accreditation (NBA) is a mandatory requirement for every technical institution in India. Accreditation by NBA is based on Outcome Based Education (OBE) practices. Active learning techniques and use of modern technology in teaching learning process are key components of OBE practice. The investigation on the above components carried out determined the level of implementation of active learning techniques and use of modern tools for teaching-learning process with student's acceptance towards these techniques in Engineering Institute. The study has been carried out in an Engineering College to investigate the level of implementation of active learning and modern tool usage has revealed a positive response from the stakeholders. The study also indicates that Active learning techniques such as summarizing, group discussion, quiz and usage of modern tools in the teaching learning process are very effective.

Index Terms— **Active learning techniques, Outcome Based Education**

A Study on Effectiveness of Forecasting Techniques to Improve Performance of Manufacturing Processes

Arpit Goyal¹, Ravi Shekhar Kinja², Dr. Kailash Chaudhary¹

1. Department of Mechanical Engineering, MBM Engineering College, Jodhpur (Rajasthan), India
2. Department of Mechanical Engineering, MITS Jadan, Pali (Rajasthan), India

Abstract— Forecasting is a basic need to grow any business. Many of the companies depend only on the forecasting data. Customer demand in developing countries and developed countries is increasing due to an increase in the world population. For this, forecasting has become very much necessary. The economy of a country depends on the manufacturing sector, and the manufacturing of a company depends on forecasting. Because forecasting prevents to over and under the stock situation of a company and decided the future production rate. In this paper, some forecasting methods like qualitative and quantitative methods are defined. Improving forecasting for an organization is difficult. In this paper, some of the easy methods are explained so that which organization does not know about the forecasting can use the forecast for their success, and some of the largest industries can also improve their forecasting method. Forecasting plays an important role in production planning.

Keywords – forecasting, manufacturing, qualitative method, quantitative method.

Advances in Computer Numerical Control (CNC) Machines

Harshit Mathuriya¹, Bhuvnesh Dave², Dr. Kailash Chaudhary¹

*1. Department of Mechanical Engineering, MBM Engineering College Jodhpur (Rajasthan),
India*

2. Department of Mechanical Engineering, MITS Jadan, Pali (Rajasthan), India
harshitmathuriya13@gmail.com

Abstract—The objective of this paper is to review the Computer Numerical Control (CNC) machines. This paper includes the numerous processes of CNC machines like drilling, boring, cutting, finishing, and knurling. CNC machines are useful to reduce the cycle time and increase the production rate within the manufacturing field. This paper also contains the security features and critical functions of CNC machines. CNC programming is useful for model making. The computer controls many functions of the CNC machine automatically. CNC machines are beneficial in various industries like metal removal industries, medical, defense, petrochemical, aerospace, and other industries. The CNC machine uses the G code, M code, and N code for creating the model. The programming code in this paper is written by CNC 210 lathe.

Keywords: CNC, drilling, knurling, production rate, manufacturing field, metal removal industries, and safety features.

ELECTRICAL CHARACTERISATION OF SISAL REINFORCED POLYPROPYLENE COMPOSITES

**Shreyas Shetty¹, Srajan K Kotian², Vishal Kunder³, Sukesha⁴, Mr.
Ganesh Kalagi⁵, Mr. Narayan Nayak⁶**

Department of Mechanical Engineering SMVITM, Bantakal, Udupi, India

Abstract

In recent years, the natural fibres have been more attractive. The natural fibres are technically enhanced by amalgamating with plastics. Types of natural fibres which can be used along with plastics are coir, luffa, hemp, jute, sisal and banana. The objectives of this experiment are to evaluate the suitability of producing fiber composites using sisal fibers. This study deals with the preparation of sisal fiber composites by using hot compression technique in which good interfacial adhesion is generated by a combination of fiber modification and matrix methods. Initially the sisal fibers were treated in order to improve resin fiber interfacial bonding. The treatment agent used were Sodium hydroxide. The dielectric properties, such as dielectric constant of sisal natural fibers reinforced with polypropylene were studied with different fiber loadings. The dielectric constant was lower for composites consisting of fibers subjected to alkaline treatment due to the increased hydrophobicity of fibers. When the weight percentage of sisal fiber was increased in the composites, the dielectric constant was found to increase. It is evident that types of polymer have little influence on the dielectric properties of the composites.

Keywords: Fibers, composites, sisal, polypropylene, Natural fibers.

PERT and CPM Techniques for Manufacturing Systems

Prashant Singh Nirbani¹, Pankaj Sankhla², Dr. Kailash Chaudhary¹

Department of Mechanical Engineering, MBM Engineering College Jodhpur
(Rajasthan), India

Department of Mechanical Engineering, RAJ Engineering College Jodhpur
(Rajasthan), India

Abstract— In this paper we would see a brief view on various project scheduling techniques that might be helpful to software project managers to deliver the project on time and aiming to support the development of successful systems, the classification of scheduling techniques by how they are implemented is considered in detail through several aspects. Each kind of techniques is used to achieve a particular task and capture the structure and behavior of the system at various levels of detail, this study is aimed at finding trade-off between the cost and minimum expected time that will be required to complete the project. Both critical path method (CPM) and project evaluation and review technique (PERT) were used for the analysis. The activities underwent crashing of both the time and cost using linear programming, this paved way for the determination of critical path.

Key words: Program Evaluation and Review Technique (PERT), Critical Path Method (CPM)

FABRICATION OF RAW CASHEW NUT DESTONER

Gurudeep KP¹, Mohammed Rayif², Adarsh Anand³ and Karthik V⁴

*Shri Madhwa Vadiraja Institute of Technology and Management,
Bantakal, Udupi, Karnataka, India.*

Abstract—Destoners find their application in the food processing sector and in the milling industry, but they are also used in the seed sector, in particular on products harvested close to the ground. They are used for the separation of dry granular material according to specific weight into two fractions. The goal is to eliminate heavy impurities such as stones, metal particles and other objects like coffee, grains or pulses. Here the Raw Cashew Nuts are washed with water, this separate's the raw cashew nuts from sand, stones, threads, metal pieces and dust. Dust is eliminated through a pre-dust removing hopper which has a rust proof stainless steel wire mesh tray for collecting dust. The stones get accumulated on a stone collector tank. An epoxy oxide primer coating is used for rust proofing. The project aims to increase the production rate and also the life expectancy of blades used in the cutting profile. It reduces the process time and cost of production. The systems used are safe, secure and easy to handle or operate, this leads to low human efforts.

Index Terms— **Cutting profile, destoner, production rate, raw cashew nut.**

Fabrication of Pesticide Series Spraying Machine for Agricultural Purpose

PrasadV Acharya¹, RobinJohn Quadras², SharathKumar³, VivekShetty⁴, MallyaAnanthMohan⁵

Department of Mechanical Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

2Assistant Professor

Department of Mechanical Engineering

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

Abstract—Agriculture is the backbone of Indian economy and is the most important sector in the Indian economy. Agriculture contributes around 23% to the gross domestic product and more than 70% of the total workforce is employed in this sector. In India people still follow old methods for cultivation and modernization speed is very slow. For spraying pesticides and insecticides farmers in India are mainly dependent on knapsack sprayers. These sprayers are carried by farmer on their back and force is applied manually. Because of the weight of the sprayer farmers will face a lot of problems like back pain. So, to overcome this problem a machine is developed in which the knapsack sprayers are placed on a chassis so that the farmer need not carry the knapsack sprayer on his back. A knapsack sprayer usually consists of a single nozzle but in this machine a total of four nozzles can be accommodated. Therefore, the speed of pesticide spraying increases. In this machine the height of the nozzles and the horizontal distance between the nozzles can be easily adjusted depending on the height of plants and distance between the plants. Both energy and time of the farmers is saved by using this machine. This machine or mechanism of spraying does not require any fuel and cost of spraying is also reduced.

Keywords: Agriculture, knapsack sprayer, nozzle, pesticide.

Pesticide Spraying System Using Wired Drone

Sahil Khaleel¹, Zihaad Akbar Ali², Shashank³, Swaroop Inna⁴,
Vijendra Bhat⁵

Shri Madhwa Vadiraja Institute of Technology and Management, Udupi, Karnataka, India.

ABSTRACT

Indian Agriculture is one of the most important sectors in the country's economy. Agriculture in itself produces more than 18.5 percentage of their gross domestic generation of the country. Indian Agriculture provides over 8.5 percentage of their entire exportation of the Indian economy. To be able to secure better return and to control the diseases on plants, pesticides are sprayed through sprayers, therefore sprayers are essential part of agriculture. The system of sprayers has drawbacks of pesticides, like non-directed spray and can be hazardous to operator in order to overcome these disadvantages we have developed the notion of drone sprayer That we'd solve the issue to a maximum degree. The designed and planned project would utilize a quad copter that's operated via remote control with a device. This sprayer will have advantage like regular spray, reduced labor involvement in performance etc.

KEYWORDS: Agriculture, Pesticides, Sprayer, Quadcopter

Influence of Multi Directional Forging on Biodegradable Mg-Zn-Mn alloy

Aafaque A Siddique^{1a*}, Karthik S^{1b}, Manoj Moolya^{1c}, Niranjana^{1d}, Shamanth V^{2e},
Gajanan Annelf

¹*Department of Mechanical Engineering Shri Madhwa Vadiraja Institute of technology and Management, Bantakal*

²*Department of Mechanical Engineering
Reva University, Bangalore*

Abstract— Multi-directional forging (MDF) was applied to Mg- 4%Zn-0.5%Mn alloy up to 6 passes successfully at 300°C. MDF processed materials were characterized using micro-structural analysis, mechanical properties and corrosion behaviour. The micro-structural analysis was investigated using optical microscope and average grain size found to be 6.6 µm. The hardness of the Mg- 4%Zn-0.5%Mn alloy was investigated using Vickers micro hardness test. The higher hardness was found in 4th pass of MDF sample (90±6 HV), which is 1.5 times higher compared to homogenized sample (60±2 HV). The corrosion behaviour of the alloy was investigated using Immersion study by using stimulated body fluid (SBF). Lower corrosion rate was found in 6th pass of MDF process (0.32 mm/year). As the number of MDF passes increases the material property was enhanced and corrosion rate decreases due to grain refinement during MDF process.

Keywords—Multi-directional Forging; Magnesium alloys; Microstructure; Mechanical properties; Corrosion behaviour.

Improving Functional Properties of Mg-4Zn-1Sr alloy using Cryo Ball Burnishing Technique

Rakshith Kotian^{1a}, Akashraj^{1b}, Chirag Nayak^{1c}, Bhaskar M^{2d}, Aditya Kudva S^{1e}, Gajanan Anne^{1f}

Department of Mechanical Engineering,

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

Project Assitant, Department of Chemistry;

IIT Madras

Abstract— Cryogenic ball burnishing was carried out for Mg-4Zn-1Sr alloy. The alloy was homogenized at 300°C for 24 hrs. Cryogenic ball burnished materials were characterized using optical microscope and the result showed significant reduction in the grain size (up to 7.6µm) when compared with that of cast alloy (260µm). The best surface roughness of 38.5 nm was achieved by the depth of press-0.6 mm, feed-450 mm/min, no of pass-1(DFN641) sample. Maximum micro hardness of 114±6 HV was achieved for depth of press-0.6mm, feed-450 mm/min, no of pass-1 (DFN641) sample which was about 1.9 times higher in comparison with that of cast alloy 58±3 HV. Corrosion test of the alloy was investigated in SBF solution using immersion test. The corrosion rate of depth of press-0.6mm, feed-450 mm/min, no of pass-2 (DFN642) sample improved (1.33 mm/year) 5.74 times in comparison with that of cast Mg-4Zn-1Sr alloy (7.65 mm/year) due to fine grain structure.

Keywords- Cryogenic ball burnishing, Mg-4Zn-1Sr,

DESIGN AND FABRICATION OF TECHNO-ECONOMICAL INCINERATOR USING SOLAR ENERGY

S Manoj¹, Rakshith Shetty R², Rajesh K S³, Shreyas⁴, Mallya Ananth Mohans⁵
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi,
Karnataka, India.

Human activities create waste, and it's the way these wastes are handled, stored, collected and disposed of, which may pose risks to the environment and to public health. The management of solid waste is a crucial concern in developing and emergency conditions, e.g. those of an assembly or gathering, where solid waste management infrastructure and services are far away from achieving basic standards in terms of hygiene, efficient collection and disposal. Heaps of sanitary napkins with an outsized amount of disease causing bacteria on them pose a big threat to the hygiene within the surrounding area. By using the Incinerator, we can avoid the spreading of pathogenic diseases which is caused due to normally disposed napkins. A Solar Incinerator is a waste disposal machine used to burn the used sanitary pads and used diapers completely using solar energy. By using Fresnel lens as solar concentrator it is possible to generate temperature up to 800 degrees Celsius which is enough to dispose the sanitary wastes and also disintegrate the toxic flue gases which are formed due to Incineration.

Keywords: Fresnel Lens, Incinerator, Focal length.

Evaluation of mechanical properties of bamboo and banana fibre composites

Sachindra Serigar a, Safwan Ahamed a, Sannith a, Vijeth Kumar a, Kiran Bhat b

a Students, Department of Mechanical Engineering, SMVITM, Bantakal Udipi.

b Assistant professor, Department of Mechanical Engineering, SMVITM, Bantakal Udipi.

Abstract— Natural Fibre Composites (NFC's) nowadays are slowly replacing aluminium and other such metallic materials in automobile and aircraft industries. Interest is shown on NFC's due to their advantages including low environmental impact and low cost. In this study a composite material is synthesized using long length banana and bamboo fibres reinforced with Epoxy, by hand-layup process. The specimens are prepared according to ASTM standards and mechanical testing was carried out. The composites with different weight fraction of epoxy i.e., 60% and 70% and 20% and 15% of weight fraction of banana and bamboo fibres were tested for tensile, flexural and impact strength.

Index Terms— Bamboo fibre, Banana fibre, Epoxy, Hand-layup process, Mechanical properties

Design and Development of Modular Reversing System in Scooter for Physically Challenged People

Dhanush¹, Deepak Achar², Abhishek³, Ashwin M⁴, Ravinarayan R Rao⁵

1, 2, 3, 4-BE Students, 5-Assistant Professor,

Department of Mechanical Engineering,

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi

Abstract—In day to day life ordinary person can commute from one place to other with the help of two-wheeler or four-wheeler, but when it comes to physically challenged people it is difficult. According to the NSO, a wing of Statistics and Programme Implementation survey for July-December 2018, there are 2.2 percent of the population are disabled in India. Two wheelers with retrofitting are the major commute system for physically challenged people. There are many types of retrofitted vehicles present in the market, but these systems partially serve the purpose. Disabled person will always need someone's assistance to pull the vehicle from parking place. To overcome this problem a motor system with a ratchet mechanism is implemented along with a modular frame structure that can be detached when not used. This paper highlight implementing of modular frame structure, reversing system and stability of the system with the shock absorbers in the scooter for the assistance of the physically challenged people.

Keywords: Modular, Disabled, Frame structure, DC motor

Multidirectional Forging of Binary Mg-Zn Alloy and its Performance

Anirudh Rao 1a* , Aditya Kudva S 1b , Ramesh S 2c , Gajanan Anne 1d

1 *Department of Mechanical Engineering Shri Madhwa Vadiraja Institute of Technology and Management*

2 *Department of Mechanical Engineering, NITK, Surathkal*

Abstract—Multi-directional forging (MDF) was applied to Mg-6%Zn alloy up to 5 passes successfully at 400°C. Multi-directional forging (MDF) processed materials were characterized for microstructural analysis, mechanical properties and corrosion behavior. The microstructure was investigated using an optical microscope. The results showed a significant decrease in grain size up to 3.8 μm . The hardness of the Mg-6%Zn alloy was investigated using Vickers microhardness test. Microhardness of MDF processed 1 st pass samples (74HV) is higher than that of the homogenized sample (48HV). The microhardness of 3rd pass MDF was the highest (86HV) due to grain refinement and decreased to (78HV) in the 5th pass. The corrosion behavior of the alloy was investigated using immersion study in simulated body fluid (SBF). After the corrosion study tests it was found that the corrosion rate of 5-pass MDF sample was 0.16 $\text{mg}/\text{cm}^2/\text{d}$ compared to that of the homogenized Mg-6%Zn alloy was 0.45 $\text{mg}/\text{cm}^2/\text{d}$ due to fine grain structure. The obtained results showed that as the number of MDF passes increases the micro hardness and corrosion resistance increased because of grain refinement and induced strain during the MDF process. The drastic grain refinement was observed in the MDF processed sample as compared to homogenized base material.

Keywords— Multi-directional Forging; Magnesium alloys; Microstructure; Mechanical properties; Corrosion behaviour.

FINITE ELEMENT ANALYSIS OF FRICTION STIR PROCESSING

**Pavan Kumar P1, Govindraj Tantri2, Amith Suvarna3, Abdul Musafir4,
Lingaraj Ritti5**

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal, Udupi.

Abstract—Friction stir processing is modified process of friction stir welding technique which was invented by The Welding Institute (TWI) in 1991. Friction stir processing (FSP) is a solidstate process used for joining materials and as a tool for material processing (i.e., surface machining). Although the melting temperature of the material is never reached during FSP, severe plastic deformation occurs at extreme temperatures. The process is performed by traversing a rotating tool through fixed base material along a desired path. Friction stir processing (FSP) has recently become an effective microstructural modifications technique. In the present work, the FSP process simulation is carried out in ANSYS workbench. In the simulation, the Aluminium 6061 alloy is used as base metal and H13 tool steel is used as a tool material. The analysis is carried out at travelling speed of 20 mm/min at a constant tool rotational speed of 1500 rpm. The shear stresses and the normal stresses induced during the plunging phase and travelling phase are much more than the yield strength of the Al alloy base metal, hence the base material undergoes plastic deformation and grain refinement takes place at the surface level which improves the surface properties of the processed material.

Index Terms—Friction stir process (FSP), FSP tool, Aluminium alloy base metal, Travelling speed, Rotational speed

Effect of alkaline treatment on dry sliding wear performance of natural fibre fabric reinforced epoxy composite

Ravikantha Prabhu¹, Sharun Mendonca², and Thirumaleshwara Bhat³

^{1,2}Asst. Professor, Dept. of Mechanical Engineering, St Joseph Engineering College, India

³Professor, Dept. of Mechanical Engineering, Shri Madhwa Vadiraja Institution of Technology & Management, India

Abstract—In this work, three types of bio-composites, i.e. bamboo, flax and sisal fabric reinforced epoxy resin, were manufactured using a hand layup followed by compression technique. The influence of sliding velocity (A), normal load (B), alkaline treatment (with 0, 5 and 10 wt% NaOH solution for 30 min) (C), and sliding distance (D) on dry sliding wear loss of bamboo, flax and sisal fibre fabric reinforced epoxy composites were investigated using a statistical approach. Dry sliding wear test were conducted as per ASTM G99 standard using pin on disc test setup based on Taguchi's L27(3¹³) orthogonal arrays. With the signal-to-noise (S/N) ratio and analysis of variance (ANOVA) optimal combination of parameters to minimize the wear loss was determined. It was found that chemical treatment of fiber has significantly reduced the wear loss in the composites. Normal load (B) was found to be the most significant factor affecting the wear loss followed by (C), (D), and (A). Interaction effects of various control parameters also has significant on wear loss of composite test.

Index Terms— ANOVA, Dry sliding wear, Natural fiber, Pin-on-disc, Taguchi orthogonal array

Impact Analysis of Knee Damper Assistant System with Fall Detection

Aditya Arjun¹, Akshath T Pai², Bhavish Shetty³, Sachin B⁴, Ramesh Babu N⁵, Gajanan M Naik⁶,
Charitha M Rao⁷, Kiran S Aithal⁸, Manjunath HN⁹

*Department of Mechanical Engineering, Nitte Meenakshi Institute of Technology, Bengaluru
Karnataka, India-560064 (adityaarjun312@gmail.com , pai.akshath24@gmail.com,
writetobhavish@gmail.com sachinrao.b@nmit.ac.in , rameshbabu.n@nmit.ac.in,
kiranaithal.s@nmit.ac.in, manjunath.hn@nmit.ac.in)*

*Department of Mechanical Engineering, Mangalore Institute of Technology and Engineering,
Moodabidre, Mangalore, Karnataka, India-574225 (gajannaik@gmail.com)*

*Department of Mechanical Engineering, School of Engineering and Technology, Jain University,
Bengaluru, India-562112 (charithamrao@gmail.com)*

Abstract— Common injury such as osteoarthritis is increasing and it is said to be one of the common reasons for chronic conditions. Total knee replacement is one of the most popular modes of treatment for end-stage knee osteoarthritis. But the treatment isn't satisfactory and with long waiting lists, other options are explored. Adapting treatment like knee braces could delay surgery. Major articles and research papers support knee brace use and show decreased pain, improved motor function, and improves the quality of life of a patient. One study in 2017 observed patients for the long term and concluded that knee bracing to be more cost-effective and a viable option compared to total knee replacement, and consistent use of knee brace could replace the need for surgery. This project aims to provide a suitable knee brace to prevent any accidental injuries. Adapting modern technology such as airbags and smart materials we can reduce the injury to a significant extent. The developed Smart Knee Brace can be categorized as Personal Safety Devices. These Personal Safety Devices will become a Basic Requirement to Mankind shortly.

Index Terms— Airbags, Personal Safety Devices, Osteoarthritis, Smart Knee Brace, Smart Materials, Total Knee Replacement.

Implementing Sliding Mode Controller for a FOPDT System

K Praveen Shenoy*¹, Ashwini T P²

^{1, 2}Department of Mechatronics, Mangalore Institute of Technology & Engineering (MITE),
Moodabidri*

Abstract—This paper demonstrates the implementation of a Sliding Mode Controller (SMC) for a First Order System with Time Delay (FOPDT). The transit time/ dead time compensation has been provided to minimize its effect on the related process. The SMC algorithm is implemented on the mathematical model of pilot conical tank system and closed loop system is observed for both servo as well as the regulatory response. The results are investigated for its efficacy and observations have been provided.

Index Terms—Conical Tank, Non-linear Process, SMC Controller, FOPDT, & FOPTD.

Understanding the entrepreneurial intention among final year Engineering students in coastal Karnataka region

B Shankar Shenoy¹, Chinmaya R Nairy², Girish Kumar³ and Bharath Kumar⁴ Madhukar Nayaks,⁵

⁵Asst professor Department of Mechanical Engineering

¹²³⁴Department of Mechanical Engineering, SMVITM, Bantakal

Abstract- This paper aims at studying the entrepreneurial intention among final year engineering students of coastal Karnataka region. The research framework of this study is traced from the Ajzen model of Theory of planned behavior. Data collected from the final year engineering students from coastal Karnataka region using a validated questionnaire. Around 500 students participated in the survey. Findings of this study help educational institutions and government to understand the present stand of entrepreneurship intention among students and frame adequate policies to support entrepreneurial activity in the country. Results of this study show that attitude towards entrepreneurship, perceived behavioral control, Need for achievement, Subjective norm, University environment and support are the significant factors that influence the intention level of entrepreneurship among students. The results of this study may help educational institution and government agencies to frame strategy in order to motivate students to start own business and generate employment in the country.

Key words- Entrepreneurial Intention, Attitude toward entrepreneurship, Subjective Norm, Perceived Behavioral Control, Need for Achievement, University environment and support.

Basic Science

ON AN INTEGRAL INVOLVING \bar{I} -FUNCTION

¹ Vilma D'Souza ² Shantha Kumari K.

¹ Vilma D'Souza, Department of Mathematics,

A J Institute of Engineering and Technology, Mangaluru-575006, Affiliated to
Visvesvaraya Technological University - Belagavi, Karnataka, INDIA

² Shantha Kumari K., Department of Mathematics,

A J Institute of Engineering and Technology, Mangaluru-575006, Affiliated to
Visvesvaraya Technological University - Belagavi, Karnataka, INDIA

Abstract

In this paper, an interesting integral involving the \bar{I} -function of one variable introduced by Rathie has been derived. Since \bar{I} -function is a very generalized function of one variable and includes as special cases many of the known functions appearing in the literature, a number of integrals can be obtained by reducing the \bar{I} function of one variable to simpler special functions by suitably specializing the parameters. A few special cases of our main results are also discussed.

Keywords: I-function, \bar{I} - function, Mellin-Barnes Contour integral, H- function, Double integral

Distance Magic Labeling of Cycles

Chaithra K Assistant Professor, Dept. of Mathematics, NMAM Institute of Technology,
Nitte-574110. (Affiliated to VTU , Belgavi) Karnataka, India
Email:89chaithrak@nitte.edu.in

Shankaran P Professor Dept. of Mathematics, NMAM Institute of Technology, Nitte-
574110 (Affiliated to VTU , Belgavi) Karnataka, India Email:shankar@nitte.edu.in

Abstract

Let $G = G(V, E)$ be a graph. If for each vertex v , sum of the labeling of the vertices which are at a distance D from v is constant, then such a labeling is said to be D - distance magic labeling and a graph G is said to be D - distance magic graph. In this paper, we study D -distance magic labeling of cycles, join of cycles and complete graphs and composition of graphs.

AMS Subject Classification: 05C78.

Keywords: *distance magic labeling, magic constant, complete graph., regular graph.*

**Variable Viscosity and Prandtl Number Effects on Natural Convection
Methanol Boundary Layers about a Vertical Plate with Suction****Roopadevi K.N. & A.T. Eswara****Research Centre, Department of Mathematics***GSSS Institute of Engineering and Technology for Women, Mysuru-570 016, India*

Corresponding author, E-mail ID: roopaanand6677@gmail.com

Abstract--This study deals with the effect of temperature-dependent viscosity and Prandtl number on the steady, laminar flow of methanol past a vertical porous plate. The coupled nonlinear partial differential equations governing the non-similar flow have been solved numerically using an implicit finite difference scheme in combination with the quasilinearization technique. Numerical results indicate that variable viscosity and Prandtl number, both have a major role in skin friction and heat transfer parameters as well as velocity and temperature fields. Further, it is observed that the effect of variable fluid properties along with suction plays a significant role in the control of the laminar boundary layer.

Key Terms - Heat transfer, Skin friction, Temperature- dependent Viscosity, Temperature, Velocity.

MSC 2010 Codes – 76M20, 76N20, 76R10

RELATION BETWEEN GRAPH OF A LATTICE WITH RESPECT TO ITS IDEALS AND CORRESPONDING ADJACENCY MATRIX

RAMANANDA H.S, HARSHA A.J*, SALMA SHABNAM ST JOSEPH
ENGINEERING COLLEGE - MANGALURU KARNATAKA STATE, INDIA.

*malnad.harsha@gmail.com

ABSTRACT: Let L be a finite lattice with $|L| = n$. In this paper, we considered graph of L with respect to an ideal I , denoted by $GI(L)$. Let A_n be the adjacency matrix of $GI(L)$. We studied the relation between $GI(L)$ and its adjacency matrix A_n . In fact, We proved that, If $\forall x, y \in L$ with $x \wedge y \in I$ then the corresponding adjacency matrix of $GI(L)$ is a Boolean matrix B_n . If $\forall x, y \in L$ $x \neq 1, y \neq 1$, with $x, y \in I$ then the corresponding adjacency matrix of $GI(L)$ will be the B_{n-1} Boolean matrix.

Further, we obtained generalized formula to find determinant of A_n and bound for degree of any element in $GI(L)$. Also we established the relations connecting $GI(L)$ with respect to graph homomorphism and Cartesian product of two graphs.

Gracefulness of some digraphs using Complete mappings and partition of Z_n Kumudakshi ¹ and S.M.Hegde ²

¹*Department of Mathematics NMAM Institute of Technology, Nitte, Karkala - 574110
Udupi Dist., India*

²*Department of Mathematical and Computational Sciences
National Institute of Technology Karnataka, Surathkal, Srinivasnagar - 575 025 Mangalore,
India*

Abstract

A digraph D with p vertices and q arcs is labeled by assigning a distinct integer value $g(v)$ from $\{0, 1, 2, \dots, q\}$ to each vertex v . The vertex values, in turn, induce a value $g(u, v)$ on each arc (u, v) where $g(u, v) = (g(v) - g(u)) \pmod{(q + 1)}$. If the arc values are all distinct, then the labeling is called a graceful labeling of a digraph. In this paper we prove the gracefulness of some classes of directed graphs. In-fact, to prove the gracefulness of these directed graphs we use the algebraic structures such as complete mappings and partition of Z_n .

Keywords: Graceful digraph, complete mappings, partitions of Z_n ,
Grid graphs. **2015 Mathematics Subject Classification:** 05C78

Set Valued Homomorphisms using Ideal of a Ring and Rough Approximations

Authors: Mereena Joseph^{a,*} Jagadeesha B^b

^a Post Graduate (M.Sc) Student, Department of Mathematics,
St Aloysius College(Autonomus), Light House Hill Road, Hampankatta, Mangaluru,
Karnataka 575003.

^bDepartment of Mathematics,
St Joseph Engg. College Vamanjoor, Manglore- 575028

* corresponding author

E-mail ids: mereena1997@gmail.com (Mereena Joseph), jagadeeshab@sjec.ac.in
(Jagadeesha B)

Abstract:

In this paper, using an ideal of a ring we introduce a set valued homomorphism on a ring R . We define rough approximations in R using this set valued homomorphism. We find approximations of subring and ideal of R using this set valued homomorphism. We find rough approximations of different ideals of the ring R . We find properties of this set valued homomorphism with respect to different nonempty subsets of R .

Analysis Of Air Pollution In Three Cities Of Bengaluru Urban Using Air Quality Index

HIMA K SUGATHAN , PARVATHY , AND RIJAS K M , DEPARTMENT OF PHYSICS

Amrita Vishwa Vidyapeetham Amritapuri, Kerala

Abstract-Air pollution causes a lot of injury to the environment which may become remediless if the pollution rate increases in the current rate for another few years. Surprisingly the air pollution rate has leaped into higher levels in most of the major cities in India. In this analysis, air pollution in Bengaluru Urban is analyzed using the parameter air quality index mainly in three cities which are Whitefield (industrial), Silk Board (commercial), and Jayanagar (residential) during 2019. Analysis of seasonal variations in these cities is also studied. The following are the observations: 1)PM10 concentration determines air quality in these cities 2) the Air Quality Index is high in Silk board(commercial) followed by Whitefield (industrial) and Jayanagar (residential) 3)quality of air is better in the monsoon than summer and winter.

Index Terms – Air pollution, Air Quality Index, PM

Satellite Observations of Variability of Precipitable Water over Arabian sea

*Aswathy Suresh Babu Department of Physics Amrita Vishwa Vidyapeetham Amritapuri,
Kerala, India aswathy96sb@gmail.com*

Jini Susan Ninan

*Department of Physics Amrita Vishwa Vidyapeetham Amritapuri, Kerala, India
jini.susan.ninan@gmail.com*

Dhanya Madhu

*Department of Physics Amrita Vishwa Vidyapeetham Amritapuri, Kerala, India
dhanyam@am.amrita.edu*

Abstract— Study of atmospheric water vapor content is important to understand the climate of a region. Remote sensing provides a very valuable tool in observing and evaluating the atmospheric moisture variability over the whole globe with good amount of accuracy. The present study attempts to provide an overview of how the atmospheric precipitable water varies over the Arabian sea with seasons and years. It is found that there are significant variabilities observed in the amount of precipitable water found over the region. This has potential applications in understanding the climatic variability of India, especially over the west coast of India. Further detailed analysis is necessary to bring out accurate inferences for the same.

Keywords—precipitable water vapor, satellite remote sensing.



SMVITM

**SHRI MADHWA VADIRAJA
INSTITUTE OF TECHNOLOGY AND
MANAGEMENT**

(A Unit of Shri Sode Vadiraja Mutt Education Trust®, Udupi)
Accredited by NAAC with 'A' grade | Affiliated to VTU, Belagavi
Vishwothama Nagar, Bantakal - 574115, Udupi District, Karnataka.