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3.3.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during the academic year 2018-19.

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	Calendar Year of publication	ISBN number of the proceeding	Name of the publisher
1	Gajanan Anne	Magnesium Technology 2019	Development, Characterization, Mechanical and Corrosion Behaviour Investigation of Multi-direction Forged Mg–Zn Alloy	-	Magnesium Technology Symposium	International	February 2019	ISBN 978-3-030-05788-6.	Springer
2	Gajanan Anne	Advances in Manufacturing Technology	Effect of Rolling Reduction on Microstructure and Mechanical Properties Cu-3%Ti Alloy	-	-	International	2019	ISBN 978-981- 13-6374-20.	Springer
3	Anand V R	---	Comparative studies on the strength parameters of poly propylene fiber reinforced concrete and steel fiber reinforced concrete	--	National conference on emerging trends in science & engineering	National	2019	--	SMVITM
4	Yashaswini Jogi	---	Review on visible light communication	--	National conference on emerging trends in science & engineering	National	2019	--	SMVITM
5	Anujna Rao	---	TV show popularity analysis	--	National conference on emerging trends in science &	National	2019	--	SMVITM

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					engineerin g			•	
6	Rajashree Nambiar P	---	Smart Headlight System	--	National conference on emerging trends in science & engineerin g	National	2019	--	SMVITM
7	Aditya Kudva S	---	Modification of existing seed drill machine	--	National conference on emerging trends in science & engineerin g	National	2019	--	SMVITM
8	Sowmya S	---	Vehicle theft detection using IoT	--	National conference on emerging trends in science & engineerin g	National	2019	--	SMVITM
9	Renita Pinto	---	Real time animal and bird repellent system	--	National conference on emerging trends in science & engineerin g	National	2019	--	SMVITM
10	Deepika BV	---	Performance Evaluation of coagulants using natural available materials	--	National conference on emerging trends in science & engineerin g	National	2019	--	SMVITM
11	Gajanan Anne	---	Investigation of microstructure, mechanical and corrosion behavior of the biodegradable Mg-Zn alloys	--	National conference on emerging trends in science & engineerin g	National	2019	--	SMVITM
12	Raghavendr a Rao P	---	Intelligent Traffic Management using wired sensor networks	--	National conference on emerging trends in science & engineerin	National	2019	--	SMVITM

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				g				
13	Venugopala	---	3d reconstruction of mandible using panoramic technology	--	National conference on emerging trends in science & engineering	National	2019	--	SMVITM
14	Priyanka	---	Examination seating arrangement	--	National conference on emerging trends in science & engineering	National	2019	--	SMVITM
15	Adesh N.D	---	OMR based attendance management system for SMVITM	--	National conference on emerging trends in science & engineering	National	2019	--	SMVITM
16	Nagaraj Bhat	---	Soft Computing Approach to Predict Rainfall	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2019	National	2019	--	SMVITM
17	Sudarshan Rao K	---	Design and fabrication of water tank cleaner	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2020	National	2019	--	SMVITM
18	Nagaraj Bhat	---	Deep learning techniques using data science	--	National Conference on Emerging Trends in Science and Engineering NCETSE -	National	2019	--	SMVITM

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					2021				
19	Swathi Prabhu	---	Mining trailer data from YouTube for predicting the gross income of movie	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2022	National	2019	--	SMVITM
20	Anujna Rao	---	Digital Electoral System	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2023	National	2019	--	SMVITM
21	Tejaswini H	---	Fake Image recognition using Metadata and error level analysis using machine learning	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2024	National	2019	--	SMVITM
22	Shrinivasa	---	Transport Vigilance and fine automation	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2025	National	2019	--	SMVITM
23	Manoj T	---	Ambient Assisted living : A review on human activity recognition and vital health sign monitoring using deep learning approaches	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2026	National	2019	--	SMVITM
24	Nagaraj	---	Data	--	National	National	2019	--	SMVITM

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	Bhat		Visualization for analysing the effect of climate change for Patna city,		Conference on Emerging Trends in Science and Engineering NCETSE - 2027			
25	Adesh N.D	---	Sentimental analysis of student feedback using machine learning techniques	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2028	National	2019	--	SMVITM
26	Sneha N S	---	Virtual Ogma: A real-time strategy game with speech control	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2029	National	2019	--	SMVITM
27	Asha C.S	---	Auto removal of bright spot from images captured against bright source of light	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2030	National	2019	--	SMVITM
28	Manoj T	---	Diet recommendation system for chronic disorders	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2031	National	2019	--	SMVITM
29	Swathi Prabhu	---	Intelligent vehicle trapper	--	National Conference on	National	2019	--	SMVITM

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				Emerging Trends in Science and Engineering NCETSE - 2032				
30	Ramya D Shetty	---	Air pollution monitoring and prediction system	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2033	National	2019	--	SMVITM
31	Nagaraj Bhat	---	A Review on methods to identify plant disease using Image Processing and ANN	--	National Conference on Emerging Trends in Science and Engineering NCETSE - 2034	National	2019	--	SMVITM
32	Chetan	---	32 Bit RISC Microprocessor design with 5 stage pipelining verilog HDL and implementation on FFPGA board	--	National conference on emerging trends in science & engineering	National	2019	--	SMVITM
33	Lingaraj Ritti	---	Design and fabrication of automatic food serving system	--	National conference on emerging trends in science & engineering	National	2019	--	SMVITM
34	Karthik V	---	Smart Automatic Urinal Flusher and Cleaner for Clean India Mission	--	National conference on emerging trends in science & engineering	National	2019	--	SMVITM
35	Balachandra Achar	-	A survey on Image Analysis	International Conference	International al	International	2019	•	

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				on Electrical, Communication, Electronics Instrumentation and Computing	Conference on Electrical, Communication, Electronics Instrumentation and Computing				
			to determine Strain Distribution						
36	Laxmi Shetty	-	DC-DC Buck Converter using Sliding Mode Control		International conference on applied science, engineering and technology	International	2019	ISSN-2349-5162	UGC Indexed
37	Raghavendra Rao P	-	Intelligent Traffic Management using wired sensor networks		National conference on emerging trends in science & engineering	National	2019		---
38	Nagaraja Rao	-	Agri Robo	International conference on applied science, engineering and technology	International conference on applied science, engineering and technology	International	2019	ISSN-2394-6849	UGC Indexed

Total count as per the SOP of the metric given by NAAC i.e. paper per teacher = 38

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2019
Magnesium Technology

Magnesium Technology 2019 pp 339–343 | Cite as
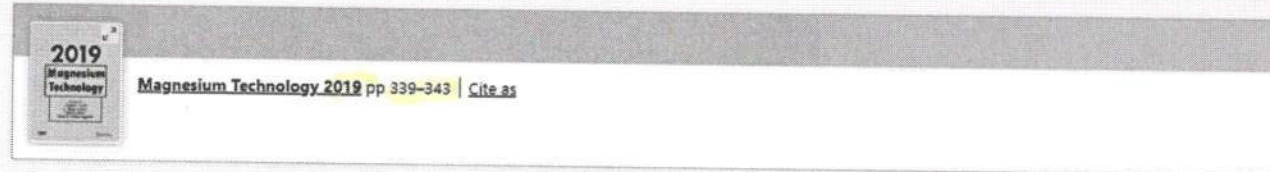
Home > Magnesium Technology 2019 > Conference paper

Development, Characterization, Mechanical and Corrosion Behaviour Investigation of Multi-direction Forged Mg–Zn Alloy

Gajanan Anne ✉, S. Ramesh, Goutham Kumar, Sandeep Sahu, M. R. Ramesh, H. Shivananda Nayaka & Shashibhushan Arya

Conference paper | First Online: 14 February 2019

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Abstract

In the present study, homogenized Mg–4%Zn (wt%) alloy was exposed to multi-direction forging (MDF) at 280 °C up to 5 passes successfully. Microstructural evolution, mechanical properties and corrosion behavior of the MDF-processed Mg–4%Zn alloy was investigated using different characterization techniques. Five passes of MDF (cumulative strain, $\Sigma\Delta\varepsilon = 3.45$) led to the formation of ultrafine grain structure (grain size ~2.3 μm) with high angle grain boundaries (HAGBs) and high dislocation density. Corresponding ultimate tensile strength (UTS) and microhardness were observed to be 228 MPa and 88 Hv. Potentiodynamic polarization test results exhibited higher corrosion resistance (0.38 mm/y) in comparison with that of homogenized condition (1.33 mm/y).

Keywords

Sections	References

Abstract

References

Author information

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Title:	Effect of Rolling Reduction on Microstructure and Mechanical Properties Cu-3%Ti Alloy
Authors:	Singh P. Ramesh S. Anne G. Shivananda Nayaka H.
Issue Date:	2019
Citation:	Lecture Notes in Mechanical Engineering, 2019, Vol., pp.167-175

Abstract:	Cu-3%Ti alloy is cold rolled with different reduction ratios and the microstructures and mechanical properties are compared with that of as-cast Cu-3%Ti alloy. Microstructure was analyzed using optical microscope and scanning electron microscope. Optical microscopy revealed significant grain refinement that occurred during the rolling process. Tensile test results indicate that the UTS is increased by a significant amount up to 80% rolling reduction. A significant amount of tensile strength increased up to 812 MPa is about 1.69 times that of the cast Cu-3%Ti alloy. Hardness of the rolled Cu-3%Ti increased as % reduction increased. Dimples were revealed on the fracture surface of the rolled Cu-3%Ti specimens indicating a ductile nature of the fracture. © 2019, Springer Nature Singapore Pte Ltd.

URI:	10.1007/978-981-13-6374-0_20 http://idr.nitk.ac.in/jspui/handle/123456789/13787
Appears in Collections:	3. Book Chapters

Files in This Item:

of Li-Fi in transferring data from one computer to another. Use of this technology can reduce many real-life common problems like speed and security of currently used data transfer technology. This concept was proposed by the German physicist Harald Haas he studied about transmission of information through illumination by sending information through a LED light. It achieves high data rates as compared to conventional wireless technologies like Wi-Fi, Bluetooth, Wi-max etc and also to overcome the shortage of bandwidth we can use light to transfer the data. We can encode our data into light by changing the light at which the LEDs flicker on and off to give different strings of 1s and 0s and as we know every digital signals or information is converted into 0s or 1s and all these flickering will be unnoticed by the open eyes as its frequency is much higher and for different channels it uses the mixtures of red, green and blue LEDs to alter the light frequency encoding a different data channel.

Comparative Studies on The Strength Parameters of Poly Propylene Fiber Reinforced Concrete & Steel Fiber Reinforced Concrete

Ganesha Mogaveera[1], Umesh S S[1], Anand V R[2]
[1] Mangalore Institute of Technology and Engineering Moodabidri
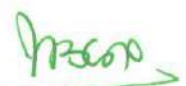[2] Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

Fibre reinforced concrete has a higher flexural strength than that of unreinforced concrete and concrete reinforced with welded wire fabric. The present work focuses on the effect of polypropylene fibers and Steel fibers on strength parameters of concrete such as compressive, tensile and flexural strength and also on the suitability of using the better fibers in the construction. Steel fibers of crimped type and Polypropylene fiber of recron type having aspect ratio of 30 are used in this study. The main aim of this work is to study the strength properties of steel and polypropylene fiber reinforced concrete of M25 grade having mix proportion 1: 2.25: 4.26 with W/C ratio of 0.50 containing fibers of 0%, 0.25%, 0.50% and 0.75% by volume of concrete. A result data obtained has been analyzed and compared with a control specimen (0% fiber). The strength parameters as well as the cost comparison are also made in this work and Steel fiber came out as the better fiber for a proportion of 0.50%. Steel fiber reinforced concrete is castable or sprayable composite material of hydraulic cements, fine or fine and course aggregates with discrete steel fibers of rectangular cross-section randomly dispersed throughout the matrix. Steel fibre strengthen concrete by resisting tensile cracking. Steel fibers reinforce isotopically, greatly improving the concrete's resistance to cracking, fragmentation, spalling and fatigue. Cost of the steel fiber is more compared the Polypropylene fiber, but the strength is very high compared to Polypropylene fiber.

Energy Efficiency Analysis Using IEEE 802.15.6 Standard in Body Area Network

Harshitha S, Durga Prasad
NMAM Institute of Technology, Nitte

Wireless Sensor Network finds application in the field of medicine in the name of Wireless Body Sensor Network (WBSN). It plays an important role in sensing the data and transferring the same to the base station for processing the data and then storing them. One of the main

Review on Visible Light Communication

U Nagendra, Megha S Samaga, Swathi A Karkera, B K Manoj, Mrs. Yashaswini Jogi
SMVITM, Bantakal

Visible light communication (VLC) refers to short-range optical wireless communication using visible light spectrum from 380 to 780 nm. VLC is rapidly emerging as a compelling technology for supplementing traditional radio frequency communication and enabling new wireless device use cases that are uniquely achievable with this technology. Li-Fi technology is used to transmit the data using Visible light communication by using light-emitting diodes. The problems in current wireless communication systems like shortage of wireless radio bandwidth and an increased risk of interference of radio frequencies can be overcome by this technology. High data rate downlink communication in homes and offices and high accuracy indoor positioning in retail stores are two of the most compelling use cases of this promising new technology.

Study and Comparison of Mechanical and Thermal Ability Properties of Composite Materials Reinforced Using Natural Fibres and Ash as A Filler Materials.

Sudarshan M L, Shashank Anar, Shravan Upadhyaya, Sourabh M S, Preetham Kumar M
VCET, Puttur

Composite in composite material means, two or more materials combined on a macroscopic scale to form a useful material. In other words, combination of fiber and matrix where the fiber withstands load and makes the composite stiffer while the matrix is a binder which holds the fiber in place. The advantage of composite is, they exhibit the best qualities of their constituents and also some qualities that neither constituent possesses. These properties make advanced composites extremely attractive and purposeful in situations where component weight is critical. The following properties can be improved by forming a composite material: tensile strength, stiffness, non-corrosive, wear resistance, flexibility, high durability, thermal insulation. Fibers from various sources, natural and man-made, are used to make composites. Coconut coir, sugarcane bagasse, areca husk, paddy husks are some of the natural fibers that can be used. They are also environmentally friendly and economical. In the following experiment, we aim to develop mechanics-based experimental approach to estimate and compare the thermal conductivity and mechanical properties of composites made according to hand layup technique. The study is done on composite materials produced with natural fibers embedded with epoxy resin and varied amount of ash content. It aims to compare the effects of ash content in composites, in various properties like flexural strength, tensile strength, shear stress, torsional stiffness and impact properties. The higher percentage of ash content in the matrix is known to give a higher resistance to heat, a property that can be harnessed to tolerate friction heat in extensive mechanical work.

cancelled. Ambulance, fire brigades and police vehicles are the exceptions in this system which will not have any RFID tag enabled in the windshield.

TV Show Popularity Analysis

Sushmitha, Shilpa, Vineetha, Supreetha, Anujna Rao

SMVITM, Bantakal

TV Show Popularity prediction using sentiment analysis is one of the most interesting and challenging tasks. A critical demand along this line is to predict the popularity of online TV shows which can enable a wide range of applications, such as online advertising, and show recommendation. The problem motivation stated above suggest is that it is only the viewer of a program who is responsible for its popularity or failure and if we anyhow can identify the most common features of a program which, the viewers want most, and through some effective scientific methodology could insert these requirements in the proposed TV program well at the time of production.

The purpose of this work is to evaluate the performance of TV Show and also calculate how many people are liked to a particular show and predicting popularity of that show, based on the text reviews obtained from YouTube using Naïve Baye's classifier. We are getting reviews on social networking website like YouTube.

Insurance Policy Recommendation System Using Machine Learning

Dhanushree, Roshini, Shraddha Prabhu, Abhishek

SMVITM, Bantakal

Recommender Systems play an important role in human lives nowadays. They have been used in many electronic commercial activities. They are growing more popular due to the development of Internet of things, big data analysis and machine learning techniques. A large number of users and items are usually involved in the recommendation process. There are different types of recommendation systems such as content-based, collaborative filtering, hybrid recommendation system, demographic, key word based and knowledge-based recommendation system.

Our proposed recommendation system collects the user's preferences and suggest best policy based on their preferences. In this recommender system we use KNN algorithm to recommend the best policy to the user. The recommendation results are generated for each user. The effectiveness of our proposed method is demonstrated by the results of experiment with some real-world data sets. The system will make use of the individual user information, to suggest what suits the user, thereby making user acceptable.

prevailing phenomenon, stakeholders involved are coming up with the Information and Communication Technology (ICT) based ecosystem to address the needs of elderly people such as independent living, activity recognition, vital health sign monitoring, prevention from social isolation etc. Ambient Assisted Living (AAL) is one such ecosystem which is capable of providing safe and secured living environment for the elderly and disabled people. In this paper we will focus on reviewing the sensor based Human Activity Recognition (HAR) and Vital Health Sign Monitoring (VHSM) which is applicable for AAL environments. At first, we generally describe the AAL environment. Next, we present brief insights into sensor modalities and different deep learning architectures. Later, we survey the existing literature for HAR and VHSM based on sensor modality and deep learning approach used.

Smart Headlight System

Shetty Nikitha Narendra, Supreeth G Rao P, Aravinda Upadhya, Nagendra Udupa, Rajashree Nambiar P

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

In today's automotive industry the issue of drive safety & comfort is of great importance. Nowadays, the number of vehicles on the road are increasing drastically and accident rate is also increasing. Especially at the night most of the accident are occurred due to dazzling of headlight. Driving the vehicle at night, dawn and dusk with existing headlight system is risky because it does not provide brilliance on the roads and won't be focused on the required area. Due to this constrain, paper describes the introduction of smart headlight system, an improved technology for better power of sight and safety of the drivers during night time. When the vehicle is following other vehicle, headlights will switch to low beam and when there is a vehicle approaching our vehicle, only right-side headlight switches to low beam with reduced intensity. When the vehicle is moving up the hill or down the hill, the beam of the headlight automatically switches depending on the vehicle inclination.

Prior solutionising deformation consequence on the aging characteristics of steel powder reinforced Al 7075 composites

Rajesh, Sathyashankara Sharma, Gowrishankar M.C. Manjunath Shettar, Pavan Hiremath, Anand Hegde

Manipal Institute of Technology, Manipal

Globally, in the application of structural materials, aluminium composites are emerging as pioneer materials due to balanced properties like ductility, strength, hardness and weight to volume ratio. It is obvious that addition of harder steel powder reinforcements to the softer aluminium alloy matrix will yield in larger benefits as energy efficient method, durability and recyclability for the composite. In fact, improvement in hardness levels at low temperatures in softer matrix aluminium alloys is the order of the day for wear related applications. Aluminium alloy composites especially Al 7075 matrix containing solid state soluble elements like copper, zinc and silicon with or without wetting agents like magnesium are heat treatable and got medium strength. The alloy matrix dispersed with solid reinforcements like carbides, oxides, fly ash and steel powder contribute for the property improvement by tailoring the suitable heat treatment with flexibility in process parameters. Cold deformation assisted heat

The aim of the project is to achieve high service quality, food quality, consumer satisfaction. In food serving system, food is placed on the container which is in hopper shape. A plate is placed at the opening and it is provided at the bottom of the hopper shaped container. Plate presses the switch and circuit is closed thus; motor will rotate through battery. Motor is connected to the rotor conveyor and required amount of food from the container will be served at the opening provided. Piezo Electric Sensor is used to maintain the specific quantity of food and it is used to turn ON/OFF the motor.

Modification of Existing Seed Drill Machine

Afraz, Sanjay Bhandari, Vighnesh, Vinith Noronha, Aditya Kudva S
Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

Agriculture is one of the important sectors of economy in India. India is the second largest producer of wheat, rice fruits and vegetables and is the largest producer of pulses, spices, cashew and jute. In 2017-18, the production of food grain was estimated at 284.8 million tons. In India, most of the agricultural work is carried out with the help of human hands having to use conventional tools such as wooden plough in spite of having large-scale mechanization in some parts of the country. The various operations that includes in agriculture are ploughing, sowing, irrigation, weeding, harvesting and transporting the crops, etc. The minimum implementation of mechanization has resulted in lower yield rate and wastage. The use of seed drill machine helps the farmers to utilize most of the seeds and get a good yield. The seed drill is a device that is attached to the tractor that sows the seeds by ploughing the field at a particular depth in the soil where the seeds fall in uncontrolled manner. Since the setup is fully mechanical, the farmers do not have any option of controlling the seed fall and transferring the setup from field to field is a tedious job since the whole setup has to be dismantled manually. Our project aims at improving the existing seed drill machine with the implementation of motors and sensors that provides a greater flexibility for the farmers by giving them an option to control the seed fall desirably and make the transfer of the setup easier by the implantation of lifting mechanism using an electric jack.

Analysis of Crack in Reinforced Concrete Structure using Infrared Thermography and ANSYS

Ranjani Chavan, Sumantha, Soujith, Deekshitha
Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

Non-destructive evaluation method such as infrared (IR)and high definition cameras have been developing for high speed inspection without any lane closures to overcome rapid deterioration. In this study analysing of cracks using IR camera, ANSYS software and finding the crack width by numerical study. The testo 875-i thermal imager used to detect the temperature variations. ANSYS workbench 19.2 is employed for the knowing how the structure going to fail. It is necessary to know how the structure elements response for different loading conditions its possible by ANSYS. Crack width will be finding out by applying crack width formula. Comparing all the three methods, if the crack is exceeding the limit providing a solution for cracks. The solution is depended on type of crack.

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components of Intelligent Pillbox are Pillbox and Pill Helper. It is an application developed on the Android platform and communicates with a database. The functionalities of the application are organizing patient pills in terms of what pill to take, a time reminder when the patient must take the pills, and setting visual, audible, and buzzer. In cases where it is important to take the treatment at exact hours each day, the application helps especially patients with mild mental disorders or elderly.

Examination Seating Arrangement

Deepali, H Anusha Prabhu, Harshitha Ballal, Neha D, Priyanka
Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

Presently, the seating arrangement for the examinations done manually. Initially examination section has to collect all the student examination registration details branch wise and year wise. These details include name, usn, branch, year, list of subjects registered for exam. The administrator needs to count the total number of students registered. Then admin needs to select the rooms and the divide the students among those rooms.

After dividing the rooms, admin need to prepare student list and faculty list for each based on the exam. Admin also needs to prepare the seating arrangement list for each room based upon the count. All this work needs to be done for each room, each branch and year. The examination management automation system atomizes the existing system of assigning seating arrangement. When a student registers for an examination this system stores student examination registered details in the database. These details are efficiently used whenever required. The system asks for subject of the exam to be conducted, set number, room details and allocate rooms. This also generates seating arrangement and students list and faculty assigned for each room.

The project Exam Seating Arrangement System has been developed to help the department maintaining the student details, earlier the records where maintained manually, with the help of this package the concerned departments will be able to improve the productivity, reduce the time, cost factors associated with the system. The automation of the system will help the organization in proper maintenance of the record, less man power, less man-days, less cost, proper and accurate functioning. The project keeps track of various details in modules such as student details, staff details and hall details.

Vehicle Theft Detection Using IoT

Raksha R, Rachana Madhav, Nootan Govind Hebbar, Poojashree B Shetty, Sowmya S.
SMVITM, Bantakal

The smart engine locking system is an embedded system, implemented to prevent unauthorized access of vehicles while parking in insecure places. The proposed system incorporates with a GSM and GPS modules. This instrument is installed in the engine of the vehicle whose current position is to be recorded and locked the engine in real time. Main objective of this instrument is to protect the vehicle from any unauthorized access by providing two locking status, theft mode and user mode. These two modes are controlled by Arduino UNO and GPS technology is used for finding current location of the vehicle. A GSM modem is also connected to the micro controller for sending message to the owner's mobile

automated cradle is designed with sensors to detect cry of baby through voice module and swing the cradle with music till baby stops crying. It also sends notification to mobile which beeps an alarm when mattress gets wet. This project is useful for parents who are busy in their career, nurses in infant care.

Real Time Animal and Bird Repellent System

Chandana K, Prathiksha Shetty, Saimah Sadiq, Suman Kanoj, Renita Pinto
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

n forest zone and agricultural field human-animal conflict is a major problem where enormous amount of resources is lost and human as well as animal life is in danger. Hence, prevention of unwanted intrusion is necessary. In our proposed project we are designing a system which detects the motion using PIR sensor, after the detection of the motion of the intruder, the camera in that region is triggered to take the image of the intruder. Image captured by the camera is processed by using the suitable image processing algorithm (CBIC). According to the type of the intruder (animal or bird), the corresponding(ultrasonic)repellents are activated. This is the way of making the intruder uncomfortable, so that the intruder escapes from the field under observation.

A Survey on Various Multicast Routing Protocols with And Without Cross Layer Techniques In MANET

Adithya Aithal, Akshay D Bhat, Shifana Begum and Akhilraj V Gadagkar
Srinivas School of Engineering, Mukka

MANET is the wireless, infrastructure-less, continuously self-configuring network which plays an important role in the point-to-point communication and multipoint communication. Since unicast routing suffers from certain drawbacks, the Multicast Routing is introduced for the efficient and secured communication but it does not guarantee QoS. The Cross-Layer Multicast Routing is later introduced to increase the Quality of Services and for the effective communication. By using the CLMR Protocols, we can elite the information from multiple layers and these can also be used to increase the performance of overall network. The CLMR uses several protocols which will increase QoS and increase the signal strength when compared to the nCLMR. This paper presents the survey based on various multicast routing protocols with cross layer and without cross layer techniques in MANET.

Performance Analysis of Grid Connected Solar Photovoltaic Power Plant (GCSPVP)

Shravankumar Nayak, Akshata Yalawar, Suma H
SDM College of Engineering and Technology, Dharawada

The renewable power generation has gained increased attention in the recent times among the stakeholders as a result of its obvious edges over the conventional counterparts. The bulk power generation using Solar Photovoltaic technology has been successfully implemented in many parts of the northern Karnataka. However, for the effective implementation of the new

Design and Fabrication of Water Tank Cleaner

Sreenath R S, Nikhil S S, Chandhan M D, Vijaykumar Doddamani F, Dr. Sudarshan Rao K
SMVITM Bantakal

Water storage tanks must be cleaned periodically to avoid contamination. Until now, tank cleaning has typically involved laborers equipped with hoses, pressure washers, shovels. The cleaning process undertaken by manual labor at present is very ineffective due to limited accessibility of labor to every part of the vessel. In order to overcome the above problems an alternative method for efficient cleaning is developed. The project design and fabrication of water tank cleaner is proposed to clean domestic cylindrical overhead water tank effectively.

Investigation of Microstructure, Mechanical and Corrosion Behaviour of Ball-Burnished Biodegradable Mg-Zn Alloy

Likhithraj, Mahesh Acharya, Kiran, Karthik Bhat, Ramesh S, Gajanan Anne
SMVITM, Bantakal

This study investigates the feasibility of improving surface integrity of the Mg-2%Zn alloy via a novel combined process of multidirectional forging (MDF) with ball burnishing technique. Mg-2%Zn alloy was subjected to multidirectional forging up to 5 passes at 280 °C and same sample is undergone ball burnishing at depth of cut of 3.5 mm and feed rate of 0.5 mm/min at a force of 250 N for 1 pass. Microstructure (OM and SEM), mechanical properties (tensile and microhardness) and corrosion behavior (potentiodynamic polarization and electrochemical impedance spectroscopy) were evaluated for developed samples. Electrochemical impedance spectroscopy and potentiodynamic polarization were employed to assess the corrosive resistance

Performance Evaluation of Coagulants Using Natural Available Materials

Manali C R, Mohammed Wasim, Nikhil K S, Deepika B V
SMVITM, Bantakal

Developing countries are facing portable water supply problems because of increased urbanization, lack of abundant fresh water and inadequate treatment facility. The cost of water treatment is increasing and the quality of fresh water is not stable due to suspended and colloidal particle load due to land development and high storm runoff, sewage and industrial waste releasing into the fresh water developing nation have high demand of portable water but due to the lack of financial support it is difficulty to full fill the treatment aspect. The coagulation is the chemicals water treatment where coagulants used are oxide of aluminium, oxide of iron which leads to high cost of treatment, maintenance of pH and treatment of huge quantity of sludge. As a result, the drinking water that reaches the consumers is not properly treated. Therefore, it is of great importance to find a natural alternative coagulant to treat the water which reduces the cost and sludge treatment problem. In the present study an attempt will be made by using natural available material like Moringa oleifera and a few other seeds, such as peanuts (Arachis hypogaea), cowpeas (Vigna unguiculata), urad (Vigna mungo) corn (Zea mays) for their effectiveness in water clarification

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Principal
SHRI MADHWA VADIRAJA
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status and current location using GPS. This information will be transmitted to the control room through IoT. The proposed system comprises of tiny wearable physiological equipment's sensors, transmission modules. The system also consists extra features with the help of military if he in need. The GPS modem sends the latitude and longitude position with link pattern with help of military can track the current position of the soldier. The system is very helpful for getting health status information of solider and providing them instant help. Hence, with the use of the proposed equipment, it is possible to implement of low-cost mechanism to protect the valuable human life on the battlefield.

Pancyclicity Of Double Vertex Graphs

Roopa Prabhu[1], K. Manjula[2]
[1]S.J. (Govt) Polytechnic, Bangalore
[2]Bangalore Institute of Technology Bangalore

Let G be a graph of order n. The double vertex graph of G denoted by U_2(G) is the graph whose vertex set consists of all nC2 unordered pairs of V(G) such that two vertices {x,y} and {u,v} are adjacent if and only if they have a common element and if x=u then y and v are adjacent in G. A graph is said to be Hamiltonian if it has a cycle that passes through each vertex of G exactly once.

A graph is pancyclic if it has cycles of all length from 3 to n. In this paper we discuss some properties of U_2(G) and further obtain condition for pancyclicity of doublevertex graphs.

Intelligent Traffic Management Using Sensor Network

Aneesha R Sanil, Adithi Raju, Ashritha Bhandary, Pooja Moolya, Raghavendra Rao P
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

Vehicular travel is gaining importance everywhere, particularly in large urban areas. The current technologies that support vehicular travel like inductive loops, surveillance camera etc., are expensive and also require high maintenance cost. Further the accuracy of these devices also depends on environment approaches attempt to optimize traffic lights control for a particular density and configuration of traffic. However, the major disadvantage of using these techniques is that the dynamic behaviour of traffic density and configurations change is difficult to model constantly. Traffic seems to be an adaptation problem rather than an optimization problem. This paper tries to address the above issue, and hence we propose algorithms which perform adaptive traffic light control using wired sensor network setup. This paper aims at analysing methods to build an intelligent system that can blend and support some of the existing technologies of traffic control and therefore reduce the average waiting time of vehicles on a junction. Therefore, we implement the algorithms which are adaptive to traffic flow at any intersection point of roads.

analysis is also conducted between these machine learning techniques. The experimental results suggest that Multinomial Naïve Bayes is more accurate than other methods.

3d Reconstruction of Mandible Using Panoramic Technology

Akshitha Salian, Chaithra K Pai, Deepthi R Shetty, Mahima Dayananda Ganiga, Venugopala Rao A. S.

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

At present 3D reconstruction of jaw is obtained using CT scan or Cone Beam CT (CBCT) scan. If CT scan is considered to emit radiation equal to one unit, then CBCT emits one tenth radiations as that of CT scan. In this paper, we propose 3D reconstruction of jaw from panoramic X-rays. This will emit only one hundredth radiation as that of CT scan reconstruction. Also, the cost will be reduced to one tenth of CT scan reconstruction. The Panoramic X-Ray image being considered in this project is of low quality. This might affect the construction of 3D model. Therefore, it is necessary to do some enhancements to the image so that we get a better-quality image. Here we will compare different image enhancement techniques on the panoramic x-ray images. CLAHE is one of the best image enhancement techniques for our input image. We will consider a standard 3D model of the mandible in hand so that it can be deformed using the features of affected person. This 3D model is given to surgeons so that they can analyze it in advance before the surgery.

Virtual Ogma: A Real-Time Strategy Game with speech control

Nithin H A, Nahush S Shetty, Ms. Sneha N S, Sudheer Shetty, Swarup Shetty
Shri Madhwa Vadiraja Institute of Technology & Management, Bantakal

The technology of Speech Recognition has played an increasingly significantly role in our daily life. With proper processing it can be used to control complex systems. In this paper, a Real Time Strategy (RTS) Game has been developed that makes use of this technology in the realm of gaming, where players could make use of alternate form of input such as voice in order to interact with the elements in the virtual world. As a result, player will experience a high level of immersion while playing the game. Recognition of player's speech is done using Microsoft Speech SDK due its low latency and high accuracy. It also provides a very good support for working with Unity, which is the game engine that we use to develop our game. Since we are reducing, if not, eliminating the use of conventional keyboard-mouse or controller, this would also work exceptionally well with mobile VR games that're played on Google Cardboard, Daydream View 2 or Samsung Gear VR, since they do not have a universal controller as of now.

Decision Support System for Water Quality Monitoring Based on Ph, Electrical and Temperature

Apoorva R, Chaithanya Padmashali, Parinita Shetty, Shreya U K Rao
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

Ensuring the safety of water is a challenge due to the excessive sources of pollutants, most of which are man-made. The main causes for water quality problems are overexploitation of

components of Intelligent Pillbox are Pillbox and Pill Helper. It is an application developed on the Android platform and communicates with a database. The functionalities of the application are organizing patient pills in terms of what pill to take, a time reminder when the patient must take the pills, and setting visual, audible, and buzzer. In cases where it is important to take the treatment at exact hours each day, the application helps especially patients with mild mental disorders or elderly.

Examination Seating Arrangement

Deepali, H Anusha Prabhu, Harshitha Ballal, Neha D, Priyanka
Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

Presently, the seating arrangement for the examinations done manually. Initially examination section has to collect all the student examination registration details branch wise and year wise. These details include name, usn, branch, year, list of subjects registered for exam. The administrator needs to count the total number of students registered. Then admin needs to select the rooms and the divide the students among those rooms.

After dividing the rooms, admin need to prepare student list and faculty list for each based on the exam. Admin also needs to prepare the seating arrangement list for each room based upon the count. All this work needs to be done for each room, each branch and year. The examination management automation system atomizes the existing system of assigning seating arrangement. When a student registers for an examination this system stores student examination registered details in the database. These details are efficiently used whenever required. The system asks for subject of the exam to be conducted, set number, room details and allocate rooms. This also generates seating arrangement and students list and faculty assigned for each room.

The project Exam Seating Arrangement System has been developed to help the department maintaining the student details, earlier the records where maintained manually, with the help of this package the concerned departments will be able to improve the productivity, reduce the time, cost factors associated with the system. The automation of the system will help the organization in proper maintenance of the record, less man power, less man-days, less cost, proper and accurate functioning. The project keeps track of various details in modules such as student details, staff details and hall details.

Vehicle Theft Detection Using IoT

Raksha R, Rachana Madhav, Nootan Govind Hebbar, Poojashree B Shetty, Sowmya S.
SMVITM, Bantakal

The smart engine locking system is an embedded system, implemented to prevent unauthorized access of vehicles while parking in insecure places. The proposed system incorporates with a GSM and GPS modules. This instrument is installed in the engine of the vehicle whose current position is to be recorded and locked the engine in real time. Main objective of this instrument is to protect the vehicle from any unauthorized access by providing two locking status, theft mode and user mode. These two modes are controlled by Arduino UNO and GPS technology is used for finding current location of the vehicle. A GSM modem is also connected to the micro controller for sending message to the owner's mobile

if the vehicle is in theft mode. This system puts into the user mode if vehicle is handled by the owner or authorized persons, otherwise goes to theft mode. The most important concept in this design is introducing the mobile communications into the embedded system using GSM module. The entire design is on a single board.

OMR based attendance Management System for SMVITM

Aishwarya C, Athfin, Shwetha, Shwetha Jogi, Adesh N.D.
SMVITM, Bantakal

The present Attendance Management System that is being used in college requires lecture to take attendance in class by marking absentees as 'a' and 'tick' mark for students who are present. Later after the attendance is taken the details has to be uploaded to the system monthly or before every internals. Here in the system the table consists of USN in rows and days in when the classes were held in column wise. The value for each cell will be set as '1' by default. Whenever a student is marked as absent on attendance sheet the value on the cell against students USN on particular day is set as '0'. This process is time consuming since there are 6 different classes and each class has 5 different subjects. So, our project 'OMR based attendance system' solves this problem. Here the attendance is taken using OMR sheets. The OMR sheet is prepared for different subjects and handled by respective faculties. The OMR sheet has USN of students row wise and days in column wise. Whenever a student is absent for the class the bubbles in the OMR sheet is darkened. When the student is present no changes has to be done. Later in order to upload the details to system the faculty needs to login using his name and password and click on camera for capturing the OMR sheet image. Once done capturing click on scan. The scanning returns the attendance details in excel format. The absentees are displayed as 0's and others as 1's. The Excel sheet also has details about the percentage of students' attendance and also the student who have attendance shortages are highlighted.

Optical Character Recognition

Navya Shetty, Kavya Shetty, Amrutha K, Akshatha
Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

Nowadays all over digitization technology is used. Text Recognition usually abbreviated to OCR, involves a computer system designed to translate images of typewritten text (usually captured by a scanner) into machine editable text or to translate pictures of characters into a standard encoding scheme representing them. OCR began as a field of research in artificial intelligence and computational vision. Text Recognition used in official task in which the large data have to type like post offices, banks, colleges etc., in real life applications where we want to collect some information from text written image. People wish to scan in a document and have the text of that document available in a .txt or .docx format.

Pre-processing is the first step in the processing of scanned image. The scanned image is checked for noise, skew, slant etc. There are possibilities of image getting skewed with either left or right orientation or with noise such as Gaussian. Here the image is first converted into grayscale and then into binary. Hence, we get image which is suitable for further processing.

Monitoring and Modelling of River Flood using High Resolution Satellite Image

Shree Vidhya. S, Swathi. G, Rachana, Shalini Timmanna Bhat, Nagaraj Bhat

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

Flood is an unavoidable natural disaster which is caused due to heavy rainfall. It is major problem faced in many areas around the globe. This causes severe damage to the properties and lives. Flood occurred frequently in the recent years which are of isolated and affecting wide areas of the territory. That flood prone areas need to be examined in the light of how they might be affect or be affected by the development. This project focusses on detecting the damage of flood through which we can detect the possible losses(disaster). Damage caused by the flood is detected by knowing how much area is covered by flood. Here a flood prediction system is developed to detect the damage caused by flood and also find out the raising level of water in the water bodies using ultrasonic sensors. Lastly the flood damage report will be generated based on the population density, built up area and vegetation.

Soft Computing Approach to Predict Rainfall

Nithesh Shettigar[1], Goutham Naik[1], Nandan Nayak[1], Nithin H A[1], K C Gouda[1], Nagaraj Bhat[1]

[1]Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal
[2]CSIR Fourth Paradigm Institute, NAL, Bengaluru

As we know agriculture was the predominant of our country and economy. This project mainly aims in prediction of rainfall using machine learning techniques. While a regular rain pattern is usually played vital for healthy agriculture but too much rainfall or too little rainfall can be harmful, even it led to devastating of crops. This project represents a mathematical method called Linear Regression to predict the rainfall. We have selected a real dataset which consists of past years rainfall rate according to various seasons. Results of this application help farmers to make a correct decision to harvest a particular crop accordingly to crops seasons. India's foremost occupation is agriculture and its economy mainly depend on the agriculture of the country. Hence prediction of rainfall is important for better growth of the country. Accuracy of rainfall forecasting has great importance for countries like India whose economy is largely dependent on agriculture. Heavy rainfall is a cause for natural disasters like flood and drought which are encountered by people across the globe every year. And so, accuracy of rainfall forecasting has great importance for countries like India that is largely dependent on agriculture. Due to dynamic nature of atmosphere, statistical techniques fail to provide good accuracy for rainfall forecasting. Recurrent artificial neural networks (RNNS) have played a crucial role in forecasting rainfall data. Meanwhile, support vector machines (SVMs) have been successfully employed to solve nonlinear regression and time series problems. We have selected a real dataset which consists of past years rainfall rate according to various seasons. Results of this application help farmers to make a correct decision to harvest a particular crop accordingly to crops seasons using soft computing approach.

Design and Fabrication of Water Tank Cleaner

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SMVITM Bantakal

Water storage tanks must be cleaned periodically to avoid contamination. Until now, tank cleaning has typically involved laborers equipped with hoses, pressure washers, shovels. The cleaning process undertaken by manual labor at present is very ineffective due to limited accessibility of labor to every part of the vessel. In order to overcome the above problems an alternative method for efficient cleaning is developed. The project design and fabrication of water tank cleaner is proposed to clean domestic cylindrical overhead water tank effectively.

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Deep Learning Techniques Using Data Science

Nithesh Shettigar[1], Goutham Naik[1], Nandan Nayak[1], Nithin H A[1], K C Gouda[1], Nagaraj Bhat[1]

[1]Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

[2]CSIR Fourth Paradigm Institute, NAL, Bengaluru

Up until early 2000's climate predictions were made mainly using statistical methods. This prediction wasn't always entirely accurate. With the introduction of machine learning and deep learning in climate prediction, the prediction accuracy has improved dramatically. The sensors in the weather stations give massive amount of unstructured data. Due to the humungous amounts of sensors and data from it, it's almost impossible to compute all the necessary weather information in time. AI and deep learning help to overcome this problem using different models which can swiftly and accurately make this job simple. Accurate climate prediction is very important to predict is very important to predict any natural calamities or unexpected change in weather. This report highlights few of the deep learning models which can be used for climate prediction by scientists. This paper only takes scratches the surface of the capabilities of AI in climate change. More advancements in this field would lead to better simulations of the weather conditions which can then be useful to predict the extreme weather conditions accurately. Few of the authors have used unique models in their prediction of various temperature, rainfall, pollution levels etc. which have helped them to find the discrepancies in the climate if any.

Intelligent Vehicle Trapper

Nandan Nayak, Deepesh Amin, Anusha S Kumari, Neha Krishnamurthy, Swathi Prabhu

Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

In traffic surveillance, tracking of the vehicle is a crucial job. We are proposing a real time project which detects the vehicle and reads the number plate which will be helpful for tracking the vehicle. In most situations it is quite difficult to identify the vehicles which has been lost or through which some serious crimes have been done. It is necessary to capture the number plate of the vehicle and use this captured number plate to detect the vehicle. In order to track the vehicle, we need to extract the number from the captured image using OCR (Optical Character Recognition) technology. Using this system, we will be able to notify the respected persons regarding the detected vehicles.

Sentimental Analysis of Student Feedback Using Machine Learning Techniques

Daneena Deeksha Dsouza, Deepika, Divya P Nayak, Elvira Jenisha Machado, Mr. Adesh N

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

Educational institutions attempt to collect feedback from students to study their sentiment towards courses and facilitates provided by the institution to improve the college environment. The textual feedback provides an opportunity to students to highlight certain aspects which are not directly covered by rating based feedback. In this paper, a method has been proposed for sentimental analysis using machine learning algorithms such as Multinomial Naïve Bayes, Support Vector Machine and Random Forest. A comparative

Fake Image Recognition using Metadata and Error Level Analysis using Machine Learning

Shrivishnu, Haripriya S. Aithal, Rajath, and Tejaswini H.
SMVITM, Bantakal

In digital forensics, the detection of the presence of tampered images is of significant importance. The problem with the existing literature is that majority of them identify certain features in images tampered by a specific tampering method (such as copy-move, splicing, etc). This means that the method does not work reliably across various tampering methods. In addition, in terms of tampered region localization, most of the work targets only JPEG images due to the exploitation of double compression artefacts left during the re-compression of the manipulated image. However, in reality, digital forensics tools should not be specific to any image format and should also be able to localize the region of the image that was modified.

The paper presents a method to detect fake images. The detection of fake images using the metadata of the image and the image classification is also preformed using neural networks. Image metadata is used to get the details of the image. The neural networks use the image and the image that was derived by Appling error level analysis algorithm.

Mining Trailer Data from YouTube For Predicting the Gross Income of Movie

Prajna, Sadhvi Bhat, Tania Aroza, Vibha Udupa, Swathi Prabhu
SMVITM Bantakal

Abstract: YouTube is a video sharing platform where any user can upload, view, comment, like, dislike and share any video. It also includes different categories of videos. One among them is the movie trailer. The trailers act as an advertisement that promote movies. The main purpose of the trailer is to attract an audience. In the decades since film marketing has become a large industry, trailers have become most suitable form for advertising the upcoming movies. The trailer metadata can be used to predict the future of movies in the theatres. The different features include the likes, dislike, shares, comments, lifetime of a trailer etc.

Several techniques were employed to make the income predictions. Most of them were based on the sentimental analysis of the comments obtained from the viewer whereas the other features were omitted.

Our project aims at predicting the gross income of particular movie by considering the data that are collected from YouTube as well as Wikipedia. The metadata that are collected from YouTube includes likes, dislikes, view count etc of the trailer of a movie for which we want to predict the gross income. These metadata are collected by using YouTube API. The data that are collected from Wikipedia includes budget as well as collection of previous movies of the actor who has acted in considered movie trailer.

The dataset is prepared by using the these collected data. Linear Regression algorithm is applied to this prepared dataset to predict the gross income of the movie.

Digital Electoral System

Chethan P Vernekar, Alfiya Pallowkar, Aziza Madiha, Ms. Anujna Rao
Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

Using the old or the present voting system no longer seems efficient due to various recurring errors. So, time has arrived that the system needs to be improved such that it will benefit the electoral procedure as well as the voters. Here we are proposing a Digital Electoral System. This paper mainly focuses on designing of a fully-fledged Digital voting system that facilitates users i.e. voters, candidates and Election Commission who will conduct election process (up to declaring results). Our proposed system is efficient adheres to voting protocol, simple and easy to maintain. It maintains details of voting, voters, candidate and election. The system is designed such that only the election commission has the permission to assess to the system, but modification of the data is not permitted. From registration of the voter or the candidate details up to counting of results the system is made fully secured. The system designed such that the place of voter and the candidate is the highlighted content in the backend for mapping. This system will decrease false voting and will increase voting percentages

Studies on Production of Biofuel Using Composite Materials

Prashant Kurdekar, Vishal V Naik, Pooja Prakash, Nikhil N, Darshana K, V V Adwaidh
Department of Civil Engineering St Joseph Engineering College Vamanjoor, Mangaluru

This paper presents an experimental study on the production of biofuel using composite materials. The usage of bioethanol as an alternative fuel in vehicles not only helps in reducing the greenhouse gas emissions but also is much cheaper, durable and eco-friendly fuel. In this paper we have performed studies on the use of various composite materials for preparing biofuel and their comparison. Tests were performed to determine the concentration of ethanol in the different samples obtained. From the results the studies were able to obtain a renewable and eco-friendly energy, bioethanol with high efficiency and durability compared to gasoline used as a vehicle fuel.

Transport Vigilance and Fine Automation

Swathi G Poojary, Swastika S Sanil, Pavithra, Pragathi M K, Shrinivasa
SMVITM, Bantakal

Wrong way driving has led to serious accidents. Transport vigilance and Fine Automation is a system to reduce wrong way driving and automating the penalty in case a person moves in wrong direction. The proposed system uses Arduino microcontroller for the vehicle identification and GSM module for alerting the owner of the vehicle regarding the fine deduction. Vehicles need to have RFID tag enabled in the windshield. Vehicles travelling in the wrong direction will be detected by the RFID readers and the movement of vehicle will be stopped for some time. Tag id of the vehicle will be sent to the server and amount will be deducted from the respective owner's account which he has to maintain with the RTO department. Message regarding the amount deduction will be sent to the mobile number of the owner. In case if the violation happens more than three times, vehicle registration will be

Fake Image Recognition using Metadata and Error Level Analysis using Machine Learning

Shrivishnu, Haripriya S. Aithal, Rajath, and Tejaswini H.
SMVITM, Bantakal

In digital forensics, the detection of the presence of tampered images is of significant importance. The problem with the existing literature is that majority of them identify certain features in images tampered by a specific tampering method (such as copy-move, splicing, etc). This means that the method does not work reliably across various tampering methods. In addition, in terms of tampered region localization, most of the work targets only JPEG images due to the exploitation of double compression artefacts left during the re-compression of the manipulated image. However, in reality, digital forensics tools should not be specific to any image format and should also be able to localize the region of the image that was modified.

The paper presents a method to detect fake images. The detection of fake images using the metadata of the image and the image classification is also preformed using neural networks. Image metadata is used to get the details of the image. The neural networks use the image and the image that was derived by Appling error level analysis algorithm.

Mining Trailer Data from YouTube For Predicting the Gross Income of Movie

Prajna, Sadhvi Bhat, Tania Aroza, Vibha Udupa, Swathi Prabhu
SMVITM Bantakal

Abstract: YouTube is a video sharing platform where any user can upload, view, comment, like, dislike and share any video. It also includes different categories of videos. One among them is the movie trailer. The trailers act as an advertisement that promote movies. The main purpose of the trailer is to attract an audience. In the decades since film marketing has become a large industry, trailers have become most suitable form for advertising the upcoming movies. The trailer metadata can be used to predict the future of movies in the theatres. The different features include the likes, dislike, shares, comments, lifetime of a trailer etc.

Several techniques were employed to make the income predictions. Most of them were based on the sentimental analysis of the comments obtained from the viewer whereas the other features were omitted.

Our project aims at predicting the gross income of particular movie by considering the data that are collected from YouTube as well as Wikipedia. The metadata that are collected from YouTube includes likes, dislikes, view count etc of the trailer of a movie for which we want to predict the gross income. These metadata are collected by using YouTube API. The data that are collected from Wikipedia includes budget as well as collection of previous movies of the actor who has acted in considered movie trailer.

The dataset is prepared by using the these collected data. Linear Regression algorithm is applied to this prepared dataset to predict the gross income of the movie.

Digital Electoral System

· Chethan P Vernekar, Alfiya Pallowkar, Aziza Madiha, Ms. Anujna Rao
Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

Using the old or the present voting system no longer seems efficient due to various recurring errors. So, time has arrived that the system needs to be improved such that it will benefit the electoral procedure as well as the voters. Here we are proposing a Digital Electoral System. This paper mainly focuses on designing of a fully-fledged Digital voting system that facilitates users i.e. voters, candidates and Election Commission who will conduct election process (up to declaring results). Our proposed system is efficient adheres to voting protocol, simple and easy to maintain. It maintains details of voting, voters, candidate and election. The system is designed such that only the election commission has the permission to assess to the system, but modification of the data is not permitted. From registration of the voter or the candidate details up to counting of results the system is made fully secured. The system designed such that the place of voter and the candidate is the highlighted content in the backend for mapping. This system will decrease false voting and will increase voting percentages

Studies on Production of Biofuel Using Composite Materials

Prashant Kurdekar, Vishal V Naik, Pooja Prakash, Nikhil N, Darshana K, V V Adwaidh
Department of Civil Engineering St Joseph Engineering College Vamanjoor, Mangaluru

This paper presents an experimental study on the production of biofuel using composite materials. The usage of bioethanol as an alternative fuel in vehicles not only helps in reducing the greenhouse gas emissions but also is much cheaper, durable and eco-friendly fuel. In this paper we have performed studies on the use of various composite materials for preparing biofuel and their comparison. Tests were performed to determine the concentration of ethanol in the different samples obtained. From the results the studies were able to obtain a renewable and eco-friendly energy, bioethanol with high efficiency and durability compared to gasoline used as a vehicle fuel.

Transport Vigilance and Fine Automation

Swathi G Poojary, Swastika S Sanil, Pavithra, Pragathi M K, Shrinivasa
SMVITM, Bantakal

Wrong way driving has led to serious accidents. Transport vigilance and Fine Automation is a system to reduce wrong way driving and automating the penalty in case a person moves in wrong direction. The proposed system uses Arduino microcontroller for the vehicle identification and GSM module for alerting the owner of the vehicle regarding the fine deduction. Vehicles need to have RFID tag enabled in the windshield. Vehicles travelling in the wrong direction will be detected by the RFID readers and the movement of vehicle will be stopped for some time. Tag id of the vehicle will be sent to the server and amount will be deducted from the respective owner's account which he has to maintain with the RTO department. Message regarding the amount deduction will be sent to the mobile number of the owner. In case if the violation happens more than three times, vehicle registration will be

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attention among researchers. Controlling an Electric Vehicle is not an easy task, as the design and operational parameters vary along with the road conditions. The article presents the design and simulation of conventional control algorithms for Electric Vehicle. The transfer function model of the Electric Vehicle is considered for the design and analysis in MATLAB/Simulink platform. It is found that Proportional Integral Derivative (PID) controller is simple and feasible, along with better-closed loop performance with and without disturbance. The work includes the control of the electric vehicle by designing three different control algorithms: i) Cohen-Coon (CC), ii) Wang-Juang-Chan (WJC) and iii) Chine-Hrones-Reswick (CHR) algorithm for the second-order transfer function model. The resulted controller is also simulated using equivalent First-Order Plus Dead Time (FOPDT) model of an electric vehicle. A comparative study has been carried out using its time domain specifications. Also, Performance Indices such as Integral Square Error (ISE), Integral Absolute Error (IAE), Integral Time Absolute Error (ITAE) and Integral Time Square Error (ITSE) are evaluated in order to identify the superiority of control techniques.

Structural Topology Optimization for Static and Dynamic Load Cases

Resmy V R, Rajasekaran C
National Institute of Technology Karnataka, Surathkal

In the optimization discipline, topology optimization is a special kind of problem which gives an intuition of the optimal design for the structural domain. Topology optimization has been efficiently used in order to achieve weight savings in structures. In the period of developing infrastructures, we should optimize each and every structural member to its maximum efficiency. This paper presents a study on structural topology optimization in a general 3D domain. The methodology adopts the compliance minimization with volume constraint using the Solid Isotropic Microstructure with Penalization (SIMP) method. In SIMP approach, the design domain is discretized into small rectangular elements within which constant and isotropic material properties are assumed. Optimization solutions for both static as well as dynamic problems are presented. In static problems, objective function can be formulated as minimum strain energy. When a structure subjected to dynamic loads such as wind and earthquake loads, Eigenvalue optimization is beneficial. Structural stiffness can be related to Eigen frequency which can be utilized for evaluation of dynamic behaviour. For dynamic problems, maximization of Eigen-frequency can be taken as an objective with volume constraint. ·

Ambient Assisted Living: A Review on Human Activity Recognition and Vital Health Sign Monitoring Using Deep Learning Approaches

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[1]Shri Madhwa Vadiraja Institute of Engineering and Technology, Bantakal, Udupi
[2]SDM Institute of Technology, Ujire

The rise in life expectancy rate and dwindled birth rate in new age society has led to the phenomenon of population ageing which is being witnessed across the world from past few decades. India is also a part of this demographic transition which will have the direct impact on the societal and economic conditions of the country. In order to effectively deal with the

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Data Visualization for analysing the effect of climate change for Patna city

Nithesh Shettigar[1], Goutham Naik[1], Nandan Nayak[1], Nithin H A[1], K C Gouda[1], Nagaraj Bhat[1]
[1]Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal
[2]CSIR Fourth Paradigm Institute, NAL, Bengaluru

Climate change is one of the main reasons for the increase in the disease of living being, this affects the lifespan of the same. Deforestation, change in Vegetation, chemical fertilizers are some the causes of climate changed. In order to understand the change in the vegetation a tool has been designed as it is very difficult to understand about climate change without the visualization. The Toolkit which has been developed for analysing the climate change in Patna used to visualize on Bihar map for different parameters like surface water, ground water, soil, noise, drain water. The data samples are collected for all the parameters in different surfaces, later the data needs to be Stored in the proper format as it becomes easier for the data visualization tool to access the data.

A very user-friendly data visualization is achieved based on the user's requirement. A Simple plotting along with the Heat Map and Graphs (Line, Bar graph) has been made for the user. This user-friendly toolkit has been done using web interface. Python provide lots of packages for the visualization as well as it has most popular web framework, here user is able to get the clear view about the concentration of the parameters in Patna city.

A Review on methods to identify plant disease using Image Processing and ANN

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As Agriculture is the back bone of the country maintenance of the plant plays an important role as many of the plants are exposure to the surroundings there is high chances of getting effected by the environmental pollutions. In many of the places the workers are assigned only to look after the plants condition, problem occurs when the land is too large and a greater number of workers needs to be assigned to look after it. In many cases the quality, quantity of the plants can be decided by the condition of the leaves of the plants, there should be an automation in finding out health condition of the plant, it is a good habit to find out the leaf condition during the earlier stage of disease. Image processing technique helps us in this situation.

By using image processing techniques one can able to get the difference in the several images even though several images are of same leaf, if the image got effected by any of the factors the effected portion can easily be identified by image processing tools or algorithms. This paper makes a survey on applying different image processing techniques for identification of the plant leaf infected area. further by using Neural network concepts we can get the stages of the leaf disease, the image is fed into the neural network and output is generated, that output is then mapped to the stages of the disease to get to which stage the plant is in.

Deep Learning Techniques Using Data Science

Nithesh Shettigar[1], Goutham Naik[1], Nandan Nayak[1], Nithin H A[1], K C Gouda[1], Nagaraj Bhat[1]
. [1]Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal
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Up until early 2000's climate predictions were made mainly using statistical methods. This prediction wasn't always entirely accurate. With the introduction of machine learning and deep learning in climate prediction, the prediction accuracy has improved dramatically. The sensors in the weather stations give massive amount of unstructured data. Due to the humungous amounts of sensors and data from it, it's almost impossible to compute all the necessary weather information in time. AI and deep learning help to overcome this problem using different models which can swiftly and accurately make this job simple. Accurate climate prediction is very important to predict is very important to predict any natural calamities or unexpected change in weather. This report highlights few of the deep learning models which can be used for climate prediction by scientists. This paper only takes scratches the surface of the capabilities of AI in climate change. More advancements in this field would lead to better simulations of the weather conditions which can then be useful to predict the extreme weather conditions accurately. Few of the authors have used unique models in their prediction of various temperature, rainfall, pollution levels etc. which have helped them to find the discrepancies in the climate if any.

Intelligent Vehicle Trapper

Nandan Nayak, Deepesh Amin, Anusha S Kumari, Neha Krishnamurthy, Swathi Prabhu
Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

In traffic surveillance, tracking of the vehicle is a crucial job. We are proposing a real time project which detects the vehicle and reads the number plate which will be helpful for tracking the vehicle. In most situations it is quite difficult to identify the vehicles which has been lost or through which some serious crimes have been done. It is necessary to capture the number plate of the vehicle and use this captured number plate to detect the vehicle. In order to track the vehicle, we need to extract the number from the captured image using OCR (Optical Character Recognition) technology. Using this system, we will be able to notify the respected persons regarding the detected vehicles.

Sentimental Analysis of Student Feedback Using Machine Learning Techniques

Daneena Deeksha Dsouza, Deepika, Divya P Nayak, Elvira Jenisha Machado, Mr. Adesh N
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

Educational institutions attempt to collect feedback from students to study their sentiment towards courses and facilitates provided by the institution to improve the college environment. The textual feedback provides an opportunity to students to highlight certain aspects which are not directly covered by rating based feedback. In this paper, a method has been proposed for sentimental analysis using machine learning algorithms such as Multinomial Naïve Bayes, Support Vector Machine and Random Forest. A comparative

analysis is also conducted between these machine learning techniques. The experimental results suggest that Multinomial Naïve Bayes is more accurate than other methods.

3d Reconstruction of Mandible Using Panoramic Technology

Akshitha Salian, Chaithra K Pai, Deepthi R Shetty, Mahima Dayananda Ganiga, Venugopala Rao A. S.

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

At present 3D reconstruction of jaw is obtained using CT scan or Cone Beam CT (CBCT) scan. If CT scan is considered to emit radiation equal to one unit, then CBCT emits one tenth radiations as that of CT scan. In this paper, we propose 3D reconstruction of jaw from panoramic X-rays. This will emit only one hundredth radiation as that of CT scan reconstruction. Also, the cost will be reduced to one tenth of CT scan reconstruction. The Panoramic X-Ray image being considered in this project is of low quality. This might affect the construction of 3D model. Therefore, it is necessary to do some enhancements to the image so that we get a better-quality image. Here we will compare different image enhancement techniques on the panoramic x-ray images. CLAHE is one of the best image enhancement techniques for our input image. We will consider a standard 3D model of the mandible in hand so that it can be deformed using the features of affected person. This 3D model is given to surgeons so that they can analyze it in advance before the surgery.

Virtual Ogma: A Real-Time Strategy Game with speech control

Nithin H A, Nahush S Shetty, Ms. Sneha N S, Sudheer Shetty, Swarup Shetty
Shri Madhwa Vadiraja Institute of Technology & Management, Bantakal

The technology of Speech Recognition has played an increasingly significantly role in our daily life. With proper processing it can be used to control complex systems. In this paper, a Real Time Strategy (RTS) Game has been developed that makes use of this technology in the realm of gaming, where players could make use of alternate form of input such as voice in order to interact with the elements in the virtual world. As a result, player will experience a high level of immersion while playing the game. Recognition of player's speech is done using Microsoft Speech SDK due its low latency and high accuracy. It also provides a very good support for working with Unity, which is the game engine that we use to develop our game. Since we are reducing, if not, eliminating the use of conventional keyboard-mouse or controller, this would also work exceptionally well with mobile VR games that're played on Google Cardboard, Daydream View 2 or Samsung Gear VR, since they do not have a universal controller as of now.

Decision Support System for Water Quality Monitoring Based on Ph, Electrical and Temperature

Apoorva R, Chaithanya Padmashali, Parinita Shetty, Shreya U K Rao
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

Ensuring the safety of water is a challenge due to the excessive sources of pollutants, most of which are man-made. The main causes for water quality problems are overexploitation of

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Performance Evaluation of Address Auto configuration Protocols in Mobile Ad-hoc Wireless Networks

Sushant Mangasuli, Pragathi H D, Rasik Shetty, Sanath, Veekshith Shetty
Alva's Institute of Engineering and Technology, Moodbidri

The TCP/IP protocol allows the different nodes in a network to communicate by associating a different IP address to each node. In wired or wireless networks with infrastructure, we have a server or node acting as such which correctly assigns IP addresses, but in mobile ad hoc networks there is no such centralized entity capable of carrying out this function. Therefore, a protocol is needed to perform the network configuration automatically and in a dynamic way, which will use all nodes in the network (or part thereof) as if they were servers that manage IP addresses. This article reviews the major proposed auto-configuration protocols for mobile ad hoc networks, with particular emphasis on one of the most recent: D2HCP. This work also includes a comparison of auto-configuration protocols for mobile ad hoc networks by specifying the most relevant metrics, such as a guarantee of uniqueness, overhead, latency, dependency on the routing protocol and uniformity.

Auto Removal of Bright Spot from Images Captured Against Bright Source of Light

Deepa Nayak, Chitralekha Shetty, Chaitra Bhat, Supritha Devadiga, Asha C S
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

An image captured with sun or bright source of light in the background often produces a bright spot in the image. Typically, the image of a scene taken during sunrise or sunset contain bright spot. The colour of bright spot may be blue, green, orange, white or yellowish that mainly depends on the overall background. In many cases, bright spot, haze or flare can appear anywhere in the image which is due to internal reflection in the lens. The light reflected from the surface of the internal lens or scattered by the imperfection of lens cause unwanted bright spot. The angle of incidence of light is the main reason which could be avoided by taking the picture at a proper angle such that the spot is placed directly on the source of light which needs some expertise. For images which have already a bright spot in the image can be removed manually which needs the knowledge of additional software tools. Besides, manual correction becomes a time-consuming process for a large number of images. In the proposed work, we address this issue by identifying the bright spot automatically and its removal with gap filling. To achieve this, we use speeded up robust features (SURF) to detect the bright spot, and exemplar based in-painting algorithm to fill the gap after its removal. We test the proposed method on several images captured against sunlight. Experimental results on bright spot images show that the proposed method is effective and corrected images look more natural without any artefacts.

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natural resources. The rapid pace of industrialization and greater emphasis on agricultural growth combined with latest advancements, agricultural fertilizers and non-enforcement of laws have led to water pollution to a large extent.

As the society is not aware to what extent the water resource is being polluted, we are developing an affordable online decision support system for water quality monitoring. This system consists of sensors which compute the standard of water in real-time for effective action.

Objectives of proposed system is to collect the information of basic water parameters at set locations and at regular intervals in order to provide data which may be used to define current condition of water.

The data collected from the sensors are made available to the society through map as user interface. This system sends an alert to the public if there is any variation of water from the set standard.

Diet Recommendation System for Chronic Disorders

Anusha Y S, Chinmayi V. Kulkarni, Divyashree, Divyashree K Kulal, Manoj T
SMVITM, Bantakal

Abstract: Recently there has been an increase in the number of diabetic and obesity patients at an alarming rate. Approximately 18 million people died from cardiovascular diseases every year where diabetes and obesity are one of the major factors. So, treating diabetes and monitoring obesity is required to efficiently manage health conditions of patients.

In this project, an android application has been designed and developed that recommends probable diet and exercise to help people manage their health.

This recommender system analyses the input parameters that are entered by the end users and provides personalized recommendations for users in the form of diet and exercises. This android based system can also remind users to follow the recommendations which are provided by the system. These features are extensible and convenient for use. The recommendation is done using User Based Collaborative Filtering.

This system asks the user to enter a predetermined set of parameters which are then matched with many other patient's parameters stored in the database. The database consists of past cases of patients who have been diagnosed with diabetes and obesity and treated for the same, this matching is done using Pearson's correlation. The matched patient's diet and exercise is then recommended to the current user. In this way, users can know their personalized health status and also, they can get the one healthcare guideline recommendation using which they can keep diabetes and obesity under control.

Intelligent Pillbox

Shilpa Bhat, Sinchana K, Sinchana Rao, Suchitha S Kumar, Rukmini Ballal
SMVITM, Bantakal

Untimed medicine administration can always show adverse effects on the health of the patients. The proposed system is designed to help these patients to take the required medicine in the right proportion at the right time. The basic ideology is integrating the principle of Alarm clock with Light based slot sensing on a normal pill box. The two

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Air pollution monitoring and prediction system

Meghana H Prabhu, K Sridevi Rao, Navya Nagaraj Vidyavathi Poojary, Nikhitha Jayakar, Ramya D Shetty

Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

Environmental Air Pollution Monitoring System is used for monitoring the concentrations of major air pollutants using gas sensors. The main target of this project is to monitor the air quality using sensors and analyze the existing trends in air pollution and make prediction about future. The major objective is to inform the public about the air quality, raise the awareness and also to develop warning systems for the prevention of undesired air pollution episodes and to create awareness in order to reduce the amount of air pollution caused due to various sources. The system is also used to get the approximate quantity of pollutants present in air thereby giving awareness to the people of that specific region. Thus, the amount of pollution caused due to various sources can be reduced, leading a healthier and safer environment.

Study of Settleable Particulate Matter Present in Ambient Air at Gulbarga City Using Dust Fall JAR and Natural Receptor

Lingraj Shastri

Sharanbasva University, Kalaburagi

As more advanced the civilization becomes, more complex the problems related to the man's environment. The population explosion has led to a greater demand for more food, more water, more shelter demand for more manufacturing of goods etc. satisfaction of these demands has led to a nervier ending pollution of air, water and earth.

Over the course of tens of thousands of years man successfully learned to exploit ecological system for substance. Today the world environment has changed. Humans out of ignorance, short sightedness, greed or desperation have polluted air and water, undermined the productivity of the land through accelerated soil erosion, creeping deserts, increased flooding and declined soil fertility. The activates of man often disrupts the balance among the constituents which are necessary to life.

A man intakes air equal to 4/5th of his body weight. the air, constitutes several gases alike oxygen, nitrogen, co2, etc, generally, the composition of air is 79% N2. 0.03% CO, and nearly 20% 02. This composition of air is favorable to human beings and sustaining Various other life forms on this planet, earth. today dare to large population and Human activity, there is an imbalance in the constituents, which has an adverse effect on the man and environment.

Historically, air pollution is not a new phenomenon. Natural form of air pollution such as volcanic eruption, were know and feared by prehistoric man. The emissions included massive quantities of fine dust and toxic gases. man –made pollution probably dates back to the early cave man who discovered fire. Having discovered this as an invaluable source of energy for keeping him warm and cooking food, often he was forced to flee from his cave coughing and chocking from the noxious smoke and gases from his primitive fire.

Now, with the industrial revolution the problem of air pollution magnified with lots of emissions of smoke, flash, dusts, gases etc., into the atmosphere. Now, it has reached such a stage, the very existence of mankind is at question.

Data Visualization for analysing the effect of climate change for Patna city

Nithesh Shettigar[1], Goutham Naik[1], Nandan Nayak[1], Nithin H A[1], K C Gouda[1], Nagaraj Bhat[1]

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A Review on methods to identify plant disease using Image Processing and ANN

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treatments, prior to or post solutionising challenge conventional heat treatments like age hardening or precipitation hardening. When the cold deformation is provided before solution treatment increases hardness by strain hardening with increased nucleation sites for phase transformation. When partial solutionising is given to the cold deformed composite retains the partial strain hardening effect on the specimen compared to complete solutionising. The retention of partial strain hardening followed by further aging develop complex interaction effect of strain hardening coupled with controlled precipitation of intermetallic on the composite for drastic uplift in hardness property.

During conventional age hardening hardness and strength of the samples increase. Reduction in peak hardness value with increasing aging temperature is the renowned behaviour of age hardenable composites. The obtained peak hardness value is further increasing when cold deformation is supported with prior intentional deformation. Considering these features, it is proposed to perform prior solutionising deformation followed by subsequent aging on the stir cast Al 7075 –steel powder reinforced composite and analyse the microstructure and hardness distribution pattern by varying the steel powder quantity (0, 3 and 6 wt%), deformation density (10 and 20%) and aging temperatures (100 and 180oC). There was better distribution of reinforcements in the matrix, finer grained phases with increase in the deformation density, higher peak hardness with the increase in deformation density and reinforcement quantity in the matrix. Higher peak hardness is observed at lower aging temperature with reduction in the peak age duration in the composites at all other variable conditions like, reinforcement quantity, degree of deformation.

32-Bit RISC Microprocessor Design With 5 Stage Pipelining Verilog HDL And Implementation on FFPGA Board

Shwetha Nayak, Sampath S Shetty, Sharanya Shetty, Shriraksha S Shetty, Chetan R
SMVITM, Bantakal

The main objective of this paper is to design and implementation 32-bit RISC processor using Xilinx FPGA Tool for embedded and portable application. The processor has been designed with Verilog, synthesized using Xilinx, simulated using ISE Sim simulator and implemented on Xilinx Spartan 3 XC3S50 FPGA that has 32 available I/O pins. The design will help to improve the speed of the processor, and to give the higher performance of the processor. The most important feature RISC processor is that it is very simple and support load or store architecture. The important components of this processor include the ALU, Register bank, pipeline, and memory.

FPGA are slower than ASICs but have the advantage of shorter time to market, ability to be re-programmed in the field for error correction, upgrades, flexibility and low cost. The use of hardware description language allows FPGA to be more suitable for different types of designs where errors component failures can be limited.

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Mathematical principles for predicting reliability control parameters of pipe armature for transport energy systems

Ivan Kaptsov, Volodimir Kotukh, Nataliy Kaptsova, Yuriy Pakhomov, Katerina Paleyeva

Department of Exploitation of Natural Gas and Thermal Systems NUUE, Kharkiv, Ukraine.

When assessing the reliability of transport energy systems, such calculation methods and sources of information about changes in the performance of its elements are required, which would allow predicting behavior, including pipefittings in various operating conditions. The question of the mathematical apparatus application and involvement of already known methods for assessing the quality and efficiency of transport energy systems is of particular importance for the science of reliability. These systems and their structural elements, including pipefittings, cannot be isolated from the influence of the environment and the processes that occur in themselves in the case of residual effects that accelerate wear and reduce their initial characteristics.

Smart Automatic Urinal Flusher and Cleaner for Clean India Mission

Mohammèd Musthafa, Mohammed Mohsin, Mohammad Shadabuddin, Mohammed Parvez, Karthik V

Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

Cleanliness in our nation is under risk. The public toilets should be clean and hygiene in our country. The government has introduced a mission called "Swatch Bharat (Clean India) Mission" in order to provide clean environment to the people. This project is supportive to encourage the clean India mission so that in future it plays a major role. Bad odour and unpleasant environment are created in toilets due to lack of cleanliness. Presently there is automatic flushing system but there are no automatic cleaning processes. So, this work includes automatic cleaning system together with automatic flushing system.

Design and Fabrication of automatic food serving system

Karthik R, Charan Rao, Gurucharan, Hithesh Mendon, Lingaraj Ritti

Shri Madhwa Vadiraja Institute of Technology and Management, Udupi

In convention food serving system it produces an uneven stressful workday because of the period of demands, it is used only for small food service operators, number of workers needed are more and hyginity in the workplace is less.

The objective of the automatic food serving system is that when there is large number of people to be 'served, these systems will reduce food serving time. This system also helps to minimize number of labours for serving food and it reduces labour cost. This system can avoid larger queues because of speed in execution. It will help to minimize the wastage of food. Throughout the process hyginity is maintained.

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A survey on Image Analysis to determine Strain Distribution

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Abstract— Determining the deformation response of a specimen under load is important to understand the behavior of the material. In many engineering problems, knowledge of strain distribution in the material is an important issue. There exists many strain measurement methods like electrical resistance strain gauge, extensometer, Geometric Moire, etc. Each method has its own advantages and drawbacks. Major nonconventional and contact-free methods to measure displacement and strain in mechanical test specimen are included in this paper. This paper attempts to provide a comprehensive survey of the recent technical achievements in strain measurement using image processing method. The survey focuses on different algorithm used for the analysis of movements of patterns made on the specimen. Finally, based on the existing technology and demand from real world application, a few future research directions are also suggested.

Keywords—Image analysis; Strain measurement; Digital Image Correaltion.

INTRODUCTION

The knowledge of strain measurement is vital to the engineers as it plays an important role in the most of the engineering designs and experimental work. The designs and structures are getting more and more complex than before so an accurate strain measurement method is always desirable as a misleading result might cause a catastrophic incident and also put human lives in danger [1]. To overcome this different strain measurement methods are invented and used.

There exists many conventional strain measurement tools like strain gauge, extensometer, optical strain measurement method, brittle coating method etc, but each has its own advantages and drawbacks. Most of these methods can only measure deformation at few points [2]. They are very difficult to use to find strain in small specimens. The contact points of tool create unwanted stress concentration to the specimens, and conventional methods are also dependent on external environmental factors like humidity, temperature [3]. Also their high price tag and handling difficulty make them an imperfect strain measurement method.

To improve the strain measurement method, A vision system known as Digital Image Processing had been introduced. Human brain divides the vision signal in to many channels that stream different kinds of information to brain. Our brain has an attention system that identifies important part of the image while suppressing the other parts [2].But for computer; image is just a grid of numbers which is represented in nxm matrix, where each element represent some specific information of image. Using image processing algorithm computer finds the content of image.

Table 1 summarizes some of the image processing terminologies.

TABLE 1
Image processing terminologies

Image processing term	Meaning
Image acquisition	Process of retrieving a digital image from a physical source captured.
Grey scale conversion	Process of converting color image to a single intensity value
Image background extraction	Separation of image background and retrieving foreground images.
Image enhancement	Improvement in perception of image for human and machine analysis
Image histogram	Pixel intensity vs frequency analysis
Binary image segmentation	Foreground object separation from background
Image filtering	Process of distorting image in desired way
Feature extraction	Defining a image characteristics that meaningfully represent the information for analysis
Image object analysis	Extracting the reliable and meaningful information from image

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STATE OF ART

A. Experimental Setup

The experimental setup is as shown in Fig1. It consists of a camera mounted on the stand used to capture the continuous image, light source to uniformly light the specimen, specimen under load with mark on its surface, and a computer for programming. Digital Image Processing provides full field deformation measurement that mathematically compares two images captured at two different states one before deformation and the other after deformation. The acquired images are stored in digital form and measurement algorithm is used for the image analysis to find the displacement and hence the strain.
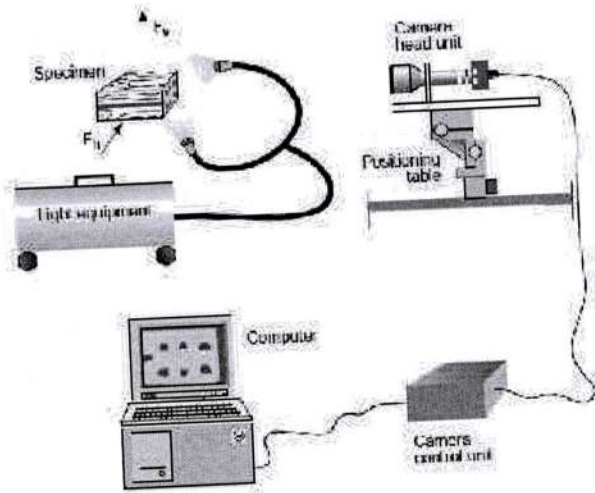
Fig. 1.Experimental set up [2].

For many applications in machine vision and scientific research image sequences of rapidly moving objects have to be acquired with high temporal resolution. Normal camera process 25 frames/sec, but high speed solid-state camera offers 100 to 15,000 frames per second.

One of the most important features of high speed solid state camera is the data rate systems with digital storage on RAM or real time disks are preferable from the aspects of accuracy and data handling. So solid state camera with data rates ranging from 100 to 15,000 images per second, sensor size of 64*64 to 756*287 pixels are used.

For specimen marking water based paint or printer ink is preferred because these remain more flexible under load and are less likely to flake. Only thin layer of paint is be applied because thick paint is more likely to flake and it can affect the surface of the specimen. Solvent based paints are not used because it might affect the specimen properties. Recommended materials for marking are: water based printer color, stamp ink or computer printer ink, non permanent marker pens, laser printer toner powder.

The specimen are illuminated by an array of pulsed high intensity LED's. The pulse coincides with the frame exposure of the camera. The pulsing improves the rejection of ambient light. The high wavelength LED's will have a polarizing filter in front in order that the light emitted is all in the same plane. The camera has two built in filter. The camera polarizing filter is set a 90 degree to the lighting array polarizing filter to remove saturation effect of shiny surfaces. The camera band pass filter center should be same as that of wavelength of LED's in order that all the other lights of different wavelength will be rejected, thus ambient light cannot affect the test area. Camera length can be changed to get different Field Of View to give different range of specimen extensions.

B. Binary Conversion

A three channel RGB image of the specimen which was captured from camera is converted to single scale grey scale image. In the colored image each pixel stores three values between 0 to 255 corresponding to primary colors. In grey scale image each pixel stores only one value corresponding to intensity level. By setting the proper threshold value one can convert the grey scale image to binary image where each can have either 0 or 1value [3].

C. Preprocessing

CvBlob library and open CV was applied to find blobs. Connected region in the binary image is named as blobs. After detecting connecting region area of the each blob in pixel square were extracted. Then background is then subtracted to find the centroid [3].

VLSI model of CSD filter for preprocessing of image signals. Where CSD coefficients decimation filter has been designed, next a novel bit serial and systolic bit parallel VLSI architecture for CSD coefficient filter was implemented. The VHDL a simulation with synthesis has been conducted for CSD filter and the result proved that implemented system require little VLSI space [4].

The captured images were analyzed using block based matching algorithm that was written in C++. The algorithm was then complied under graphical programming language LABVIEW and embedded in to a user friendly algorithm called BAMD. Due to their moderate hardware requirement and ease of implementation block based matching algorithms are widely used in pattern recognition problems [5]. BAMD uses minimum absolute difference criterion, which is considered to be most effective search criteria in particle tracking and defined as

$$MAD(d1, d2) = \sum mod(P(X_k, Y_k) - P(X_{k+1} + d1, Y_{k+1} + d2))$$ (1)

$$(d1^u, d2^u) = \arg minimum\ MAD(d1, d2)$$ (2)

where $d1^u, d2^u$ = displacements in the horizontal and vertical directions respectively.

To improve the accuracy and robustness of the high speed background subtraction method Visual Background Extractor (ViBe) at very limited additional cost a new effective technique was introduced called ViBeExt. The primary principle behind ViBe is neighborhood mean filter used to strengthen the pixels spacial correlation. The ViBe is introduced with edge characteristic info for more accurately updating the background model [6].And it was proved that ViBeExt gives more accurate detection of moving object in complex scene.

Background subtraction is important process in many video content analyses extracting foreground object from video sequences is a crucial step in image processing. Improved ViBe and multiple filtering in image processing was proposed to increase the accurate analysis of video crack detection [7]. This method involves two main steps: 1. ViBe algorithm is used to find the moving crack in video, 2. A suitable threshold is used to classify all pixels in binary image in to two groups background and foreground. And a use filter area and changes the area if less than a specific number to back, filtering can be used to eliminate the residual noise.

A two dimensional deformation measurement algorithm was developed to calculate the strain in the loaded structural component [1] using digital image correlation method. This compares the displacement of the random speckles patterns of original and deformed image. Finding the deformation is either Real Time or Non Real time. Different techniques are used here, Digital Image Correlation is used for continuous tracking of marks or Artificial Intelligence can be used to search image that is compatible with the library of acceptable marks. While testing only the pixel in the immediate vicinity of marks are processed. The gauge length between two marks is monitored and updated and strain should be calculated. The strain measurement algorithm was coded in to MATLAB program which can be analyzed using MATLAB image processing tool box. Image matching technique used in DIC is iterative method. The iterative methods are always lengthy. DIC works by comparing digital photographs of a component or test piece at different stages of deformation. By tracking blocks of pixels, the system can measure surface displacement and build up full field 2D and 3D deformation vector fields and strain maps. For DIC to work effectively, the pixel blocks need to be random and unique with a range of contrast and intensity levels.

The DIC technique is able to correlate many types of patterns, such as grids, dots, lines and random patterns [11]. The surface patterns should exhibit the isotropic behavior and do not have a preferred orientation. Therefore the random speckle patterns as shown in Fig.2 are recommended because of non periodic nature.
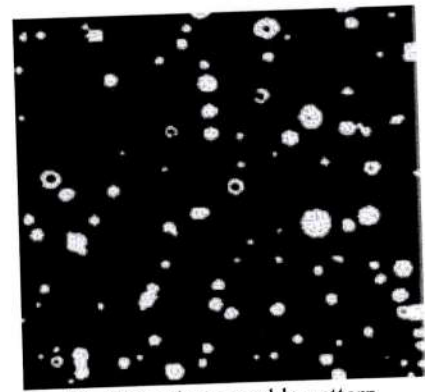

Fig.2 Random speckle pattern

A DIC method includes the following three consecutive steps namely:

- Spraying speckled pattern on the specimen surface.
- Recording the digital images of un deformed and deformed specimen.
- Applying DIC software to obtain full field displacement and strain.

A Algorithm was developed using MATLAB tool box which uses Geometric Approach equation to calculate the strain components.

$$\frac{1}{2}\varepsilon^2 + \varepsilon = \varepsilon_{xx}cos^2\theta_x + \varepsilon_{yy}cos^2\theta_y + 2\varepsilon_{xy}cos\theta_x cos\theta_y$$

(3)

The detailed DIC algorithm were divided in to eight parts, First input of two images captured at two different states one before deformation and one after deformation are acquired. The dimensions of images in x and y directions are entered in the unit of pixel/mm. Next RGB images are converted in to binary and image features are enhanced according to light intensity. Four speckles are selected in random pattern from two images. Later the centroids of the speckles in term of x and y pixel coordinate are obtained and selected speckles are labeled according to the number of sequence. The pixel coordinate is further converted in to unit of millimeter. Finally embedded Geometric Approach equation is used to calculate the strain components [1]. This paper concludes that the optical strain measurement method has successfully determined the strain values in mechanical testing of mild steel and polypropylene specimens shown in fig 3 and 4 respectively. The obtained strain values are further compared with extensometer reading shown in Table2. And method was found to be capable to determine the strain correctly compared with the extensometer reading with small deviation.
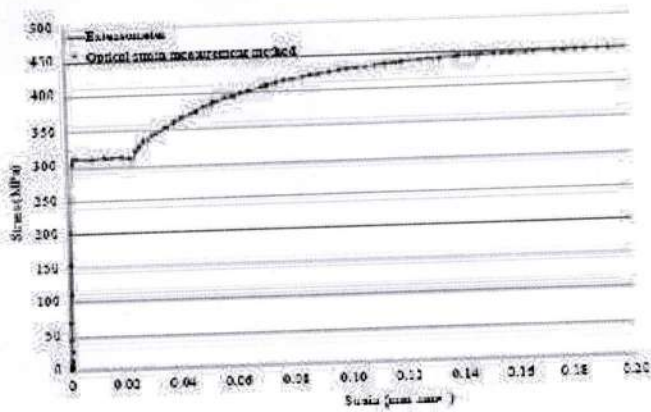
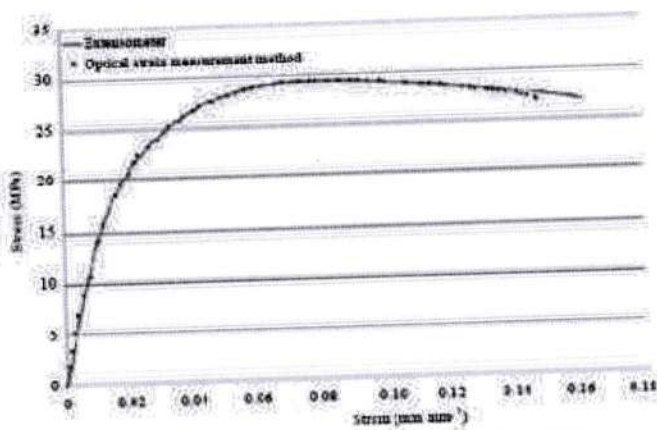Fig.3. Stress strain curve for mild steel specimen[1]

Fig.4. Stress strain curve for polypropylene specimen[1].

TABLE2
Comparison of modulus of elasticity[1]

Specimen	Extensometer (Mpa)	Optical strain measurement method (Mpa)	Deviation(%)
1	1454	1440	1.0
2	1628	1509	7.3

Digital image correlation method using Iterative Least Squares (ILS) algorithm and Pointwise Least Square (PLS) algorithm is used to find the strain[8]. A more robust intensity change model shown in fig.4 based on optical flow method was used, which consider the linear change in intensity during digital image acquisition and various displacement mapping functions.

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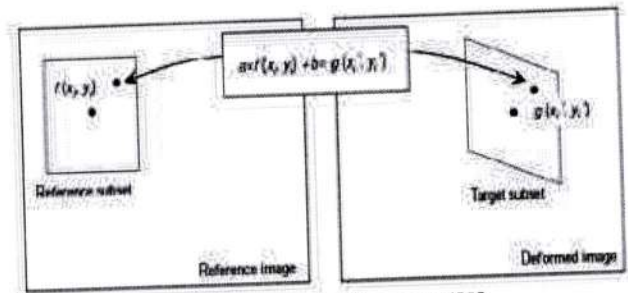

Fig.5. Intensity change model for a pixel[8].

An ILS algorithm which is equivalent to improved Newton Raphson (NR) method was recommended to resolve displacement and displacement gradients. The PLS algorithm was used to extract reliable strain field from the already computed displacement fields .And it was stated that the computation of deformation fields using DIC method was simpler and straight forward than other existing methods like NR method and finite smoothing.Fig 6,7,8and 9 shows the principle of the PLS, Reference and deformed image with their histogram , ILS method with different intensity change model and strain calculated using PLS algorithm respectively.
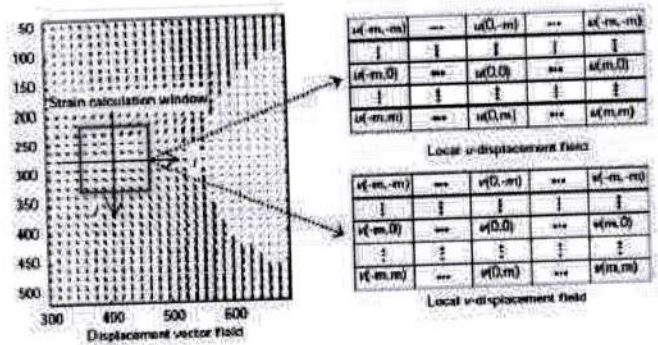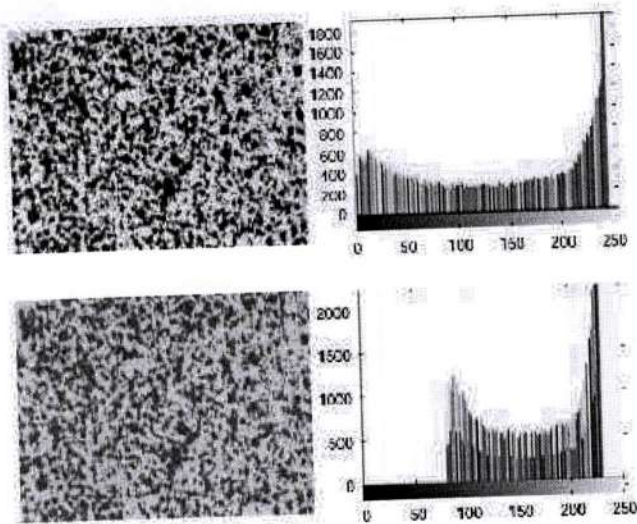

Fig.6. Principle of PLS algorithm[8]

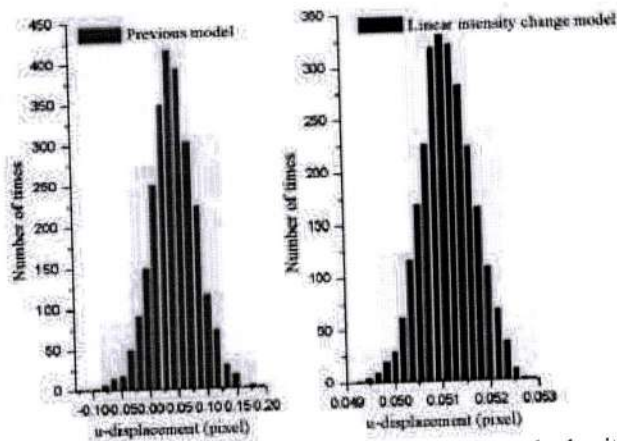Fig.7. Reference and deformed image with their histogram [8]

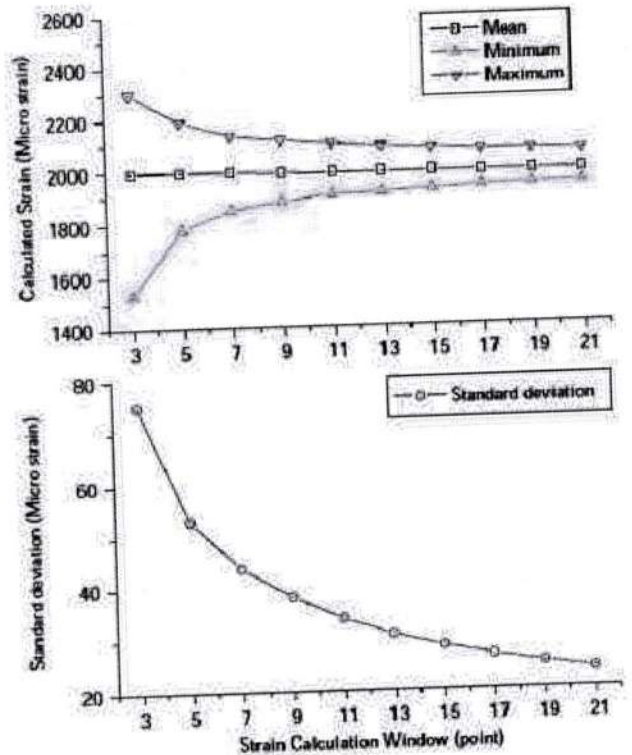Fig.8.Histogram of U displacement by ILS method with different intensity change model [8].

Fig.9Calculated strain by PLS algorithm by using various strain calculation windows [8]

II. CONCLUSION

Many research publication in the field of strain measurement using image processing in the recent year shows that it is very active and gets more attention. This will advance in the field as new tools and new techniques will be developed, and performance will increase. A conventional contact based strain measurement technique used for the measurement of strain mostly assume that strain is uniform throughout the specimen and hence are incapable of measuring local strain. And also measurement is effected by environmental factors. So a non non conventional contact free strain measurement method has a large potential in engineering applications. This paper present a survey on different image processing techniques used to find strain in geosynthetics. There is a need to select the most appropriate techniques to assist decision-making. Future work will include a automation of the image processing techniques. A dedicated VLSI system can be implemented to get fast response.

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Co-authors:...... Adithi Raju Poojari , Raghavendra Rao P ; Ashmitha, ...

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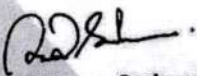
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