1ST International Conference Proceedings

for

"Recent Innovations in Science, Engineering & Technology"

Held from 13th July 2020 to 14th July 2020

At

GOVINDRAO WANJARI COLLEGE OF ENGINEERING & TECHNOLOGY
SALAI GODHANI, HUDKESHWAR ROAD,
NAGPUR

Dr. Salim Chavan
Convener,
ICRISET-2020

Prof Ashwini Deshmukh
Coordinator,
ICRISET-2020

Govindrao Wanjari College of Engineering & Technology

Nagpur-441204

Session 2019-20

MESSAGE FROM THE PRESIDENT

The e-International conference on Recent Innovations In Science, Engineering & Technology (ICRISET-2020),Organized by Govindrao Wanjari College of Engineering & Technology, Nagpur on dated 13th July 2020 to 14th July 2020 marked several exciting milestones for our organization. There were 22 presentations from scholars who participated in the conference. These highlights are important to mention because they demonstrate our contribution in the field of Engineering. The supportive and collaborative nature of the conference also builds on our mission to support learners in contexts of higher education. The contributions by the authors of the following proceedings reflect their dedication to learners in various settings and contexts. The proceedings not only build a legacy of scholarly contribution for the authors, but also for ICRISET-2020. I would like to thank the editors for their hard work for preparing the proceeding of this conference. I would like to thank all the authors who presented their research at the conference and ultimately for print in this edition of proceedings. As we continue to grow as an organization, your participation will be increasingly important to carrying out the work we are charged with from our mission.

Dr. Suhasini G Wanjari
President
Amar Sewa Mandal
Nagpur.

MESSAGE FROM THE SECRETARY

It is with great pleasure that I acknowledge the 1st e-International Conference on " Recent Innovations In Science, Engineering & Technology" (ICRISET-2020), organized by Govindrao Wanjari College of Engineering & Technology, Nagpur. I commend the organizing committee for their admirable efforts in ensuring the success of this conference and their commitment to presenting novel research findings and ideas. My best wishes to them for their ongoing efforts to disseminate knowledge.

Adv. Abhijit Wanjarri
Secretary
Amar Sewa Mandal
Nagpur.

MESSAGE FROM THE TREASURER

Govindrao Wanjari College of Engineering & Technology, takes great pride in hosting the 1st e-International Conference (ICRISET- 2020). I would like to express my heartfelt gratitude to the entire team at GWCET for their unwavering efforts in bringing this significant event to fruition. This conference provides an excellent platform for students and young researchers to enhance their knowledge and gain a deeper understanding of the changing ideas and innovative methods in technology. I am confident that this event will offer a valuable learning experience for all participants and provide an opportunity for them to share their expertise. I wish all the attendees a productive and fulfilling time ahead.

Dr. Smeetaa A Wanjari
Treasurer
Amar Sewa Mandal
Nagpur.

MESSAGE FROM THE PRINCIPAL

It gives me great pride to announce that Govindrao Wanjari College of Engineering & Technology, is hosting the 1st e- International Conference on Recent Innovations in Science and Technology (ICRISET- 2020) on 13th and 14th July 2020. The conference will act as an excellent colloquium to develop a platform for the exchange of ideas towards scientific and technological innovations for the generations to come. I hope that the conference will deliberate on current issues of national and international relevance in the fields of Science and Technology, allowing academicians, researchers, and technocrats to share their thoughts and views on innovations in their respective fields. The conference will witness an unparalleled number of quality research articles being presented, paving the way for new paths to innovate in Science and Technology. I extend my heartfelt congratulations and appreciation to the entire team for their efforts in organizing this e-international conference and wish them great success in the successful conduct of the entire event.

Dr. Salim Chavan
Principal
Govindrao Wanjari College of Engineering & Technology
Nagpur.

MESSAGE FROM KEYNOTE SPEAKER

It is a pleasure to note that Govindrao Wanjari College of Engineering & Technology is organizing the 1st e-International Conference on Recent Innovations in Science and Technology (ICRISET- 2020) on 13th and 14th July 2020. Conferences of this nature provide a platform to young researchers and faculty members to present their research and development work and get feedback and suggestions to improve their quality of work. This Conference will provide an opportunity to exchange ideas on latest algorithms, standards, technologies, and applications pertaining to above topics and thus serve very useful to students and teachers.

Dr. Abhijeet Digalwar
Associate Professor
Mechanical Engineering Dept., BITS Pilani.

MESSAGE FROM KEYNOTE SPEAKER

It gives me great pleasure to be with you that Govindrao Wanjari College of Engineering & Technology has organized the 1st e-International Conference on Recent Innovations in Science and Technology (ICRISET- 2020) on 13th and 14th July 2020. This conference provide platform to young researchers and faculty members to show their hidden potential. I would like to take this opportunity to thank you for your invite and the excellent organized Conference.

Mr. Pravin Ramteke
Head Microsoft COE
Tech Mahindra Hyderabad.

MESSAGE FROM KEYNOTE SPEAKER

I sincerely congratulate the organizing committee for the success of 1st e-International Conference on Recent Innovations in Science and Technology (ICRISET- 2020) on 13th and 14th July 2020, which was well-organized, well-balanced. The speakers were all highly respected professionals. I wish you and your team further achievements, and hope for continued cooperation.

Dr. Tripta Thakur

Professor

Dept., of Electrical Engineering, MANIT, Bhopal.

MESSAGE FROM KEYNOTE SPEAKER

My heartfelt congratulations to the entire team for their efforts in organizing this e-international conference and wish them great success in the successful conduct of the entire event.

Dr. Alison Griffiths
Associate Professor
Staffordshire University,
Stoke-on-Trent, United Kingdom.

ACKNOWLEDGEMENT

We present to you the proceeding for the 1st e- International Conference on "**RECENT INNOVATIONS IN SCIENCE, ENGINEERING & TECHNOLOGY"** which was held from 13th July 2020 to 14th July 2020.

We feel very much delighted in expressing sense of gratitude to our Principal and Convener of this conference **Dr. Salim Chavan,** for his timely help during the conference and for his constant encouragement and valuable guidance. The successful execution of this conference would not have been possible without the firm support of our convener.

We are very thankful to our Hon'ble Treasurer Amar Seva Mandal and Senate Member RTMNU, Nagpur **Dr. Smeetaa A Wanjari.** She guided us for this conference and gave us valuable suggestion whenever and wherever required.

We would like to express sincere thanks to Hon'ble MLC and Secretary Amar Seva Mandal **Adv. Abhijit Wanjarri** for giving the opportunity to conduct such an international conference and providing us necessary facilities to carry out our work.

We express our sincere thanks to Hon'ble Founder of Amar Sewa Mandal and our well-wisher **Dr. Suhasini G Wanjari,** for being a source of inspiration for all of us.

We would also like to express our sincere gratitude to the Session chair In-charges **Dr. Abhijit Digalwar, Associate Professor, ME Deptt, BITS Pilani, Mr. Pravin Ramteke, Head Microsoft Centre of Excellence, Tech Mahindra, Hyderabad, Dr. Tripta Thakur, Professor, EE Deptt, MANIT, Bhopal and Dr. Alison Griffiths, Associate Professor, Staffordshire University, United Kingdom** for being involved in this international conference and sharing their views.

We wish to express our gratitude to all our faculty members who have helped us directly or indirectly to successfully completing this conference.

CONFERENCE-COORDINATOR

Prof. Ashwini Deshmukh
Head of Department
ETC Deptt, GWCET, Nagpur

CONTENTS

1. ELECTRONICS & TELECOMMUNICATION ENGINEERING DEPARTMENT

TITLE	1.1 Automatic Railway Crossing gate using Android Device
AUTHOR	Balaji Haibatpure, Manisha Mahukhaye, Sweety Badole
ABSTRACT	The system is constructed so as to achieve the control over the gate crossing situated at the railway level i.e. closing and opening of the railway crossing gates. In current scenario the gates are mostly controlled involving manpower which is usually placed at the level crossing. The system is operated by the mobile phone. A Bluetooth device is interfaced with the system. When the gatekeeper send command to closed from the android application device (when the train is approaching at the level crossing) to the Bluetooth device which while supply to the micro-controller sends an output singles which activates a mechanism to switch on the motor to closed the gate. To open the gate, another command need to be send for the controller to open the gate using motor driver. In this project we used a micro-controller (Atmega328) and input to its Bluetooth device which takes commands from the user android application. The output to micro-controller is given to a motor by using motor driver for some required operation. Then the status, whether the gate is open or close is displayed on LCD display 16*2 interfaced to the micro-controller.

TITLE	1.2 IOT Based Device Switching System VIA Google Assistant
AUTHOR	Tushar Tambre, Sumit Tingre, Aarti Pache
ABSTRACT	In Todays World it is very Important For Humans To Adopt the New Technology and in this Predominantly Two Technologies Are Comes First Via Artificial Intelligence and IOT. The internet of things (IOT) is inter-Networking of physical device. This system has ability to transfer data over a network without requiring human-to-human or human-to- computer interaction. Google Assistant is an artificial intelligence-powered virtual assistant developed by Google that is primarily available on mobile and smart home devices. Assistant initially debuted in May 2016 as part of Google's messaging app Allo, and its voice-activated speaker Google Home. In this project we are working on combining the merits of IOT and Google Assistant and switching system is operated on both Google assistant and IOT. Home automation system is a system that controls by smart device using a mobile application. It can control the home appliances such as light, fans, air conditions, and smart security locks etc. Bluetooth or wi-fi technology will be used to control the things remotely. Many people were thinking about that technology is taking a really huge part of our lives. It does! we're living in a modern generation where smart and intelligent systems are necessary to be there wherever we are to make our lives easier and much better, for example, we can do many things faster, better, and more accurate.

2. ELECTRICAL ENGINEERING DEPARTMENT

TITLE	2.1 Solar powered Automatic Fire Fighting Robot with wireless camera monitoring
AUTHOR	Pratik R Khule , Ajay D Rathod, Gaurang D .Yelne, Akash K, Dongre, Pratiksha P . Lande, Prof. VipinJais
ABSTRACT	The main goal of this project is to design a firefighting robot by using remote operation. This robot is loaded with a water tanker and a pump controlled through wireless communication to sprinkle water. For the desired operation, an PIC microcontroller is used. At the transmitter end, push buttons are used to send commands to the receiver end to control the robotic movement, either in forward, backward, right or left direction. The remote control that has the benefit of adequate range up to 100 meters with apposite antenna, while the decoder decode before feeding it to another microcontroller to drive DC motors via motor driver IC for necessary work. The Project is designed to develop a fire fighting robot using RF technology for remote operation. The robotic vehicle is loaded with water tanker and pump which controlled over wireless communication to throw water. An 8051 series of microcontroller is used for the desired operation. The Rf transmitter acts as a RF remote control that has an advantage of adequate range with proper antenna, while the receiver decodes before feeding it to another microcontroller to drive DC motor via motor driver IC for necessary purpose. The whole operation is controlled by an 8051 series microcontroller. A motor driver IC is interfaced to the microcontroller through which the controller drives the motors.

TITLE	2.2 Wireless Speed Control of DC Motor by Using Radio Frequency
AUTHOR	Mr.Ashish Tadas
ABSTRACT	In many industries such as paper mills, printing machine tools, excavators and cranes etc. the dc motor is used for waving a product from one place to another on the conveyer belt, so due to these the speed and direction control of the dc motor is very important purpose. Motor speed controller is to take a signal representing the required speed and to drive a motor at that speed for that purpose wireless speed and direction control of dc motor by radio frequency technique is very crucial with pulse width modulation and h-bridge converter. The microcontroller pin is used to control the dc motor speed and 2 amp. H- bridge converter is used for direction control by adjusting the duty cycle of pulse from pulse width modulation technique simultaneously the terminal voltage of motor is change and hence speed will be vary with terminal voltage h-bridge is a dc to dc converter used for direction and made by 4 transistor switch across it a diode are connected.

TITLE	2.3 Arduino Based Solar Powered Grass Cutting Robot
AUTHOR	Sneha Poshatwar,Akshay Kukade, Linesh Humane,Akash Baraskar,Pallavi Thombare , Prof. Yogesh Bais
ABSTRACT	Automation is very important in electrical engineering. The purpose of this proposed project is to design a programmable automatic pattern design grass cutting robot with solar power which no longer requires time-consuming manual grass cutting, and that can be operated wirelessly using an Android smartphone via Bluetooth from a safe distance which is capable of cutting the grass in indeed required shapes and patterns; the cutting blade can also be adjusted to maintain the different length of the grass. This system was fully automated based on solar applied in grass cutter is a fully automated grass cutting robotic vehicle powered by solar energy that also avoids obstacles and is capable of fully automated grass cutting without the need for any human interaction. The system used 12V batteries to power the vehicle movement motors as well as the grass cutter motor. We also use a solar panel to charge the battery so that there is no need for charging it externally. The grass cutter and vehicle motors are interfaced to an Arduino family microcontroller that controls the working of all the motors. Here we have interfaced an ultrasonic sensor for object detection. The microcontroller moves the vehicle motors in forwarding direction in case no obstacle is detected. On obstacle detection the ultrasonic sensor monitors it and the microcontroller thus stops the grass cuter motor to avoid any damage to the object/human/animal whatever it is. The microcontroller then turns the robotic as long as it gets clear of the object and then moves the grass cutter in forwarding direction again.

TITLE	2.4 Automatic Transformer Distribution and Load Sharing Using Microcontroller
AUTHOR	Mr. Ajit Bulle ,Mr Shubham Dahikar, Ms Snehal Wakudkar, Mr Aditya Singh, Prof A.V.Wanjari
ABSTRACT	The transformer is very costly and bulky equipment of power system. It operates for 24 hours of a day and feeds the load. Sometimes the situation may occur when the load on the transformer is suddenly increased above its rated capacity. When this situation occurs, the transformer will be overloaded and overheated and damage the insulation of transformer resulting in interruption of supply. The best solution to avoid the overloading is to operate the number of transformers in parallel. It is same like parallel operation of transformers where the number of transformers shares the system load. In the suggested approach slave transformers will share the load when the load on the main transformer will rise above its rated capacity. The main aim of the work is to provide an un-interrupted power supply to the energy consumers. By implementation of this scheme the problem of interruption of supply due to transformer overloading or overheating can be avoided.

TITLE	2.5 Touch Controlled Wheelchair
AUTHOR	Miss. Ashwini Thorat , Miss.Shilpa Madavi, Mr .Anuragh Khond, Mr.Tejas Potdukhe,Mr. Kunal Nandanwar, Mr.Akshay Pakhade , Prof Vipin Jais
ABSTRACT	Smart robotic wheelchair has a great significance in life of a disabled person. With several merits, a wheelchair becomes a dilemma for a disabled person when comes to self-propulsion. This project describes an economical solution of robot control systems. The presented wheelchair control system can be used for different sophisticated robotic applications. The automatic robotic wheelchair comprises of the features like sensing hindrances and circuitry to avoid colliding to obstacle and emergency calling. Implementing embedded systems solution on self-propelled wheelchair enhances upgradability. This paper briefs a multifunctional wheelchair for disabled mob using, touch screen, ultrasonic sensor and Motor driver system interfaced through microcontroller which ultimately abolishes switching technology and thus optimizing hardware cost. Obstacle avoidance facility enables to drive safely in unknown as well as dynamic environments.

3. CIVIL ENGINEERING DEPARTMENT

TITLE	3.1 Comparative Analysis on Various Properties of Pervious Concrete with Conventional Concrete
AUTHOR	Shivani Welekar, Sushant Kawarkhe, Shubham Waghaye, Nilesh Gautam, Sandesh Kulmethe, Sushil Harshe
ABSTRACT	Considerable research and experimentation has been conducted on environmentally sustainable development. This has led to the use of pervious concrete in place of conventional concrete and asphalt surfaces. This material dramatically reduces environmental degradation and the negative effects associated with urban sprawl. Pervious concrete has been used as an effective method for treating and reducing negative environmental impacts. Pervious concrete is a special high porosity concrete used for pavement applications that allows water precipitation and other sources to pass through, thereby reducing the runoff from a site and recharging underground water levels. Typically, pervious concrete has very little or no fine aggregates and has just enough cementicious paste to coat the coarse aggregate particles while preserving the interconnectivity of the voids. Pervious concrete is traditionally used in parking areas with light traffic, pedestrian walkways and greenhouses contributing to sustainable construction. It is found that pervious concrete pavements possess some positive features like increase skid resistance and high permeability, which can recharge the ground water but lacks in high strength required for high trafficked areas. Pervious concrete has proven to have properties suitable for use in low volume traffic areas. The properties found may change depending on the aggregate particle chosen. If pervious concrete pavement can be implemented, it will have numerous positive effects on the environment. The main objective of this work is to study the properties of pervious concrete produced by using natural sand and quarry dust. Experiments were conducted by using 0%, 20%, 50%, 70%, 100% quarry dust to know the effect of variation in porosity, strength as the quantity of quarry dust varies. The use of admixture and quarry dust to reduce the cost is also experimented. The comparison of strength characteristics

	of pervious concrete such as compressive strength using quarry dust and natural sand are studied along with the rate of percolation.

TITLE	3.2 Hybrid Annuity Model (HAM) Road Project
AUTHOR	Sanket S. Thakre, Shubhama Digraskar, Sneha G. Thakre Punam A. Mungale Payal Y. Waghmare Priyanka S. Ramteke Sanket Lande
ABSTRACT	The recent introduction of Hybrid Annuity Model (J JAM) for highway up gradation projects in India marks a significant policy departure, this is aimed at revitalizing private sector led infrastructure development, & the model has been pitched as a panacea to the numerous ills plaguing the highway sector, which had led a record fall in the award of new projects, both in numbers and in value. Taking a dispassionate look, this paper critically examines the extent to which HAM has fulfilled its stated objectives during its introductory stage. The analysis of award data provides mixed empirical evidence of HAM's initial success. We find that as a development imperative, HAM does encourage private participation in highway infrastructure, and it is a step forward. However, HAM also suffers from extensive de risking of the private sector, to the extent of making them unattractive for & Jth debt and equity investment. By this, HAM takes the re-engagement of private sector two steps back. We concede that HAM is still in its infancy and a true performance would only be evident once enough number of projects have been delivered through this model. With this view, this paper adopts a more analytical stance to identify possible pitfalls based upon the tell tale signs.

TITLE	3.3 Use Of Coconut Fibres As An Enhancement Of Concrete
AUTHOR	Mr. Ghamshyam Harishkumar Talwekar, Mr. Rahul Shamrao Meshram, Ms. Hemanjali Kishor Nagpure, Ms. Pranali Kawade,Ms. Pooja Arun Hood, Ms. Vaishnavi Bhashkar Rajgire
ABSTRACT	Now-a-days, the rising cost of building materials for construction purposes is a factor of great concern. The price of building materials is rising day by day. Now, most of the researchers are paying much attention on the suitable materials which can reduce the cost of construction as well as increase the strength properties of concrete. Mainly gravel and sand are used in the preparation of conventional concrete. While the use of an agricultural by product i.e. coconut shell & Fibre as a partial replacement with conventional coarse aggregates is expected to serve the purpose of encouraging housing developers in building construction. This research describes experimental studies on the use of Coconut Fibre as enhancement of concrete. The addition of coconut- fibre significantly improved many of the engineering properties of the concrete. Notably torsion toughness and stress strength. The ability to resist cracking and swelling were also enhanced. However the addition of fibre adversely affected the compressive strength. Natural fibre are those fibre which are pollution free, environment friendly and does not have any bad effect on climate. Every year there is ample amount of wastages of natural fibre. If these natural fibres used a construction material it could save the bio-reserves. They act as green construction material. Amongst all natural fibre, Coconut Fibre is the fibre which has the better physical and chemical property also it is renewable cheap, resistant to thermal conductivity more durable, highest toughness most ductile then construction material .it is capable of taking strain four time more than other fibres. Hence Coconut Fibre is a best material to be used in a construction. According to IS specification different test is conducted to enhance the workability and strength properties by addition Coconut Fibre different test such as slump cone and flow table test on fresh concrete is carried out and

	compressive strength spilt strength is carried out on hard concrete. The paper presents the versatility of Coconut Fibre is one of the natural fibre abundantly available in tropical regions, and is extracted from the husk of coconut fruit the properties of concrete in which Coconut Fibre are used as reinforcement, are discussed. The research carried out and the conclusion &awn by different researches in last few decades is also briefly present used. Coconut Fibres reinforced composites have been used as cheap and durable non- structural elements.

TITLE	3.4 Experimental Studies On Strength Of Ferrocrete By Using Steel Meshes In Specimens
AUTHOR	Prasad N. Datir, Amit S. Ambekar, Chetan B. Bankar, Anup R. Jambhulkar, Kaustubh S. Damedhar, Sumit J. Maskey
ABSTRACT	Affordable housing projects are characterized by an increasing demand mainly due to urbanization. The selection of building materials should meet the needs of local conditions to improve quality of life for the most needed ones by building new structures and/or by improving existing structures. Ferro cement as a construction material attracted considerable attention from research workers, field applicators and economists. Its property of improved homogeneity compared to Reinforced Cement Concrete (RCC) and reduced thickness made it possible to employ the material as substitute to timber, steel, and asbestos cement as material. Ferro cement is supposed to be a product of low-level technology. Ferro cement is ideally suited for thin wall structures as the uniform distribution and dispersion of reinforcement provide better cracking resistance, higher tensile strength to-weight ratio, ductility, and impact resistance. The applications of Ferro cement structural elements are highlighted in this paper. Ferro cement is a form of reinforced concrete that differs from conventional reinforced or pre stressed concrete primarily by the way the reinforcing elements are dispersed and arranged. It consists of closely spaced, multiple layers of mesh or fine rods completely embedded in cement mortar. This paper describes the various experiments conducted on Ferro cement panels in literature review and the conclusions and remarks drawn by the authors. The results obtained are going to help in the project work to investigate the behaviour of Ferro cement panels for various parameters and loading. This is useful to find solutions by searching new design techniques and method of constructions.

TITLE	3.5 Permeable Interlocking concrete pavement blocks
AUTHOR	Ashik D. Wasake, Atish B. Banbale, Bholenath G. Korde, Suraj W. Naktode, Rajendra S. Bhendarkar Vinayanand K. Dange
ABSTRACT	Permeable Interlocking concrete pavement (PICP) has the ability to create strong surfaces for pedestrians and a range of vehicular uses and can help maintain sites existing natural hydrology Function and to reduce the overall intact of development. This provides design, construction and maintenance guidance for permeable interlocking concrete pavement (PICP). To achieve storm water management goals while providing a structurally adequate pavement section to accommodate the anticipated vehicular loading in a cost-efficient manner. This covers the following topics. Definition of PICP, structural design method to accommodate incidental or frequent vehicular use, hydrologic design method to accommodate water, infiltration and flow within the pavement system, construction and inspection procedure, guide to construction, specification and permeable interlocking concrete pavement maintenance procedures PICP may also help achieve compliance with many national, provincial, state & local design requirements for the control of storm water runoff. Non regulatory drivers that influence PICP use Include economics, which can make PICP a lower cost alternative to conventional drainage and storm water management systems and preference for conformance to sustainable rating systems for roads and transportation infrastructure.

TITLE	3.6 Analysis of Traffic Volume
AUTHOR	Matoshri P. Karande , Samiksha R. Raut , Pooja T. Nagpure, Shivani R. Tandulkar, Dipali J. Rane, Hema Nagpure, B.V. Deshpande
ABSTRACT	Rapid industrialization and the consequent urbanization has brought about an unprecedented revolution in the growth of motor vehicles all over the world and India is no exception. Such growing urbanization, combined with rising number of vehicle ownership, has led in recent years to an increased demand of traffic survey and analysis, for both long term and short term period. Traffic analysis is basically the process of intercepting and examining the number of vehicles on the road and deducting the pattern of traffic movement. A Traffic survey on specific road sections of Nagpur city has been carried out which included Calculation of present traffic density and comparison with previous year data, Average of traffic. Manual method of counting was used on site.Traffic engineering uses engineering methods and techniques to achieve the safe and time efficient movement of people and goods on roadways. The safe and efficient movement of the people and goods is dependent on the traffic flow, which is directly connected to the traffic characteristics. The three main parameters of a traffic flow are volume, speed and density. In the absence of effective planning and traffic management of the city, the current road infrastructure cannot cater the future needs of the city. The current work studies traffic characteristics in the city. Hence the results from the present study are helpful in controlling the traffic at the intersection and also in suggesting some of the remedial measures to improve the traffic safety in the region. Remedial measures such as widening the road, by providing more public transport can be recommended based on the outcomes of the work.

4. COMPUTER SCIENCE & ENGINEERING DEPARTMENT

TITLE	4.1 Data communication through Li-Fi technology
AUTHOR	Mr.Sachin Turkar, Mr.Nikhilesh Pal, Mr.Akshay Nagpure, Mr.Vaibhav Somankar, Prof. Vanita Lonkar
ABSTRACT	Human develop new technology for his comfort that objective to saving his time, he has invented technologies for data shearing which give maximum output by consuming less time. Now a days almost all the people are using internet to accomplish their task through wired or wireless network also His developments vary from wired to wireless communication. In his glut of development in wireless communication he has gone one step ahead and invented a new technology called 'Li-Fi'. Li-Fi stands for Light-fidelity. It is very new technology and was proposed by the German physicist "Harald Haas" in 2011. Li-Fi technology that enables data to be transferred through light as a medium of communication. Here he will focus on Li-Fi, its applications, features and comparison with existing technologies like Wi-Fi etc. Wi-Fi is a major use for general wireless coverage within building, whereas Li-Fi is ideal for high density wireless data coverage in confined area and especially useful for applications in area where radio interference issues are of concern, so the two technologies can be considered complimentary. Li-Fi provides better bandwidth, efficiency, connectivity and security than Wi-Fi and has already achieved high speeds larger than 1Gbps under the laboratory conditions. By leveraging the low-cost nature of LEDs and lighting units, there are lots of opportunities to exploit this medium Li-Fi is a transferred of data through light by taking fiber out of fiber optics and sending data through LED light bulb.

TITLE	4.2 Density based traffic controlling system
AUTHOR	Prof. N.I. Jagtap, Mr.Sagar P. Desai, Mr. Sachin S. kasare, Ms. Vaishnavi S. Chandekar, Ms.Priti R. Mishra
ABSTRACT	As a number of vehicles in urban areas is ever increasing, it has been a major concern of city authorities to facilitate effective control of traffic flows in urban areas. Also no one like to stop waiting at intersection, spending too much time at intersections may leads to driving stress. In many cities, these rising importance to the efficient use of the existing network. In this respect, traffic alights are a vital factor since good control strategy are often capable of improving the network wise traffic flows. This project discusses a proposed systems for a predicting the next intersection timing and generating the required speed at current intersection to cross next intersection without stopping at it. For efficiently predicting the speed required for crossing next generation without stopping at its dynamic approach is taken into account, the distance between current intersection and next intersection and traffic signal timing of next intersection and the traffic density in-between intersection is considered as input to the system. The traffic density is estimated using statistical frame-work that used the cumulative acoustic signal from a road side installed microphone, to classify the vehicular traffic density into free flow state, medium flow state, and heavy state, and accordingly traffic signal timings are adjusted which are then forwarded to other intersections. A typical cumulative acoustic signal on a road segment is composed of several noise signals such as the tire noise, engine noise, engine idling noise, honks and the air turbulence noise of the multiple vehicles. To estimate the traffic density, we have extracted the short-term spectral envelope features of the cumulative acoustic signals using MFCA and LPC, SVM and Adaptive Neuro - fuzzy classifier is used to model the traffic density state as low (40 km/h and above), medium (20-40 Km/h), and Heavy (0-20 km/h).

TITLE	4.3 Voice controlled robot using Arduino
AUTHOR	Prof. P. Y. Jane, Mr. Aroh K. Gahane, Ms. Rohini M. Rajurkar, Mr.Pavan D. Nagdeote, Ms.Sneha D. Mundle, Mr.Avinash K. More.
ABSTRACT	Robotics assistance reduces the manual efforts being put by humans in their day-to-day tasks. We develop a voice-controlled personal assistant robot. The human voice commands are and execute them, but also gives an acknowledgement through speech output. This robot can perform different movements, turns, wake up/shut down operations, relocate an object from one place to another and can also develop a conversation with human. The voice commands are processed in real-time, using an offline server. The speech signal commands are directly communicated to the server using a USB cable. The personal assistant robot is developed on a microcontroller connected to it. The Arduino Uno, bit voicer is a speech recognition application that enables simple devices, with low processing power, to become voice-operated. To do that, bit voicer uses their PC processing power to analyze audio microcontroller connected to it. The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328p microcontroller and developed by arduino.cc. The board is equipped with sets of digital and analogue input/output pins that may be interface to various expansion board and other circuits. The 2-finger Adaptive Robot Gripper has a shared memory which can be accessed by its master (the robot). Some registers can only be read, for example to obtain the status of the gripper, whereas other register will also accept written commands The read/write operations depend on the communication protocol of the gripper which is chosen to be compatible with a robot. A gripper is a device which enables the holding of an object to be manipulated. The easier way to describe a gripper is to think of the human hand. Just like a hand, a gripper enables holding, tightening, handling and releasing of an object. A gripper is just one component of an automated system.

5. MECHANICAL ENGINEERING DEPARTMENT

TITLE	5.1 Design and Fabrication of Automated Guided Vehicle for an Industry
AUTHOR	Ms.Anushree P. Bhoyar, Ms.Priya B. Zade, Mr.Ankit M. Talekar, Mr.Krunal A. Katkar, Prof. D. K. Parve
ABSTRACT	Automated guided vehicles (AGV) are one of the greatest achievements in the fieldof mobile robotics. Without continuous guidance from a human they navigate ondesired path thus completing various tasks, e.g. fork lifting objects, towing, and product transportation inside manufacturing firm. Their development canrevolutionize the world in the sense of fool proof navigation and accurate maneuvering. Though most of the presently the AGV work in a retrofittedenvironment, work space as they require some identification for tracing their guide path, works are going on developing such AGVs which are dynamic in sense ofnavigation and whose locomotion is not limited to just a retrofitted workspace. Typically their job is to move raw materials or parts around a manufacturingfacility, and they can be very accurate by following the guides from wires in the floors, magnets, laser, or vision. Therefore, the purpose of this thesis is to discussthe implementation in Cake Industry for material handling. The environmentindoors can be easily controlled hence AGVS are useful for material handling. InCake industry it is essential that, the material should be transported safely andwithout any damage. Also, the chances of mishandling by persons may occurwhich can be reduced by using AGVs and reduce loss industry. The AGV set updeveloped, used a commercial electric motor. These controls were communicated,or better imparted to vehicle using programming to servo motors, which in turncontrolled the motion of vehicle. And it is found useful in Cake industry. An AGVsolution has been proposed as an alternative system capable of providing a good.service level while reducing the accidental losses. Keywords: Automated Guided Vehicles (AGVS), steering system, material handling system (MHS)

TITLE	5.2 Design and Fabrication of ShirodharaYantra
AUTHOR	Mr. Ajay S. Puri, Mr. Sameer P. Warghane, Mr.Sanket R. Chandel, Prof. R. S. Bisane
ABSTRACT	Shirodhara is an ayurvedic procedure usually administered to alleviate mental stress. The process involves impact on the forehead by a free fall of a continuous stream of temperature-controlled fluid. Shirodharais a purifying and rejuvenating therapy designed to eliminate toxins and mental exhaustion as well as relieve stressand any ill effects on the central nervous system. Shirodhara is a unique form of ancient therapy of pouring oil on the forehead from a specific height and for a specific period continuously and rythmatically allowing the oil to run through the scalp and into the hair. The exact mechanism of its mode of action in not known till date. This project is about the atomization of Shirodharayantra. In this project, we have atomized the Shirodhara pot with an eccentric mechanism to reduces the human effort. We have automized Shirodharayantra by converting rotary motion obtained by motor into oscillating motion by using suitable gear mechanism. This project mainly focuses on the area of application uniform rotary motion and deep relaxation technique. The objective of this project is to obtain the different stroke length and rotation of pipe through which the liquid will fall on the forehead effectively and speed control of oscillating motion. Mechanically automated ShirodharaYantra enables significant saving of time and reducing human effort. From this developed model, we were able to obtain variant stroke length by a single mechanism which simplifies the process. This model also enables us to get five variant stroke lengths at two different speeds. Keywords: Shirodhara, Length of Stroke, Continuous Flow, Sliding Device, Rotary Motion, Eccentric Mechanism.

TITLE	5.3 Testing and Performance of Packed Bed Counter Flow Mechanical Cooling Tower
AUTHOR	Mr.Sanket Ramtekekar, Mr.Tushar Ingle , Mr.Vipul Fulzele, Prof. Rahul M. Dahekar
ABSTRACT	In this project, the performances of a counter flow, packed bed, mechanically forced draft cooling tower is experimentally investigated. Air and water are used as working fluids and the experimental runs are carried out by the air and water mass flow rate ranging between 0.017 and 0.064 kg/s, and between 0.03 and 0.05 kg/s, respectively. The inlet air wet bulb temperature at 23°C, and water inlet temperatures are between 38 and 47°C. The factors effecting cooling tower performance such as water inlet and outlet temperatures, air and water mass flow rates, heat load, and effectiveness of the cooling tower are investigated. The effect of the different air and water mass flow rates on water inlet and outlet temperatures are discussed. The effect of air mass flow rate on approach and range of the cooling tower, for different water mass flow rates are investigated. Other cooling tower parameters i.e., Merkel number (M) to analyze the cooling tower performance. The Merkel number (M) show the heat transfer capability of the cooling tower. Cooling tower effectiveness (e) relation with Merkel number for different air and water mass flow rates are calculated and all the results are presented in the form of graphs. The results show that cooling tower performance increases with an increase in air mass flow rate. Keywords: Counter flow cooling tower, heat transfer analysis, different air and water mass flow rate, different water inlet temperature

TITLE	5.4 Design and Fabrication of Tricycle for Handicapped Person
AUTHOR	Mr.Ashish A. Kamde , Mr.Avi M. Ramteke, Mr. Eknath D. Khaire, Mr. Rahul B. Gupta, Prof. Nitesh H. Chahande
ABSTRACT	Mobility of physically handicapped people is a concerning social issue nowadays and various hand driven tricycle, wheelchair, retrofitted vehicles etc. Its commonly available in the market for as a handicapped people mode of Transportation. A conventional tricycle for handicapped people is requiring a lot of human effort to operate. An existing model is generally come with separate arrangements for providing motion and giving direction to the vehicle. The basic tricycle is design as on one side chain drive is installed which will be driven manually by rotary mechanism and seat provided at the centre for sitting arrangement. A person uses only one hand to steer the handle and other hand is used to rotate the pedal. Using the advantage of leverage, with proper balance and distribution of mass and centre of gravity to crank the wheel shaft for propelling. As he can use both the hands on the steering, better control of the vehicle is ensured. The purpose of this project is to design and fabricate a low-cost tricycle for the handicap people to be propelled by crank lever mechanism attached to the steering column. Push and pull motion of the steering result in forward and backward motion of the chair, while rotational motion of the same gives direction to the chair. As the result a person can use both the hands on the steering for the better control of the vehicle. Keywords: Tricycle, Propulsion System, Crank lever Mechanism, Steering wheel.

TITLE	5.5 Solar Operated Multifunctional Floor Cleaning Machine
AUTHOR	Vikrant Bhute, Piyush Ladse, Aniket Ingle, Nitesh Rane
ABSTRACT	Automated floor cleaning machines are commonly used in developed countries since many years because of high cost of labour, time, efforts and affordability. The concept is not popular in developing or emerging economic countries. Reasons for non-popularity are cost of machine and operational charges in terms of power tariff. This project is based upon on our innovation to design, develop and manufacture semi-automatic floor cleaning machine which will work on solar energy, battery or electricity. This machine is multifunctional. Five functions of cleaning like garbage collecting, scrubbing, mopping, drying and wiping can be performed using this machine. A semi-automatic floor cleaning machine having advantages like less energy consumption machine as well as operational cost reduction, reduce the human effort, environment friendly and easy to handle. Base of the paper was to use renewable energy which is abundant in most of the countries, will have less environmental impact and easy to construct for commercial scale in future. Keywords: Solar energy, Floor cleaning mechanism, Air-dryer, Garbage collector etc

TITLE	5.6 An Experimental Evaluation of Automobile waste Heat Recovery System Using Thermoelectric Generator
AUTHOR	Raj Kuhite, Sahil Sheikh, Aniket Thakur, Chandrakant Bharre, Nilima Mankar
ABSTRACT	This project presents the investigation of power generation using the combination of heat and thermoelectric generators. A majority of thermal energy in two wheeler silencer is dissipated as waste heat to the environment. This waste heat can be utilized further for power generation. The related problems of global warming and dwindling fossil fuel supplies has led to improving the efficiency of any industrial process being a priority. One method to improve the efficiency is to develop methods to utilize waste heat that is usually wasted. Two promising technologies that were found to be useful for this purpose were thermoelectric generators and heat pipes. Therefore, this project involved making a bench type, proof of concept model of power production by thermoelectric generators using heat pipes and simulated hot air. In recent years, global warming and the limitations in use of energy resources increase environmental issues of emissions. Also In industry, most of the expenses are due to energy (both electrical and thermal), labour and materials. Yet, out of them vitality would identify with the sensibility of the expense or potential cost investment funds and therefore vitality the board will help in cost decrease. The possibilities of thermoelectric systems' contribution to "green" technologies, specifically for waste heat recovery from two wheeler silencer exhausting flue gases. It results into extensive research on green technologies producing electricity. As waste heat recovering techniques, such as thermoelectric generator (TEG) is developed. Its implementation in automobile vehicles is carried out in many ways. Keywords: Waste heat from silencer, waste heat Recovery, Thermoelectric generator, Controller, Electricity.