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Inspirational Research Quotes

Research is to see what everybody else has seen, and to think what nobody else has thought.

-Albert Szent- Gyorgyi

From the Editor's Desk…

India is growing very fast in the field of research and it has recorded 2017 as a year for scientific achievements. The biggest achievement was launching of 104 satellites at once in February by ISRO. The year 2017 has catapulted us into a science-fiction future; from doctors in Pune successfully conducted India's first womb transplant, to a galaxy super cluster named Saraswati was found in July. Indian scientists also helped in gravitational wave detection, which won the 2017 Nobel Prize in Physics.

Modern India has had a strong focus on science and technology, realizing that it is a key element of economic growth. India ranks third among the most attractive investment destinations for technology transactions in the world. Also it is among the topmost countries in the world in the field of scientific research, positioned as one of the top five nations in the field of space exploration.

India ranks second in terms of contribution to high-quality scientific research. It is among the world's top 10 nations in the number of scientific publications.
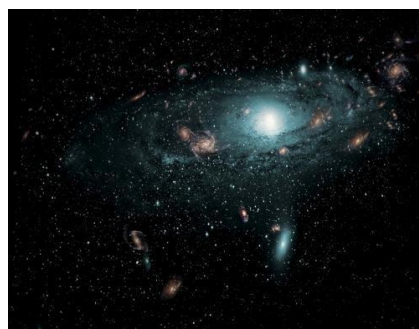
Large Supercluster of Galaxies

PSLV launch system with 104 satellites

PARAM - India's first ever indigenous supercomputer

Indian Regional Navigation Satellite System (IRNSS)

From brain drain, India has now reached a stage of brain gain. So it's time for us- faculty of MJCET to mould ourselves and our budding engineers into young scientists and innovators so that we will create entrepreneurs rather than employees.

VISION OF THE INSTITUTION

To be part of universal human quest for development and progress by contributing high calibre, ethical and socially responsible engineers who meet the global challenge of building modern society in harmony with nature.

MISSION OF THE INSTITUTION

1. To attain excellence in imparting technical education from the undergraduate through doctorate levels by adopting coherent and judiciously coordinated curricular and co-curricular programs
2. To foster partnership with industry and government agencies through collaborative research and consultancy
3. To nurture and strengthen auxiliary soft skills for overall development and improved employability in a multi-cultural work space
4. To develop scientific temper and spirit of enquiry in order to harness the latent innovative talents
5. To develop constructive attitude in students towards the task of nation building and empower them to become future leaders
6. To nourish the entrepreneurial instincts of the students and hone their business acumen.
7. To involve the students and the faculty in solving local community problems through economical and sustainable solutions.

VISION OF THE R & D CELL, MJCET

To empower the faculty and students in the area of Research & Development by providing seed funds for implementing their innovative research and product development ideas.

MISSION OF THE R & D CELL, MJCET

i.   To motivate faculty and students to undertake Research and Development activities as a means of nourishing innovative thought process
ii.   To encourage interdisciplinary R & D projects leading to solutions to real world problems through synthesis of diverse ideas and skills.
iii.   To serve as a medium for three way interaction between the Institute, R & D Organizations and Industry.
iv.   To assist the faculty, Ph. D. scholars and students to apply for funding under various Government, Professional Chapter or Private Sector schemes.
v.   To encourage publication of technical papers in National / International refereed Journals and Conferences based on the research carried by the faculty and students
vi.   To register under Intellectual Property Rights like Patents & copyright the outcome of R & D work carried out by the faculty and students of the Institution
vii.   To facilitate signing of MOU with industries and R & D Organizations for research and product development

IMPORTANT INFORMATION

Every year research proposals are invited from the students under the guidance of the faculty. The last date of submission of research project proposals is last week of July. The research project proposals are reviewed by the R & D committee members on the third Saturday of August every year and the sanction orders for obtaining the necessary funding for the execution of the R & D project are given to the project guides in the last week of August. The students and faculty should be able to complete the project in the academic year and should submit the project completion report on or before last week of June, every year.

R & D CELL COMPLETED PROJECTS
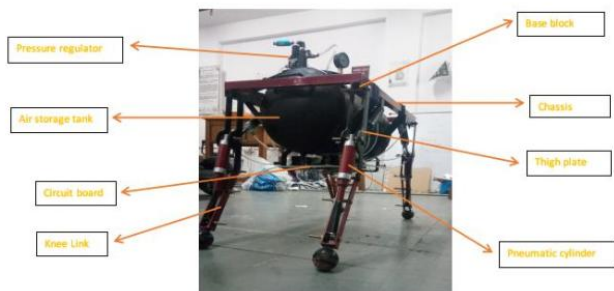
PNEUMATIC QUADRUPED ROBOT

Project team: M. A. Muqeeth (1604-14-736-102), Syed Ausaf Qureshi (1604-14-736-069), M. A. Muqeeth Jibran (1604-14-736-061), M. Abdul Aziz Siddiqui (1604-14-735-077) and Mohd Faisal (1604-14-735-080).

Project guides: (i) Dr. Ishrat Meera Mirzana, Asso. Prof., MED and (ii) Dr. Kaleem Fatima, Prof., ECED

Sanctioned amount: Rs.79,966/-

Physical Prototype of Pneumatic Quadruped Robot

Pneumatic quadruped robot is a research project with wide variety of applications. It is a remarkable mechanical and electronics machine, category to few competitors to date. There are only limited places on earth where an existing wheeled and tracked vehicles can go, but a machine with legs can go everywhere on land. This quadruped machine can go on muddy, wet, rocky, steep and snowy terrain region. It has sophisticated computing power and pneumatic actuators. It has integrated sensors. It can carry heavy payloads and can manoeuvred in rough terrain regions. It can be used to pick and place objects without changing orientation by three degrees of freedom Robotic arm using encoder motors mounted on it.

It has won second prize in the Anveshana (A Science and Engineering Fair) – A competition conducted by AGASTYA

Team PNEUQUAD participated in DRUSE (DRDO Robotics Unmanned System Exposition) organized by DRDO, Bangalore, made into the Top 30 teams and will be representing South Zone at National Level at DRDO Headquarters, New Delhi.

International Foundation and won a cash prize of Rs.25,000/- conducted on 30th January, 2018.The Team was among the 30 teams selected at the south zonal competition among the 1100+ teams conducted at Bangalore DRDO and it has been selected as the top team in the south zone. The team has participated at Pune, DRDO for the National level competition held on 24th and 25th May, 2018.

Students demonstrating the Pneumatic Quadruped Robot to Janab Khan Lateef Mohammed Khan, Chairman, SUES, Janab Zafar Javeed, Secretary, SUES, other Board Members of SUES and Dr. Basheer Ahmed, Advisor cum Director, MJCET
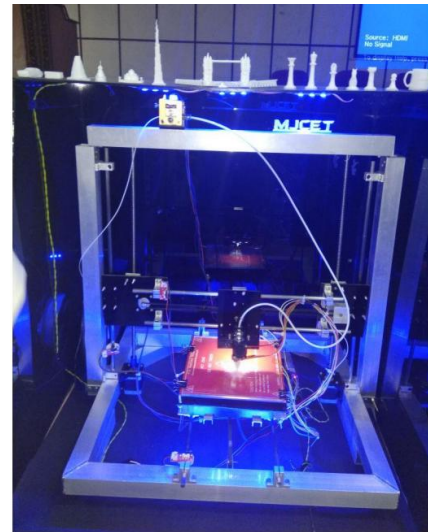
IOT BASED SMART 3D PRINTER

Project team: Arshad Ahmed (1604-14-735-085) , Mohd Farhan Ahmed Khaled (1604-14-735-089), Zia ur Rahman (1604-14-735-087), Samiya Iftekar (1604-14-734-002), Mohammad Abrar Ahmed (1604-14-734-003), Mohammad Ghouse Moinuddin (1604-14-734-305), P Mohammad Ikramullah (1604-14-736-076) and Mohammad Abdul Nayeem (1604-14-736-115)

Project guides: (i) Dr. Arifuddin Sohel, Head & Prof., ECED, (ii) Mrs. Aijaz Fatima, Asso. Prof., EED and (iii) Dr. Viquar Mohiuddin, Prof., & Associate Head, MED.

Sanctioned amount: Rs.32,380/-

3D printing or "additive manufacturing" is a mechanism of prototyping in which a structure is synthesized from a digital 3D model designed using CAD tools. It is a process used to create a three-dimensional object in which the layers of material are formed under computer control. Objects can be any shape or geometry and are produced using digital model data from a 3D model. The 3D model is stored in as an STL (Stereolithographic) format and is sliced, which generates a separate G-code for each layer and this is forwarded to controller in the 3D printer. The arduino based controller controls the movement of the extruder in the x, y, and z direction using dc motors. The material used is in this project PLA which has good tensile strength. The maximum printing volume that can be implemented using this printer is 21cm X 21cm X 25cm.

This printer is predicted to influence industries, like automotive, medical, education, equipment, consumer products industries and various businesses. However, it takes lot of time to print an object using additive manufacturing process that is strong, fine and perfectly finished.

Picture of IoT based smart 3D printer

With the booming concept of Internet of Things that has created Smart Homes, Smart Grids, Smart Farms etc., this project implements, a SMART 3D PRINTER. A 3D printer equipped with features of wireless printing, remote accessing, remote monitoring and live notifications is a huge relief to 3D printing farms where printers are in dozens and monitoring every printer by a human gets difficult. Prints can be started off from anywhere in the world via web enabled devices, provided the 3D Printer has access to the internet and cloud.
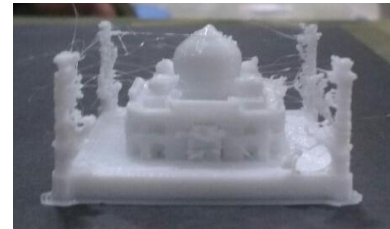
Replica of Taj Mahal designed the 3D printer

Students explaining the working of the IoT based Smart 3D printer to the dignitaries during Adsophos 2018

ANALYSIS OF AIR POLLUTION USING A QUADCOPTER

Project team: Syed Mansoor (1604-15-739-017), Mohammad Naqui (1604-15-739-053) and Shaik Wasim Akram (1604-15-739-045)

Project guides: (i) Mrs. P. Bharathi, Asst. Prof., EIED and (ii) Dr. Satyanarayana M. G.V, Asst. Prof., Chemistry Dept.

Sanctioned amount: Rs 48,800/-

Assessment of air quality has been traditionally conducted by ground based monitoring, and more recently by manned aircrafts. However, performing fast, comprehensive data collection near pollution sources is not always feasible due to the complexity of sites, moving sources or physical barriers. Unmanned Aerial Vehicles (UAVs) i.e. quadcopter equipped with different sensors is being introduced for air quality monitoring, as they can offer new approaches and research opportunities in air pollution and emission monitoring, as well as

for studying atmospheric trends, such as climate change, while ensuring urban and industrial air safety. The aim of this project is to compile information on the air quality by the use of a quadcopters and assess their benefits and range of applications. A quadcopter can provide dynamic data and can be used to better understand the pollution pattern. A quadcopter is so chosen because it is fairly simple to operate by minimal training. On-board sensorscalculate the levels of pollutants in the atmosphere and the data is transmitted to a remote server.

The parameters of pollution of prime interest are PM10 and PM2.5. PM refers to particulate matter present in the air. Hence, PM10 signifies particulate matter whose diameter is 10 micrometer or less, similarly PM2.5 refers to particulate matter whose diameter is 2.5 micrometer or less. This data can be accessed and a pattern can be understood. Continuous exposure to high quantities of these pollutants have severe health hazards including lung cancer various respiratory. Due to these pollutants, children have become vulnerable to high blood pressure. A recent study has also associated air pollution with diabetes. Hence, the introduction of UAV(Quadcopters) will help bring a revolution in atmospheric research.

The Quadcopter has been constructed and meticulous testing has been carried out to ensure stability, safety and range. As per the testing the quadcopter has achieved an altitude of approximately 50 meters and range of about 200 meters. The quadcopter has attained GPS lock capability i.e., it does not drift away when input is not applied. Altitude hold has been attained i.e., the quadcopter maintains its altitude until a change in altitude is provoked. The telemetry kit is installed to obtain the flight operation information in real time. A first person view camera kit has been installed and tested. This kits helps navigate the quadcopter by giving a live video feed.

Working of Quadcopter being explained by Dr. Seetharamaiah, Convenor, R & D Cell, MJCET to the dignitaries

VOICE CONTROLLED PROSTHETIC ARM FOR PHYSICALLY DISABLED

Project team: Md. Khaja Ilias Pasha (1604-14-735-119), Arhsad Ahmed (1604-14-735-085), Ahmed Abdul Hafeez (1604-14-735-086), Arifa Sultana (1604-14-735-061), Naheed Fatima (1604-14-735-062) and Tayyaba Farha (1604-14-735-068).

Project guide: (i) Mrs. Salma Fauzia, Asst. Prof., ECED and (ii) Ms. Maliha Naaz, Asst. Prof., ECED

Sanctioned amount: Rs.31,500/-

Prosthetic limb technology has advanced significantly in recent years, but there is no standardized set of metrics to evaluate these technologies. This lack of objective information leaves insufficient evidence to guide research and medical decision-making. It also hinders the ability to communicate benefits to patients and demonstrate improved outcomes to insurance payers. Our project's goal is to inform future prosthetics development; help physical medicine and rehabilitation physicians make better clinical care decisions regarding prosthetic selection. Prosthetic body parts in the market are quite expensive, and thus we have made a relatively cost-efficient prosthetic hand by 3D printing all the parts. The movements of the hand are controlled by voice commands therefore making the product extremely easy-to-use. The advantage is that the hand is neither too costly or bulky, as used 3-D printed parts, and simple servo motors for movement and using haptic sensors for improving the accuracy of touch. An EasyVR 3.0 module was introduced for the speech recognition. EasyVR 3.0 is a multi-purpose speech recognition module designed to add versatile, robust and cost effective speech and voice recognition capabilities to any application. Once the fishing line is pulled from the wrist piece to the servo bracket, each pair of strings for a finger will be pulled free from the others before pushing them through their guide hole, resulting in desired movement, thus we have a fully functional prosthetic arm which would be controlled by voice of a person.

Prosthetic Arm and the project execution team

DESIGN, FABRICATION AND TESTING OF AERATION SYSTEMS

Project team: Mohammed Irfan (1604-13-732-007), S. Md. Imaad Khadri (1604-13-732-009), Mohd. Moinuddin (1604-13-732-013), Mohammed Sujathullah (1604-13-732-034), Shahid Malik (1604-13-732-036) and Shaik Imran Pasha (1604-13-732-040)

Project guide: (i) Mr. D. Ram Mohan Rao, Asso. Prof., CED

Sanctioned amount: Rs.58,000//-

Aeration of waste water is most essential for aerobic bacteria to stabilize organic matter present. It accounts around 45 to 70% of treatment plant energy cost. Venturi aerator consists of construction in nozzle with sucks atmospheric air due to formation of vacuum pressure. Unlike other aerators it does not have any movable parts. Venturi aerators with different configurations are fabricated and tested for maximum air intake and tested in aeration tank. The different configurations are (i) connected in series and (ii) connected in parallel.

Aeration System

Aeration System being examined by Dr. Basheer Ahmed, Advisor cum Director, MJCET, Mr. Narshima Rao, Registrar, MJCET with Mr. Ram Mohan Rao, Asso Prof, CED

In this method air into nozzle is fed from cylinder open only at bottom which kept just below water surface of the tank. As air is sucked from cylinder water level rises .The cylinder is graduated to determine the volume in given time. The configuration when venturis connected in parallel has maximum air intake of 2200 lit/hr with power consumption of 340 w, when water discharge is 2300 litres per hour. This system can used effectively as an alternative to septic tank in rural and other decentralized waste water systems, which can increase DO concentration cost effectively and stabilize waste water. Several types of septic systems are available, and one alternative to traditional septic tanks is the aerobic septic tank. The aerobic system uses an aeration process to digest household waste are around 20 times faster than the rate at which this occurs in traditional methods.

DESIGN AND IMPLEMENTATION OF HUMANOID WITH 20 DEGREES OF FREEDOM

Project team: Amena Najeeb (1604-13-735-005), Syed Kashif (1604-13-735-028), Md. Yousuf Ahmed (1604-13-735-039), Syed Jawwad Mohiuddin (1604-13-735-113), Shaik Mohammed Simraan (1604-13-735-115) , Syed Qurram Zeeshan (1604-13-736-072) and Mohammed Abdul Mubeen (1604-13-736-111)

Project guide: (i) Mr.J. K. Nag, Asso. Prof., ECED

The basic part of Humanoid Robot is the motor. A lot effort was put into the selection of the desired motor. Research was done on DC, Servo, Stepper motors. It was found that the DC motor lacked the precise angular control wanted for the desired application. Then the Stepper motor was studied. It was found to be too heavy and too inefficient for use in a mobile application. Then the servo motor was selected as the preferable motor, because it had precise feedback control, was energy efficient, small in size and less in weight.

The servo is controlled using PWM and for this reason the first step in the project was dedicated towards learning and application of PWM. After successful PWM generation, the control of the servo motor using a potentiometer was accomplished.

A number of materials were tested for the robot. The lower body was made using Aluminum material. For the upper body and the torso, Acrylic material was first tested. Though it was light weight and flexible, it wasn't rigid enough to support the weight of the arms and the head. Finally, cardboard with 5mm thickness was found to be the best material for the required purpose as it was both light and rigid enough.

Initial servo testing was done on a bread board setup using a potentiometer. Then testing was done on an ATmega16 microcontroller. But since the ATmega16 provides only 2 Output Control Registers, the Arduino Mega had to be used, which offers 22 OCR pins. Now the construction and balancing of the robot was started. Rubber pads were added to the feet to reduce slippage. The torso of the robot was redesigned with new cardboard materials to reduce overall weight of the bot. To still lessen the weight holes were drilled at particular positions.

The servo motor for the neck was positioned outside the torso such that it served the dual purpose of the neck and reducing clutter inside the torso.

The project is presently controlled using wireless joystick control. It could also be controlled using the Kinect sensor with the help of bodily movements and gestures. The robot could be connected to the internet with an IOT module and hence work as a home assistant. Its assistance could range from watering plants to monitoring children. The Humanoid robot could also be given the feature of self-charging. The robot should detect low battery and automatically plug itself to the charging point.
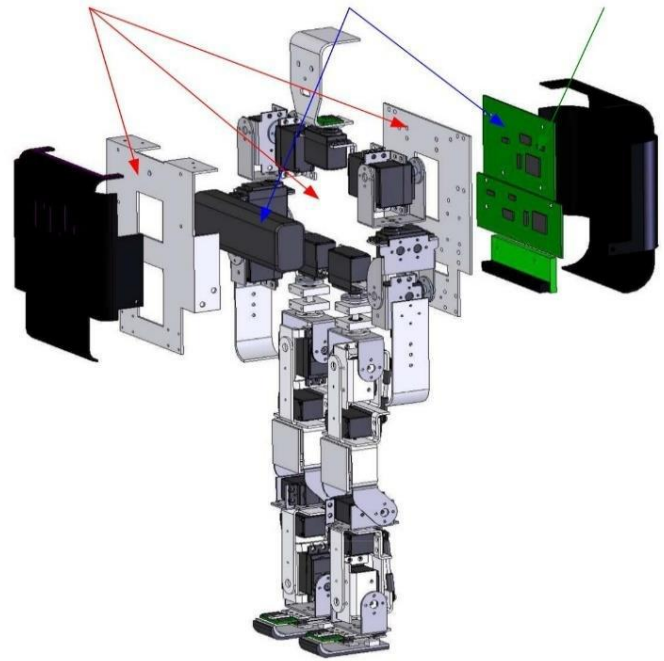

Exploded view of a Humanoid

Home assistant (outside home). RFID checks who comes in and goes out. Help in household work. Obstacle detecting sensor image processing. RFID checks. The robot can be used to detect unknown persons and strangers entering the house with the help of RFID checks. Anyone not in possession of an RFID tag would result in an alarm being raised.
The robot could help out in household chores such as sweeping. This would require Image processing capability though.

The final weight of the robot was roughly 2.5 kg.
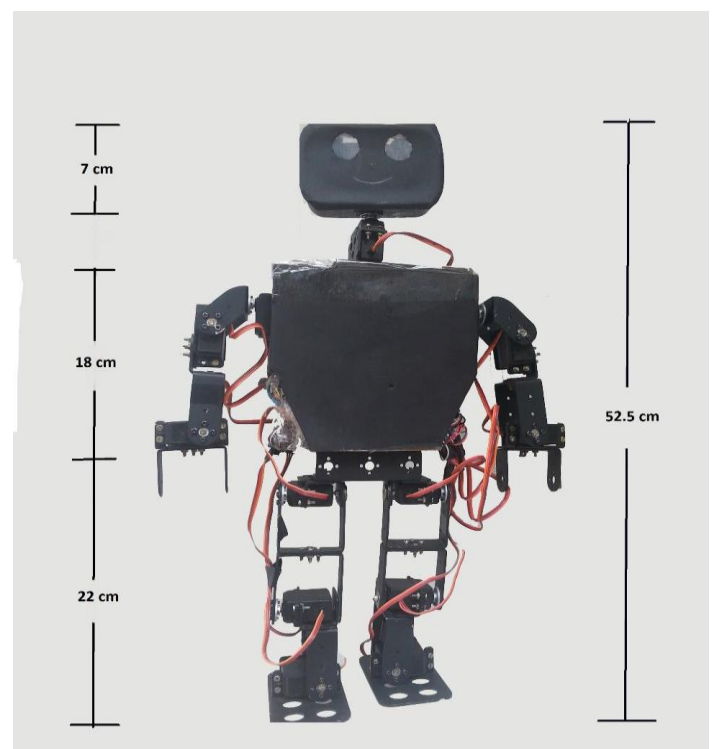
Humanoid Robot

SEGWAY: A SELF BALANCING VEHICLE

Project team: Md. Abdul Aziz Siqqiqui (1604-14-735-077), Md. Ammar Iqbal Khan (1604-14-736-003), Md. Abdul Moyeed (1604-14-735-088), Md Shujauddin Faaras (1604-14-736-047) and Syed Abdul Mannan (1604-14-736-002).

Project guide: (i) Mrs. B. Sucharitra, Asst. Prof., ECED and (ii) Mrs. O. Hemalatha, Asst. Prof., MED

Sanctioned amount: Rs.47,000 /-

Segway is an electric scooter of future technology; it is often used to transport a user across mid-range distances in urban environments. It has more degrees of freedom than car or bike and is faster than pedestrian. They are more efficient than fuel powered vehicles for shorter distance and time of travelling. It is the first transportation product to stand, balance, and move in the same way we do.   Segway is using gyroscope sensor, accelerometer along with an Arduino board, mechanical and electrical hardware. Segway is designed and fabricated with optimum cost and quality material which could be able to drive by handling a weight of 100 plus kgs, at an optimum speed of 6 to 8 KMPH. The components used in the fabrication were well researched and calculated so that they meet the specifications of the Segway to be fabricated. The various methods used were done for precise fabrication of the Segway, the program code written with PID was tested with different values and finally the values with which the Segway was running smoothly were fixed. The Segway works on the principle of inverted pendulum, when the vehicle is bent forward, to balance itself and not fall over, the motors moves forward, thus making the vehicle run in forward direction. Similarly it moves in backward direction. When the handle is turned right, the left motor speed is increased and right side motor speed is decreased so as to move right and vice versa. When the Segway is standing still and not bent in any direction, it stays still and acts as a braking mechanism. This Segway was tested in various places like, smooth surface, rough surface, sandy road, cement road etc. Segway works smooth with all the connections intact and if the sensor is in correct position.

Segway being demonstrated by the student

MULTIPURPOSE E-CART

Project team: Syed Shahbaz Peeran Qadri (1604-15-736-001) , Mohammed Rehan Uddin (1604-15-736-002) , Mohammed Ahmed Khan (1604-15-736-012), Mohammed Salman (1604-15-736-303) and Shaik Rauhon Ahmed (1604-13-736-065)

Project guide: (i) Dr. A. S. Reddy, Prof., MED

Sanctioned amount: Rs.42,000 /-

Senior citizen (above 65 yrs of age) populations of India has grown to 104 million (8.5% of total population) by 2016 and expected to reach 173 million by 2026 and 40-45 % of them are suffering from physical disabilities (30 % of urban and 70 % rural). Assistive and small sit-down electric mobility scooters provide important advantages to people with mobility problems. The mobility scooter contributes to people's lives by providing them the opportunity to stay mobile if their physical abilities prevent them from walking long distances.

E-Mobility scooter project is conceived keeping the national policy in mind, we wanted to improve the lifestyle of the elderly and physically challenged people by providing the mobility to the people by a Mobility vehicle in place of manual wheel chair as disability still being seen by many as shameful.

Multipurpose E-Cart Team with their guide Dr. A.S. Reddy

These scooters are steered by handlebars and operated through controls located on the vehicle's handle. This type of set up works well for an individual with enough upper body strength, arm reach and range of motion to manage the power scooter safely. This mobility vehicle was able to work continuously with a nominal speed of 1.8 kmph with a load of 100 kgs (including all items). The mild steel structure is robust and the design has given better stability and strength. The power-train designed can sufficiently propel the mobility vehicle. The ergonomic seat, further add to driver's comforts and assisting easy motion of the vehicle. Full charging time of the batteries is around 3.5 to 4 hrs.

DESIGN AND FABRICATION OF A ROBOTIC ARM CONTROLLED BY HAND GESTURE MOVEMENTS

Project team: Mohammed Adil Mohiuddin (1604-13-736-007), Mohammed Zain Mohiuddin (1604-13-736-010) and Mohd Abdul Taleb (1604-13-736-021)

Project guide: (i) Dr. Mrs. Ishrat Meera Mirzana, Asso. Prof., MED

Sanctioned amount: Rs.26,500 /-

The main objective of this project is to do "Design, Fabrication and Controlling of a 5-DOF Robotic Arm" by understanding the design concept, fabricating it according to the design and controlling of the arm using motion gesture.

Robotic Arm and its team along with their guide Dr. Ishrat

Fabrication of the arm was carried out according to the design. For the end effector we have used a gripping mechanism (worm and spur gear mechanism) since our purpose is to have pick and place operation. For controlling of it we have used Arduino software and a 6-axis sensor was used for sensing the movement of the arm. The Bluetooth module HC05 has been used for interfacing the arm.

This project introduces the concept of reducing human errors and increasing the quality and mass production of industries. It can operate under hazardous circumstances (high pressure, high temperature and locations that can be unstable for human operation) so it reduces that risk for human injures. It can be updated and controlled easily to achieve a larger number of applications. However, by changing the end effector it can be used for different applications like painting, welding, assembling etc. It has a simple graphic user interface (GUI) that can easily be used by any worker or operator not precisely an engineer. It reduces the costs as it can perform a task that is done by many workers using only one operator.

## SMART ATTENDANCE MONITORING SYSTEM FOR COLLEGE USING WIRELESS SENSOR NETWORK

Project team: B. Shafat Mohammed (1604-13-735-045), Mohd. Ehteshamuddin (1604-13-735-046) and Syed Abdul Wahab (1604-13-735-055)

Project guides: (i) Mrs. Salma Fauzia, Asst. Prof., ECED and (ii) Ms. Maliha Naaz, Asst. Prof., ECED

Sanctioned amount: Rs.27,500/-

Attendance is one of the important factors that determine the students rendering. There is a necessity to build a smart system that decrease load in managing the attendance and improves the performance of colleges, universities and any educational institute. The most common actions in educational organizations involve identification of student, maintenance of student attendance, security of attendance. In this project, the mentioned topics are considered and present how evolving technologies of radio frequency identification (RFID) and wireless sensor network (WSN) can be used for building a smart university. Prototype is developed using Passive Infra Red (PIR), ZigBee and Arduino based controller boards while considering main cases concerned in a smart university. The system involves marking attendance in authenticated manner and storing it at the database server with complete possible authentication of the attendance as well as the database.

We designed an Attendance Monitoring system for continuous marking of attendance as well as keeping it authentic. Two motion sensors are used to sense the presence /entry of a person through the entrance, this sensed count from the motion sensors are constantly compared with the number of RFID Tags read and after authentication of the tags the data is transferred through the XBee module and the data is fed to the system at the central attendance server and the data is stored continuously and the data is updated at a regular basis.
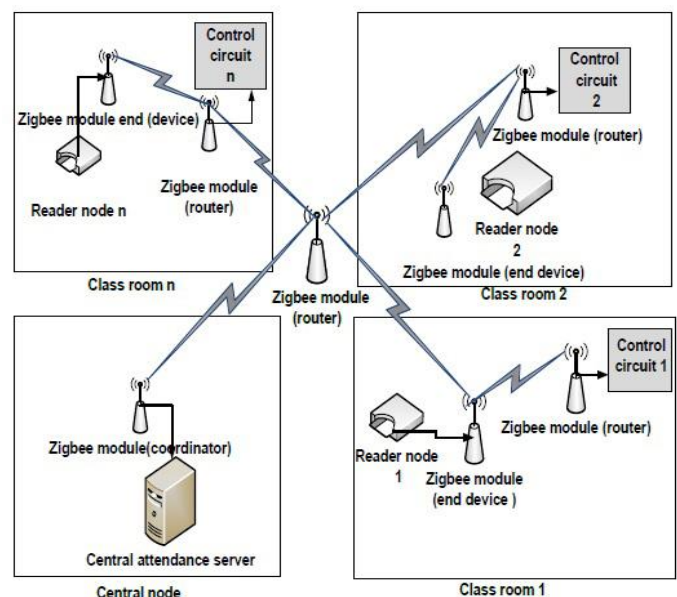
Network Block Diagram for smart attendance system

PRODUCTION OF LOW TEMPERATURES USING PELTIER EFFECT

Project team: Md. Aslam Sohail (1604-12-736-023), Md. Abdul Hafeez (1604-12-736-028), Md. Hammad (1604-12-736-038) and Md. Firasat Ali Zahed (1604-13-736-040)

Project guide: Dr. M. Sowjanya, Asst. Prof., MED

Sanctioned amount: Rs.40,000/-

Global warming and Energy crisis have become the major concern for developing as well as developed countries. Conventional refrigeration systems, besides having many industrial /domestic / commercial applications significantly contribute to ozone layer depletion and energy consumption. Hence the need for non-conventional and systems with energy conservation are gaining more and more importance.

If direct current is passed through a pair of dissimilar metals, there is heating at one junction, cooling at the other depending upon material combinations. Peltier varied the current and observed the heating and cooling rate for different sets of elements.

Experimental set-up with (a) Electrical circuit connections (b) transformer, modules, heat-sink and container connections

The present research work focuses on the non-conventional refrigeration using Peltier effect. Earlier researchers have used thermoelectric modules for cooling and heating but the experimental data related to cooling rate is unavailable. Hence an experimental setup has been designed and developed to obtain the time-temperature data with respect to the variation in input voltage and number of modules. Fig. 1 shows the set-up.

Other equipment attached for the above circuit are as given below shown in Fig. 2:

(1) Taping transformer (2) Thermo-electric module (3,4) Heat sink with fan (5) Temperature indicator

SOLAR POWERED AUTO RICKSHAW

Project team: Shaik Rauhon Ahmed (1604-13-736-065) 2. Syed Qurram Zeeshan (1604-13-736-072) 3. Mohd. Ibrahim Ali (1604-13-736-078)

Project guide I: Dr. A. S. Reddy, Professor, MED

Sanctioned amount: Rs.30,000/-

The objective of this project is to design and fabricate an eco-friendly solar powered rickshaw (tricycle). It has to be driven by electric power supplied by a battery that is charged from solar energy and also to be driven by pedal power.

Solar Powered Auto Rickshaw

Most of the big cities have expanded with the exiting road networks which are very narrow and overcrowded. The traffic movement in these lanes and by lanes are mainly by three wheelers called the Auto Rickshaw. These vehicles perform the same duties as a taxi in terms of transporting people and goods from point to point. However, due to their small size and ease of manoeuvrability they can weave through traffic without much difficulty. Auto Rickshaws are typically petrol/Diesel driven and because of their design and low speed movement they pollute the most.

The team has come up with an alternative solution to reduce the pollution and dependence on imported fuel by "*The Solar / battery powered Auto Rickshaw*". The three-wheeler will be driven by hub motor, which is powered by a battery source which in turn is recharged by a solar panel or electric outlet. Our economic evaluation shows that the daily cost of operating / owning the solar rickshaw is cheaper than the petrol fuelled rickshaw, therefore our goal is to completely replace the petrol-powered three wheelers. The Indian government is supporting the renewal energy sector and this technology is in tune with government objectives.

The results obtained were found to be challenging. This rickshaw was able to work continuously with a good mechanical efficiency and also it needed no fuel for its working as it can directly charge its batteries using a solar panel fixed at its roof. The maximum speed of the rickshaw found to be around 15 to 25 kmps at a load of 250kgs (load of 3 persons in rickshaw) and weigh of the body is 150 kgs (including all items). Full charging time of the batteries is around 3.5 to 4 hrs. Rickshaw is running around 35 to 45 kms per charge.

DESIGN OPTIMIZATION AND DEVELOPMENT OF SOLAR MOTORCYCLE

Project team: Syed Fareeduddin (1604-12-736-019), Shaik Shafisuhail (1604-12-736-025) and Mohammed Khizar ahmed (1604-12-736-039)

Project guide: Mrs. O. Hemalatha, Asst. Prof., MED

Sanctioned amount: Rs.30,000/-

The solar electric bicycle is meant as a challenge to get, on sunny summer days, the most pedal assistance as possible out of the solar panel used. The solar electric bicycle is sportive. It may not cost substantially more energy to drive the solar electric bicycle, when not powered, than a normal bicycle. When there is no sunlight or the batteries are empty the bicycle should still be light running. E-bikes need large and heavy batteries to allow riding long distances, because the battery is charged only once at home.

Solar Motor Cycle

The solar bike approach is different. The Photo voltaic panels have enough power and give the bicycle an infinite range. The battery is small, and saves weight. Without sun however, the battery can be fast charged in about 30 minutes because 12V 12 Ah x 2 LA batteries and 220V AC, 50 Hz, 1.0A charger allow fast charging. The fan is placed above the front wheel of the bicycle and is connected to one of the 12V battery placed in the bicycle. The battery will be charged while the bicycle is running. This way of charging the battery will be very useful during cloudy day. The cost of the electrical energy that would be needed to cycle a whole day is very less. In terms of energy savings, this is negligible. A solar bicycle or tricycle has the advantage of very low weight and can use the rider's foot power to supplement the power generated by the solar panel roof. In this way, a comparatively simple and inexpensive vehicle can be driven without the use of any fossil fuels.

The solar electric bicycle is easily accessible, safe and practical with limited maintenance requirements due to a minimum of mechanical parts used. It is ideal not only for the experienced cyclists but also for those non-athletes, the elderly and individuals with health problems.

EXPERIMENTAL INVESTIGATION OF DYNAMIC BEHAVIOUR OF STRUCTURE USING MAGNETO-RHEOLOGICAL FLUID DAMPERS

Project team: Shuaib ur Rahman (1604-12-736-086), Shaik Azeem (1604-12-736-088), Krishna Chaitnaya (1604-12-736-081) and Deepak Reddy (1604-12-736-108)

Project guide: Mrs. G. Sailaja, Asst.Prof., MED

Sanctioned amount: Rs.50,000/-

In the last three decades or so, there has been a great deal of interest in the use of control systems to mitigate the effects of dynamic vibrational hazards on both Mechanical and Civil Structures. Magnetorheological (MR) Fluids are controllable fluids that respond to an applied magnetic field with a dramatic change in rheological behavior.

Experimental Investigation of Dynamic Behaviour of a structure using Magneto rheological dampers

An MR Fluid is a free-flowing liquid in the absence of magnetic field, but under a strong magnetic field its viscosity can be increased by more than two orders of magnitude in a very short time (milliseconds) and it exhibits solid-like characteristics. MR Fluid Dampers, based on MR Fluids, have been shown to be semi-active control devices that mesh well with application demands and constraints to offer an attractive means of controlling the intensity of vibrations in structures due to their mechanical simplicity, high dynamic range, low power requirements, large force capacity and robustness.

The focus of this work is to study the dynamic behavior of an aluminum structure using the Magnetorheological dampers with and without applying magnetic field. The experimental results shows decreasing in vibrational frequency (Hz) with increasing current (I) value. For higher speeds of the vibrator, a linear decrement of vibrational frequencies (Hz) is observed for both the dampers. The performance of the double coil damper is better in comparison with single coil for low current (I) values. The lowest vibrational frequency (Hz) value was recorded for single coil damper at lowest speed and maximum current (I) conditions.

INFLUENCE OF DEGASSING EFFECT ON QUALITY OF ALUMINIUM ALLOY CASTINGS

Project team: Md. Abdul Rahim Siddiqui (1604-13-736-004), Nabeel Akber (1604-13-736-006), Moin Afzal(1604-13-736-007) and Md. Saaduddin (1604-13-736-010)

Project guide: Dr. Viquar Mohiuddin, Professor, MED

Sanctioned amount: Rs.38,575/-

The major cause of rejections in casting is the defect porosity which occurs due to absorption of hydrogen in the molten metal which results in reduced strength and rejection of produced castings. To control this casting defect different degassing methods are used. In this project two methods of degassing are considered and compared i.e. tablet degassing and vacuum degassing (also known as RPT-Reduced Pressure Test). In this work vacuum degassing setup is fabricated that is reasonably easy to use and inexpensive for the industries to carryout degassing process. Both the methods are compared and tested for improved mechanical properties. The parameters considered are Aluminum alloy modification, Degassing method and Pouring temperature at three different levels. Taguchi method is used for experimental design to optimize the process parameters and find their levels of significance.

The problem faced by the foundry industry today is the rejection of castings containing defects caused by the atmospheric contamination of molten metal. The molten metal reacts with atmospheric gases and gets contaminated which results in the formation of porosity, blowholes, pin holes, voids like defects on solidification. This affects the decrease in the mechanical properties and density of the produced castings.

To remove the entrapped gases from the molten metal, any of the following degassing techniques is to be performed. The various degassing techniques are: Tablet degassing method, Argon gas degassing method, Ultrasonic degassing method, Reduced Pressure Test method, and Rotary degassing method. These methods do not purge all of the gases that have been entrapped in the molten metal. Every method has its own limitations, because of which the castings produced has some defects.

Vacuum Degassing Experimental Set-up

BIODIESEL EXTRACTION – PHASE 4

Project team: Shaik Rauhon Ahmed (1604-13-736-065), Mohd. Misbahauddin Juniad (1604-13-736-098), Mr. Syed Shahbaz P Qadri (1604-15-736- 001) and Mr. Mohammad Salman (1604-15-736-303)

Project guide: Dr. M.G. V. Satyanarayana, Asst. Prof., Department of Chemistry

Sanctioned amount: Rs35,000/-

In this Phase 4, a continuous process of extraction of biodiesel from waste cooking oil was proposed. A small size bio diesel extracting prototype machine type has been designed by using solid works mechanical software in which a quantity of 4 liters can be extracted at a time. And a prototype reactor was developed accordingly. Our main aim was to simplify the production of bio diesel by designing a reactor such that even an illiterate can operate the reactor and should be able to extract the bio diesel easily.

Bio- Diesel Extraction Set-up

This continuous process of extraction had the following steps which occur downstream one by one. The feed stock reservoirs for waste cooking oil as the source for the biodiesel and the catalyst at the top of the reactor, then these are flown to a newly fabrication micro oven reactor in which transesterification reaction takes place. After the transesterification reaction, bio-diesel is a mixture of excess methanol catalyst and glycerol. As a rule, difference in specific gravity of 0.1 in a mixture of compounds will result in phase separation by gravity. Gravity separation is suitable to recover bio-diesel from the process by products.

The final step is the purification of biodiesel which is meant to remove impurities from bio-diesel after it is separated from the glycerol layer. These include alcohol, catalyst, entrained glycerol, soap and other impurities. In order to obtain a final bio-diesel product adhering to specification, distillation has been used as the final purification step for bio-diesel production to remove the impurities and unpleasant odor. All these processes was setup in a single unit except the final purification step such that all the process will continue one after other continuously once the setup is started. And the final output would be biodiesel.

AUTOMATED GUIDED VEHICLE

Project team: Humair Ahmed (1604-13-735-022) , G. Vineeth (1604-13-735-047), Ghazala Anjum (1604-13-735-001), Samreen Sultana (1604-13-735-007), Syeda Rumaan (1604-13-735-008), ImadUddin (1604-13-736-068) and Mohd Mubeen (1604-13-736-111)

Project guides: Dr. Mohammed Arifuddin Sohel, Professor and Head, ECED 2. Dr. Ferhatullah Hussainy, Dean (Administration), MJCET

Sanctioned amount: Rs.30,440/-

The AGV Project was initially done by the students of Mechanical Engineering in 2002, but the vehicle was not autonomous. In 2016, the current team took up the task of automating this existing vehicle. The mechanical structure comprised of a chassis with two rear wheels controlled by a single high torque and high current motor. In the current project a stepper motor was added to the front castor which would control the vehicle's turns. Further, two Infrared Sensors were attached at the front to detect the path for locomotion(traversing a black line on a white background). An Arduino mega board was added for processing and command generation. To avoid collisions an ultrasonic sensor has been added which causes the vehicle to stop as long as there is any obstacle in its way. Though the motor driver is supplied with 24V input, the vehicle runs on PWM for a reduced speed.

Automated Guided Vehicle

This project is poised to be deployed in the college library where the vehicle would move around the library collecting books from each table and stop at a point where the library staff can empty the vehicle and place the books on the rack. The vehicle can take a payload of 40 Kgs. This AGV also has its applications in hospitals, warehousing and theme parks.

AGV with its execution team and guides – Dr. Ferhatullah Hussainy and Dr. Arifuddin Sohel

SMART STREET LIGTHING

Project team: Narne Namratha Chowdary(1604-12-734-004), Nimrah Sultana(1604-12-734-005) and Shazia Nikhath(1604-12-734-006)

Project guide: Mrs. Aijaz Fatima, Asso. Prof., EED

Sanctioned amount: Rs. 16,900/-

In the proposed system, a PIC controller, MOSFET, and other devices embedded with LDR, PIR and temperature sensors are used. These sensors are used to detect the head light of the approaching vehicle or motion with in the range of the motion sensor, to enable the LEDs to turn on or off automatically. The zigbee communication module for wireless transmission and reception of data is proposed to be used. The zigbee chips can easily integrate with the controller and support both star and Pi networks.

Automatic voltage regulation is proposed to be implemented to ensure the switching ON of lights when the voltage drop across the terminals is below a set level. Timer control is to be used to set the time until which the light has to remain ON.

Lamp Module: The lamp module is a lamp post with the fittings, chips and sensors. These sensors transmit data to the processor.

Controller Module: This module consists of microcontroller which will take up the input from sensors and transmits data to the control centre through the transmission module.

Transmission Module: It acts as a bridge between the microcontroller module and control centre. That is this module transmits data from microcontroller to control centre.

Control Centre: The control centre will facilitate the remote control of the lights based on the data from the sensors and command the microcontroller for the appropriate action.
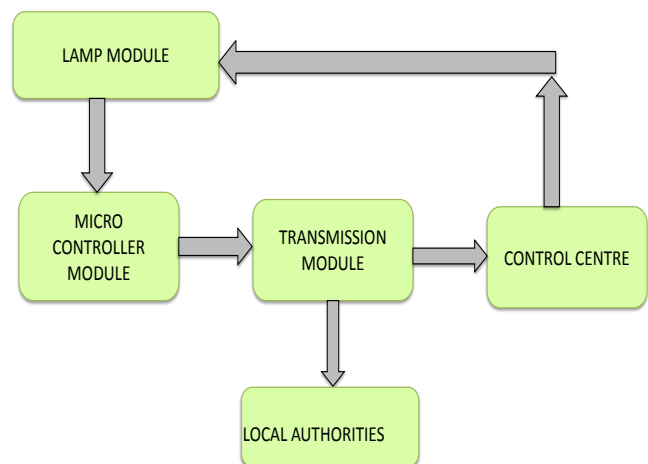
Block diagram of the smart street lighting system

DESIGN, ANALYSIS AND DEVELOPMENT OF PROTOTYPE 30 KVAR STATCOM

Project team and Project guides: 1. Mr. J. V. R. Vithal, Assoc. Prof., EED 2. Mr. K. Mohammed Rafi, Asst. Prof., EED

Sanctioned amount: Rs. 3,92,000/-

Reactive power management in a power distribution network of a power utility or industry plays a major role in i) reducing distribution loss, ii) maintaining constant distribution voltage and iii) improving power factor. The improvement of power factor enables the reduction of current demand from the Utility resulting in efficient utilization of distribution transformer and reduced electricity bills. The performance of conventional switched capacitors used for reactive power compensation would only give step control and results in over compensation or under compensation for varying loads and varying reactive power demand. To overcome these problems, in this project, it is proposed to develop a prototype 30 kVAR DSTATCOM for reactive power compensation which would provide instantaneous correction of power factor and always maintains the set power factor. The prototype consists of a power panel with IGBT based voltage source inverter, DC filter capacitor and a DSP based controller along with necessary power supply units, protection cards and firing pulse generating units. By suitable control strategy, the STATCOM would generate leading or lagging reactive volt-amp (VAR) at the PCC (Point of Common Coupling) and avoid problems connected with low power factor. The power factor can be maintained at the desired level irrespective of system voltage.

 The objective of the project is to

- Design, simulate and fabricate a **+/-**30 kVAR prototype STATCOM
- Develop control hardware and software for reactive power compensation
- Evolve novel testing strategies

STATCOM is an acronym for **STAT**ic synchronous **COM**pensator, and forms a member of the family, widely known as FACTS (Flexible AC Transmission System) or Custom Power devices.

Development of STATCOM and knowledge of Practical aspects of advanced power electronics enables the research center in EED department to be a unique one with in-house capability to design and develop a FACTS device. The idea of combining capabilities of IGBT-based voltage source converter, DSP based controller and allied power electronics as proposed in the project ushers in a new generation of FACTS controllers. The present development would open up a path for further studies in the area of other FACTS / Custom Power devices. The know-how gained in the present development will result in tools and techniques for design of other FACTS devices such as, high power STATCOM, Static Synchronous Series Compensator (SSSC), Interline Power Flow Controller (IPFC) and Unified Power Flow Controller (UPFC), Dynamic Voltage Restorer (DVR), active power harmonic filter, active power line conditioner etc. The PG and UG students and faculty of Electrical Engineering Department

would be immensely benefited by working in this project. The project is very relevant to the curriculum of UG and PG courses.

The Prototype model of the set-up

Turkey Council General Dr. Adanaan Altai along with Janab Zafar Jaweed, Secretary, SUES and Dr. Basheer Ahmed, Director, MJCET checking 30kVAR D-STATCOM Project

The design, simulation, procurement of major components development and fabrication of DSP board has been completed. The software development for controls is in progress. The integrated testing will be taken up after testing the subsystem with the developed software.

Through the present development of STATCOM is targeted for power factor improvement, the technology with modifications in control and software, can be used to considering out further research leading to Ph.D. in the following areas

   1). Dynamic Voltage Control in Distribution System
   2). Control of Active Power it needed with a D.C Energy Source
   3). Harmonic Compensation
   4). Voltage Flickered Control

SMART MATTRESS

Project team : Mahrukh Hasan (1604-13-735-012), Syeda Nemath Unnisa (1604-13-735-014) and Sumaiyya Rahman (1604-13-735-062)

Project guide : Dr. Arifuddin Sohel, Professor and Head, ECED

Sanctioned amount: Rs.24,502/-

This project aims at the monitoring and prevention of bed sores at early stages of its formation by using smart bed which incorporates sensors and is programmed so as to notify the caretaker of the concerned patient with immediate effect. The focus of this project is to develop a software/hardware platform that addresses one of the most costly, acute health conditions, pressure ulcers - or bed sores. Caring for pressure ulcers is extremely costly, increases the length of hospital stays and is very labor intensive. The proposed platform collects information from various sensors incorporated into the bed, analyzes the data to create a time-stamped, body pressure distribution map and triggers an alarm sends a message when pressure is applied on a particular area for a long period of time to alert the caretaker.

The bed in which the patient is supposed to lie down is aligned with pressure sensors. The readings from these sensors are taken at regular intervals of time. These readings are given to the microcontroller which is programmed for analog to digital conversion. From here, the data is sent to NodeMCU which interfaces with the cloud to send a message to the concerned person through the Blynk app. This can gain the attention of the concerned person who will take the required step. This can be either changing the position of the patient or tend to patients needs.
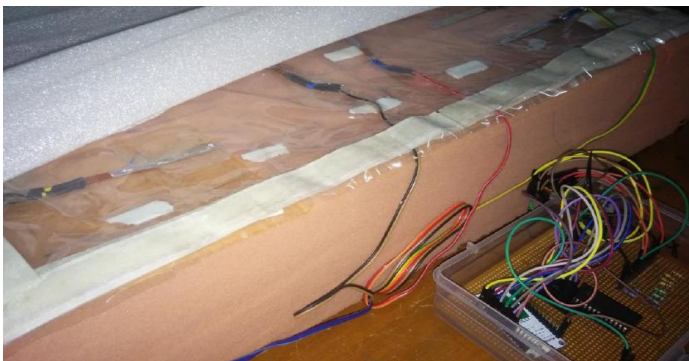
Smart mattress with electronic pressure sensors

Team of Smart Mattress at Anveshna

IoT BASED SUSTAINABLE PLANT HABITAT AND SMART FARMING

Project team: Mohd Asif (1604-13-737-034), Mohammed Haseebullah Qureshi (1604-13-737-045), Abdul Azeem (1604-13-737-046), Mohammed Azeeth (1604-14-735-023), Mohd. Farooq (1604-14-735-027) and Rafi Imran (1604-14-735-018)

Project guides: (i) Dr. Arifuddin Sohel, Prof., ECED and (ii) Dr. Uma Dulhare. Prof., CSED

Sanctioned amount: Rs.49,790 /-

This project aims at the concept of Agriculture Internet of Things(AIoT) with integration of **Web Map Service (WMS)** and **Sensor Observation Service (SOS) to** provide a solution to manage water requirement or water supply for crop irrigation. Agriculture Internet of Things smartly analyses the water requirement of crop and utilizes the scarce water resource available to reduce wastage of water.

The main objective of this project is to prevent plants from being shriveled and dead by providing water to the plants at the correct time in a particular volume for the proper growth of the plants in order to get the maximum yields without the need of human assistance.

Janab Zafar Javeed, Hon. Secretary testing the IoT based Sprinkler System

There are three major components in this project which are moisture sensors & temperature sensors and a Raspberry Pi-controlled motor or water pump. The moisture sensors and temperature sensor measure the moisture level (water content) and temperature of the different plants and the motor or water pump provides water to the plants .The soil moisture sensor interfaces with the Raspberry Pi, which then detects the dryness in the soil. If the moisture level is below the desired level, the moisture sensor sends the signal to the Raspberry pi. The Raspberry Pi turns on the water pump to exhilarate water to the respective plant until the soil achieves a sufficient moisture level and then turns off the water pump. Also without visiting will get the status of the motor and temperature on mobile by using Android App.

QUADCOPTER FOR NAVIGATION, IMAGING AND SURVILLENCE

Project team: Mohammad Kashif Moiz (1604-13-735-019), Syed Abdul Hannan (1604-13-735-038) and G. Vineeth (1604-13-735-047).

Project guide: (i) Dr. Kaleem Fatima, Prof., ECED

Sanctioned amount: Rs.37,709/-

Aim and abstract: The aim of this project is to build a semi-autonomous quad copter capable of self-sustained flight with imaging system for aerial surveillance of moving objects on ground (moving vehicles).   Aerial surveillance is done by capturing images by a camera included in the quadcopter's payload which sends the data via wifi to a remote computer on the same network. The images are sent via a transmitter to the computer which performs data processing in real time to recognize these objects.

Object recognition is done using machine learning algorithms.The identified ground moving object needs to be matched with pre-stored object signature. The object type needs to be recognized in terms of the name of the objects (eg car, bus, etc.), object type (swift desire etc.).

Motivation: the project opens the possibilities to broaden the understanding and applications of control systems, stabilization, artificial intelligence, machine learning and computer and image processing as it applies to the quad copter.

Project description: The payload of our Quad copter design includes a Controller board housing all Sensors like Accelerometer, Gyroscope, and Magnetometer, Wireless Modules, GPS Module, Battery, Camera and Telemetry. The wireless transceivers use Serial communication to send control signals to the microcontroller from the handheld controller unit. The Accelerometer, Gyroscope and Magnetometer use I2C Interface to sense the tilt of the X, Y and Z axes,

The Barometric Pressure Sensor is used to calculate the height. These Suspensor outputs are given to a microcontroller, which along with the control logic is used to control and stabilize the quadcopter.

The KK2.1.5 flight control board is used to stabilize the quadcopter during flight.   The heart of the KK2.1.5 is the ATMEL Mega 644PA 8-bit AVR RISC-based microcontroller with 64k of memory. The flight is controlled by self balancing algorithms (PID algorithms) using MEMS (Micro Electro Mechanical Systems) present on board.

The quad copter is lifted and propelled by four rotors. We are making use of two pairs of identical fixed pitched propellers; two clockwise and two counter-clockwise by using independent variation of speed of each rotor to achieve control.

Methodology: The main methodology being used is by changing the speed of each rotor, it is possible to specifically generate a desired total thrust; to locate for the center of the thrust both laterally and longitudinally; and to create a desired total torque or turning force.
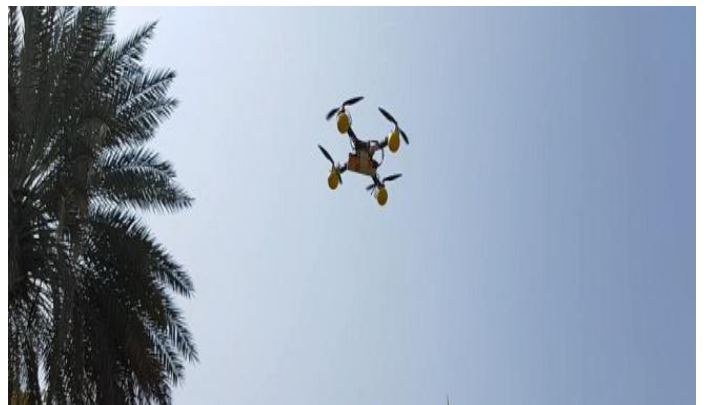
Quad copter being tested for aerial flights at college lawn

Total task are quadcopter assembly and tuning for flight, improving stability of flight, interfacing of camera with a handheld device, image processing and recognition, real time or live object recognition and mounting of camera on the quadcopter and real time video capture.

Current status and future scope:
1. Tasks one and two have been achieved. The quad copter stability needs to further improve in order to get stable flights every time the quad copter takes off.
2. Camera is interfaced with a handheld device or any display device to get the video feed from the camera. In this project we used a Smartphone as a display device. In future LED monitor or LCD display could be used.
3. After getting the video feed, Image processing techniques are used in order to reduce noise identify the targeted object. This task was accomplished to a certain extent. Video processing is initially done independent of airborne images. We are able to detect some of our own assumed objects for example a lead wire, pencil, different kinds of Boxers etc. More sophisticated machine learning algorithms can be investigated for better object recognition.
4. Attempt was made to detect objects in a live feed too. We tried to Mount camera on the quad copter. But we could not take further risk of on-board electronics as the quad copter then has to be highly stable.
5. So, the last piece of work will be integrating all the subsystems. These are stabilizing the quad copter, mounting the camera which is interfaced with a display device and writing a code that will detect objects in real time. These tasks need to be achieved and are projected as future scope of the project.

COLLISION DETECTION AND PREVENTION

Project team: Syed Zafer Ali (1604-13-733-034), Panayala Chetan (1604-13-733-035) and Akhter Rasool (1604-13-733-051)

Project guide: (i) Mrs. Fahmina Taranum, Asso. Prof., CSED

Sanctioned amount: Rs.13,000/-

This project is that of an embedded systems project which consists of equipment like LEDs, buzzers etc. powered by a microcontroller. A microcontroller is like a chip which contains the program (actual logic) and operates various equipment as per the logic written.

Experimental setup for collision detection and prevention

The microcontroller used is based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. This microcontroller is embedded on a board named as '**Arduino**'
The different modules are

a) **Detection of obstacle through sensor:**
The system involves a sensor which is powerful and reliable for measuring long distances. A sensor has a transmitter and a receiver which send and receive waves, travelling at the speed of sound, respectively. As an obstacle appears the transmitted wave bounces back and is received by the receiver. The distance is calculated by considering the round-trip time taken for the wave.

b) **Alerting through LEDs & Buzzer:**
Light Emitting Diodes (LED) are fitted into the system. These components glow according to the risk incurred to the vehicle by the obstacle i.e. **Red coloured** LEDs glow when there's risk of collision and **Green coloured** LEDs glow when the vehicle is safe from colliding. Buzzer is another component which buzzes as the vehicle is about to collide. The buzzer buzzes loudly as the risk increases.

c) **Application of Brakes:**
As vehicle approaches the obstacle, the driver is given certain amount of time to apply brakes (to facilitate manual controls of the brakes). Failing to do so, the brakes are applied **gradually**, since sudden application would jerk the passengers and cause inconvenience. Despite this if the vehicle is still at risk, brakes are applied immediately.

AWARDS WON BY OUR FACULTY FOR THEIR RESEARCH CONTRIBUTIONS IN THEIR RESPECTIVE FIELDS

Dr. Ishrat Meera Mirzana, Professor in Mechanical Engineering Department, MJCET has received the **Best women faculty award** - A National award of Research Excellence Academic Award -2018 (REAA 2018) conducted by Combined Society for Educational Research and Development (CSERD). The award ceremony was conducted at N.L. Dalmia Institute of Management and sciences, Mumbai on March 10th, 2018. She was also conferred with "**Adarsh Vidya Saraswathi Rashtriya Puraskar**" by Global Management Council, Ahmedabad on 2nd April, 2018.

Dr. Qamar Sultana, Associate Professor in Civil Engineering Department, MJCET, has received the **BHARAT RATNA Dr. ABDULKALAM GOLD MEDAL AWARD** for excellence in the respective field by the Global Economic Progress & Research Association (GEPRA), a society, working for past several years in the service of the countrymen. The TROPHY, CERTIFICATE and GOLD MEDAL were awarded at the 'NATIONAL UNITY CONFERENCE' held at Bangalore on 27th April 2018. She also received the **PROF. INDIRA PARIKH 50 WOMEN IN EDUCATION LEADERS**award for excellence in education, leadership and teaching at the7th edition of the World Education Congress held in Mumbai on 5th July 2018.

SAE MJCET ACTIVITIES

1. GOKARTING (NKRC-2017):

Team **FALCON RACERS** from Mechanical Engineering Department of Muffakham Jah college of Engineering and Technology had participated in **NATIONAL KART RACING CHAMPIONSHIP – 2017, India's Biggest Karting Festival** held from 29th September to 3rd October, 2017 at R.P.M. circuit, Bhopal, India.

The team Falcon Racers has designed and fabricated a kart following the strict guidelines of the N.K.R.C. to compete with 150 teams across the country. The kart gets its power from Bajaj Discover 125 ST, 12.8 BHP engine and moved at a top speed of 90 kmph with unmatched acceleration of 11 m/sec^2.

The project was unveiled by *Janab Khan Mohammed Lateef Khan Saheb*, Hon. Chairman, *Janab Zafar Javeed Saheb*, Hon. Secretary, the board members of Sultan-ul-Uloom Educational Society, Dr. Basheer Ahmed, Advisor-cum-Director, and Dr. N. Seetharamaiah, Professor & Head, M.E.D., M.J.C.E.T. on 21st September, 2017.

Team Falcon Racers at un-veiling ceremony of NKRC Go-karting vehicle

2. MegaATV - 2018:

Team MJCET of Mechanical & Production Engineering Department of Muffakham Jah College of Engineering and Technology, Banjarahills, Hyderabad, have designed and fabricated the *All Terrain Vehicle* to compete in the National Racing Championship **Mega ATV-2018**, to held from 24th to 26th February, 2018 at Nashik, Maharashtra, India.

Team MJCET at racing tracks in Nashik, Maharashtra.

The vehicle was designed and fabricated following the strict guidelines of the event. The vehicle of the *Team-MJCET* was very high on performance and moved at a top speed of 58 kmph. It gets its power from Briggs & Stratton 305 c.c., 10 H.P. engine, having torque of 800 N-m. Total weight of the vehicle was 185 Kg. The vehicle clears the rigorous Technical Inspection which includes documents check, tools & spares check, safety check, brake test, tilt test, go-no-go test and egression test. The vehicle also participated in the *Dynamic Events* like Drag Race, Solo-Dirt Race, Armageddon Race, and Day-Night blackout Endurance Race.

3. SAE SUPRA-2018:

The Supra Team MJCET has designed and fabricated a Formula Racing Vehicle and participate in the National Level Engineering Student Formula Car Racing Competition **SUPRA SAE INDIA** to held at Buddh International Circuit – Country's first International Formula car racing track at Greater Noida, New Delhi.

The vehicle designed by the team supra was very high on performance and moved at a top speed of 110kmph with unmatched acceleration. The vehicle gets its power from KTM 390 cc, 44 BHP engine. The performance of the vehicle was incomparable due to its light weight, aerodynamic body, very efficient braking and best in class suspension.

Supra Team MJCET at Buddh International Circuit - F1 racing track in Greater Noida

NEWS BITS

MJCET got recognised as Ph.D research centre for Civil, Computer Science and Electrical engineering programmes also under Osmania University

There are 27 Ph.D research scholars pursuing their Ph.D in the recognised Ph.D research centres of Mechanical and Electronics & Communication Engineering departments under Osmania University

MJCET is in the engineering rank band of 151-200 by NIRF India Ranking-2018, MHRD, Government of India. (dt: 10-04-18)

UNVEILING OF ALL TERRAIN VEHICLE- ATV FABRICATED BY THE MECHANICAL STUDENTS OF MJCET

All Terrain Vehicle being unveiled by Janab Khan Lateef Mohammed Khan, Chairman, SUES and Janab Zafar Javeed, Secreatry, SUES, Dr. Basheer Ahmed, Advsior cum Director, MJCET and Dr. N. Seetharamaiah, Prof. & Head, MED, MJCET.

Team Robocon with their Robocon model with Janab Zafar Javeed, Secretary, SUES and other distinguished dignitaries of MJCET