ISO 9001:2015 Certified Institution
Estd. : 2001
Balaji Institute of Technology & Science
Laknepally, NARSAMPET, Warangal (Rural) – 506331
Accredited By NBA (UG – CE, ME, ECE & CSE Programmes) & **NAAC**
(Affiliated to JNTUH, Hyderabad and Approved by the AICTE, New Delhi)
BITS NARSAMPET
www.bitswgl.ac.in, email: principal@bitswgl.ac.in :: Ph. 98660 50044, Fax 08718-230521

REPORT ON INCUBATION CENTER

The incubation centres would provide the start - ups with necessary guidance, tech support, infrastructure, access to investors, networking, and facilitating a host of other resources that may be required for the start - up to survive and scale.

OBJECTIVES:

- To nurture culture of innovation at campus.
- Helping idea to translate into reality and upgrade them to the level of commercial value.
- To create start up ecosystem at campus.
- To encourage solving real problems.
- To create value added jobs and services.

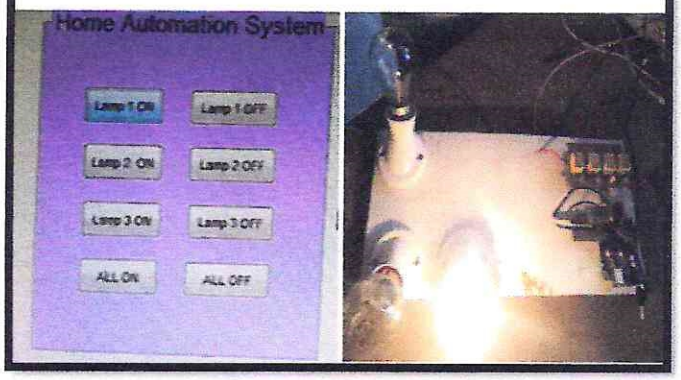
Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

The below are the models, which were developed under incubation centre

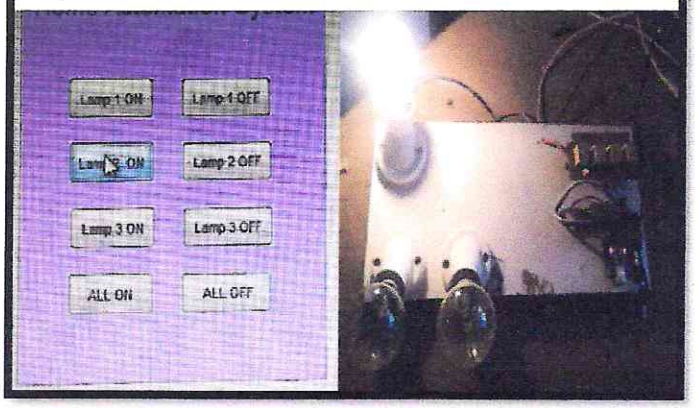
1.Home automation using matlab

- The main plan is to mechanically management and monitor electrical and electronic home appliances. Consistent with the marketing research firm ABI regarding 4 million home automation systems were subscribed globally in 2013. Many industrial and analysis versions of home automation system are introduced and designed.
- Good home system has captured many technologies. Main aim of this paper is to propose a system which demonstrates interfacing between MATLAB and Arduino board for household equipment monitoring and control. In proposed system, Arduino board is interfaced with MATLAB using serial communication to control home appliances.

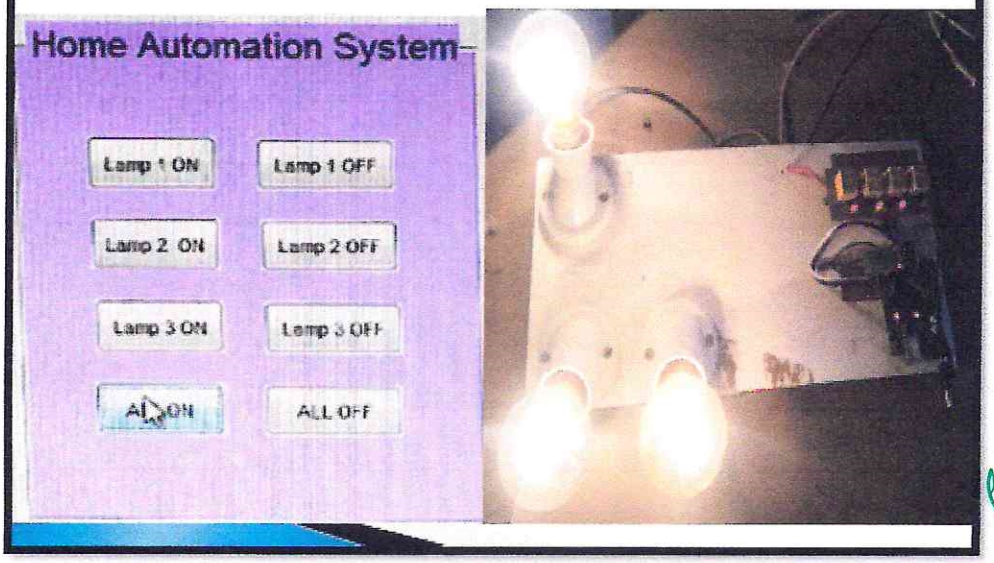
RESULTS:



WHEN LAMP-2 IS ON:

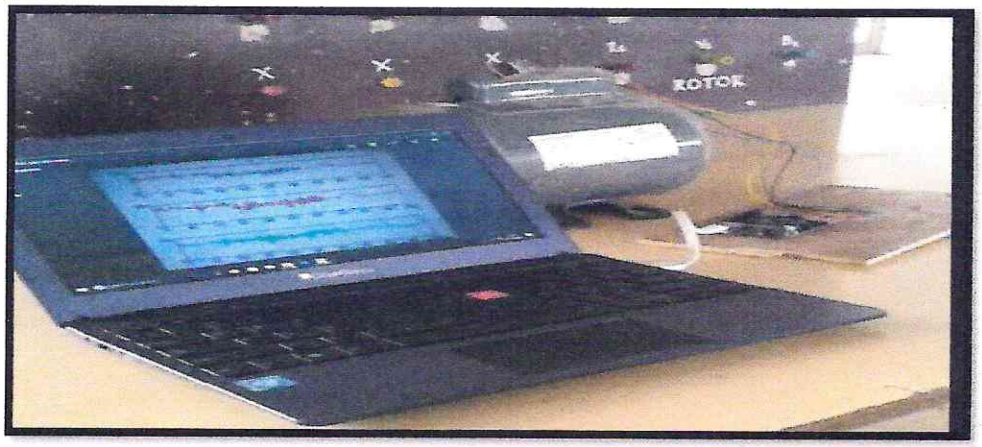


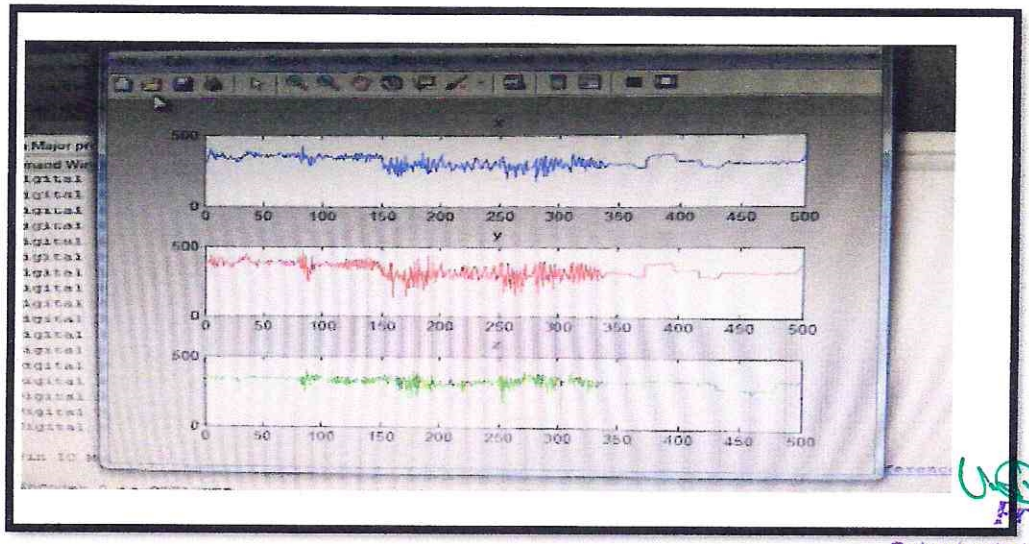
WHEN 3-LAMPS ARE ON POSITION:



2.Vibration analysis

- Vibration analysis of industrial machinery has been around for many decades, but gained prominence with the introduction and widespread use of the personal computer. Vibration Analysis refers to the process of measuring the vibration levels and frequencies of industrial machinery, and using that information to determine the "health" of the machine, and its components.
- When an industrial machine (such as a fan or pump) is operated, it generates vibration. This vibration can be measured, using a device called an accelerometer. An accelerometer generates a voltage signal, proportional to the amount of vibration, as well as the frequency of vibration, or how many time per second or minutes the vibration takes place. This voltage signal from the accelerometer is fed into a data collector, which records this signal as either a time waveform (amplitude vs. time), as a Fast Fourier Transform (amplitude vs. frequency), or as both.

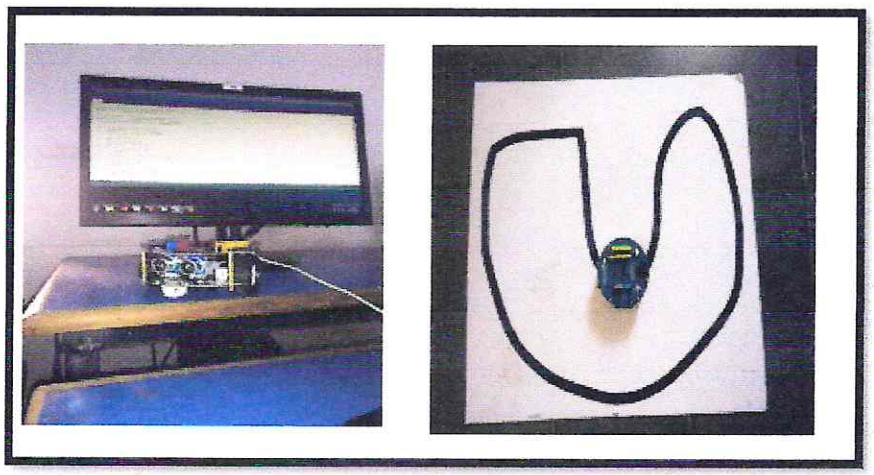


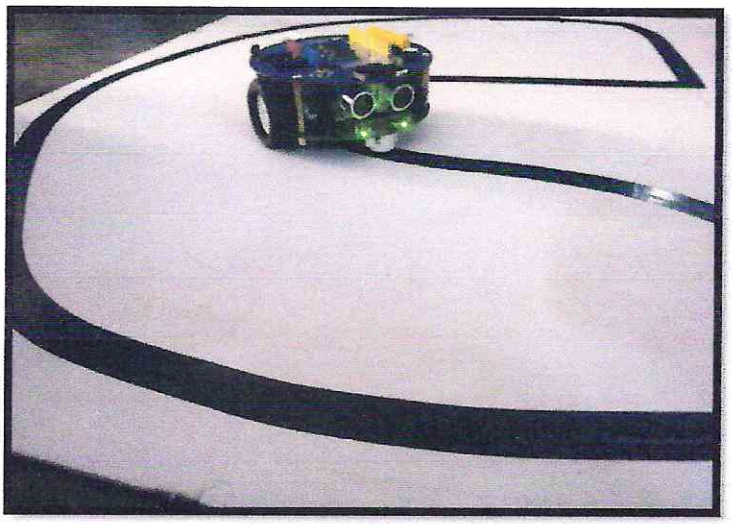


Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

3.Line follower alphabet-2 using Arduino Microcontroller

- This product has been designed to build a Line following Robot using IR sensor to follow a designated path which is provided and runs over it. ROBOT has sufficient intelligence to cover the maximum area of space provided. It will move in a particular direction Specified by the user to navigate the robot through a black line marked on the white surface.
- Autonomous Intelligent Robots perform desired tasks in unstructured environments without continuous human guidance. The path can be visible like a black line on the white surface (or vice-versa) or it can be invisible like a magnetic field. Sensing a line and manoeuvrings the robot to stay on course while, constantly correcting wrong moves using feedback mechanism forms a simple yet effective closed loop system. The base of the developed robot is Arduino UNO R3 which is a microcontroller board based on the ATmega328 (datasheet).

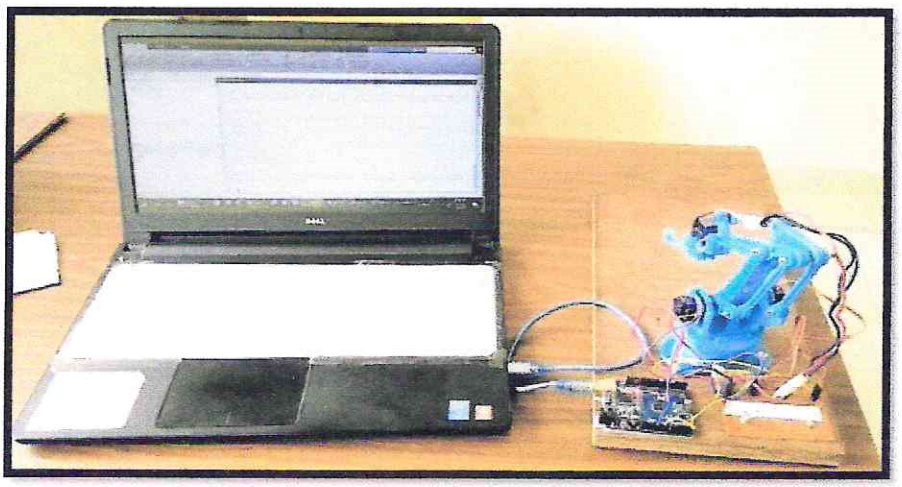




Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

4.Robotic hand using servomotors by using Ardunio

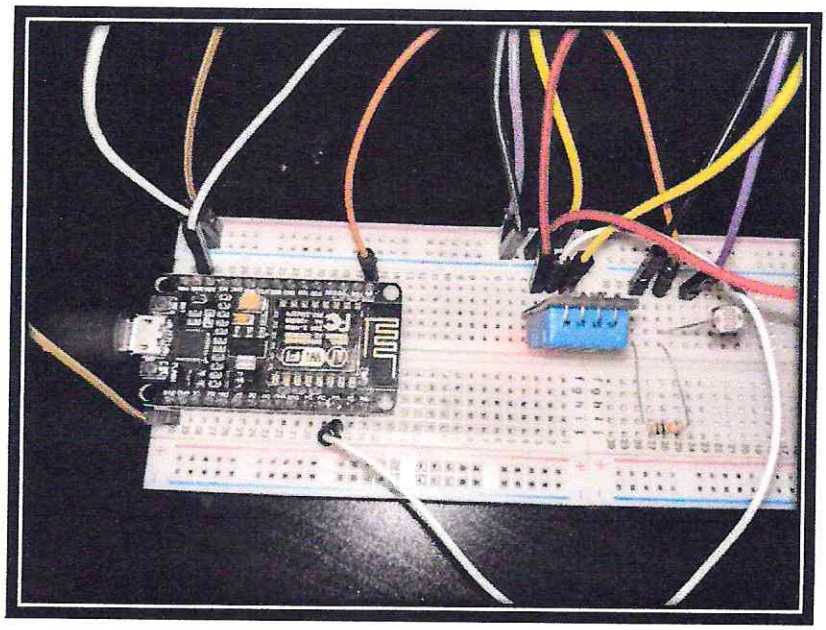
- _This project was designed using an **Arduino microcontroller.** Entire arm will be designed from servos. Entire process of construction was built by students. The arm has been built with 3d designed parts and the individual parts have been locked to servo motors. **Arduino Uno is programmed to control servo motors**. Servos are serving as joints of Robotic arm here. This setup also looks as a **Robotic Crane** or we can convert it into a Crane by some easy tweaks.
- This project will be very helpful for students who want to learn to develop a **Simple Robot in low cost**. This model development is useful for helping students learn quantitative skills. Models provide an environment for interactive student engagement. Evidence from science education research shows that significant learning gains are achieved when students participate in interactive engagement activities.



Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

5.IOT based remote monitoring of weather parameters for solar and wind applications

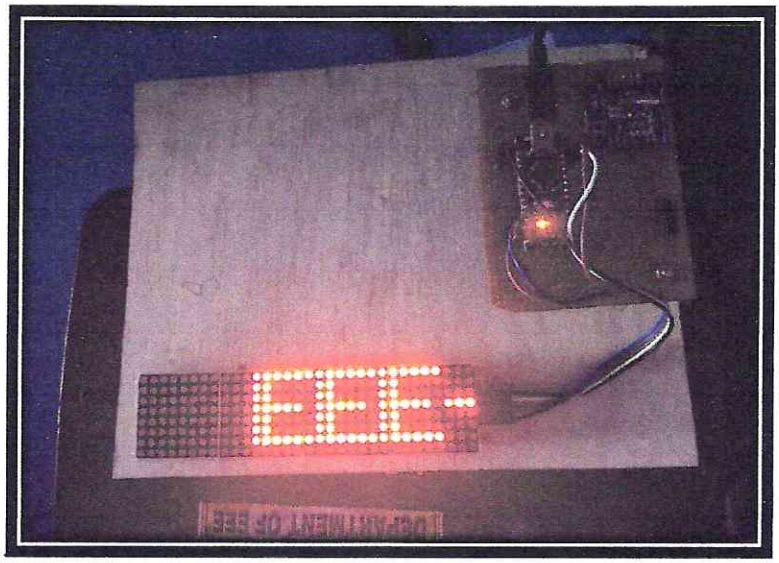
- A weather station can be described as an instrument or device, which provides us with the information of the weather in our neighbouring environment. For example it can provide us with details about the surrounding temperature, barometric pressure, humidity, etc. Hence, this device basically senses the temperature, pressure, humidity, light intensity, rain value. There are various types of sensors present in the prototype, using which all the aforementioned parameters can be measured. It can be used to monitor the temperature or humidity of a particular room/place.
- With the help of temperature and humidity, we can calculate other data parameters, such as the dew point. Weather monitoring plays an important role in human life, so the collection of information about the temporal dynamics of weather changes is very important. In any industry, during certain hazards, it is very important to monitor the weather. Two sensors are connected to the Node MCU namely temperature and humidity sensor (DHT11) and light dependent resistor (LDR)



6.LED Scrolling Display Using Arduino UNO Board

- The led Display System is aimed at the colleges and universities for displaying day-to-day information continuously or at regular intervals during the working hours. Being GSM-based system, it offers flexibility to display flash news or announcements faster than the programmable system. Keyboard-based display system can also be used at other public places like schools, hospitals, railway stations, gardens etc. without affecting the surrounding environment.
- The led display system mainly consists of a receiver and a display toolkit which can be programmed from an Arduino IDE platform. It receives the message, through serial port and displays the desired

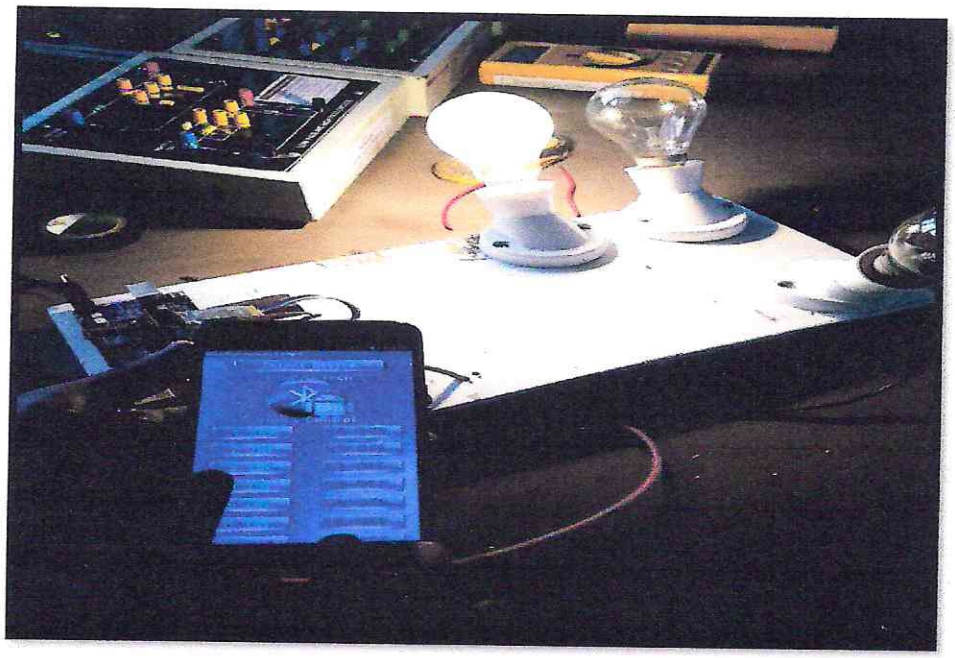
information after necessary code conversion. It can serve as an electronic notice board and display the important notices instantaneously thus avoiding the latency. Being modular design, the led display is easy to expand and allows the user to add more display units at any time and at any location in the campus depending on the requirement of the institute.



7. Home appliances controlled by bluetooth using Ardunio

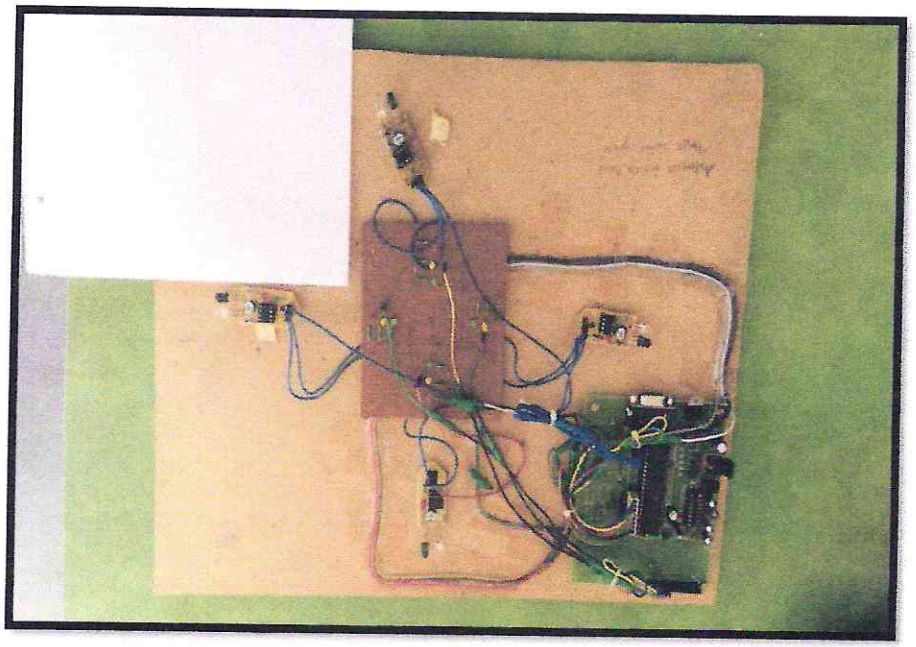
- With everyone being on the move in a fast paced World, technologies have been increasing rapidly. This Work is regarding a student-designed project allowing users to be able to control multiple appliances remotely from the Single mobile device. This project involves the use of Bluetooth Communication and the Arduino Uno Rev 3 Microcontrollers.
- The whole idea is to design an app on an Android cell phone to control home appliance remotely such as lights and fans Using AC power .Although there are commercially available products on the market that implement the control of multiple Applications with a single device, this projectis a

teaching Point for students to build their own communication networks, create Android phone apps, and practice electrica loperation of circuits.



8.Automatic Density Based Traffic control System

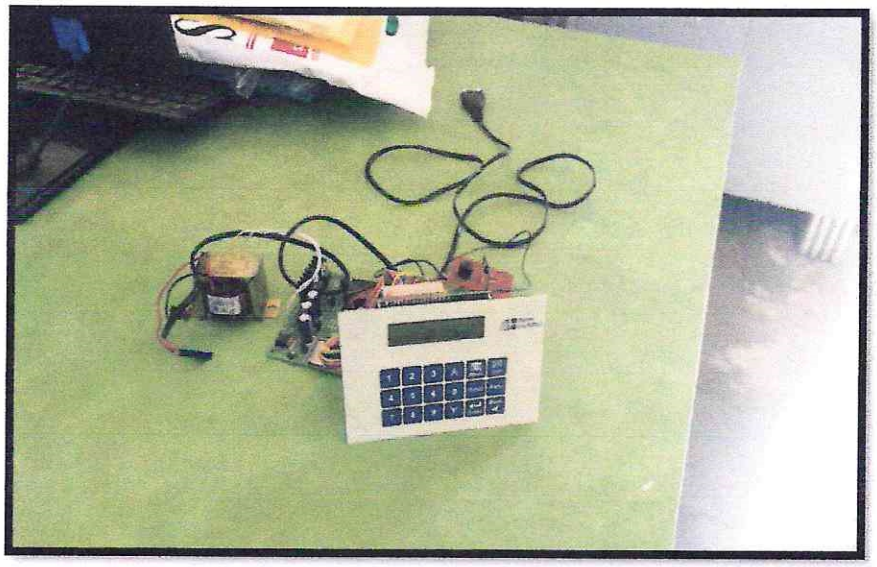
Density Based Traffic Light Timing Control System. At the present time, the traffic control system becomes the main issue because of the fast increase in automobiles and also due to large time delays between traffic lights. Based on the sensors, microcontroller detects the traffic and controls the traffic system.



Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

9.Bank Locker Safety System Using Digital Key Password

- The main aim of the project is to design a system which is capable of providing secured access to bank lockers with digital keypad and automatic locker opening system. This system makes use of a LCD to display whether the locker is opened or closed
- The controlling device of the whole system is a Microcontroller. Microcontroller acts an intermediate between input and output modules and acts accordingly on the output modules from the input received as in the way it is programmed. Here, the Microcontroller get input keypad (i.e. password given by user).



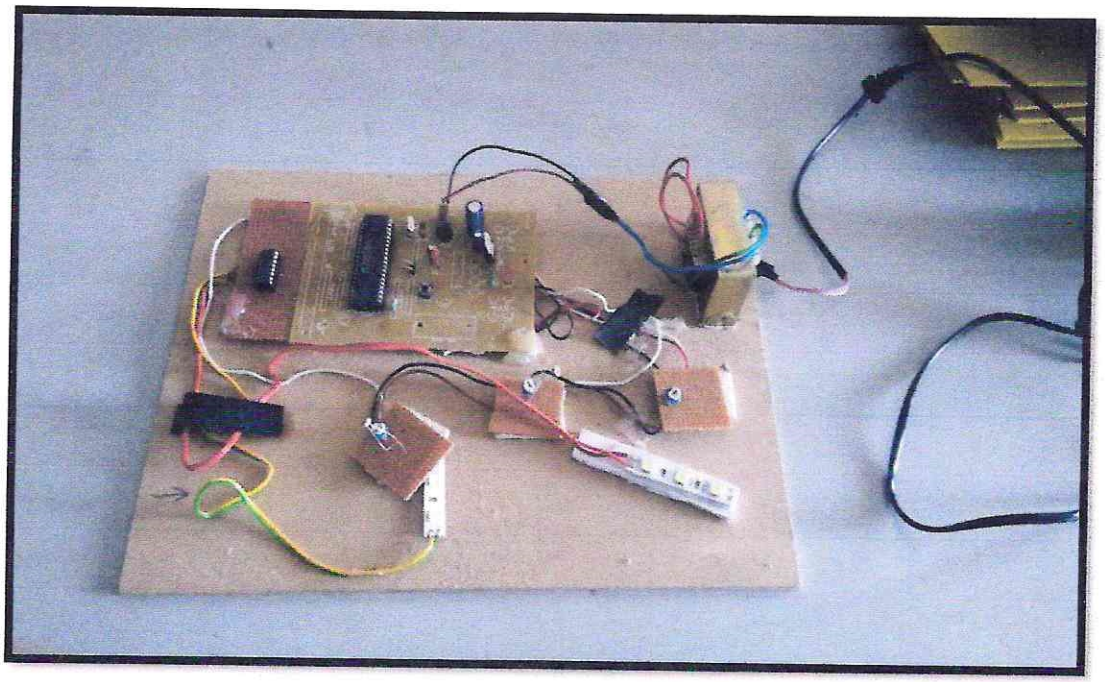
10.Home Automation using RF Communication

- The principle behind the RF based Home Automation circuit is based on the RF Communication between the RF modules. RF Communication between the Transmitter and Receiver modules works on the principle of Serial Communication, which means the RF transmitter will send the data serially to the RF Receiver which is paired to it. When any key is pressed in the transmitter section, a 4-bit data is read by the Encoder IC. This 4-bit parallel data is converted to serial data by the Encoder IC and this serial data is sent to the RF Transmitter.

Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

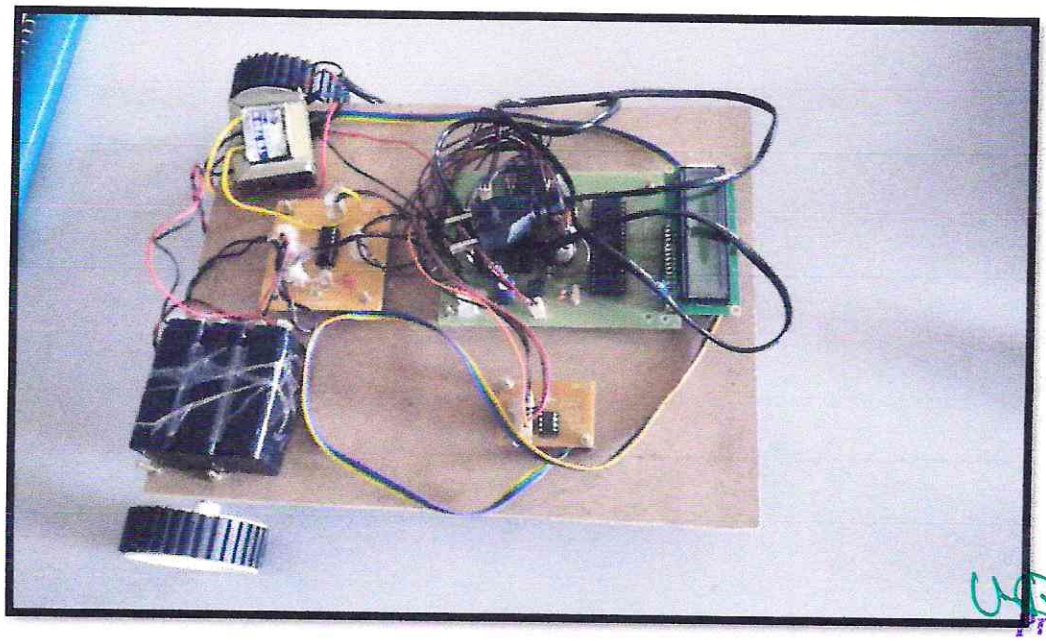
11.Street light that glows on detecting vehicle light

- If there are no **vehicles** on the road, then all the **lights** will turn OFF. The infrared sensors are placed on each side of the road that are used to **detect** the **vehicle** movement and send the logic signals to a microcontroller (AT89S52 series) to turn on/ off the LEDs for a specific distance.



12.Gesture Controlled ROBOT

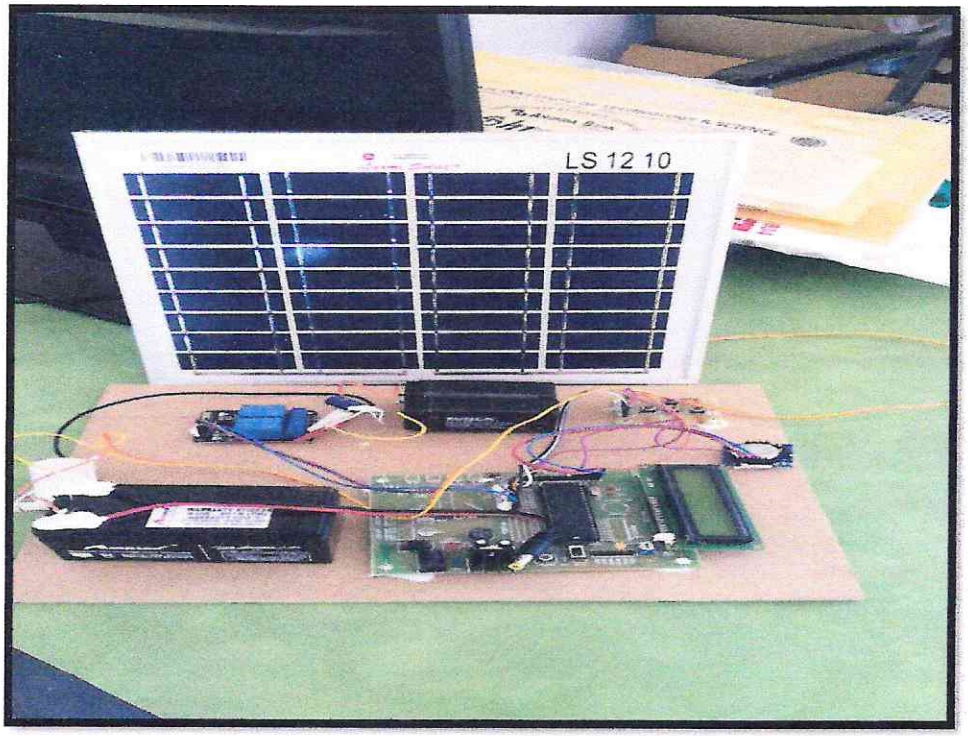
- The **gesture controlled robot** is a wireless operated **robot** and has two parts: Transmitter and Receiver. When the **robot** is powered on, the transmitter part, which consists of Arduino, MPU6050, Encoder and RF Transmitter, will continuously monitor the MPU6050 sensor.



Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

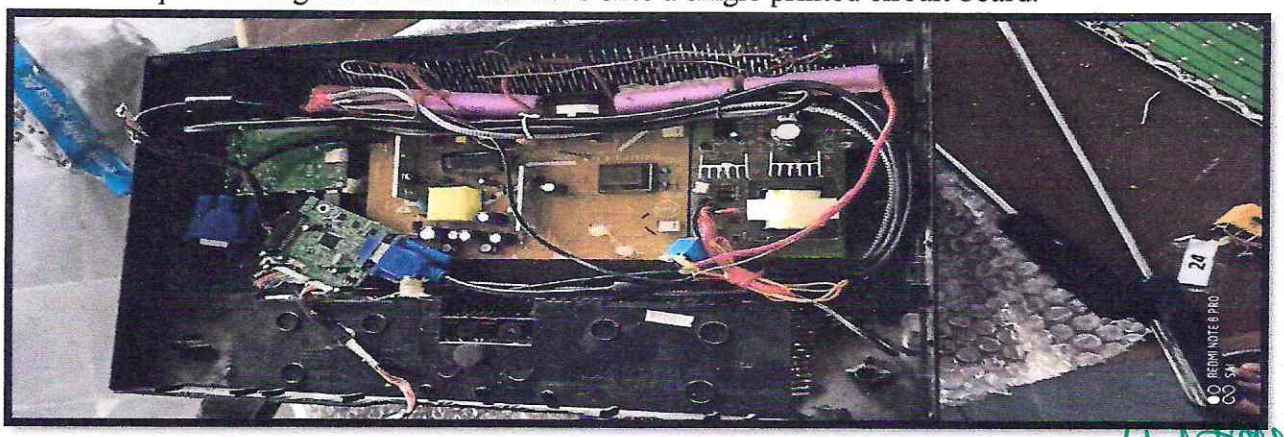
13.Solar Water Pump control with different time slots

- Solar Water Pump Control with four different time slots for Power Saving Applications. Solar energy is changed into a current by using PV (photovoltaic) cells.
- Throughout the daytime, the energy keep within the batteries is used to run the pump for agriculture.

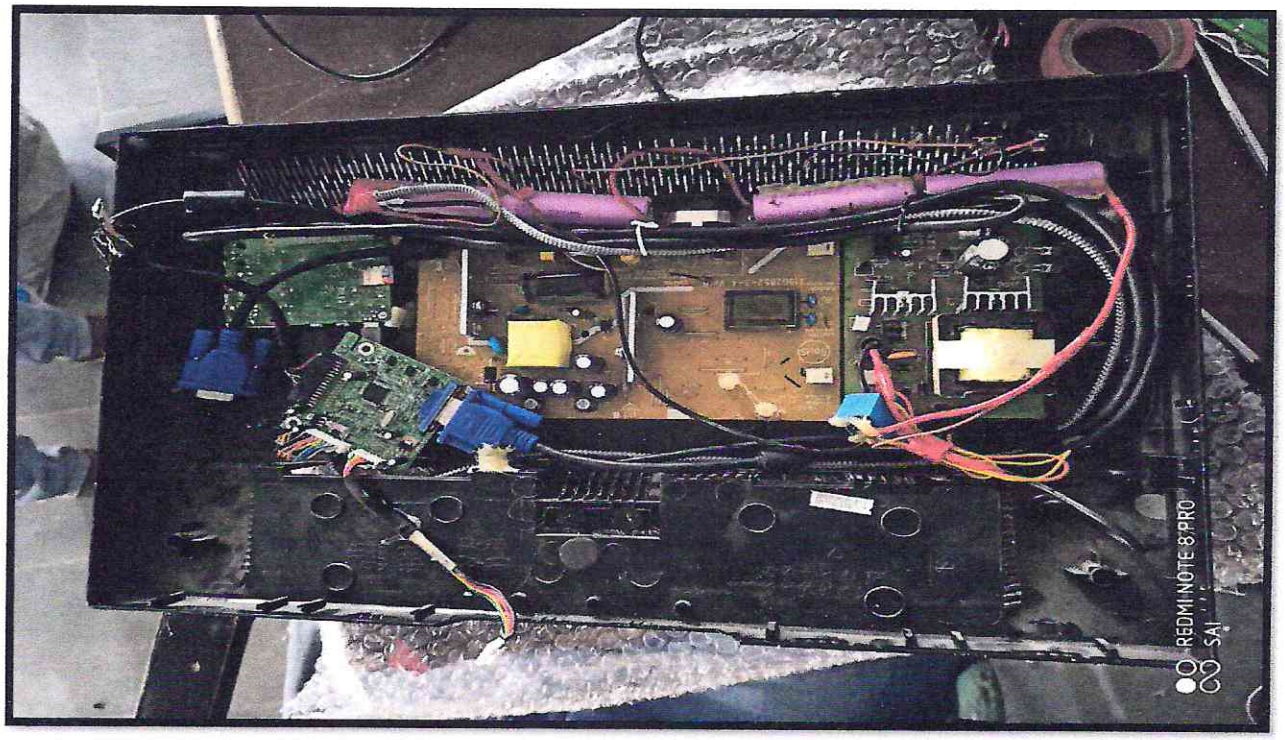


14.Single Board Computer

- A **single-board computer** (**SBC**) is a complete computer built on a single circuit board, with microprocessor(s), memory, input/output (I/O) and other features required of a functional computer.
- Single-board computers were made as demonstration or development systems, for educational systems, or for use as embedded computer controllers. Many types of home computers or portable computers integrate all their functions onto a single printed circuit board.

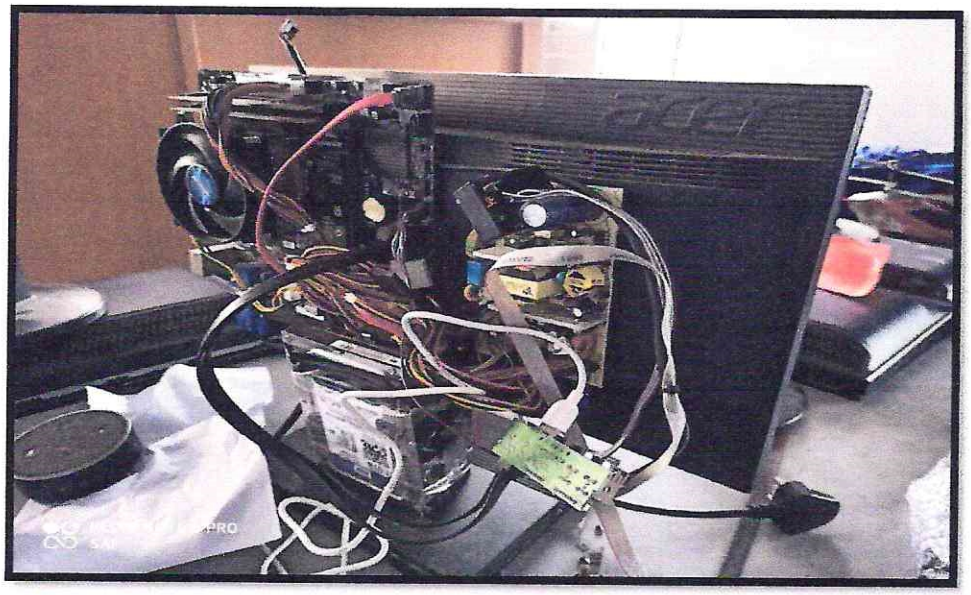


Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331



15.Face Recognition Model

- The face is one of the easiest ways to distinguish the individual identity of each other. Face recognition is a personal identification system that uses personal characteristics of a person to identify the person's identity. Human face recognition procedure basically consists of two phases, namely face detection, where this process takes place very rapidly in humans, except under conditions where the object is located at a short distance away, the next is the introduction, which recognize a face as individuals.



Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

16.E-Bicycle

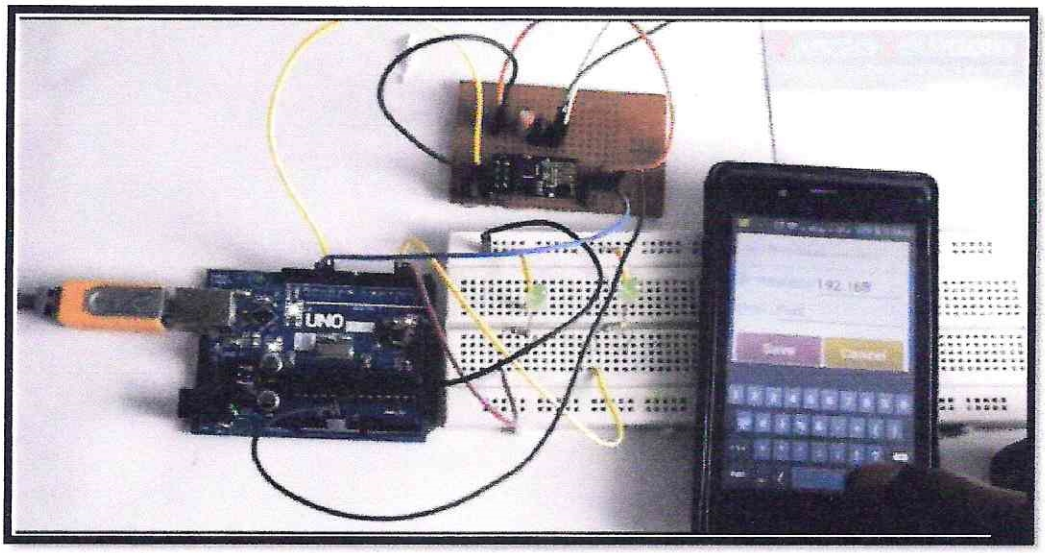
An electric bicycle also known as an e-bike is a bicycle with an integrated electric motor which can be used for propulsion. Many kinds of e-bikes are available worldwide, from e-bikes that only have a small motor to assist the rider's pedal-power to more powerful e-bikes which are closer to moped-style functionality. All retain the ability to be pedalled by the rider and are therefore not electric motorcycles.

17.Smart Class Switching

- The Internet of Things is comprised of a variety of wireless technologies and standards each offering unique connected lighting solutions. A connected lighting application in a smart home uses a connected light operating.

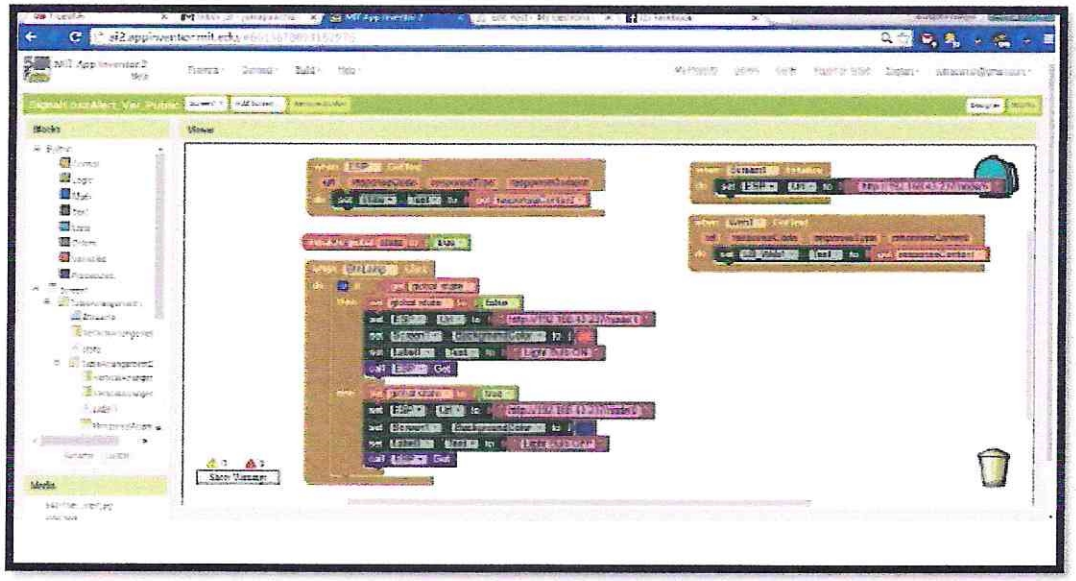
Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

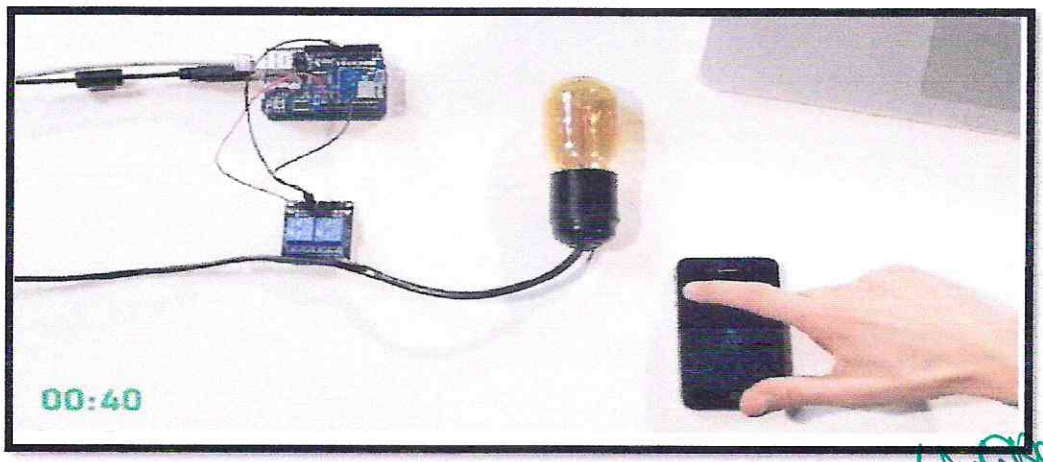
- This Project can give Smart interaction with class appliances through Wi-Fi and it can allow mobile app based switching to students.



18.Android App For Department Floor Lighting

- A Android app is developed to control lights in the campus that can be access by students.

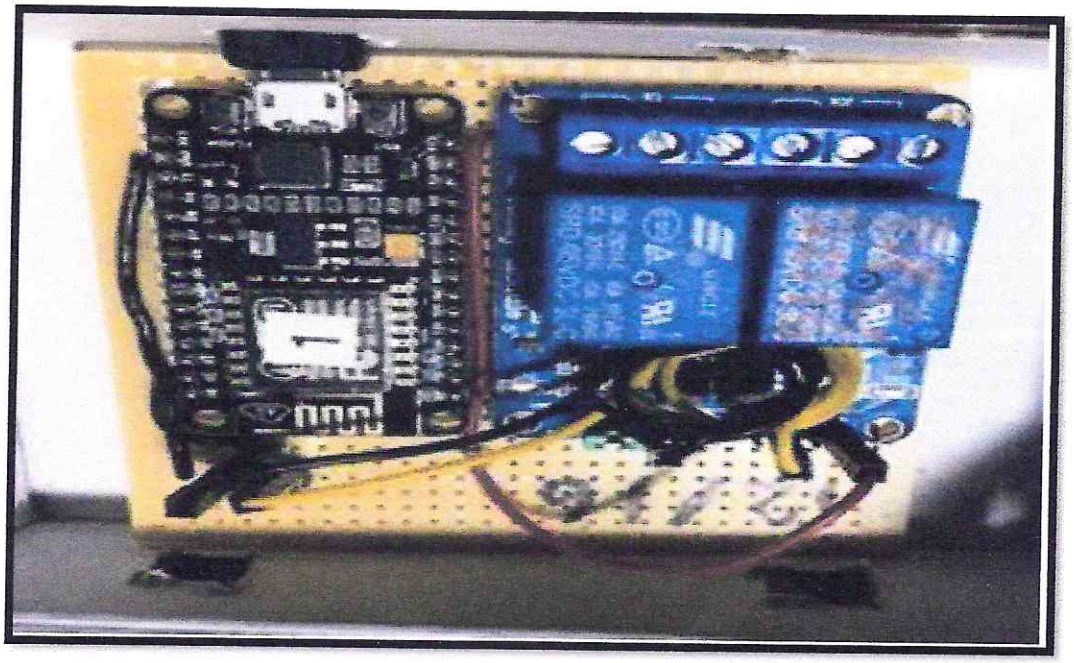




Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

19.IOT Smart Controlling System

- Web Based Application for smart home switching through this web application user can control all fans lights of a home.

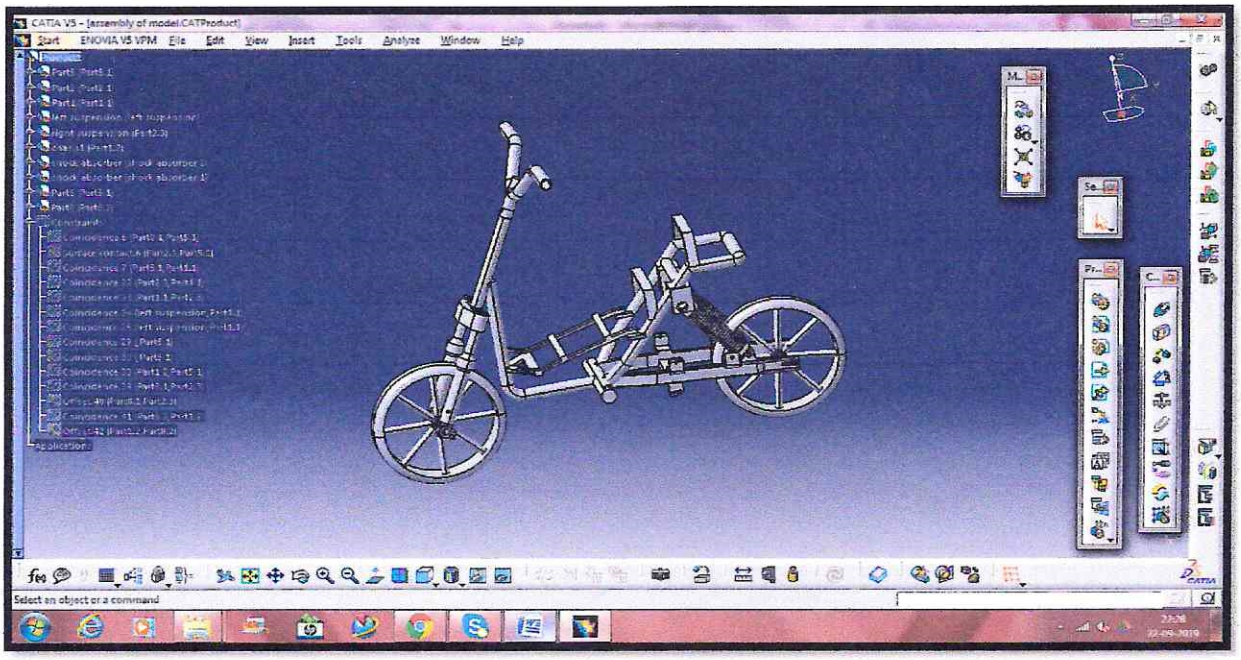


20.Speed Breaker power generation.

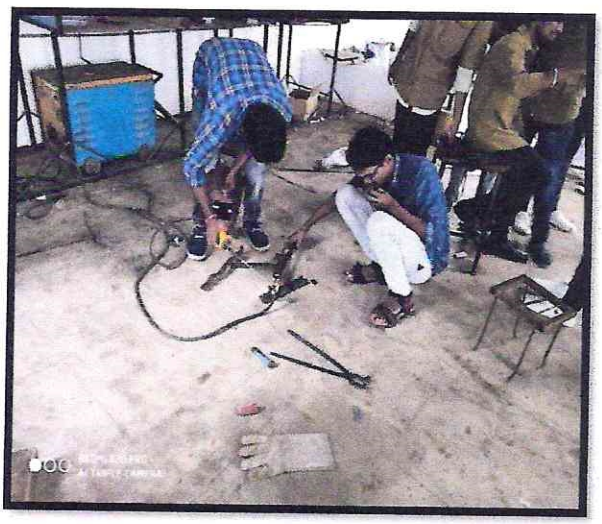
- "Electricity plays a very important role in our life". Due to population explosion, the current power generation has become insufficient to fulfill our requirements. In this project we discover technology to generate electricity from speed breakers in which the system used is reliable and this technique will help conserve our natural resources.

21.E-Bike

- E-bike is known as electrical bike which was designed and fabricated by the students of undergraduatemechanical engineering under the guidance of the faculty this bike was completely fabricated in the engineering workshop lab of BITS, all the body was prepared by using g.i sheets the battery includes in the bike which runs the bike without any sound pollution.



Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331



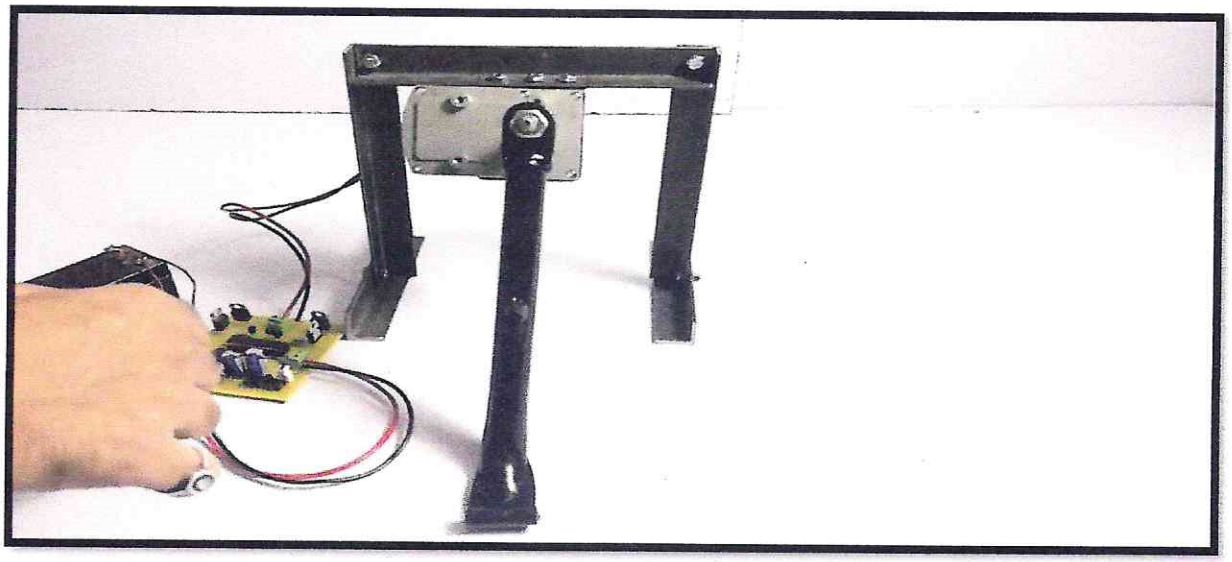
22. EDM

- In this EDM, there are following major factors are reviewed: Resulting foremost conclusions can be stated from review of work in this area that EDM performance is generally evaluated on the basis of TWR, MRR, Ra and hardness. In Material removal rate (MRR) from all selected parameters, spark current (I) is the most significant input factor affecting the machining of workpiece. The performance is affected by discharge current, pulse on time, pulse off time, duty cycle, voltage for EDM.
- For tool wear rate (TWR) from the all selected parameters, spark current (I) is the most significant input factor affecting the machining of work piece followed by spark time and voltage. Innovative technology in the EDM is unceasingly progressing to make this procedure further appropriate for the Machining. In the field of manufacturing additional attention is on the optimization of the method by dropping the number of Electrode.

Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

26.Automatic side stand operating system

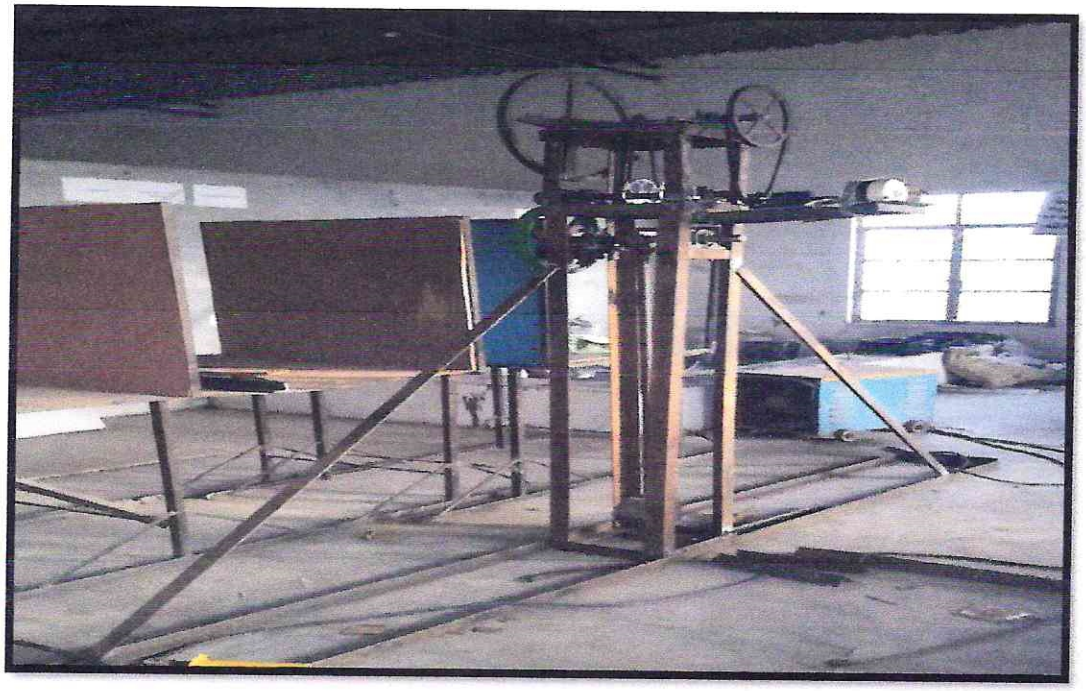
- Running a bike with side stand in its uplift may create problems but with the help of our accessories we solve this problems. The objective of this project is to provide the rigid and safety mechanism without changing in any standard design of bike.
- Moreover it should be economical for every class of society. From above report, it fulfills consumer needs and provides versatility moreover, as it is new product it will promote employment and vast field development for new engineer in day period.



Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331

27.Pendulum power generation

- With the demand for energy requirements increasing tremendously, it can be met by alternative energy resources such as Gravity. Particularly, it can generate more power compared to the other type of nonconventional energy.



Principal
Balaji Institute of Tech & Science
LAKNEPALLY Narsampet-506 331