1. **Project title:** *Smart Induction Geyser*

   Project guide: Mr. Srikanth Rao S K

   Project team: Pratheek P, Subrahmanya Bhat K G, Mahesh B N, Kiran Tejaswi P G

Abstract: Today we are in the world which is growing very fast in terms of technology. So each and every device and equipment needs to be very efficient and must be less time consuming. As we can see today there are several geysers working based on electricity and combustible gas. But these are not so efficient as they consume more time to heat the water. So our project "SMART INDUCTION GEYSER" deals with the idea of water heating with less time and improved safety by using induction technology. The system is smart since user can give inputs he requires i.e the amount of water in liters and the required level of temperature though a remote. Then the system processes the given inputs and outputs the result as desired by user. The controller used here for processing is arduino UNO. The system uses a dc valve and a flow meter to control the water flow which are controlled by the ardiuno. LCD display is provided which acts as the interface between machine and user. Also it uses a stainless steel storage unit along with pipeline network which is linked to a magnetic field generated by an induction coil. Thus smart induction geyser is a complete embedded system with better performance and less time consuming when compared to other existing geysers.

Photograph of project with project guide and team members

2. **Project title:** *Simulation of visual circuit diagram*
   Project guide: Mrs. Nisha G R

   Project team: Naik Ashish Bhaskar, Govinda Prakash, Shreeramakrishna K S, Sooraj

Abstract: Circuit drawing is a natural and also a direct way to express people's thought and meaning. The system of offline circuit recognition and simulation using digital image processing is incorporated. This idea is useful to improve human computer

interaction. Our proposed model consists of all possible components of diagram recognition system which includes segmentation, feature extraction, classification, redrawing of circuit, repositioning as well as creating schematic file. The input given may be scanned image of hand drawn circuit or printed circuit diagram from various sources like textbooks, e-books etc. It is preprocessed to remove noise and is converted to binary level. Later morphological operations are done to obtain a clean, connected representation using neat lines. With the help of branch points and endpoints components are segmented. By the use of shape feature and also support vector machine (SVM) classifier, segmented components are identified and is given to the simulator for simulation of generated schematic.

Photograph of project with project guide and team members

3. Project title: *Solar Powered automatic lawn mover*

Project guide: Ms. Nirupama K

Project team: Apoorva J, Konchady Suprabha Kini, Sameeksha M R, Sneha B

Abstract: Energy crisis is most important problem in today's world. Conventional energy resources are not only limited but also the prime culprit for environmental pollution. The major disadvantages of conventional systems are power consumption is more, reliability is less and conventional systems are more problematic for environment. To overcome all these problems, solar based systems are more eco-friendly, more efficient and less maintenance cost. Renewable energy resources are getting priorities in the whole world to lessen the dependency on conventional resources. Due to the continuous increase in the cost of fuel and the effect of emission of gases from the burnt fuel into the atmosphere, this necessitated the use of the abundant solar energy from the sun as a source of power to drive a lawn mower. A solar powered lawn mower was designed and developed, based on the general principle of mowing. The designed solar powered lawn mower comprises of direct current (D.C) motor, a rechargeable battery, solar panel, a stainless steel blade and sensors. Mowing is achieved by the D.C motor which provides the required torque needed to drive the stainless steel blade which is directly coupled to the shaft of the D.C motor. The battery recharges through the solar charging controller. Performance evaluation of the developed machine was carried out with different types of grasses.

4. Project title: *Microcontroller based automatic irrigation system with moisture sensors*

Project guide: Mr. Suhndas

Project team: Monisha B, Nischitha K, Navyashree A G, Ashwathi Balagopalan

Abstract: The main aim of this project is to provide automatic irrigation to plants which saves time and money. The entire system is controlled by the ATmega328 microcontroller which is programmed to give interrupt signals to the motor to water the field. A temperature sensor, humidity sensor and soil moisture sensors are connected to the analog pins of the ATmega328 microcontroller. Whenever there is a change in the temperature, humidity or soil moisture level, these sensors senses the change and gives an interrupt signal to the ATmega328 controller and the motor is turned ON. The information is provided to the user through a call or message using the GPRS module. The temperature, humidity and the soil moisture values are stored in a database and displayed in a web page.

5. Project title: *Wireless Electronic Notice board by GSM with user programmable number features*

Project guide: Mrs. Rajani Rai B

Project team: Rakesh Shenoy M, Rakshith B, Dhanush K S, Shrihari N

Photograph of project with project guide and team members

Abstract: Notice Boards are of common occurrence in variety of institutions which we come across on a daily basis. In the current scenario, the notice boards are being managed manually. There is a long process involved in order to put notices on the notice board. This project deals with an innovative and interesting manner of intimating the message to the people using a wireless electronic display board which is synchronized using the Wi-Fi technology. The proposed project is based on Internet of Things (IoT) which involves the communication between the end user and the receiver system either using WLAN or internet. This will help us in passing any message without any delay which is better and more reliable than the old traditional way of pasting the message on notice board. The device is used to achieve communication wherever the network is available. The

system is designed such that only authorized people can access the notice board. The proposed technology can be used in colleges, public places, malls or big buildings to enhance the security system and also make awareness of the emergency situations and avoid many dangers. Various AT commands are used to display the message onto the display board. Wi-Fi technology is used to control the display board and for conveying the message sent from the user.

6. Project title: *Health Monitoring system*

Project guide: Mr. Mahabaleshwara Bhat P

Project team: Jesna Menenzes, Swathi M, Shubhashree P R, Rekhashree

Abstract: Health monitoring systems have become a hot topic and plays an important role in research field today. Researches on health monitoring are developed for many applications such as military, home care unit, hospital, sports training and emergency monitoring system. In this work, a real time wireless health monitoring system is implemented using Wi-Fi. The developed acquisition system is used for remote monitoring of patient's body temperature, heart rate and used in detection of any fall. The data is stored in the database. An alert message is sent to the care taker or doctor when there is any violation of standard conditions of patient. This system allows the caretaker or doctor to understand patient's scenario by frequent access to the database. Here low cost, wide range and flexible network topology is obtained by the usage of Wi-Fi wireless module. All the sensor outputs are programmed to store in a database using a Wi-Fi module. The principle of Internet of Things (IoT) is used for the storage and exchange of data.

Photograph of project with project guide and team members

7. Project title: *Prepaid Energy Meter*

Project guide: Mr. Vinay P

Project team: Swathi A, Sowmya P, Surayya G, Amrithavarshini

Abstract: Electrical power meter is an important component in electric energy service. In the past, many consumers have complained about inaccurate reading of the electric meter. This paper presents the development of an electrical power meter equipped with RFID reader. The RFID reader reads a valid RFID card and activates the power meter so that it can supply electricity. When the credit is about low or before the electricity is auto cut off, an SMS message will be sent to the user's hand phone to alert.

8. Project title: *Priority based traffic controller for emergency services*

Project guide: Mr. Naveena C

Project team: Padmaprasad Aithal, Sooraj B, Rakshith Shetty K, Aditya Erky

Abstract: Nowadays Traffic light is used to control the traffic at the road. The trend is clear that the technology of traffic light is growing rapidly. But there is still problem for emergency vehicles to bypass when the traffic light is red. This is because the emergency vehicle is unable to reach the destination in short. So, the purpose of this project is to solve this problem. This project presents the design of traffic light system that responds to emergency vehicles to immediately bypass the traffic light. Hence, the emergency vehicle can reach the destination at the right time to save lives. In our project we are used an Emergency Vehicle Pre-emption Technology which employs the RF modules for transmission and reception of the signals.

9. Project title: *Vehicle automation using image processing and embedded controller*

Project guide: Mrs. Prabha G S

Project team: Anupama D, Mamatha, Sowyashree B G, Swathi V Rao

Photograph of project with project guide, HOD and team members

Abstract: The standard headlights that we find in vehicle today shine straight ahead, no matter in what direction the car is heading, rendering an unsafe driving scenario at certain times. Over 50% of the total accidents occur at night, a number much higher than the proportion of driving done at night. When going around curves these headlights illuminate the side of the road more than the road itself. Hence in order to overcome these limitations we propose this idea of adaptive headlights. The focus of the headlight is turned around each bend in the road, giving us a better view of what is ahead. The car with adaptive headlights uses the images of the road. The captured image will be processed using image processing techniques and signals obtained from this technique will be received by the microcontroller serially which helps to direct the beam towards required direction and a LDR is used to control the headlight beam intensity which results in adaptive lighting.

10. Project title: *Automation of Greenhouse Irrigation system using Fuzzy Logic*

Project guide: Mr. Shivaprasad

Project team: Manisha, Ranjitha, Pavithra, Sharvani

Abstract: Nowadays computerized control is very essential for the greenhouse irrigation control. Many conventional methods for controlling greenhouse irrigation are not effective since they are either based on on-off control methods or proportional control methods. This results in a loss of energy and productivity. The paper presents a solution for an irrigation controller based on the fuzzy-logic methodology. The developed fuzzy logic controller can effectively estimate amount of water uptake of plants in distinct depth using the reliable irrigation model, environmental conditions of greenhouse, soil type, type of plant and another factors affecting the irrigation of greenhouse.

11. Project title: *Soil survey with GSM communication*

Project guide: Mr. Praveen M Ullagaddi

Project team: Karthik, Prakash L S, Udayshankara S, Ranjesh K M

Abstract: Determining property of the soil for Agriculture as well as for construction of buildings is a vitally important task that is currently performed by humans. The objective of this paper is to build a soil survey manipulator that can be carried by a lightweight, portable, autonomous vehicle, sensors and controls to navigate in assault zone. The manipulators permit both surface and sub-surface measurements. Various sensors are used to determine the parameters of the soil. In this paper we propose a Robot system which determines the pH, temperature, turbidity, moisture content of the soil sample. The controls provide local control of the robot as well as the soil sampling mechanism. The results can be verified with the predefined reference value.

12. Project title: *Fusion of image and speech recognition for security purpose*

Project guide: Mr. Pramod Kumar Naik

Project team: Ashmika K, Amitha S, Dhanushree G, Mamatha

Abstract: Nowadays person recognition has got more and more interest especially for security reasons. The recognition performed by a biometric system using a single modality tends to be less performing due to sensor data, restricted degrees of freedom and unacceptable error rates. To alleviate some of these problems we use multimodal biometric systems which provide better recognition results. By combining different modalities, such as speech, face, fingerprint, etc., we increase the performance of recognition systems. In our project, face-voice recognition system is introduced. The fusion of PCA and LDA algorithms are used for face recognition and MFCC algorithm is used for voice recognition. If the test face recognized with the database, then the voice recognition is made. If test voice is matched with the recorded voice, then the system can be accessed. This is implemented using MATLAB and Arduino software. The LCD and stepper motor interfacing is used to indicate authorized or unauthorized user.

13. Project title: *Automatic ticket vending machine*

Project guide: Mrs. Sowmya Anil

Project team: Vaishnavi KV, Dhanavathi, Shyamala M J, Tejashree Das

Abstract: Nowadays the public transport systems have become very important in our day to day life. This project shows the prototype of completely automated bus ticketing system. In present scenario, the ticketing system is more tedious. People are standing in long queues for getting tickets especially in public mode of transportation. This leads to unnecessary time wastage and energy waste. Some people use automated ticket vending machine, but then these machines are not so successful in all the places in which they have been implemented. Some travels without making proper calculations causing huge loss to the transport department. This project attempts to provide a feasible solution for this problem of manual ticketing by the use of Radio frequency identification tags. In addition to this, in the present transport system the bus fare is calculated depending on the stages which are predetermined by the transport department. If a person wants to get down the bus somewhere in middle of the two successive stages then the person has to pay the fare fixed to the next stage. The objective of our project is to determine the fare only for the total distance traveled by the user. This system helps in fair calculation of the fare which in turn reduces the burden on the passengers. Hence this machine has a goal to pay the amount only for the distance traveled than the predetermined fare.

14. Project title: *Embedded Web Server Based Smart Home*

Project guide: Mr. Gurusandesh M

Project team: Ramesh, Prasad K, Keshav Prasad, Avinash M B

Abstract: In smart homes we have various high-tech appliances to get our works done and make the life easier. It is necessary to control these home appliances smartly from anywhere. In this project we are implementing a system that will enable the house owners to control their home through the internet with high mobility and security. We will use the Web Server (WS) which enables controlling and monitoring the home appliances remotely with the help of any standard web browser. And the earlier wired connections were eliminated by using wireless sensor network (WSN) using nRF24L01.

Photograph of project with project guide, HOD and team members