

## **Best Five Project From (Shift-I)**

**1. Project Title:** Augmented Reality Rendering System For Military Training Using Head Mounted Device (HMD).

**Abstract:** This project is based on 'Virtual Reality' concept, which typically refers to computer technologies that use virtual reality headsets to generate realistic images, sound and other sensations that replicate real environment or create an imaginary settings. VR also stimulates the user's physical presence in this environment. It is the key to experiencing, feeling and touching the past, present and the future. It is the medium of creating our own world, our own customized. With virtual reality, we can experience the most intimidating and grueling situations by playing safe and with a learning perspective. It helps to train the soldier using virtual reality technology which is composed of three main modules: VR box to sense the virtual environment, Bluetooth module interfaced with an arduino to communicate with the mobile app.

**Domain/Area of Project:** Augmented Reality.

**2. Project Title:** Brain Tumor Detection And Extraction In MRI Images Using Image Processing

**Abstract:** Automated and accurate classification of MR brain images is extremely important for medical analysis and interpretation. Over the last decade numerous methods have already been proposed. The proposed method first employed wavelet transform to extract features from images, followed by applying principle component analysis (PCA) to reduce the dimensions of features. The reduced features were submitted to a kernel support vector machine (KSVM). The strategy of Kfold stratified cross validation was used to enhance generalization of KSVM. We performed our proposed methods with four different kernels, and found that the GRB kernel achieves the highest classification accuracy as 99.38%. We also compared our method to those from literatures in the last decade, and the results showed our DWT+PCA+KSVM with GRB kernel still achieved the best accurate classification results. From the experimental data, our method was effective and rapid. It could be applied to the field of MR brain image classification and can assist the doctors to diagnose where a patient is

**Domain/Area of Project:** Image Processing

**Sponsored By:** Baldawa Clinic, Solapur.

### **3. Project Title:** Internet of Things: Globally Controlled Devices using Android Application

**Abstract:** With the trend going on in unambiguous computing, everything is going to be connected to the Internet and its data will be used for various progressive purposes, creating not only information from it but also knowledge and even wisdom. Internet of Things (IoT) becoming so pervasive that it is necessary to integrate with cloud computing because of the amount of data IoT's could generate and the requirement to have the privilege of virtual resources utilization, storage capacity, also to make it possible to create more usefulness from the data generated by IoT's and to develop the android applications for the users. Controller (ESP-8266) can be operated through a web page and through an android application also. The application will initialize the device. To control any device we have to ping the IP address of the Wi-Fi module to the respective application. Once the IP is pinged to the smart phone we can easily operate the respective devices connected to module from anywhere in the world. In this project, we are using four appliances as output devices which will be operated using webpage and android application through Wi-Fi Module.

**Domain/Area of Project:** Embedded System.

**Sponsored By:** Vedam Labs. Solapur

### **4. Project Title:** System to System Data Transmission Based on Li-Fi Technology

**Abstract:** The purpose of this project is to present a new technology to overcome the Wi-Fi. A brief history of Li-Fi technology is provided along with the IR-Photo Sensor techniques that were used to transfer information with high security. This system focuses on transmission of data between two systems through light.

**Domain/Area of Project:** Embedded System.

**Sponsored By:** Solar Electronics, Solapur.

### **5. Project Title:** Attendance Tracking System Using NFC

**Abstract:** We are developing universal authentication system using NFC Technology. For implementation of this system, we have used latest technology available in the market that are ARM7 processor and NFC technology. ARM 7 processor is also called as R-PI model. It is one of the best model that provides RFID/NFC, Camera interface and it also supports LINUX platform. Our aim in this is to identify an authenticated authorized user for an authorized person by using NFC reader/writer. Such types of systems are useful in number of fields in many of the security purpose and at the student we are using for attendance tracking system. Our system gives secured and appropriate user access to a specific system.

**Domain/Area of Project:** Embedded System.

**Sponsored by :** Swara Enterprises, Solapur.

## **Best Five Project from (Shift-II)**

### **1. Project Title: Smart Automation System for Modern Society**

**Abstract:** Modern advances of computing systems allow humans to participate not only as service consumers but also as service providers, yielding the so-called human-based computation. The interweaving of human-based computing into machine-based computing systems becomes apparent in smart city settings, where human-based services together with software-based services and thing-based services (e.g., sensor-as-a-service) are orchestrated for solving complex problems, using smarter technologies. This system describes the face recognition system which identifies and/or verifies the unauthorized person's identity of a person from digital images. The system is connected to the gate. When the system found the person to be unauthorized then the system opens the gate automatically. Our project controls electrical loads by making use of an android application. The proposed system is used to control electrical loads based on the Bluetooth input signal received from the android device. It becomes difficult to keep operating electrical switches manually each time by elderly and handicapped people. This system solves the issue by interfacing a unit with home appliances that switches these loads based on the input received from android device. Also automatic Car Parking System using Microcontroller is an interesting part of the project.

**Domain/Area of Project:** Embedded System

### **2. Project Title: G - Code Generation for 3D object Printing**

**Abstract:** While making the clone of certain object, we have to scan the object. This scanning is done using computers with special hardware tools. To replace this need of scanning computer, we can achieve this by Raspberry Pi and a camera. This will be less costly and low power consuming as compared to computer scanning. The goal of our project is to create the G-code of the object. This technology can be used for object cloning. By scanning an image, processing the image with split and merge technique we can find out the shape of object. Using this concept, we scan four sides of the object using turntable. Like if we get the all four sides of the object as square then it is cube. We made the prototype that finds out only basic shapes like cube, cuboids, pyramid etc. we used shape detection that includes various operations like image resizing, image thresholding, segmentation etc. We used OpenCV as our computer vision software instead of MATLAB. Because OpenCV is real time computer vision software. MATLAB is too costly but OpenCV is free and open source. So there is a lot contribution of peoples to software. MATLAB is based on C, C++ in backend processing. But OpenCV does not work that way it works in that programming language it is written. Python language is very easy to learn as compared to other languages like C++, java etc. Python photogrammetry toolbox is very helpful tool for the 3d reconstruction of scene or object. Python photogrammetry toolbox is developed by ATOR (Arc-Team Open Research) and Pierre Moulon (GUI).

**Domain/Area of Project:** Embedded System

### 3. **Project Title:** Wireless Bomb Disposal Robot.

**Abstract:** The main goal of the project is to provide safety to the bomb disposal squad by providing an extra line of defence. Provide a remote monitoring and controlling application for analysis of a suspicious packet (or bomb). Allow the user to manipulate the packet using the robotic arm. To provide visual feedback from the site of the packet. To provide a very user-friendly control application. The Wireless Bomb Disposal Robot uses a control application, at the user end to control the robot remotely using Wireless technology. The bomb technician controls the robot using this application. Input from the user is transmitted serially over an RF link to the Robot, where it is received, identified and relayed to the appropriate module. The input to the system is from the user. This input is first processed at the control application, serially transmitted over a Radio Link. This input is then received at the robot and processed again. The output of the system is the processed signal to the appropriate module. This module can be motors of the base of the robot or the motors robotic arm or jaw.

**Domain/Area of Project:** Robotics.

**Sponsored By:** Phoenix Contact Pvt. Ltd., Pune.

### 4. **Project Title:** IoT Based Waste Management for Smart City

**Abstract:** The Government of India has recently launched a smart city project and for these smart cities to be smarter it is necessary that the garbage collection system has to be smarter and in addition to that the people need easy accessibility to the garbage disposing points and garbage collection process has to be efficient in terms of time and fuel cost.

In this proposed system, ultrasonic sensors are used for the garbage level measurement in dustbin. A particular threshold level is decided to indicate the status of dustbin. When the level reaches the threshold limit, the device will transmit the level so that an alert message will be sent using the system.

The system which is proposed here is to implement a smarter way of conventional waste management using smart sensors to gather fill-level data, presence of garbage around the dustbin and stinking condition from containers and garbage bins, and send it to servers in real time.

**Domain/Area of Project:** Embedded System.

**Sponsored By:** Dr. Potdar Laboratory, Solapur.

## **5. Project Title:** Automatic Booking System for LPG with Leakage Detection.

**Abstract:** A cost-effective, automatic Liquefied Petroleum Gas (LPG) booking, leakage detection and real time gas monitoring system is proposed in this paper. In this system, the LPG leakage is detected through the sensor and information is sent to the user and simultaneously alerts the user using a GSM module, while activating the alarm and exhaust fan. The additional advantage of the system is that it continuously monitors the level of the LPG present in the cylinder using weight sensor and automatically books the cylinder using a GSM module. There is a rapid development in technology which influencing the human life in several aspects and make human life easier to live. In our Country it is not possible to supply LPG through Pipes to each and every home as production of LPG is too short. Most of the illiterate people can't even complete the booking due to this reason and also most of the times these landline phones are either busy due to congested calls or phones not working due to some technical issues. This system will help them by automatically booking the gas. Not only this but also alerts the user about gas leakage.

**Domain/Area of Project:** Embedded System.