Bharatiya Vidya Bhavan's

SARDAR PATEL INSTITUTE OF TECHNOLOGY

Munshi Nagar, Andheri (West), Mumbai 400058.

LIST OF PROJECTS

Academic Year 2014-15

GR. NO.	NAME OF STUDENTS	TITLE OF PROJECT	ABSTRACT
1	Kartiki A. Parwatkar Lalan G. Shirsat Digjay Patel	Intelligent system (microprocessor and microcontroller)	In this project a microcontroller based remote irrigation system is to be developed for agricultural plantation. The developing system will be placed at the remote location and required water will be provided for plantation whenever the humidity, temperature and moisture level of the agricultural land goes below the set threshold value. Switching on of the water pump depends on the moisture content of the soil. The microcontroller ATmega 32, is used to control and display the resultant sensor values on a web based platform. The web server is located at the agricultural field so that 24 hours monitoring of agricultural parameter that is temperature and soil moisture is possible with the help of standard web browser.
2	Jignesh A. Gavale Rasika R. Admane Akash A. Agrawal	Dynamic Human-Computer Interface	A way through which any specially-challenged human being can interact with the computer without actually physically operating devices like keyboard or mouse. Dynamic as well as static hand gestures will be used to control a computer and to perform tasks according to the specified gesture. Mechanism of integrated voice- response has been added to make it simpler for people who cannot see which makes it more friendly. Tasks can be changed according to the user's wish making it flexible.
3	Amarendra Rande Kulbhushan Tanwar Joel Wilson	SmartStick-An Aiding Companion	Meeting the needs of thousands of elderly people who feel insecure when out for a walk ,our product aims to be a boon for this vulnerable section of society.Embedded-Cane is a normal walking cane installed with a GPS and GSM module which works as the location tracker and also a health monitoring tool which monitors the user's pulse rate notifying the carer if found any abnormality. A electroshock device incorporated to ensure the safety of the user with a buzzer to notify the surrounding pedestrians and a led torch to aid in darkness. Our main focus has been to ensure the safety and well being of people who need to use walking sticks in their day to day life for walks giving them confidence to have a peaceful and secured walk and also to implant assurance to the user's family members about his/her safety when user is out for a walk. It is like virtually taking care of your parents even though you are not with them !
4	Priyanka N. Mayekar Ruchi R. Mayekar Neha N. Barwa	Ultrasonic Guide with Acoustic Feedback for Visually Challenged	We have developed of a wearable obstacle detection and navigation system for assisting the visually challenged people. The system aims at increasing the mobility of these individuals. This system is designed to give feedback not only when the obstacle is present in a single direction but also when it is present in any of the two major directions. Also, it gives buzzer output when obstacle is present in all major directions. An ultrasonic sensor module has been used to identify the obstacles. The direction of the obstacle and navigation is conveyed to the user as an audio output using voice module and the distance of the obstacle is displayed on an LCD display for partially blind people.

GR. NO.	NAME OF STUDENTS	TITLE OF PROJECT	ABSTRACT
5	Shah Hardik Ankur Nandawat Mehta Sujal	Biometric Multilevel Security System	The aim of this project is to build a multilevel security system using different bio-metric like voice, retina, fingerprint, chieloscopy, etc. Such kind of system is used only in highly secure places like defense, scientific laboratory. By integrating some of the bio metrics in our proposed system, the level of security will increase.
6	Patekar Rohit Chavan Omkar Morwal Brijesh	RFID based library management system with theft detection	The proposed system provides complete RFID based library management solution. Use of RFID technology enables automation in the library transactions. JAVA powered GUI provides interface between software and the users. Database Management tool effeciently manages the data of users and books. Book search, SMS alerts, Report generation, fine clearance are some of the features of proposed system. Theft detection of books is also implemented in the proposed project with the help of conveyor belt mechanism.
7	Nayan Keni Rohit Nabar Vikas Dhande	Android Based Smart Wheelchair	We have created a Wheelchair that is controlled by an android application by the person sitting on the wheelchair himself.For this we have used the bluetooth modem HC-05 by setting the baud rate to match the android phone.We have ultrasonic sensors connrected to prevent the accidents while motion of th wheelchair.Also as an enhancement,we have connected the body sensors to monitor the health of the patient on the wheelchair.
8	Suyash Kodare Saurabh More Bhagwan Likhe	Interfacing IEEE802.11 bluetooth mobile with projector	Evolution of Wireless technology has revolutionized the field of communication. Bluetooth,GPRS, Wi-Fi technology and GUI(Graphical user Interface) on one single device like Mobile phone helps user to easily exchange data from one device to other device and to access internet at any time. Mobile phones is slowly replacing computers in the form of Tablets.An user can perform his 80percent of day-to-day work without using computers only because of Mobile Phones.Nowadays, mass storage devices like pen-drives can share data with mobile phones via OTG(On The Go) cables, but when it comes for presentations or projecting some information via projectors we have to solely depend on devices with video out signals like VGA and HDMI.Inspite of various GUI and user friendly tools provided by mobile phones, we cannot connect it to projectors. Mobile phones with inbuilt projectors having low resolution are available in market,economically it is costly to buy mobile phones only for the purpose of projector.This paper presents an idea of connecting mobile phones to Projector with bluetooth interface.Implementation of Project includes FPGA(Field Programmable Gate Array) which is directly interfaced with bluetooth module and projector.As connection between mobile phone and projector is wireless, hence no need of special type of connectors,and it is a reliable and efficient interface circuitry for system.
9	sagar H. Gaikwad Gangeshwar G. Gundetti Vatsal D. Tiwari	Offline and Real time Image Processing for Medical Applications using Raspberry Pi	This project examines the analysis and implementation of offline and real-time image processing using Raspberry Pi and is an attempt to explore its usage in medical applications. The project discusses the construction, working and challenges involved in working with the Raspberry Pi module. We aim at implementing offline MRI Diffusion Tensor Imaging and real time motion detection technique for easy processing of medical data. Experimental results have been presented to support the theory.

GR. NO.	NAME OF STUDENTS	TITLE OF PROJECT	ABSTRACT
10	Maurya Ajaykumar Maurya Abhishek Waghmode Amol	Intelligent Bus Transport System	Intelligent Bus transport System is a proposed System in which the Estimated time of arrival of Buses at their Respective Bus Stops will be displayed. The vehicle unit reports the current position of the vehicle to a Receiver periodically via GSM. An Estimated Time of Arrival (ETA) algorithm running on the transmitter predicts the arrival times of buses at their stops based on real time observations of its current GPS coordinates. This information is displayed and announced to passengers at bus stops, which periodically fetch the required ETA from the transmitter via GSM. When this information is disseminated to passengers at bus-stops, they can spend their time efficiently for other activities, or take alternate means of transport if the bus is delayed. Thus the whole transport system can be made efficient.
11	Akshaykumar Gupta Gunjan Harjal Kumar Navneet	Wireless Sensor Network For Locomotives	We Have Designed a dual layer microstrip antenna antenna to work at hostile environments in the Locomotives and the frequency at which it works is 2.45 Ghz.The main objective was to increase the bandwidth and the return loss of the antenna Which has been successafully Achieved using the current design.The Substrate Used is FR-4 for the antenna and the design dimensions achieved are satisfactory.The Experimental and Simulated results are successfully verified.
12	Vallabh Desai Mohita Rathi Dhvani Chheda	Safty Devices for Women security	In recent times, there has been an increase in the number of rapes and assaults on women. In most cases the women in danger do not have any means to send a help signal to the concerned authorities. So in order to provide immediate aid to them in such times, we have proposed this project Security device for women safety. Here we have designed a prototype model that comprises a switch, Microcontroller, GSM and GPS modules. When in need, the woman will press the switch which will interrupt the microcontroller. The currentlocation co-ordinates received from the GPS at that instant are then transmitted to the GSM module. The GSM module will then send these co-ordinates to three contacts stored in the device.
13	Samruddhi A. Gore Sushant R. Kini Gaurav D. Mane	Smart Bowling System	Cricket is a widely played sport across the globe and every sport seeks technological help for the players to practice efficiently. In cricket, batsmen make use of bowling machines in order to enhance their skills. A bowling machine is a mechanical device used to deliver a ball with either preset configuration or in a random way without taking into consideration the batsman's weaknesses. A batsman's playing technique can be predicted based on his stance. In this paper, we propose an approach wherein the batsman's stance is taken into consideration for deciding the type of delivery by using image processing and fuzzy logic. The batsman's silhouette is obtained from front and side view by performing background subtraction. In order to extract required features, color bands are put on different body joints and the bat. These color bands are detected by converting a frame from RGB to HSV format and then thresholding it for each of the colors. Fuzzy logic approach is used to make a decision by using the extracted features as input. Haar cascade classifier is trained and used to trigger the feature extraction process by detecting the batsman's ready position.

GR. NO.	NAME OF STUDENTS	TITLE OF PROJECT	ABSTRACT
14	Pritish Mahadik Aditi Phadnis Priti Patil	Anti-Money Laundering using Neural Network	Anti-money laundering software is software used in the finance and legal industries to meet the legal requirements for financial institutions and other regulated entities to prevent or report money laundering activities. This software application will effectively monitor bank customer transactions on a daily basis and, using customer historical information and account profile, provide a ”whole picture” to the bank management. With the help of an artificial neural network it will draw predictions on the risk involved with each customer to indulge into such illegal activities along with a graphical representation of various assets and information.
15	Arun Dhingra Krutik Mehta Bhavik Bhansali	Virtual Drum-Kit using Dynamic Image Processing	This project aims to develope virtual drum-kit using dynamic image processing. The virtual drum-kit will make use of drumsticks or for the matter any stick of sizable legth to give the user a near real experience.
16	Hastu Rishabh Jagtap Parag Shukla Abhishek	Cognitive Radio Networks Security	A cognitive radio is an intelligent radio that can be programmed and configured dynamically. The Federal Communications Commission (FCC) has considered making the licensed spectrum available to unlicensed users. This will allow unlicensed users to use the empty spectrum, provided they cause no interference to licensed users. This leads to unauthorized and unlawfull usage of spectrum creating various challenges and threats. We aim to tackle such challenges and threats by developing a Security model and a Trust model to make CRNs more secure from the malicious attaks.
17	Rohan Banerjee Vaibhav Bhatt Anubbhav Malhotra	Smart Authentication System using Keystroke Dynamics	The project involves the design of an embedded authentication device with the underlying principle of Keystroke Dynamics. Keystroke or Typing Dynamics is a famous biometric technology used to recognize the identity of an individual based on their unique typing pattern. It is the detailed timing information that describes exactly when each key was pressed and when it was released as a person is typing at a computer keyboard.
18	Parth Mulay Ankita Padwal Nidhi Nair	Moving Object Tracking Using Kalman Filter	We propose a system that uses the most coherent techniques pertaining to human vision to emulate a person detection, recognition and tracking system.We have implemented Histogram of Oriented Gradients using Linear SVM (Support Vector Machine) to accomplish this task. The more demanding, and intense, area of research is that of human recognition. Identification in humans is a difficult task because of the varying conditions of testing.We have explored another histogram based method, the Local Binary Patterns Histogram method, which is comparatively immune to changes in illumination, texture, brightness, etc. The most lucrative part of this system is the tracking which provides an easy way to follow the trajectory of any human in the video. With the use of Kalman filtering in this process, many difficulties like abrupt object motion, changing appearance patterns of the object and the scene, non-rigid object structures, object-to-object and object-to-scene occlusions can be avoided.

GR. NO.	NAME OF STUDENTS	TITLE OF PROJECT	ABSTRACT
19	Sanjana Sunder Abhini Shetye Sulabh Chokhani	Offline and Real time Image Processing for Medical Applications using Raspberry Pi	This project examines the analysis and implementation of offline and real-time image processing using Raspberry Pi and is an attempt to explore its usage in medical applications. The project discusses the construction, working and challenges involved in working with the Raspberry Pi module. We aim at implementing offline MRI Diffusion Tensor Imaging and real time motion detection technique for easy processing of medical data. Experimental results have been presented to support the theory.
20	Akshay Sangle Foram Kamdar Priyanka Kamalkar	Brain-Computer Interface	A brain-computer interface (BCI) is a new communication channel between the human brain and a digital world. The ambitious goal of a BCI is the restoration of movements, communication and environmental control for handicapped and paralyzed people. An electroencephalogram (EEG) based brain-computer interface is connected with a micro-controller in order to operate a smart application. It offers an alternative to natural communication and control. It is an artificial system that bypasses the body's normal efficient pathways, which are the neuromuscular output channels.Different brain states are the result of different patterns of neural interaction. These patterns lead to waves characterized by different amplitudes and frequencies . This neural interaction is done with multiple neurons. Every interaction between neurons creates a minuscule electrical discharge. This project deals with the signals from the brain. The signal generated by brain is received by the brain sensor and it will divide into packets and the packet data transmitted to the wireless medium (for example blue tooth). The wave measuring unit will receive the brain wave raw data and it will convert into signal . Then the instructions will be sent to the executing section to operate the modules (like motors, cursor etc).The project is operated with the idea of a non-invasive use of biology coupled with modern technology to make life easier and make handicapped patients independent.
21	Vineet singh kashyap Abdul hamid khot Viraj jayesh oza	Smart reader for visually impaired People	We know that visually impaired people totally depend on others for every aspect of their day-to-day life. They report numerous difficulties with accessing printed text using existing technology, including problems with alignment, focus, accuracy, mobility and efficiency whether it is reading book, travelling, signing a document etc. This project is aimed at developing software which will be helpful in recognizing characters of English language and reading them aloud. This will help the visually impaired person with effectively and efficiently reading paper-printed text. This project is restricted to English characters and numerals only. It is also helpful in recognizing special characters.

GR. NO.	NAME OF STUDENTS	TITLE OF PROJECT	ABSTRACT
22	Ritu Agarwal Poonam Gawhale Kashish Mehta	Android Based Electrocardiogram	This document presents the development of a low power and portable ECG monitoring device based on PIC16F877microcontroller and development of an Android Application. This work is done in order to provide a reliable solution for cardiovascular patients which can help them analyze their ECG easily. The Electrocardiogram (ECG) is an important tool to interpret a wide range of heart conditions. Early warning and patient awareness are critical in preventing permanent heart damage and saving much of the heart muscles. These critical conditions motivated us to propose an application that shows promise for ECG monitoring. The aim of this report is to develop a prototype android ECG application that works with the portable ECG acquisition device. The android application will be used for the realization of ECG data signals that are sent from the ECG acquisition device via Bluetooth module, calculate heart rate and plot it on android smart phone and also send this information to the concerned physician by storing it on server. Future scope of this can be the inclusion of Blood pressure and EEG circuits so that a full heart and brain monitoring system can be achieved.
23	Nisarg Shah Yash Sangoi Joel D'souza	Smart Attendance System using Real Time Face Recognition	We can identify a person uniquely through his/her face. This physical feature can be used to develop a smart attendance system. Attendance management has become an essential part of an institution/college. However, it becomes tedious to manually mark the attendance and keep a track of students marking a proxy attendance for their friends. In order to increase the efficiency and security as well as to save time, we devised a smart attendance system. We intend to achieve this by using face recognition technology. We would store the images of every student in a database and then compare these images with the real-time frames detected from a video camera. In our work, we have implemented various algorithms such as Local Binary Pattern Histogram (LBPH)
24	Utkarsh Pable Omkar Raut Shriram Gupta	Investment Risk Assessment on High Tech Projects	In view of the existing problems of investment risks assessment on high-tech industry projects such as a lack of systematic approach, with too much subjectivity and from the point to improve assessment efficiency and effectiveness, the project will use Analytic Hierarchy Process (AHP) with BP Neural Network to establish a new and suitable risk assessment model of high-tech projects. The Artificial Neural Network will take into consideration the various parameters and their sub-parameters and come to a logical prediction using the most effective technique. It will help huge businesses and firms to predict accurately with increasing the cost effectiveness and feasibility of the implementation.
25	Parigha Mandpe Pravita Desai Reshma Kachere	Currency Recognition Using Mobile Application	It is difficult for people to recognize currencies from different countries. Our aim is to help people solve this problem.In this paper we present a camera phone-based currency reader that can identify the value of Indian paper currency and UAE paper currency.The aim of this project is to recognise Indian currency notes using a image obtained from a phone camera in real time. This java based application will help recognise a notes based on its denomination on a mobile with android OS. The application will be build using Opencv which has android support.The method will be based on image comparison using keypoint detection and descriptors.

GR. NO.	NAME OF STUDENTS	TITLE OF PROJECT	ABSTRACT
26	Ankit daga Siddharth Matalia Priti Nagtode Bhavik Mujpara	Biometric Identification using human eye	In today's world, biometric identification techniques have their applications in various fields, particularly security applications. Biometric identification techniques are much more reliable, robust, accurate and easily implemented than traditional identification techniques. A biometric identification system is used for identification of a person based on a unique trait or characteristic possessed by the person. In our project, we propose a biometric identification system using the SURF algorithm and histogram matching of a human eye. Since the SURF algorithm is used, this biometric identification system is scale and rotation invariant. Our algorithm basically performs certain operations on an high resolution eye image or an infrared image of an eye to detect an individual's identity. The main concept on which this biometric system works on is every individual has a different iris pattern. Due to the uniqueness of the human iris, our system is bound to give accurate results. We have made a tidy little piece of software using MATLAB inbuilt library functions which uses our algorithm and provides a rich user interface for proper functioning of our software. On top of that, we have made a website which we will use to market our product.
27	Nishant Ramteke Swapnil Patil Mayur Shingne	GSM based Domestic/ Industrial Energy meter billing System	This project aims to domestic or industrial energy meter billing system based on GSM technlogy.