

# SARDAR PATEL INSTITUTE OF TECHNOLOGY

Munshi Nagar, Andheri (West), Mumbai 400058.

## LIST OF PROJECTS

Academic Year 2013-14

GR. NO.	NAME OF STUDEN	TITLE OF PROJECT	ABSTRACT
1	Gawde Krushikesh Kurankar Neelam Manwal Prathamesh	<b>A Mechanical design for Refreshing Braille display</b>	India contributes to 3 % of worlds blind population. Though many developed countries are providing advanced education facilities to many blind people in India the blind literacy is comparatively very low. As a solution to this problem we are developing a new technology called Refreshable Braille Pad. It will enable such visually impaired people to read electronic text from a computer on the braille display. This project goal is to implement this product at a far lower cost so as to make it available for every individual.
2	More Rohit Shah Nilay Sharma Yatharth	<b>Lie Detecting using Polygraph Machine</b>	A polygraph (popularly referred to as a lie detector) measures and records several physiological indices such as blood pressure, pulse, respiration and skin conductivity while the subject is asked and answers a series of questions. The belief is that deceptive answers will produce physiological responses that can be differentiated from those associated with non-deceptive answers. We are going to measure and analyse skin conductivity, heart beat and frequency of human voice in our project. Skin resistance is measured using GSR. Heart beat is measured by using a technique called photoplethysmography which is based on the determination of optical properties of vascular tissue using a light source and a photodetector. Final part includes analysis of fundamental frequency of the voice and the amplitude of the voice.
3	Rathod Siddharth, Sankpal Shivani , Sarvaiya Aditi , Ansari Chandni,	<b>Insurance Risk Assessment using neural Networks</b>	Insurance underwriters perform risk-selection function on behalf of insurance corporations. Traditionally, each policy is considered on its own merits and analyzed in relation to the underwriter's prior experience, training, and company guidelines. To assist the underwriter in their decision-making process, insurance companies employ actuaries to analyze past insurance experiences so as to determine appropriate premium for respective policy applicant. We believe this project can aid them to reduce the ratio of insurance losses to insurance premiums simultaneously reducing the complexity and presenting a simplified way to determine the risk assessment of the client.
4	Ranade Saheel Mankar Bharat Pawar Sandip Vellar Sundar	<b>Human Vital Signs Measurem ent and Transmissi on using Zigbee</b>	In our project we have implemented system which will contineously monitor a patients vital signs using a Zigbee Technlogy. Zigbee is Specification for a suite of high level communication Protocols used to create personal area networks. This project incorporate Sensors to measure important parameters include heart rate, body temp. etc. The measured parameters continously sent to computer via zigbee transreceiver.

5	Shah Brijesh Umbarje Chandan Somaiya Hardik	<b>A touch based interface for visually impaired people</b>	Technology is being utilized today for solving a lot of problems associated with everyday life. A lot of technology enabled solutions are available for making the life of visually impaired people more convenient. Some of the solutions deal with the interaction of visually impaired people with computing device. Applications which use voice recognition are disadvantageous because of background noise in the environment. So for that purpose we propose an easy way to achieve the interaction between visually impaired people and computing device by using a touch based interface which can also be portable. In this method input can be given via drawing alphabets on the touchpad with the help of fingers. Using serial communication the input given to the touchpad is passed on to the computer. This can be interpreted by using image processing techniques or by using machine learning algorithm. This project can also be further modified to convert the touch based input into voice outputs which can be used as a feedback by blind people to verify the input and it can also be used by speech impaired people.
6	Raj Sharma Ganesh Zagade Rohit Sonawane	<b>Fruit Monitoring Device</b>	Abstract—An agricultural based project, where in country like India production of fruit plays a major role in economic and financial condition of the state and the country, is a must. Basic idea is if the information related to maturity of fruit is available then production of the fruit can be estimated beforehand. Observing the initial growth of fruit and accordingly forecasting the final production date of a particular fruit is the aim. An effort has been made to predict the growth of fruit by calculating physical parameters like variation in temperature, humidity and using method of artificial neural network. The idea is software model will be developed and output of the same will be compared with practical outcome. The model will first predict the growth and suggest measures so it is the possibility that the farmer will make changes in the irrigation and fertilizer ratio to keep the growth sustained.
7	Medhekar Abhinav Sawant Ajinkya Saiprasad Nitin	<b>Offline Method for Signature Authentication using Image Processing</b>	In today's day, handwritten signature is one of the most important forms of biometric verification used in almost every field. Banks, businesses, financial organizations, government documents all require a signature as a means of personal authentication. It is because of this importance attached to signatures, we find growing instances of signature forgeries happening everywhere. Hence it is necessary to develop a system which can determine whether a given signature is genuine or forged, using an image of the given signature and a copy of the signature stored in a database. This system is called as Offline signature verification system. In this paper we have discussed the various available Offline signature verification systems.
8	Kharat Aakash Suryvnshi Sumit Bhogan	<b>UnderGround Water Detection System</b>	The Conventional underground water survey method is regarded as Destructive Surveying. Our system is under ground water detection system is used to detect ground water using principal of ground penetrating radar.
9	Azad Anurag Doshi Moksharth Yadav	<b>Airdraw</b>	Our project aims to further evolve the art of painting and add another dimension to the two dimensional drawing. Using our product user will be able to draw a three dimensional drawing using handheld device.
10	Shingade Vinaya Mehta Jinal Shinde Sayali	<b>Cheiloscopy-Aid to unique identity</b>	Cheiloscopy is a technique that deals with identification of humans based on lips traces. Cheiloscopy can be employed in establishing a person's unique identity on the basis of lip print. This technique can be useful in biometric authentication, personal identification and as a attribute to biometric tests.

11	Urvashi Jain Sarita Patel Aparna Gosavi	<b>Prepaid Electricity Billing System using GSM technology</b>	In this system, front end will be user friendly and can be operated easily. GSMmodem is used which is connected to the electric meter. GSM modem consists ofSIM cards possessing the unique number. User interface consists of LCD whichdisplays the power consumed and amount of bill to be paid. User also consists of amobile phone through which bill details can be communicated to the consumer.Bill can be paid just by recharging through the mobile.
12	Ghadi Ankita Bala Divya Bari Prasad	<b>Hand Vein Recognition and Authentication</b>	Palm vein authentication uses the vascular patterns of a person's palm for unique identification. The data patterns are processed, compressed, and digitized for future biometric authentication of the subject. The system consists of an acquisition device to obtain the vein pattern of the subject which is then processed to grant access only if the match is found in the pre-fed database. OpenCV, an open source library for Computer Vision, is used for processing the image. Various detectors are used and the one with the best results is used for matching.
13	Katira Charmi Vora Nikunj Wali Krisha	<b>Content Based Image Retrieval</b>	Content-based image retrieval (CBIR) is the application of computer vision techniques to the image retrieval problem, that is, the problem of searching for relevant digital images in large databases. CBIR is desirable because most web-based image search engines rely purely on metadata and this introduces a lot of garbage in the results. There is a growing interest in CBIR because of the limitations inherent in metadata-based systems, as well as the large range of possible uses for efficient image retrieval. CBIR has been used to describe the process of retrieving desired images from a large collection on the basis of syntactical image features such as color, texture and shape. The query image is compared with the database images on the basis of the features and the relevant images are retrieved. Euclidian or Hamming distance is calculated to determine the most relevant images. The performance is measured by calculating precision rate (ratio of relevant to total images retrieved) and recall rate (ratio of relevant images retrieved to relevant images in database).
14	Sharma Sanket Sushil Jadhav Vikas Sitaram Ganu Mihir Ashok	<b>Natural Language Processing using Deep Learning</b>	From sentiment analysis to speech generation, the applications of Natural Language Processing techniques are extensively employed, which constitute a host of Machine Learning techniques. In this paper, we demonstrate the use of state of the art Machine Learning Techniques to the Natural Language Processing domain. We also apply Deep Learning, another highly successful Machine Learning algorithm. Deep Learning has proven itself to be superior on various Artificial Intelligence tasks. In this paper ,we test the performance of these techniques on Sentiment Analysis, most widely used application of natural language processing. The results prove deep learning algorithms to be more accurate than conventional machine learning algorithms.

15	Chaugule Tanvi Deshpande Priyank Shah Dipen	<b>Automated Dental Drilling System Prototype</b>	In recent times the field of endodontic biomedicine has received a major boost due to advancements in electronics. Sophisticated surgical instruments and patient monitoring devices have not only eased the burden on the doctor's shoulders but have also taken patient care to a whole new level. However, the field of dentistry is yet to experience a major surge of technological innovation particularly when it comes to drilling in dental surgery. In this paper, we are presenting a fully automated system which employs extreme precision in drilling operations. The software employs image processing to obtain accurate parameters from CT scan images of the patient's teeth. These parameters are then passed to the hardware unit comprising of an ARM7-based embedded system which controls the drilling mechanism. Furthermore, keeping in mind the safety of the patient, the system will have a dynamic feedback mechanism to make real time corrections to compensate for disturbances which may displace the target unpredictably.
16	Bhayana Baljit Singh Jamdade Pooja Khatate Dakshata	<b>The Talking Glove</b>	The flex sensors on the glove are used to convert bends into variable resistance. Analog output from these sensors is processed and given to analog to digital converter within the microcontroller. The microcontroller compares these digital values with the initial stored values in the system memory. This helps in proper recognition of different gestures. The alphabet or word for which the gesture was performed is displayed on LCD (Display Unit) and an equivalent audio signal is also generated through speaker.
17	Barania Gargi Surendra Attal Saroj Chandrapra kash Ajmera Priyanka Kirit	<b>Computer Aided Detection for Mammogr ams</b>	Digital mammography is the most effective technique for early breast cancer detection. Digital mammograms are electronic images of the breast stored directly in a computer. The most common abnormalities that may indicate breast cancer are masses, calcifications, architectural distortions and bilateral asymmetry. The challenge lies in early and accurate detection to overcome the development of breast cancer that affects more and more women throughout the world. This paper presents an automated system for mass detection as well as calcification detection using image processing. The database of mammograms used in this study is taken from the Mammographic Image Analysis Society (MIAS) Mini Mammographic Database.
18	Karmalkar Sneha Vinayak Lyallpuri Twesh Bappan Marathe Prachi Vinayak	<b>Gesture Based PC Interface</b>	The increase in human-machine interactions in our daily lives has made user interface technology progressively more important. Physical gestures as intuitive expressions which are ubiquitous in communication between people will also greatly ease the human-computer interaction thus enabling humans to more naturally command computers or machines. The idea of a computer that responds to hand gestures instead of to speech, a keyboard or a mouse is explored in this project. To facilitate this, a wearable device having 3D motion tracking is introduced. Based on inertial sensor, this device enables the user to perform control actions spatially through hand movements. The sensor data is analyzed to determine whether it is for a regular cursor control or a gesture. At the processing stage, Gesture recognition is done through template matching using Dynamic Time Warping. The system thus developed is currently tested for some simple gestures like horizontal and diagonal swipe.

19	Karan T. Magiya Anand Joshi Rahul Nagpal	<b>Adaptive Traffic Control using Image Processing</b>	<p>vehicular traffic is synonymous with stress in daily life of the city people. With increasing amount of traffic a lot of problems are created for the commuters creating havoc in their daily life. The frequent traffic jams at major junctions in metropolitan cities call for an effective, automated traffic management system in place. So it has become a necessity to develop a smart embedded system which can control the traffic in a very effective manner.</p> <p>The paper proposes to implement an Adaptive Traffic Controller using Real Time Image Processing. The image sequences from a camera are processed using various Edge Detection operators, Contouring, Thresholding, Background Subtraction, Segmentation and Distance Vector Routing algorithms to obtain a robust system.</p> <p>Subsequently, the number of vehicles at various intersections is estimated and traffic is thus controlled by adaptively changing the traffic signal light. The data of the number of vehicles passing through a given junction at a given instance of</p>
20	Niharika Bhardwaj, Samyak Mehta, Vishal Rao	<b>Ultra Speed Data Sweep</b>	<p>The aim of the research is to propose a device with high speed wireless data transfer and data storage equivalent to available USB devices, integrated in a single device. The approach is to make such device with features like low power consumption, compatibility with all operating system platforms and simplicity of operation. The use of microcontroller, keypad and display coupled together will help in making the project user friendly. From this research we hope the evolution of a pocket USB device to transmit data wirelessly.</p>
21	Bhatti Atul Rokade Rupkumar Kujur Chiras Mehta Hasmukh	<b>A Vehicle To Vehicle Communication System</b>	<p>On one way road like expressways vehicles moves at a high speed and sudden braking of any vehicle due to any possible reason can cause a vast chain collision due to delay in propagation of brake light. This paper proposes a vehicle to vehicle communication system where a vehicle sends an emergency warning via zigbee to all the vehicles behind, which prevent the delay and prevent the chain collision.</p>
22	Patil Neha Thakur Sayali Shah Malav	<b>Performance Evaluation of Intrusion Detection System</b>	<p>This project is an attempt at evaluation of Intrusion Detection Systems to make the job of the security manager simpler. Here we have implemented the real life security hazard scenario using virtual machine to act as hosts and attacker. Various Experimental procedures have been conducted and their outputs have been analysed in this project. Resource utilization, speed, sensitivity, processing capability, dominance, accuracy, false positive, true positive, error probability, cost are various parameters evaluated here.</p>
23	Selani Harsh Phadke Ashwin Netravali Advait	<b>Policy Formulation and Enforcement for Mobile Cloud Computing</b>	<p>Mobile Cloud Computing is an emerging new paradigm for delivering computing services. The provision of this service in a pay-as-you-go way largely through the popular medium of the Internet gives this service a new distinctiveness.</p> <p>In this project, we bring forward the various facets regarding Mobile Cloud Computing that are essential to understand in order to make the implementation of a policy enforcement scheme easier.</p> <p>This scheme will be providing guidelines for mobile cloud users about the privacy, security and integrity of the resources and data stored by them on the Cloud. By taking away the computing function from the mobile device to the cloud, we plan to provide high performance and low power consumption at the user end, thus removing the need of a high end mobile device.</p>

24	Gharte Bhavana Gulab Mammen Shiney Mary Patel Kiran	<b>NFC MOBILE WALLET</b>	<p>Near Field Communication (NFC) is an emerging short-range wireless communication protocol based on Radio Frequency Identification (RFID) technology. This paper provides an overview of near field communication (NFC) technology, from the perspective of security and privacy. Firstly, the paper starts with an explanation of what NFC is and how it works. This is followed by demonstration of the design of NFC application interface for NFC-enabled smart phones for mobile payments. The object of this design is to provide an NFC interface for smart phone devices, simplifying the development of NFC-mobile application. The interface consists of two components. One is NXP PN532 module, which is a highly integrated transceiver module for NFC communication, and the second is the Arduino platform that is an open-source electronics prototyping platform based on ATmega328 Microcontroller. Arduino platform uses C++ language which makes the development work faster and easier.</p>
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