

Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
Munshi Nagar, Andheri (West),

LIST OF PROJECTS
Academic Year –2009-2010

Sr. No	Name of the students	Title of the Project	Abstract
1	Gurtej Singh Chandok Radhika Apte Ruchika Modi Bhagyashree Sathe	Video Encryption	Multimedia data, especially video data, is widely used in various kinds of content provide services and information exchange applications. Nowadays, without the technique of video security, multimedia applications cannot keep developing even if a big market exists. As video security plays an important role in multimedia applications, one such method which can be adopted is Video Encryption. The choice of algorithms depends upon the level of security required for different applications. Higher level of security is required for applications like banking, military services, etc. While comparatively lower level of security is sufficient for applications like video conferencing. The video encryption algorithm has the basic requirements that it should be real time, format compliant and low processing overhead. This project aims at developing the video encryption algorithms satisfying above criteria
2	Taha Harnesswala Pratap Kaul Sachin Gupta Rohan Gopal	Implementation of a software based PBX	A Private branch exchange (PBX) is used in colleges, hospitals, business institutes to enable efficient, yet economic internal communication within the institute premises. In essence a PBX can be thought of as private phone switchboard, connecting to one or more telephone lines on one side and usually connecting one or more telephone lines on the other side. This project uses a framework called Asterisk, which allows to create a telephony system to meet the requirements. Asterisk's well thought out architecture gives flexibility by allowing to create custom modules that extend phone system. This project is divided into three part, the first part is to incorporate VoIP communication over the Wired LAN, second part is to enable Wi-Fi communication over the Wireless LAN (W-LAN) and the third part is to interface the existing E-PABX of college with our Asterisk Server.

3	Himali Khabar Ankitha Gundu Naveli Jain Sharvari Jaca	Railway Network Monitoring System	Western Railway configured separate communication network for specific function of data transport for Train Management System installed at Mumbai Central, which is working on HDLC protocol. The network having 40 nodes with 100% redundancy i.e 40+40=80 nodes and is configured on single 64kbps channel. Presently, healthy status of this network inc Line Unit nodes is being monitored manually. The aim of the project is to develop an interface with individual line units (LINE UNIT) and its field networks for automatic monitoring of healthy status which inc Line Unit design and development of necessary hardware and associated software using microcontroller for automatic monitoring of network.
4	Abhijeet Badrike Anand Markande Sanket Godbole Gaurav Dobhal	Network Integration design and optimisation	The primary aim of the project is to develop a software product for Intelligent Network Design which will provide even a novice user with a Network Map, Parameters and Network Elements for a given scenario. The features of the product would involve taking exhaustive system requirements from the user through a simple and easy to comprehend GUI. These include the typical data transfer rate, bandwidth requirement, security levels, number of nodes of connection required etc. and then analyzing these inputs to provide a niche customer oriented solution. The scope of this project involves in-depth study of Networks and Network designing. Development of web-portal for providing solution is the crux of the project.
5	Nirav Jariwala Gaurav Tendolkar Ankit Shah Tamnay Gambhir	Real time speech controlled home Automation system	Speech and speaker recognition have been areas of active research in the field of digital signal processing since decades. The goal of this project is to demonstrate the use of a popular speech recognition algorithm, 'Mel Frequency Cepstral Analysis' and to develop a prototype home automation system based on speech and speaker recognition The system involves the user speaking predefined commands into a microphone. The system would then perform noise reduction and calculate the MFCC coefficients to create a template. This template is then compared with a set of pre-recorded templates using a technique known as 'Dynamic Time Warping'. Depending upon whether the spoken command is valid and the user is authorized, the system takes appropriate action to control the devices.

			This system is intended for use by bed-ridden persons or persons with physical disability. With little modifications, it can also be used for industrial automation.
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6	Pratiksha Mainkar Ann Paul Swati Shetty Snehal Kharat	Wireless Network Security Analysis & Evaluation	The exponential growth in wireless network faults, vulnerabilities and attacks make the Wireless Local Area Network (WLAN) security management a challenging research area .The effectiveness of Wireless Network security testing relies on knowing different types of attacks and vulnerabilities in WLAN. Evaluation by existing tools like Wifi-Manager, BackTrack is time consuming and expensive. This project involves study of different attacks and vulnerabilities and the tools used to detect the and integrate these tools into a single module which has the following features- monitors the network, checks for vulnerabilities, compares the security parameters to a standard, prepares a detailed report on the same which includes suggestions to improve WLAN security.
7	Omkar Sathe Vinayak Koli Hitesh Sachdev Rupesh Patro	Power control in cellular networks	This project involves study of different distributed power control algorithms, each suited for implementation under different cellular technologies,. Specifically, five distributed power control algorithms are compared through simulations The project involves finding the link gain matrix by modeling the cellular system in MATLAB and simulating different power control algorithms. The results obtained from the simulation work are used to evaluate the efficiency of the Distributed Power Control (DPC), Fully Distributed Power Control (FDPC), Improved Fully Distributed Power Control (FDPC+) and Balanced Distributed Power Control (BDPC) algorithms on the basis of convergence speed and at the same time evaluating the limitations of the different algorithms. Also, Fixed Step Power Control has been studied which treats a new mobile in a base station in much efficient manner.

8	Sanket Pednekar Rashmi Patil Nikita Pugaonkar Komal Sahu	Text Extraction and Interpretation for the visually impaired	This project is developed keeping in mind the difficulty faced by the visually disabled people in evaluating various printed documents .This project has been done to tackle this predicament head on. It aims to solve three issues and equip the visually impaired with tools to interpret and understand that, which has always remained obvious to them-text.
9	Chandan Agarwal Ankit Bagaria Amey Patil	Traffic Modelling for 3G cellular system	A great benefit of wireless technology is its mobility feature. Scenarios involving high mobility can be very complex; the traffic load keeps on escalating. It is necessary to keep an eye on this increasing traffic for optimum utilization of resources. The network simulator (i.e., NS2) provides an ideal platform to monitor such performance of a system. Unfortunately, despite its effectiveness, NS2 simulations of real-life mobility scenarios result in unnecessary handoffs. This project propose a traffic simulation model which solves this imperfect mechanism.
10	Sanketa Bharambe Bhranti Mehta Ojas Mate Harshada Shinde	Suspicious object detection and tracking	This project propose a system for Suspicious Object Detection and Tracking. Given an image, Object detection determine whether or not the specified object is present ,and if present, determine the location and size of the object. The research mainly focuses on Representation, Learning, Recognition. Various methods such as Linear spatial Filtering is used in the project
11	Sagar Koli Rajendra Bangar Navin Chamudia Mahesh Chudasama	Human hand Emulator	This project is basically aimed at achieving emulation of human hand by a robotic hand, wherein a robotic hand imitate a human hand in real time .This is extremely useful where human hand must be used and irreplaceable, so that power possessed by human is conserved. LAN is the communication medium between human hand and robotic hand .Range depends on the extent of LAN.With specific solution the medium is Internet.
12	Jigar Shah Jinesh Doshi Sumit Sharma Neeraj Vaghela	Implementation of Reed Solomon encoder and decoder	An important function of any modern digital communications system is error control coding. Such coding is the field of communications that deals with techniques for detecting and correcting errors in a signal. Though used in a variety of systems, error control coding is especially useful in wireless communications systems. Reed-Solomon (RS) codes are the most powerful in the family of linear block codes and are arguably the most widely used type of error control codes.This project propose the implementation of Reed soloman encoder and decoder.

13	Akhilesh Maurya Amogh Garg Kaushik Krishnan Sumedh Meshram	Automated Spy Robot	The objective of this project is to devise a vision-based control scheme for the vehicle robot to achieve efficient object tracking. The robot is equipped with a wireless video camera. This involves the navigation of autonomous vehicle in a partially known dynamic environment. It propose an object recognition algorithm for deeply embedded systems. The practicality of this project can be extended to broad range of applications, the more apperent use in defence.
14	Ashwathi Nambiar Snehali Bagal Noopur Bodke Krishna Pratap Singh	SSL Implementation using 8051 microcontroller	The aim of the project is to implement SSL using 8051 microcontroller. SSL (secure socket layer) is the de facto standard security protocol for securing transactions over the internet. ryption. One of the objectives of this project is to study the various algorithms involved during handshaking and record protocols. Study public key algorithms like RSA, ECC, etc., symmetric key algorithms like DES, 3DES, AES, RC4 and decide upon the best algorithms to be implemented on a constrained device like ours using optimum buffering and assembly level coding.
15	Mugdha Dahiwale Smita Kamble	Automatic Meter reading system	This project aims to make Automatic Meter Reading System. It refers to a system that measure ,collect and analyze energy usage, from advanced devices as electricity meters, gas meter, wave meters through various communication media on request or a predefined schedule. This includes Hardware, Software, communications, customer associated services and meter data management. This AMI system provide various advantages over traditional systems.
16	Vishal Dave Ashutosh Mahto Aditya Gawde	Ethernet based devices control and monitoring system using ARM controller.	This project propose to implement the monitoring and control of day to day devices connected to Ethernet network from any other computer also connected to the same network. The interface between the devices and the network is usual desktop computer or high end ARM processor. It provide an opportunity to implement variety of technologies such as Linux, Embedded systems ,Embedded Linux, Serial Communication, C Programming
17	Kushal Toshniwal Sanyal Chincholikar Vivek Sagale	Traffic modeling by Integrating Modern Control Systems	This project includes the implementation of Zigbee networks. Zigbee networks are specific type of Ad hoc networks. Zigbee networks are a key networking technology of the future vehicle communication. Such networks are utilized in the form of sensors and further supporting conrol system which are used to analyze and control the traffic conditions. These control

			system make use of data as well as previously recorded data to optimize its performance.
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