

*Bharatiya Vidya Bhavan's*  
**SARDAR PATEL INSTITUTE OF TECHNOLOGY**

Munshi Nagar, Andheri (West), Mumbai 400058.

**LIST OF PROJECTS**

*Academic Year 2012-13*

GR. NO.	NAME OF STUDENTS	TITLE OF PROJECT	ABSTRACT
1	Tanay Kumar Chirag Kataruka	<b>Sales Forecasting Using Neural Networks</b>	Our project aims at creating & comparing soft computing models to achieve high levels of accuracy in the prediction of sales for a company. Influential factors for sales were chosen from previous sales records of companies & fed to a back propagation neural (BPN) network which was trained to predict the sales figure. The results obtained were compared to the conventional statistical regression model & were found to have greater accuracy. A hybrid model was then created using Genetic Algorithm along with the BPN. Implementation showed, it was suitable to further increase accuracy for certain types of data, not all.
2	Rohan Isawe Mukta Darekar Tejas Shah	<b>Smart Microgrid Interfacing</b>	A solution to the incessant energy demand and heavy dependency on the mains grid is that the surplus energy generated from the non-conventional energy sources using microgrids be contributed back to the mains grid. This can be achieved by using a system for interfacing the microgrid to the mains grid with the help of a grid tie inverter. This inverter converts DC power from the microgrid into AC power with its phase and frequency locked with that of the grid itself. Such a system model is discussed in this paper along with the design of a 3kW single phase prototype grid tied inverter with 3-level PWM for the use at household level. The system also, consists of a switching unit between the microgrid and the mains grid to provide electricity to the load depending on the supply levels. Additionally, the net consumption and distribution of units are accounted for by a bi-directional meter connected in place of the conventional meter.
3	Devansh Doshi Priyanka Kamat Kevin Shah	<b>SCADA Based Power Distribution System</b>	In this project we attempt to improve the current power distribution scenario by using SCADA technology. We are measuring and monitoring power at various load points in our model. Using that data, we define the load shedding technique through controlled automation. This entire monitoring is done using a personal computer. There is a real time feedback about the faults at generation points, distribution points, and usage points. We are also making an attempt to monitor pilferage of power.
4	Nikita Alphanso Pradnya S. Asolkar Kavita S. Kulkarni	<b>ECG Signal Analysis using Scilab</b>	The objective of the project is to design and analyze Electrocardiogram signal for heart rate measurement and transmit wirelessly using appropriate module to the patient monitoring system. We obtained real time ECG signal using ADS1298ECG-FE tool kit and analysed it using software. A reference pattern will be stored in the code and comparing the input signal with the same will give information about the real time input signal. We will be transferring the information to the physician's computer using a wireless medium.

5	Hiral Mehta Sonali Paralkar Krupesh Ved	<b>Cognitive Cellular Network Planning and Optimization</b>	We have planned a cognitive cellular network in MATLAB and GNU Radio which aims at increasing spectral efficiency, maximizing data throughput of secondary users in a cognitive network and minimizing interference to the primary users. These objectives are achieved using concepts of cooperative spectrum sensing wherein the secondary users send their decision is sent to a fusion node which takes a final decision based on k-out-of-N majority hard combining rule. Also to minimize interference to the primary we use the concept of non-contiguous OFDM and to increase the data rate of a secondary user we use iterative water filling algorithm. This optimizes the throughput and we achieve the objectives.
6	Harsharaj Narsale. Pratik Parab Vijay Mohan Mulik	<b>Solar powered refrigeration System</b>	Proposed project idea focuses on harnessing solar energy in real time and using it to drive refrigeration system in industry without using an intermediate battery for storage. Battery-less solar energy system is incapable of storing the energy but in this proposed idea main emphasis is given on harnessing the solar energy whenever it is available which eliminates all the drawbacks of storage battery such as high cost of installation and maintenance also adverse effects on environment. To compensate for the intensity variation of solar energy circuitry which takes the remaining amount of energy from the conventional 230V AC supply is integrated with the system. Considering all these aspects this system becomes energy efficient, cost effective and eco friendly .Such systems are need of hour to provide effective solution for the energy crises and environmental issues in 21st century.
7	Snehal Chhajed Kiran Dash Mrinmayee Detha	<b>Voice Guidance for the Visually Impaired</b>	The Project being a smart alternative aims to guide the blind person while going anywhere so as to make him self-reliable. This project is based on GPS, GSM and accelerometer. The accelerometer keeps on sensing the tilt angle of the blind person. If the person gets tilts (while falling) by more than a certain predefined angle in that condition the system assumes it an emergency. In case of emergency the system will read the current position in terms of latitude and longitude and will send a SMS to the registered user with the help of GSM modem connected with it. There is an emergency switch also; in case of emergency the user can send an emergency sms to the registered user.
8	Khakhra Kripsu Vijay Pandit Saili Kanchan Trivedi Hetashree B	<b>Road Traffic Congestion Control</b>	Traffic congestion in metropolitan areas is responsible for the rise in damage to life and infrastructure. In order to manage this, a reliable network of sensors needs to be established along with a robust communication service. We propose the use of active RFID readers to accurately sense the traffic conditions and GSM technology to convey the sensor data to the control station promptly. The proposed idea is realized and tested in a simulation environment by employing, MITSIM (MICROscopic Traffic SIMulator). And static data is processed using Ant optimization algorithm which suggests alternative paths to handle the congestion.
9	Prasann Lad Ravi Jain Rushabh Parekh	<b>LPG Gas Leak Detector Using Automatic Knob Control &amp; SMS Indicator</b>	Gas leaks can cause major incidents resulting in both human injuries and financial losses. To avoid such situations, a considerable amount of effort has been devoted to the development of reliable techniques for detecting gas leakage. As knowing about the existence of a leak is not always enough to launch a corrective action, some of the leak detection techniques were designed to allow the possibility of locating the leak. The main purpose of this project is to identify the leak detection and immediately report about the leakage through sms alert . Additionally it will also turn off the knob automatically to avoid further leakage.

10	Ruchira Sahamate Pooja Sankhe Prakruti Shah	<b>Recommendation System using Genetic Algorithm</b>	We have created a website which consists of database of music files and displays the recommended music files on the basis of the user's rating and the properties. The system that we are making effectively responds and adapts to the immediate changes in user's preferences. In this recommendation system we are using two different and innovative methodologies. One is content-based filtering and the other is genetic algorithm. Therefore, our project aims in making a system which is more of application based and user friendly.
11	Virendra Shinde Ganesh Sonwalkar Abhiraj Waghmare	<b>Earthquake and Tsunami alert system</b>	Earthquake and Tsunami alerts would help people to get into the secure location and abate the effects of Earthquake and Tsunami. The main aim of the project is to warn people as quick as possible about the upcoming natural disaster. This is possible because earthquake travels slower than light. Earthquake and Tsunami alert system first sends alert messages to service providers to reach maximum group of people and then to relevant disaster management agencies through GSM- based message service. Further service providers can dispatch short messages based on area discrimination.
12	Akshay Kanchar Dhruv Panchal Richa Saxena	<b>Fingerprint Recognition System</b>	Fingerprint recognition is one of most popular Biometric technologies. However, recognizing fingerprints in poor quality images is still a very complex problem. Our product contains the following components. Pre Processing Component, the module that reduces the noise of the original image and adjusts the sharpness of the lined pattern, Feature extraction, the module that locates the position of the core point and the minutiae points, Fingerprint Recognition component, the module used to match minutiae points in a given fingerprint and the stored template.
13	Anuj D. Sakhardande Milan H. Modi Devavrata S. Balvally	<b>Microcontroller Based Plant Parameter Monitor and Farmers Guide</b>	Our project aims at assisting the farmer by creating a device which will measure the parameters like atmospheric temperature, humidity, soil moisture and pH of the soil. All these data will be transmitted wirelessly by a transceiver to the location convenient to the farmer. Here the paired transceiver will receive the data and compare it with the database present with the micro-controller. It will then display on the LCD screen of the mobile device, a list of crops which would be most suitable for his farm. Using the soil moisture data the device will automatically start irrigating the field in case the dryness of the field goes below a specific value for a given crop.
14	Parikshit Tiwari Darshak Sanghavi Minal Dhondge	<b>Detection of Spectrum holes using swarm based cognitive radios.</b>	The limited available real time spectrum and the inefficiency in the spectrum usage necessitates a new communication paradigm to exploit the existing wireless spectrum opportunistically which is referred as Dynamic Spectrum Access (DSA) and cognitive radio networks. In this project, we present a novel, swarm behavior based cognitive approach for the detection of spectrum holes. Several cognitive radios form a cognitive network which is then split up into several sub-networks that collaborate among each other and scan the frequency range simultaneously. Thus, several vacant frequency bands will be found and the overall processing time and fading effects due to multipath propagation will be reduced.
15	Aditya Dahivalkar Rajaram Mehari Ajeet Yadav	<b>Dynamic Channel Allocation in WLAN Based on Interference</b>	This project presents a distributed dynamic channel allocation algorithm at the Access Points (APs) of a Wireless Local Area Network (WLAN) in order to maximize Signal-to-Interference Ratio (SIR) at the user level. We start with the channel assignment at the APs, which is based on minimizing the total interference between APs. Based on this initial assignment, we calculate the SIR for each user. The algorithm can be applied to any WLAN, irrespective of the user distribution and user load. Results show that the proposed algorithm is capable of significantly increasing the SIR over the WLAN, which in turn improves throughput.

16	Ajinkya Gaikwad Tej Kapadia Manan Lakhani	<b>Wireless Electronic Notice Board</b>	Notice Boards are a common occurrence in variety of institutions which we come across on a daily basis. In the current scenario the notice/advertisement boards are being managed manually. There is a long process involved in order to put up notices on the notice board. This wastes a lot of resources like paper, printer ink, man power and also brings about loss of time. In this paper we have proposed a system which will enable people to wirelessly transmit notices on a notice board using Zigbee. In this paper we have proposed a system by which only authorized people can access the notice board using a graphical user interface. We can also make the system compatible with more than one wireless technology.
17	Nikhil Tiware Nikunj Jhanwar Aniket Mahurkar Rohit Bhilare	<b>Proactive Tracking using RFID</b>	Proactive tracking using RFID locates and tracks people and assets in any irregular area. In this work we propose a new algorithm to track assets more accurately which is further improvement of the virtual track algorithm. The algorithm makes use of RSSI values and position as well as relation of readers placed in the area from database. We have used Visual Studio to graphically demonstrate the path tracked by any asset.
18	Jaypal Baviskar Raj Makwana Niraj Panchal	<b>Wireless Based Load Control and Power Monitoring System</b>	Automations in industrial, commercial or residential sectors mostly depends upon the power systems, which requires distant controlling and monitoring. The interest of any particular wireless technology basically depends upon the cost, speed and distance requirement of the proposed system. This project deals with monitoring power related parameters (i.e. voltage and current) and enable remote switching of the load for proper power management systems by making use of efficient wireless technologies (ZigBee) as the communication medium between the transmitter and receiver modules.
19	Doke Neha N Gunjekar Namrata Mulla Afshan S Naik Radhika D	<b>Image And Video Optimization</b>	The increasing volume of data generated by applications justifies the use of different compression techniques to decrease the storage space and efficiency of transferring the images over networks. A quality constrained compression algorithm based on Discrete Wavelet Transform (DWT) having a spatial-frequency decomposition property which provides quality assessment for real-time applications is implemented. 3D spiral JPEG based lossy image compression method is based on three-dimensional formation of the original image by spiral order scanning and 3D Discrete Cosine Transform (DCT). This paper summarizes the different compression methods as it is necessary to reduce the amount of data needed for storage and transmission of information.
20	Mody Pranoy More Rishikesh Prabhu Santosh	<b>Neura Network Based Handwritten Character Recognition</b>	The project takes a BMP file as an input, recognising and identifying text from it and displaying the digital characters in a GUI output window. This application uses various image processing techniques to scan the document and the concept of Neural Networks to recognise characters. The use of a Multi-Layer Perceptron Network gives the application its high accuracy. This network is first trained with multiple data sets. This method yields about 94% accuracy.
21	Neha Bairathi Rahul Daga Jignesh Darji Rekha Panda	<b>Face Recognition</b>	This paper tackles the problem of recognition of faces in biometric systems subject to different illumination, rotation and scale by adopting SIFT algorithm. The algorithm transforms a given facial image into a collection of local feature vectors which are distinctive and invariant to scale and rotation. The feasibility and efficiency of the algorithm is presented through experimental investigation on OpenCV platform based on FAR (False Acceptance Ratio) and FRR (False Rejection Ratio) and compared with the efficiencies of classical face recognition methods.

22	Akash Wani Sneha Bharadwaj Vidhilika Sood	<b>PLC based food processing</b>	The conventional community cooking system consumes fast depleting fossil fuels on a very large scale, generating harmful CO and other gases leading to ecological imbalance. There is every possibility of contamination of food due to burning of the ingredients being cooked. A PLC based solar community cooking system will provide a effective solution to this. It is a company based automation project and is completely aided by Flareum Technologies. It uses a PLC (Programmable logic controller) to execute mass production of food. The PLC commands and monitors the entire production unit. PLC is accustomed to working under rigid and harsh conditions and hence it is used in an industrial environment and can work continuously and steadily.
23	Sagar Kakde Mohd. Zakir Ravi Sawant	<b>Privacy Issues In single and Multi-hop Wi-N/W</b>	The different topologies viz; bus, ring, star, mesh etc, have their respective advantages and provide simple, cost effective, efficient services depending on their underlying structure. One of this widely accepted and implemented network topology is mesh network topology. Wireless mesh networks provide attractive solutions for commercial, personal and corporate purposes since it has the features of self-configuring, instantly deployable, low-cost. Wireless mesh network provide reliable high throughput network connectivity to wireless users. We will be designing a Layered encryption technique called 'Onion routing' to overcome Mesh privacy issues in Global Network.
24	Nitin Suthar Darshit Shah Brijesh Parekh Pooja Singh	<b>LPG gas leakage Detection</b>	All of us have implemented mechanism of Human automation system with the help of PIC microcontroller circuit and the voice recorder circuit. The output of which is connected to GSM modem which calls the user when the gas leakage is detected by the GAS sensors it also activates buzzer and DC stepper motor which is used to open the window. Thus the microcontroller IC performs mechanism of automatic GAS leakage detection and taking precautive measures.
25	Janhavi Shah Shivangi Bhatt Jeet Desai Shreyans Shah	<b>Real Time Debugging of Hardware in Loop</b>	Hardware-In-the-Loop is a form of real-time simulation. The current industry definition of Hardware-In-the- Loop system is that the plant is simulated and the ECU is real. These systems typically have the ability to automatically run through tests automatically. Another benefit of Hardware-In-the-Loop is that testing can be done without damaging equipment or endangering lives. When testing, we have lots of challenges: Cost to test, Cost of failure, Availability, System variation, Repeatability.