VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"INTELLIGENT VISION BASED ROBOT USED IN SECURITY FOR IDENTIFYING AND FIRING ENEMIES"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

Submitted By

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ABSTRACT

The Border Security Force (BSF) of nation plays an important role in preventing the entry of terrorists and illegal people with drugs and weapons. The BSF is the primary border guarding force of India. It ensures the security of the borders of India and the matters connected with it. India shares its borders with six nations namely China, Pakistan, Bangladesh, Nepal, Myanmar and Bhutan. There exist some dangerous borders where BSF men find it very difficult to operate there. The Line of Control (LOC) between India and Pakistan and the Siachen, world's highest battle field have witnessed the loss of many lives of soldiers whenever there is a terror attack. To overcome above stated problems, an Intelligent vision based robot used in security for identifying and firing enemies which continuously monitors the given real time area and if at all some terrorists or enemies try to enter into that area they are shot.

An USB camera which is used for the continuous monitoring of the real time scenario sends the data to the monitoring PC. The PC performs certain MATLAB operations with the real time images; this data is sent to the microcontroller ATmega328 serially through ZigBee. The robot performs the operations based on the data sent by the microcontroller. The system is provided with the intelligence to discriminate between enemies/terrorists and our soldiers by the presence of Phototransistor circuit. If the detected intruder is an enemy, then the system automatically fires against the enemies using the laser gun.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"AUTOMATIC NAVIGATION ALERT SYSTEM FOR FISHERMEN USING GPS AND GSM TECHNIQUES"

Submitted in partial fulfillment of the requirements for the award of degree

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IN
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ABSTRACT

Countries with the International Marine time Boundary Line (IMBL) will always has security problems and continuous life threatens for those fishermen whose family's main economical support is fishing. Even in the peninsular country like India has their boundary limit in the ocean, the people of these coastal regions has the main work of fishing, due to carelessness or without knowing their boundary limit of their country they crosses the borders. In such situation the lives of fishermen continued to be difficult. They may faces bullets and attacks from opposite Navy, at the end of attack fishermen are being abducted and their boats are being captured and this will lead fishermen's life to the threat.

Existing system which is owned by Naval department of respective country which will only detect the boat which comes into their RADAR (Radio Detection And Ranging) system. Navy officials will be watching the border 24X7 manually for the national security purposes such that no intruder will cross the border and enters country but there is no any special provision given to the common fishermen to take care of their life and warn about the main international border before they reach that area which may bring threat to fishermen's life.

This system enables to avoid such kind of accidents and to alert the fishermen about border area well before using latest technology of Global Positioning System (GPS) and Global System for Mobile communication (GSM). Where in this system large oceanographic area are divided into sub locations and those area's location address are stored in fishermen boat when fishermen boat reach those location they get different warning indication and this can help fishermen not to cross the border. This system shows how this technology can be used for detecting natural hazards like Tsunami and thunderstorms and obtaining meteorological information of the ocean for the safe navigation of fisherme

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PROJECT REPORT ON

"SMART HELMET"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

An accident is a specific, unexpected, unusual and unintended external action which occurs in a particular time and place, with no apparent and deliberate cause but with marked effects. Carelessness of the driver is the major factor of such accidents. The traffic authorities give a lot of instructions to the vehicle operators. But many of the riders do not obey the rules. Now a day's most of the countries are forcing the motor riders to wear the helmet and not to use the vehicles when the person is in drunken condition. But still the rules are being violated by the users. As the bikers in our country are increasing, the road mishaps are also increasing day by day, due to which many casualties, most of the riders are caused due to most common negligence of not wearing the helmets, and also many deaths occur due to lack of prompt medical attention needed by the injured person. This motivates us to think about making a system which ensures the safety of biker, by making it necessary to wear helmet, as per government guidelines, also to get proper and prompt medical attention, after meeting with an accident. The proposed system is an intelligent helmet.

Smart Helmet, which automatically checks whether the person is wearing the helmet and has non- alcoholic breath while driving. The system consists of transmitter at the helmet and the receiver at the bike. There is an IR sensor used to make sure the wearing of helmet on the head. The ON condition of the sensor ensures the placing of the helmet in proper manner. An alcohol sensor is placed near to the mouth of the driver in the helmet to detect the presence of alcohol. And also vibration sensors are placed in different places of helmet where the probability of hitting is more which are connected to microcontroller board. When the rider crashes and the helmet hit the ground, these sensors sense and gives to the microcontroller board, then controller extract GPS data using the GPS module that is interfaced to it. When the data exceeds minimum stress limit then GSM module automatically sends message to ambulance or family members. The system is implemented using GPS and GSM technology and the result of GPS data is given as "Vehicle Accident Detected Latitude: 1222.3822 and Longitude: 7451.077" is sent to ambulance or family members using GSM technology.

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PROJECT REPORT ON

"LI-FI BASED PATIENT HEALTH MONITORING SYSTEM"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

This project presents the development of microcontroller and Light Fidelity (Li-Fi) based health care system. It focuses on the patient health monitoring in the hospitals using the Li-Fi technology. Li-Fi provides transmission of data through illumination by sending data through a Light Emitting Diode (LED) light matrix that varies in intensity faster than the human eye can follow. Li-Fi is high speed and fully networked wireless optical communication and is a form of Visible Light Communication (VLC).

The proposed model helps in patient health monitoring in the hospitals and can be done by using the concept of Li-Fi instead of the Wireless Fidelity (Wi-Fi) technology to avoid the frequency interference with the human body. Sensors such as temperature, heart beat and saline level detector are used in this model to perform its respective functions. These sensors collect the data from the human body and are fetched to the microcontroller and the microcontroller convert these sensor values from analog to the digital form. The microcontroller that is used here is PIC16F877A. The output from the microcontroller is fed to the Li-Fi module which transmits the data in the form of light and the receiver end collects this data and then displays the corresponding sensor values on the 16x2 Liquid Crystal Display (LCD). It also displays warning information if any abnormalities occur. A low cost, harmless, user friendly Li-Fi based advanced patient monitoring system is developed. The purpose of this project is to help those peoples who need help in emergency in remote location as fast as possible. The intensive parameters of the patient body will be displayed on the LCD.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT

ON

"Swumanoid Autonomous Sailing Robot"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

An idea presented has been with a robotic vehicle which activates automatically and manually controls the moving object in the water. Here Advanced Reduced Instruction Set Computer (RISC) machine (ARM7) processor is in built with interfacing a wireless camera which uses RF based communication. The DC motors are used to rotate the arms of the robot to catch habitats. It also detects the ferrous content metals inside the water and provides exact location by using the Global Positioning System (GPS) module. It gives information about the latitude and longitude range of the detected ferrous metal.

Global System for Mobile Communication (GSM) module is used send the message about the metal detected and also location of the metal information. A wireless camera is used to survey the surrounding of the surface of the robot. Two different sensors are using to control the robot moment on the water. The infra-red sensor which is used in the automatic mode to controls the motion of the robot where as the ultrasonic sensor is used to control the robot which is in the manual mode. Dual Tone Multi Frequency (DTMF) technique is also used in manual mode to control the motion of the robot.

The implemented sailing robot is used detect the ferrous metals inside water. If the metal is detected inside water will get the latitude (, 1301.4421,) and (N, 07458.0983, E) longitude ranges by the GPS module.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"DETECTION OF UNHEALTHY REGION OF PLANT LEAVES"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

Plant leaf diseases have turned into a dilemma as it can cause significant reduction in both quality and quantity of agricultural products. The naked eye observation of farmers followed by chemical test is the main way of detection and classification of agricultural plant diseases. Farming land may be large for the farmers and they cannot observe each and every plant, every day. Farmers are unaware of non-native diseases and consultation of experts for this might be time consuming and costly. Also unnecessary use of pesticides might be dangerous for natural resources such as water, soil, air, food chain etc. It is expected that there need to be less contamination of food products with pesticides.

Automatic detection of plant leaf diseases is an essential topic as it may prove benefits in monitoring large fields of crops and thus automatically detect the symptoms of diseases as soon as they appear on plant leaves. The proposed system is a software solution for automatic detection and classification of plant leaf diseases. The first step is to capture images using cameras or scanners, these images are made to undergo pre-processing steps like filtering and segmentation. Then different texture and color features are extracted from the processed image. Finally, the feature values are fed as input to the Support Vector Machine (SVM) classifier to classify the given image. The result will be sent to respective person or farmer using GSM via SMS.

Some of the challenges in the method of automatic detection of plant leaf diseases are effect of background data in the resulting image, optimization of the technique for a specific plant leaf diseases and automation of the technique for continuous automated monitoring of plant leaf diseases under real world field conditions. All the disease cannot be identified using single method. The future work is to develop a method for processing an image which is acquired with different background and for developing an android app.

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PROJECT REPORT ON

"DESIGN OF MULTIPLIER USING LOW POWER HIGH SPEED HYBRID FULL ADDER"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

Arithmetic operations are widely used in most micro electronic systems. Addition is a fundamental arithmetic operation and is the base of many other commonly used arithmetic operation. Also, the other operations such as the subtraction, multiplication and division can be derived from addition and hence adders often seen as the most significant parts of the arithmetic unit.

Design of high performance adders has been difficult task for from long time and is an important goal because of the fast growing technology in mobile computation. High performance indicates smaller area, high throughput circuitry, low power consumption and high speed.

The proposed design defines the novel architecture of adder using pass transistor and transmission gate logic which efficiently reduces the power, area and delay as compared to the existing adder system. The proposed method is developed using cadence tool of 180nm technology. The pass transistor and transmission gate logic makes the computation faster. The proposed adder system is implemented on Braun Multiplier and ALU. The designed adder system significantly reduces the power consumption, area and delay compared with existing adder system.

The proposed adders are constructed in two different ways using 14 transistors and 16 transistors separately. A comparison is made between the average power consumption and average delay of the different proposed circuits. The power and delay of 14T and 16T are calculated for 1-Bit adder circuit and are then calculated for the implementation system i.e., 2x2 Braun Multiplier and 1-Bit ALU. The proposed adder 1 offered 86.57% and 96.51% improvement in average power and delay respectively. The proposed adder 2 offered 87.09% and 95.94% improvement in average power and delay respectively. This makes the proposed system highly advantageous.

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PROJECT REPORT
ON

"WIRELESS TRANSMISSION OF SIGNALS FROM BABY INCUBATORS TO NEONATAL NURSING STATION"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

Babies born prematurely are generally kept in special chambers referred to as "incubators", which are enclosure with controlled temperature and humidity. Some newborn babies at full term, also needs to be placed in incubators for special treatment. The survival rate of premature births and newborns has increased significantly, since the introduction of neonatal incubators making the incubators extremely important devices in neonatal care at hospitals. Unfortunately in recent times, it has been observed that often there is a fault in the temperature controlling unit which has lead to fatal accidents leading to the death of the babies. Taking a note from this, it seems quite justified to incorporate a separate temperature monitoring unit which will measure the temperature of the premature infants. Deaths and injuries to neonates in incubators have been linked to thermostat failure that caused incubator overheating and infant hyperthermia and to malfunctions or design defects that produced fires and electric shock hazards.

Even after the advancements in technology, there is a need for instrument- Health Caregiver (HC) interactions due to varied reasons. Unfortunately, due to the higher patient: HC ratio the work load on the HCs is very high. Here the development of a wireless transmission of incubator indicator alarms to the neonatal nursing station for the early intervention of the HC is discussed. The developed technology will reduce the workload of the HCs. This project involves continues monitoring of some of the physical parameters of the baby. An unexpected rise of fall in any of the physical parameters of the baby will immediately transmit a visual alarm to the nursing station. This might help in preventing fatal accidents related to malfunctioning of the temperature controlling unit. Apart from the above, babies often wet the bed. It is not possible to manually supervise the bed wet continuously. Keeping this in mind, a bed wet alarm system has also been incorporated into the incubator model. Occurrence of bed wet will wirelessly transmit an alarm signal to the neonatal nursing station.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"Rescue System for Borewell Accidents"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
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Abstract

Water well or borewell is an excavation or structure created in the ground by digging, driving, boring, or drilling to access groundwater in underground aquifers. The well water is drawn by a pump, or using containers, such as buckets, that are raised mechanically or by hand. Now a day's its quiet often to see unused borewell left open after use. These wells become the death pit for those small kids who unaware of their depth play near these wells.

Rescue of children trapped inside the borewell is not only difficult but also risky task. The rescue teams spend hours and sometime days in futile attempts to save these little kids. A lot of money is also required for this rescue operation. Hence there is a need to use a technology for upgrading the rescue operation.

The rescue robot not only rescues a trapped victim from borewell but also deals with safe handling of the victim. The robot is light in weight that goes inside the borewell and holds the victim systematically. This robot consist temperature sensor, gas sensor, zigbee, LCD board, arduino board, safety air balloon, artificial arm. The rescue robot uses artificial arm that rotates in 360 degree so that the victim can be removed safely with less injury caused to the victim. The use of safety air balloon makes the robot more safe and smart. The value of the temperature sensor and gas sensor is displayed on the LCD which is present on the receiver side. The artificial arm is controlled using remote controller.

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PROJECT REPORT ON

"Advanced Military Spying and Bomb Disposal Robot"

Submitted in partial fulfilment of the requirements for the award of degree

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ABSTRACT

In the past decade, robotic systems have been used with increased popularity for Explosive Ordnance Disposal (EOD) missions. Advances in robotic technology have made it possible for robots to perform functions previously only possible by human workers wearing a blast suit. The primary advantage to using robotic systems for explosive ordinance disposal is the reduced risk to humans. Currently, EOD robots are able to traverse a variety of terrain, collect and destroy certain explosives and provide improved reconnaissance capabilities to law enforcement and military agencies. Although far from perfected, these robots are saving lives by finding and disposing of explosives without the need for direct human contact reliable robotic platform.

The key features of the robot include an intuitive user interface which provides additional sensor feedback and enhanced visual awareness compared to existing systems, an on board three degree of freedom manipulator arm providing an enlarged workspace, and a dexterous gripper allowing for the removal of detonators. The flexible and modular robot design utilizes commercial off the shelf components for ease of maintenance and repairs. The robot provides a safe distance threat assessment and increased capacity for explosive ordinance disposal, improving the effectiveness of bomb disposal teams. The robots low-cost, intuitive operation and ease-of-maintenance promote its widespread appeal, thereby saving the lives of both law enforcement personnel and civilians.

The robot constructed is used for bomb disposal purpose and wireless camera is used for image feedback so operator can operate more efficiently. The operation of robot is control by using wireless module so it can provide more range of operation. Also construct a basic bomb diffusing robot which can handle simple tasks like cutting wires, flip on switches, lift light objects, etc. and a simple autonomous robot to help in the transit of the bomb. Also gives video feedback to us so effective handling of robot can be possible. The designed project act as an assistant robot to the bomb disposal squad which performs several applications in the field of military.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"ADVANCED UTILIZATION OF IRRIGATION SYSTEM BY USING SUSTAINABLE ENERGY"

Submitted in partial fulfillment of the requirements for the award of degree

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*Certified that the project work entitled "***Advanced Utilization of Irrigation System by Using Sustainable Energy***" is a bona fide work carried out by*

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ABSTRACT

The demand for power generation has turned to be a major problem, so a renewable source of energy is the most suitable method for solving this crisis. A common practice is to combine the wind and solar energy is called hybrid renewable source. The proposed irrigation technology is automatic water-saving irrigation technology powered by renewable sources of energy. Energy is one of the major parameters for establishing growth and progress of the country, rather the standard of living depends directly upon the per capita energy consumption. Wind and solar energy can be harvested forever, providing farmers with a long-term source of income. This project is an overview of renewable energy uses for farmers on how they can help make renewable energy a growing source of energy. The soil moisture sensor uses capacitance to measure dielectric permittivity of the surrounding medium. In soil, dielectric permittivity is a function of water content which makes our system automatic.

The main aim from this advanced system is carried out by using various sensors which not only provides the awareness about changing condition of humidity level according to weather but also provides an ability to schedule the proper timing for water supply. It is the proposed solution for the present energy crisis for the Indian farmers. This system conserves electricity by reducing the usage of power and conserves water by reducing water losses. Under practical consideration the proposed system occupies its efficiency by which supports aggressive water management for the agricultural land. This architecture is based on the capabilities of next generation microcontroller and their application. The model provides an output voltage of 4.5V to 6.6V of energy conserved with the usage of solar panel also the other renewable resources that is by using wind energy the model conserves the energy of 6V and more. When the proposed model is approached for real time application in the farmer field it can be able to provide sufficient energy with huge solar panel installed and wind turbine operation. The model is also provided with fencing circuit for protection for other hazards which uses voltage doubler circuit and protects the farmer field by transferring sufficient voltage for fencing.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"AUTOMATED NURSERY TRAY FEEDER SYSTEM"

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ABSTRACT

India being an agricultural country from eons is facing many problems in the same due to non-availability of good quality seeds, lack of skilled labour, and improper rainfall. Also the growth in this regard is very slow and there is very less knowledge that the farmers know about proper growing methodologies of crops for different weather conditions. The major problem faced by the farmers or any other major companies involved in agricultural practices is wastage of good quality seeds. This leads to an increase in the overall cost of production. There are some mechanical machines and tools that have reduced the effort of farmers up to a certain extent such as introducing tractors which are modified to perform various agricultural practices like tilling, sowing, harvesting etc. There are also robotic systems that have been theorized and prototypes have been deployed, but in vain have not produced optimal results.

Nurseries have also started to invest in development of systems that are helpful increasing the quality crop growth, such as tray feeder system. This system is helpful in easy distribution of seeds into all the tray cups evenly which reduces wastage of seeds. This system is automated and can perform optimally, but this system has major drawbacks and costs very high, maintenance of this system is very expensive as the mechanical components used in it need to be replaced after a time period because the wear and tear that occurs on these parts. Also this system does not make use any sensors and sometimes the seeds may actually not fall into the tray cups, also due to lack of sensors this system keeps on running even in the absence of trays.

This proposed system overcomes these drawbacks and also makes use of sensors that are helpful in controlling the fall of seeds into the tray cups. The rotor that has been designed to deposit the seeds is also very effective and is comparatively less costly. The maintenance work that has to be done is only on the rotor, which is a part that can be easily replaced. The total cost of the new nursery tray feeder system has been reduced drastically.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"INTERACTING DEVICE FOR DEAF AND DUMB USING ATMEGA328P"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

Communication is the activity of conveying information through the exchange of thoughts, messages, as by speech, visuals, signals, writing, or behaviour. It is the meaningful exchange of information between two or more living creatures. Every normal human being sees, listens and then reacts to the situations by speaking out. But there are some less fortunate ones who are deprived of this valuable gift. Such people, mainly the deaf and the dumb, rely on some sort of sign language for communicating their feelings to others. Sign language is the language used by deaf and mute people and it is a communication skill that uses gestures instead of sound to convey meaning simultaneously combining hand shapes, orientations and movement of the hands, arms or body and facial expressions to express fluidly a speaker's thoughts. In order to facilitate communication between deaf and hearing people a new interacting device is introduced.

The implementation of a system reduces a communication gap between deaf people and hearing people. It is a large scale microcontroller based system being designed to facilitate the communication among the deaf and dumb communities and their communication with the normal people. The device is basically a data glove and microcontroller based system. Data glove can detect almost all the movements of a hand and microcontroller based system converts some specified movements into human recognizable voice. The system converts the sign language into voice which is easily understandable by dumb and normal people. The sign language is translated into some text form, to facilitate the deaf people as well.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"Visible Light Communication Based Information Broadcasting System"

Submitted in partial fulfilment of the requirements for the award of degree

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ABSTRACT

Optical wireless communication through visible light has been appreciably explored with the development of white light emitting diodes (LEDs) in the market. Visible light is used as the medium for data transmission between the transmitter and receiver. Visible Light Communication (VLC) has few advantages over other standard wireless transmissions. The frequency spectrum bandwidth of visible light ranges from 430 THz to 750 THz which is much larger than the radio frequency bandwidth, which ranges from 3 KHz to 300 GHz. With a larger bandwidth it is feasible to accommodate more users and potentially achieve higher transfer rates because each user can be given a larger portion of the bandwidth to transfer information.

The proposed work demonstrates a wireless system via Visible Light Communication (VLC) technology. It provides transmission baud rate of 9600 without data loss at a distance of about 10 cm for broadcast communication system. This system is proposed to demonstrate how VLC can be used in super market/shopping malls (indoor environment) as they contain LED lights in every section. Using these LEDs, our proposed system can provide advertisements regarding offers or new arrivals in the mall through an android application to the customers. The prototype is proposed to demonstrate the working of VLC system by means of an indoor application.

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PROJECT REPORT ON

"EYE-BLINK DETECTION SYSTEM FOR HUMAN COMPUTER INTERACTION"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

The developments of computers have made human life more comfortable. The Human-Computer Interaction (HCI) involves the study, planning, and design of the interaction between people (users) and computers. This project aims at the development of a portable and cost effective wireless eye movement-controlled HCI, which can be used for the disabled who have motor paralysis and their hands cannot be used in multiple applications, so a vision-based HCI is depicted in this project. The interface detects voluntary eye blinks and interprets them as control commands. The employed image processing methods include Haar-like features for automatic face detection, and template matching based eye tracking and eye-blink detection.

A HCI framework that is de-marked for people with serious inabilities to recreate control of a conventional machine mouse is presented. The cam based framework, screens a client's eyes and permits the client to simulate clicking the mouse utilizing deliberate blinks. A user friendly HCI for severely movement impaired persons should fulfil several conditions: first of all, it should be non-contact and avoid specialized equipment, it should feature real-time performance, and it should run on a consumer-grade computer.

The system, capable of processing a sequence of face images of small resolution (320 x 240 pixels) with the speed of approximately 30 fps, is built from off-the shelf components. The components are a consumer-grade PC or a laptop and a medium quality webcam. The proposed algorithm allows for eye-blink detection, estimation of the eye-blink duration and interpretation of a sequence of blinks in real time to control a non-intrusive HCI. The results show that the proposed system works efficiently and produces an error rate that allows it to be used as part of HCI. Thus, the system provides a flexible and cost effective method for the disabled to improve the quality of life.

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PROJECT REPORT ON

"DETECTION OF EXUDATES IN RETINAL IMAGE"

Submitted in partial fulfillment of the requirements for the award of degree

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MOODBIDRI – 574 225.

2016-2017

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225

(Affiliated to VTU, BELAGAVI)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the project work entitled "**DETECTION OF EXUDATES IN RETINAL IMAGE**" *is a bona fide work carried out by*

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in partial fulfillment for the award of **BACHELOR OF ENGINEERING** in **ELECTRONICS & COMMUNICATION ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2016–2017. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

17/5/17.	D.V.M 17/5/17	
Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
Mr. Shankar B.B	**Dr. D V Manjunatha**	**Dr. Peter Fernandes**
	H. O. D.	PRINCIPAL
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EXTERNAL VIVA

Name of the Examiners	Signature with date
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ABSTRACT

There are many people who are suffering from blindness because of diabetic retinopathy. Globally, an estimation shows about 40 to 45 million people are totally blind, 135 million have low vision and 314 million have some kind of visual impairment. The incidence and demographics of blindness vary greatly in different parts of the world. In most industrialized countries, approximately 0.4% of the population is blind while in developing countries it rises to 1%. It is estimated by the World Health Organization (WHO) that 87% of the world's blind live in developing countries.

Diabetes is known as the mother of all diseases and it directly affects the retina which is a main part of the eye so it is called as diabetic retinopathy. Diabetic retinopathy is a vision threatening complications, about 25 thousand people are blind in US due to diabetic retinopathy. It is estimated that diabetic retinopathy is responsible for 5% of all world's blindness cases. Early diagnosis of diabetic retinopathy and providing proper treatment can prevent blindness. The main sign of diabetic retinopathy are exudates. If exudates are detected, then diabetic retinopathy can be detected at an early stage.

This project describes about the median filter algorithm. At first, color fundus image is taken as input. Then image is converted to grayscale by thresholding. In the thresholded image, mean filter of 30x30 mask size is applied. After masking, upper bound of the image is calculated by adding constant to the filtered image and lower bound can be calculated by subtracting another constant from the smoothened image and have assumed the constant as 40 and 45. Any pixel outside this limit would be considered as unwanted data such as fovea, blood vessels, and dark lesions. The pixels that have intensities higher than the upper bound or lower than the lower bound are defined as unwanted data. For the detection of exudates, the background is subtracted from the gray scale image to obtain the foreground of image. Now in the foreground image only exudates and optic disks are remain. Then optic disk is removed by erosion and dilation. Finally, exudates are detected.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"SMART GLOVE IN HOME AUTOMATION FOR DISABLE PEOPLE"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

Submitted By

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Under the Guidance of
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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225.

2016-2017

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE

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Nixon Sharma B	**4AL11EC017**
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Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
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EXTERNAL VIVA

Name of the Examiners	Signature with date
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ABSTRACT

Home automation industry is growing rapidly; this is fueled by the need to provide supporting systems for the elderly and the disabled especially those who live alone. Coupled with this, the world population is confirmed to be getting older. Home automation systems must comply with the household standards and convenience of usage. This project details the overall design of a wireless home automation system which has been built and implemented. The automation system uses a smart glove which is made by using flex sensors and uses low-power hc-05 Bluetooth wireless communication modules which are relatively cheap. The home automation system is intended to control all lights and electrical appliances in a home or office using smart gloves.

This project presents the design of the low-cost smart glove based home automation system for the physically challenged people to control the various home appliances and can actuate the brightness of the lamp. The proposed system consists smart glove module which contains the flex sensors, Bluetooth, Arduino ATmega 328 microcontroller, relay circuit and a dimmer circuit.

The result of the project is, whenever there is the bend in the flex sensor the corresponding appliances will get turn on. Whenever the flex sensor is in the relax mode the appliances will be in the off mode.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"SMART TEXT READER FOR BLIND PEOPLE"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

Submitted By

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ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

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2016-2017

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225

(Affiliated to VTU, **BELAGAVI**)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the project work entitled **"SMART TEXT READER FOR BLIND PEOPLE"** *is a bonafide work carried out by*

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ABSTRACT

Disability is the state of a person in which one has to depend on others for their own needs. Visual impairment is one of the disabilities of a human being. To date numerous methods have been proposed to enhance the life style of visually impaired and blind people. Still purchasing products in the supermarket without others support is tricky for them. Lot of electronic products are introduced for visually impaired but all having some sort of drawbacks such as complexity in operation, need of more practice, higher cost, expensive design methodology and installation, non optimized data, more time consuming and tough maintenance. By considering these issues, if the embedded product is developed for visually impaired and blind people, it will be really worthy. The identification systems are already available for them.

At present in the case of shopping there is no such embedded product. Shopping is one of the interesting things for every human. But this simple task cannot be easily achieved by the blind. They need others help for satisfying their own requirements. RFID is the simplest and efficient technology which can be used for object detection and identification in many applications such as supply chain management, objects tracking, antitheft applications, logistics, warehousing etc. This can be used effectively for blind at the time of shopping and greatly improves the life style of them.

The proposed system provides the guidance for them to identify and purchase their products in the supermarket. Radio Frequency Identification (RFID) technology is implemented to identify the products. The audio instructions will assist them inside the supermarket. The ultimate aim of this system is to eliminate others support for visually impaired people in shopping and provide them a convenient and sophisticated environment. On implementing this system, it facilitates the blind people shopping, save the customer's time and promotes business sales.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"Agricultural UAV for Spraying Pesticides on Field Crop and Arecanut Tree"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

Submitted By

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ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

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(Affiliated to VTU, **BELAGAVI**)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the project work entitled "**AGRICULTURAL UAV FOR SPRAYING PESTICIDES ON FIELD CROP AND ARECANUT TREE**" *is a bona fide work carried out by*

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ABSTRACT

The quadcopter plays a major role in present world from military applications to the lightweight carrying camera. The quadcopter is also used in many modern agricultural fields to monitor the pest controller in a large crop area and to locate pour crop growth using camera. Control of pest places a vital role in agriculture for better yield and profit gain to the farmer. The spraying of pesticide at correct period is bit necessary for any field crop and arecanut tree, currently the problem faced by farmer is to spray pesticides to crop with more labor and their high wages. For an arecanut tree to spray pesticide were the branches are high above the ground, farmers face many difficulties.

The proposed system uses a quadcopter, which carries pesticide-spraying unit as a payload and sprays pesticides from the desired height, which is controlled by a ground station controller. The spraying unit is integrated with a NodeMCU to monitor the pesticide level in the container and thus prevent from dry run of the submersible pump which helps in precision spraying due to which wastage of pesticides can be reduced. The proposed system enables the farmers to spray pesticides to field crop and arecanut tree by their own module and thus controls the pest level in their crop from time to time.

The pesticides spraying aircraft is designed and implemented to carry a payload of nearly 500 milliliter pesticide container which can lift to a desired height of 10 meter from ground surface and spray it to the arecanut branches, it can also be used in pesticides spraying for field crop at a surface area of 10 meter in radius from the centre. Thus the model prevents the wastage of pesticides and also the man power is reduced to two labours.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"DESIGN AND SIMULATION OF TUNABLE CAPACITOR USING MEMS COMSOL"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
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CERTIFICATE

Certified that the project work entitled "**Design and simulation of Tunable Capacitor using MEMS COMSOL**" *is a bonafide work carried out by*

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Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
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23-6-2016

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EXTERNAL VIVA

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ABSTRACT

High quality tunable MEMS parallel plate capacitors have been widely used in phase shifters, oscillators and tunable filters for wireless communication. As electrostatic actuation and air dielectrics have led to devices with low power consumption and high quality factors, an electrostatically actuated MEMS tunable capacitor with two flexible plates have been introduced.

A tunable capacitor with two parallel plates with supports have been designed and fabricated in this project. The capacitance can be varied by varying the distance between the parallel plates.