Department:	Computer Engineering	
Project:	Autopilot for UAV	
Supervisors:	Dr.Rowayda sadek	
Students:	Hossam elhawary	Abdullrahman alfeky

ABSTRACT

Some would say that luck is the random occurrence of fortuitous events. Others have said that anyone with the right aptitude and fortitude will create their own luck. While events that happen in aviation are potentially random, as long as pilots can control as many variables as possible, they can successfully create their own luck. The key is to know and understand their respective airframes inside out. Recently, Aerial Vehicles have grown in popularity, and are being used on an ever-widening scale. While the advent of this new technology is fabulous, it also comes with its own perils.

Pilots in manned airplanes face an array of decisions in order to combat different emergencies. While controlling the Unmanned Aerial Vehicles (UAV) face similar issues. The scope of the project is to dynamically calculate the best angles for the LATERAL and LONGITUDINAL that depends on acquired orientation of the UAV to make a stable autonomous flight. The system divided into hardware and software modules. Some software is micro-based software and the other software is simulation-based software, the project delivers a reliable autopilot system for UAV to be used with environmental and surveillance applications.

The developed simulation program is based on UAV model designed by Aerospace Engineering Department at Cairo University called "MANTIS". The developed simulation is designed to analyze and test flights, using a developed acquisition and control circuit that have been designed using Eagle Layout Tool and programmed using (C Programming Language). The simulator developed using MATLAB. The important variables to be controlled are the position, orientation, velocity, and altitude of the UAV.

The hardware consists of acquisition and control circuit and the software consists of simulation and program in the control circuit, the developed acquisition circuit was made to acquire data from control circuit to simulation and vice versa. The developed control circuit controls the simulated UAV(Mantis) using Proportional–Integral–Derivative (PID) controller to control the altitude, velocity, and heading for guidance to have a stable flight. The simulation platform can be adapted to simulate any UAV model.

Department:	**Computer Engineering**
Project:	Dcure Information System
Supervisors:	Prof : Ahmed Fahmy Amin
Students:	Ahmed Hany Haider Ghaleb Ahmed Farouk Ahmed Ismail

ABSTRACT

"We will make sure that every doctor's office and hospital in this country is using cutting edge technology and electronic medical records so that we can cut red tape, prevent medical mistakes, and help save billions of dollars each year." Barack Obama (12-06-2008).

These were Barack Obama's words which had a strong impact on the public to vote for him. The 8 UN Millennium Goals reflect the necessity to use the electronic technology to establish a fair medical system. An electronic medical system that will humanize the medical service environment, because the system we build will pay individual attention to independent patients. The system will ensure collaboration among medical staff; patients and administrators, for it will effectively streamline medical information of patients and their families and all involved partners in the medical operation.

There are many challenges that face current electronic healthcare systems; these challenges may be the reason of the failure of the some systems,

The Project Target is to implement a complete Health care information and management system, using web portals and web interfaces.

The project is also considered integration between EMR "Electronic Medical Records" and HMIS "Hospital Management by Information System".

The system is based on a web interface which is used to enter the system data to the database and to retrieve the system data.

It contains a large database that is considered the backbone of the system; it includes lots of services,

Our system contains an EMR "Electronic Medical Records" System that stores all Patients Medical Records.

The patient will be able to do lots of services online.

This project includes the following

1- The system contains 2 different components an intranet and extranet "External Web application".
2- Both the intranet and extranet have a home page where you can access the different services.
3- Using the intranet service, you can add a new patient to the medical records.
4- Using the intranet service to add the medical results (lab service results, radiology results, Medical investigations, operation results,…………..).
5- Both the internet and the extranet are implemented using web interfaces for easy access and as not to require additional installations or a specific specification for Pc's.
6- The patient could review his medical files through the extranet.
7- The system contains the data of the whole family members not only a specific patient so that the doctors will be able to access the whole family members to review the historical presence of disease in the family.
8- An intranet service where the physician could be able to review the history of a patient during a specific period.
9- The extranet should have a rich interface.

Our solution is going to have an added value to all the current present systems these added values include
- Simple Interface that can be used by anyone.
- Simple structure system that does not need to have a powerful client computer.
- Developing a cheap low cost solution.
- Developing a reliable solution.
- Working on the system security and enhancing the security options and trying not to leave any back doors.
- Automating data entry process through advanced integration features.
- Adding new features to our solution.
- Providing the possibility of having mobile access solution.
- Integration feature to current systems used in hospitals.

Department:	• **Computer Engineering**	
Project:	Electronic Voting System	
Supervisors:	Prof.Dr. Gamal Selim	
Students:	Nada Mostafa Abdel Aziem	
	Basma Abdel Fattah	
	Nermin Nasr Salama	
	Mazen Mohammed Zaky	
	Morkos Abdou	

ABSTRACT

Elections, referenda and polls are vital processes for the operation of a modern democracy. They form the mechanism for transferring power from citizens to their representatives. Although some commentators claim that the pencil-and-paper systems used are still the best method of avoiding vote rigging, recent election problems, and the need for faster, better, cheaper vote counting, have stimulated great interest in managing the election process through the use of electronic voting systems. While computer scientists, for the most part, have been warning of the possible perils of such action, vendors have forged ahead with their products, claiming increased security and reliability.

Many democracies have adopted electronic systems, and the number of deployed systems is rising. Although the electronic voting process has gained popularity and users, it is a great challenge to provide a reliable system. The existing systems available to perform the election tasks are far from trustworthy. In this project an Electronic Voting System is proposed and implemented. All components of the systems including I/O interfaces, database system, voting processes, voting statistics, LAN design for multiple node and output display have been designed and implemented in this project. The voting system will not only provide secure voting, but also can be used and verified over existing network systems.

Department:	Computer Engineering	
Project:	**home security based on a robtic guard using a mobile commnication network **	
Supervisors:	Dr\Atallah Hashaad	
Students:	-Hossam ELDin Mokhtar -Mohamed Kamal Mohamed	-Basma EL Sayed Mohamed -Rania Atef Ahmed

ABSTRACT

This project is concerned with building an intelligent robot that can be controlled remotely and detect any problem inside the house such as (Tempreature change,Gas, Smoke , Water leak and if any door or window has been opened) , These problems can be detected by using transmitter modules.

The robot will be able to detect what happen inside the house by using a WiFi camera and can be controlled remotely by using a remote controll.

The main rule of the system is to receive the RF signal that has been transmitted by any of the transmitters modules, then according to the type of the incoming signal it will establish a connection with the attached mobile phone and send sms to the required numbers with warring about the current situation such as(Tempreature change,Gas, Smoke , Water leak…..etc).

Department:	Computer Engineering	
Project:	Imaging-based Face Recognition System	
Supervisors:	DR. Abd-Elmoneem Wahdan DR. Hossam Hassan	
Students:	Sara Abu-Bakr Dalia Mahmoud Yasmin Zakaria	Abd-Elrahman Amin Mohamed Khaled Hegazy

ABSTRACT

Recognizing faces, understanding spoken words, reading handwritten characters, and identifying car keys in pockets, etc, are complex processes that underlie acts of pattern recognition. Pattern recognition is the act of taking in raw data and making an action based on the category of the pattern. One of the examples of pattern recognition is the facial recognition which is a computer application for automatically identifying or verifying a person from a digital image or a video frame. One of the ways to do this is by comparing selected facial features from the image with a facial database to find the closest person.

Face recognition is preferred to other biometrics such as fingerprint and eye iris because it does not need any interaction with the subject. Our aim in this project is to build a face recognition system using an image database. Our recognition system uses color intensities of images to form a feature vector. Vectors are collected in a database for individuals. Neural networks are used to recognize subjects by measuring the distance between their facial images and the database. Also, other features like distance between eyes, nose, and mouth will be considered.

Department:	Computer Engineering
Project:	Virtual Retina
Supervisors:	Prof. Dr. : Aliaa Youssef
Students:	Mohamed Ahmed Hassanien Khalil, Mohamed Mahmoud Sobhy ElHassawi, Saied Mohamed Ali AboulDahab

ABSTRACT

Ever since the existence of time, many people have suffered from visual disabilities concerning retinal impairment. The retina is a layer of tissue in the back of your eye that senses light and sends images to your brain. In the center of this nerve tissue is the macula. It provides the sharp, central vision needed for reading, driving and seeing fine detail. Retinal disorders affect this vital tissue. They can affect your vision, and some can be serious enough to cause blindness. This problem is caused when the retinal sensory cells of the eye are not working either properly or not working at all. But the cells that send spikes to the brain from the eye through the optical nerve are working just fine, other wise it will not be possible for a person to be cured "just yet". It is a tragedy, as they are unable to see anything except for darkness which may lead to depression. People have been trying to cure this default for a very long time and thanks for the technology these days it is a possibility as now we can explore the mystery of the eye and learn how to cure it. Now a day with the provided technology that we have around, it helped us to make it possible to help them so they can at least notice what is in front of them. One of the solutions to this problem is using an artificial retina that works as great as a real healthy retina. For this project, we will make a simulator called a virtual retina. This simulator will take a video using a camera and converting it into spikes, which can then be sent to the brain via the optical nerve. Furthermore this simulator will not make the blind people to totally see like us, but they will at least notice the difference between a human, an animal, and other objects, etc. By working on the simulator of the virtual retina, we were able to demonstrate how the real retina works.

Part of the virtual retina project is the image conditioning device. The image conditioning device is responsible for performing some involuntary movements of the camera focus and camera iris, which corresponds to the movement that causes changes in focus and amount of light that, enters the human eyes. The device itself is built from four main boards. One board contains a pic18f series microcontroller which is preloaded with USB interface firmware, receives a stream of serial bits from the PC then passes the bits in a parallel form to the second board. Which also contains a pic18f series microcontroller it operates as a control board which performs a decision according to the data received. It then outputs an order causing the control of the third or fourth boards these boards are the motor control boards responsible for controlling the motors mounted on the camera lens.