Name	Brain waves Interpreter and controller
Group	4 to 5 students
Supervisor	Dr. Ahmed ElShafee
Description	The objective of this project is to develop a brain waves interpreter that can read brainwaves from people, analyze the data, and send the result to computer using Arduino microcontroller kit. The system differentiate an individual's thinking between right and left or up and down and then send the result to computer as an simple answer (yes or now) to questions. developed system is designed to help fully paralyzed people to communication with others. System can be expanded to support a remote control of vehicle robot like a wheel chair for fully paralyzed people which enables them to control chair movement using brain waves, through xbee technology. That individual can control robot vehicle movement by thinking of movement directions
Deliverable	Hardware interface Desktop application Motorized wheel chair with battery
Knowledge base	C language for Arduino C# for PC desktop applications Basic electronics
tools	Brain wave sensor 2 x Arduino Serial shield Bluetooth shield Wifi shield DC motors shield Visual Studio Arduino IDE Wheel chair 2 x DC motors (car's glass motors) 1 x 12V battery 60 AH (car battery) 1 x 12V 60 AH battery charger

Name	Heart beat monitoring system
Group	4 to 5 students
Supervisor	Dr. Ahmed ElShafee
Description	Develop a real time heart beat monitoring system. Patient mobile is paired to patient HBM sensor, that periodically collect HB from patient, and upload it to backend server DB, through GSM data or 3G network, saving it into patient profile after stamping it with date/time. Server keep tracking on patient data, and in case of emergency, server alerts patient doctor, hospitals,.. A desktop application is installed in hospitals to monitor patient HBM in real –time mode.
Deliverable	Mobile application Server side application Desktop application
Knowledge base	Andriod programming Mysql php
tools	Heart Beat Sensor Mobile server

Name	WiFi Robot
Group	3 to 4 students
Supervisor	Dr. Ahmed ElShafee
Description	This project aims to design and implement a functional prototype of Robotic office boy, that used by organizations to carry out office boy tasks inside the organization. Project consists of two parts 1. Three wheels robot, controlled using Arduino MicroController. Robot supplied with obstacle detector and line follower. Robot controller through wireless WiFi technology. 2. A Webserver, which is the interface between employees and robot. Robot is called by employees to do specific tasks between different offices
Deliverable	Robot webserver
Knowledge base	Arduino programming ASP (C#) / PHP
tools	Arduino Servo motors controller shield 3 wheels robot WiFi Shield Visual Studio.net (C#) (or) PHP IDE

Name	GSM GPS tracking system
Group	3 to 4 students
Supervisor	Dr. Ahmed ElShafee
Description	Proposed system presents a primarily design and prototype implementation of basic vehicle tracking system based on SMS technology. The proposed system consists of five main components; the GSM modem, which is the communication interface between the tracking system and the user. GSM modem uses SMS technology to exchange data, and signaling between users and tracking system. The second module is the micro controller, which is the core of the tracking system, and acts as a bridge between the GSM network (the user) and other modules. The third module is Camera, which takes captures of vehicle user upon request, save it on SD card and send it to system user through MMS service. The fourth module is the GPS modem, which is used to get vehicle location and send it to system user upon request through SMs service. The last module is actuators and alarms interface card, which detects vehicle door status, ignition, and remotly control fuel valve to remotely shut down vehicle.
Deliverable	Prototype of GSM based vehicle tracking system with camera
Knowledge base	Andriod programming Arduino programming ASP (C#) / PHP
tools	Arduino MC GSM Shield GPS shield Smart phone mobile

Name	Project name
Group	3 to 4 students
Supervisor	Dr. Ahmed ElShafee
Description	the proposed air craft surveillance system controls a helicopter toy plane using web based application that enables user to control the plane surveillance in all directions up/right/ and left by using an Arduino through RF signals. a small Wi-Fi camera is installed on aircraft that send real-time audio and video stream to user web interface
Deliverable	Web application to control aircraft and monitor real time audio/video stream(backend) Air craft with WiFi camera Arduino controller interface interfaced to webserver through RS232 interface and that remotely control aircraft through RF signals
Knowledge base	Arduino programming Motor shield Wireless digital communication (RF) basic skills Electronics basic skills C# or ASP programming
tools	Quad copter Wireless remote control (RF) Arduino webserver

Name	Smart Building management and security system - Movement controlled Lighting System
Group	4 to 5 students
Supervisor	Dr. Ahmed ElShafee
Description	Proposed project aims to design and to implement a lighting system that automatically turns on/off based on movement, in order to utilize consumed power by lighting in Residential buildings, organizations, Malls. System consists of four parts 1. movement detection module 2. light control module 3. main controller 3. webserver
Deliverable	2 x light control module 2 x movement control module 1 x main controller 1 x webserver
Knowledge base	Arduino programming Asp.net (c#) or php
tools	5 x Arduino 2 X PIR sensor 2 X power controller interface 5 x xbee shields Visual Stusio.net or PHP ide