



Graduation Project Exhibition

Organised by
The College of Engineering

13th Dec 2022
11:00 - 13:20 pm

OVERVIEW

The College of Engineering organizes a biannual Graduation Project Exhibition which is a great opportunity to present the fruits of our graduate students work. The Graduation Project Exhibition is an excellent event to link between the academic and industrial sectors.

In Addition, It is great a occasion for our graduate students to practice and improve their engineering, communication and presentation skills.

PROGRAMME

11:00 pm
11:10 pm

Welcome Note

11:10 pm
13:10 pm

Student Projects Demonstration

13:10 pm
13:20 pm

Best Project Award & Closing Remarks

LIST OF PROJECTS

No.	Student Name	Project Title
1	 <p>Esra Alalawi</p>	<p>CAR COLOR RECOGNITION FOR PAINTS SELECTION PURPOSES USING MACHINE LEARNING</p> <p>Due to the limited human eye capabilities, we can only view the basic colors using our bare eyes, and they are very simple when compared to the electronic devices in viewing the tiny color pixels. We will differentiate the contrast between people and how challenging it is to remember any hexadecimal code, particularly the color code of our cars. The longer the car is driven, the more the paint ages. Normally, after an accident, people would request to have the same color of their cars, but they face many challenges to paint it using similar color. This is because finding the exact color is frequently a factor of trial and error.</p> <p>In the proposed project we have developed a color detection system based on Machine Learning algorithms and Raspberry Pi to identify an object's exact hexadecimal color code. This system is training on several images of the concerned car and then they are used to predict the most suitable car color code.</p>
	 <p>Maryam Ghazwan</p>	
2	 <p>Shaikha Mohamed</p>	<p>SMART HOME APPLIANCES CONTROL FOR BLIND PEOPLE</p> <p>No doubt that making disabled life easy is considered the most meaningful work ever. There are many jobs can be deployed to them and they will be more productive persons among all sectors in the society. In our project we worked on developing a system that can assist them to make their life easier.</p> <p>We have focused on the disabled people sector whether they are living alone or living with their families. Our application is going to control some appliances in the home such as lights, fans and switches which are connected to other appliances.</p> <p>All of this is controlled by an application developed for this purpose using mobile phone which is connected to the controller that uses Bluetooth module to transfer the signal between the mobile phone and the control circuit. The system will facilitate the in-house life of disabled as well as normal people.</p>
	 <p>Dalal Abdulla</p>	

No.	Student Name	Project Title
3	 Ahmed Albinali	<p>ALMORIAT APP: HORSE'S COMPETITION REGISTRATION SYSTEM FOR BAHRAIN HORSE RACING</p> <p>The Equestrian Federation of Bahrain is working on holding competitions at the international level for horses throughout the year in order to rehabilitate and develop the horse in order to walk great distances and participate in international races.</p> <p>To increase interest in this sport and make it simple for all stables and fans to stay up to date with the endurance news in Bahrain, we have developed an integrated system through Mobile Application using the flutter framework with state management, the application contains all information related to endurance races and news, with the possibility of registration through it. the system also contains a cloud database Firebase with a structured database using Laravel framework and the data will be shown for admin in the admin panel, it also contains a chatbot inside the app using Google AI, so it can easily address user's questions.</p> <p>Additionally, we linked the microcontroller ESP8266, Ad8232, and Gy Neo mv2 sensors using IoT to a cloud real-time database was linked with the app. This enabled a number of integration options, including gathering the horse's heartbeat throughout the race and the average pulse at various speeds throughout each competition with time, as well as connecting with GPS to see the horse during the race with a customized Google Maps on the track race with defined access points. The system will aid in facilitating and speeding up the registration process, as well as preventing any errors from occurring. It will also make it easier for fans to read news and results and communicate with the federation and stables. Monitoring the horse's health throughout the race, using data to gauge its performance during the race, can assist avoid some instances of racetrack fraud.</p>
	 Mahmoud Mohamed	
4	 Ebrahim Alamari	<p>ALMORIAT APP: INTELLIGENT HORSE HEALTH MONITORING DEVICE FOR BAHRAIN HORSE RACING</p> <p>The Equestrian Federation of Bahrain is working on holding competitions at the international level for horses throughout the year in order to rehabilitate and develop the horse in order to walk great distances and participate in international races. To increase interest in this sport and make it simple for all stables and fans to stay up to date with the endurance news in Bahrain, we have developed an integrated system through Mobile Application using the flutter framework with state management, the application contains all information related to endurance races and news, with the possibility of registration through it. the system also contains a cloud database Firebase with a structured database using Laravel framework and the data will be shown for admin in the admin panel, it also contains a chatbot inside the app using Google AI, so it can easily address user's questions. Additionally, we linked the microcontroller ESP8266, Ad8232, and Gy Neo mv2 sensors using IoT to a cloud real-time database was linked with the app. This enabled a number of integration options, including gathering the horse's heartbeat throughout the race and the average pulse at various speeds throughout each competition with time, as well as connecting with GPS to see the horse during the race with a customized Google Maps on the track race with defined access points. The system will aid in facilitating and speeding up the registration process, as well as preventing any errors from occurring. It will also make it easier for fans to read news and results and communicate with the federation and stables. Monitoring the horse's health throughout the race, using data to gauge its performance during the race, can assist avoid some instances of racetrack fraud</p>

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5	 <p>Husain Alhaddad</p>	<p>AUTOMATED HUMAN-GUIDED SYSTEMS</p> <p>Robotics are an emerging field of research that has gained significant attention in recent years. This project represents the design and development of an automated human-guided system using Arduino. A human-guided system is a carrying items robot that can work with high accuracy in lesser time in all forms of functions.</p> <p>It can avoid obstacles and interact with a particular person. This robot can help in the medical field by bring automatically specific medicine items, which will be more helpful for a doctor in emergency cases. It helps to get comfortable shopping for customers in supermarkets. Human-guided robot is driven with four DC motors and it is controlled by using Arduino microcontroller, distance sensor, and two infrared sensors. Each sensor plays a critical part to detect human behaviors.</p> <p>To implement a complete motion, an attached motor driver shield is used to control four motors by two L293D quadruple half-H drivers, Ultrasonic sensor detects humans in range to make the robot move forward. While two IR sensors triggered L293D drivers to turn left or right based on the signal of the IR sensors. The main objective of designing this useful project is to make our life better and more luxurious.</p>
	 <p>Murtadha Ali</p>	
6	 <p>Aseela Alkawari</p>	<p>DUST LEVEL DETECTION ON SOLAR PANELS USING IMAGE PROCESSING</p> <p>The need for renewable energy is now more than ever as the world is moving forward towards sustainable living.</p> <p>One of the methods of getting clean energy is from sunlight via solar panels, however solar panels have an issue of hot spots due to dust accumulation that lower the energy production. This project will present the design and implementation of a solar panel dust level detection system using image processing techniques.</p> <p>The system will measure dust accumulated dust on the surface of a PV panel through image processing. The proposed system has two parts, a hardware where a camera will be set on the solar panel taking images of its surface, those images then will be read through a machine learning algorithm where it will decide if the surface is clean or not based on its previous training.</p> <p>The proposed system will help cultivate more energy, prolong the life of a solar panel, enhance the performance of photovoltaic panels, and help create an efficient cleaning schedule. Because the camera is not fixed directly on the surface of the panel it has more flexibility and can be controlled remotely.</p>

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7	 <p>Eman Almannaei</p>	<p>EPILEPTIC SEIZURES DETECTION USING MACHINE LEARNING</p> <p>For patients with epileptic seizures to be more independent, many of them require a service dog to alert them of a possible attack and/or alert others for help if the patient has an attack and needs help to keep him safe. This project will replace service dogs as people in many cultures do not approve having dogs around the house (as it is the case in Bahrain), as well as prevent allergic reactions from dogs.</p> <p>Also it is cost efficient as dogs in general and their training are very expensive. It's been shown that fluctuation in time between heartbeats, or Heart Rate Variability (HRV), can be a good predictor of epileptic seizures.</p> <p>Therefore, this project aims to use HRV data to create a prediction algorithm that will alert the person of a possible attack in order to allow him to take an action to keep him safe. Also, it will alert people in the surroundings if the user is unresponsive and will place a phone call to the authorities to get the medical help. In addition, it will use text-to-voice convertor to allow the software to communicate with the authorities regarding the status and location of the person.</p>
	 <p>Hanifa Ismaeel</p>	
8	 <p>Sajid Ahsan</p>	<p>CLOUD-BASED PATIENT HEALTH MONITORING SYSTEM</p> <p>Monitoring the health of a patient has numerous uses and is crucial whether he is at home or in the hospital. Patient health monitoring system is used to continuously monitor physiological parameters of the human body without human intervention.</p> <p>The objective of this project is to develop a cloud-based patient health monitoring system that monitors pulse rate, blood oxygen saturation (SpO2) and body temperature. The data from the sensors can be monitored in real-time through the cloud. This gives doctors and physicians useful information to take proper action from distance.</p> <p>This is one of the key features of telemedicine. In rural areas, the quality of healthcare is often poor so being able to send the necessary data to an expert and get their opinion is very beneficial. The data will be logged and archived on the cloud for analysis and potentially detecting illnesses.</p>

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9	 Ammar Abdulmajeed	<p>AWARE-RECYCLING ROBOT TO IMPROVE CHILDREN'S HABIT</p> <p>Recycling is a major key to preserve environment in our planet. In fact, our project proposes a trash robot to aware kids in the schools about the recycling concept. Further, the aim of the project is to raise the awareness about environment among children by teaching kids how to use the correct trash bin for recycling.</p> <p>Trash robot is a system based on a microcontroller which identifies the type of trash between plastic and metal and helps kids to choose the appropriate trash bin to throw their trash. In addition, the trash robot encourages and reward children by voice message.</p>
10	 Noor Rashed	<p>IOT BASED INTELLIGENT IRRIGATION SUPPORT SYSTEM FOR SMART FARMING APPLICATIONS</p> <p>In most of the agriculture lands the crops are over watered without checking the soil dampness, this leads to the waste of water resource which can be utilized in some other areas where there is a need of water. And from here a need for a system that preserves water resources and optimize them for agriculture production came.</p> <p>This paper covers descriptive details about the design and implementation of the System. The system consists of Arduino UNO(DTH11), soil moisture sensor, humidity sensor, temperature sensor, Wifex Module, water tank, fan and a mobile application. DTH11 is used to measure the humidity and temperature.</p> <p>The soil moisture sensor measures the volumetric water content in soil. The water level sensor is used to record the water level from the various places of the field. The mobile application is designed in a way to analyze the data received and to check with the threshold values of moisture, humidity and temperature.</p> <p>This system is found to be feasible and cost effective for optimizing water resources for agriculture production. It allows cultivation in places with water scarcity thereby improving sustainability and helps the farmer by making his work smarter.</p>

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11	 Feras Majeed	SOLAR POWERED PORTABLE WATER DESALINATION UNIT Providing drinkable water for ships and fishermen overseas is a challenge. Our aim of this project is to use design and implement Controllable Solar powered portable water desalination unit, which it will help to get a drinkable fresh water and at the same time to use the solar power to get the power for this system. This device will have some applications by adding Analog PH sensor, Turbidity sensor amplifier circuit, Waterproof temperature sensor. It uses the Arduino Uno along with a Panel 100Watts, and a cooling system. That will make the control easier, and it will offer a lot of applications, such as it will help the consumer to controls the water temperature, another sensor is added to get the highest quality of the water as much as possible. The source of the power will be environmentally friendly since it generates the power from solar cells and it offers a source of water for human that will help with habitat protection by reducing the number of the water plastic bottles that could be thrown in the sea by sailors.



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