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جـامعة ووطـن.. نمـاء.. واسـتدامة..

كلية علوم الحاسب وتقنية المعلومات
College of Computer Sciences & Information Technology

STUDENT GRADUATION PROJECTS

College of Computer Science and Information Technology

2023

Dean's Message

Dr. Hasan Shojaa Alkahtani

Dean of College of Computer Science and Information Technology

The graduation projects undertaken at the College of Computer Science and Information Technology provide a valuable opportunity for students to apply the scientific knowledge and skills they have acquired throughout their learning journey at the college. These projects empower students to use their problem-solving abilities and design and develop innovative solutions across various fields within the framework of computer science and information technology.

Additionally, the emphasis on undertaking these projects aligns with the university's objectives of graduating a group of exceptional students who are capable of meeting the demands of the labor market and becoming accustomed to the hasty advancements in technology.

It is worth noting that graduation projects play an important role in reinforcing the university's institutional identity, particularly in terms of environmental sustainability and food security. These projects contribute to the development of practical solutions by supporting research activities that lead to noticeable outcomes such as research papers, prototypes, and creative works.

The CCSIT provides students with opportunities to participate in exhibitions and events inside and outside the university to display their research papers and graduation projects. Such opportunities enable introducing these projects to technology companies and individuals interested in investing in this field of computer science and information technology. This exposure may raise the spirit of entrepreneurship and the establishment of startups. It also creates avenues for talented students to secure employment or funding for their projects.

STUDENT GRADUATION

PROJECTS

Department of

CS

COMPUTER SCIENCE

Operators' Stress Detection and Monitoring in Workplace based on Brain and Physiological Signals

Batool Ali Alfenais - Sarah Mohammed Al-Ghowanim - Abrar Yousef Alrebh - Maryam alkhateeb

Supervisor

Dr. Badar Almarri

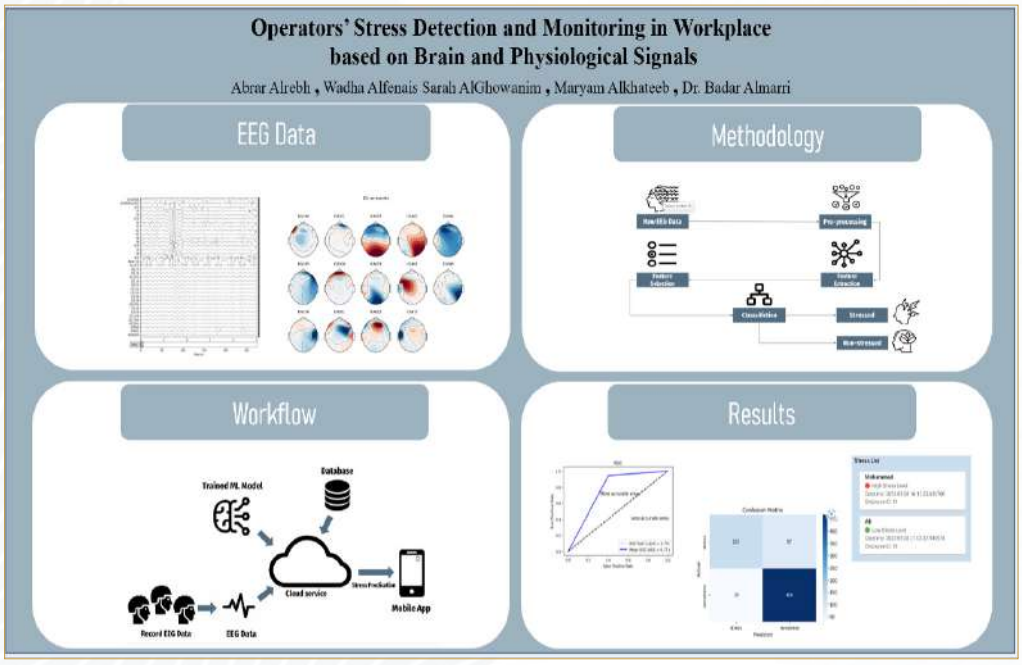
Classification

AI

Track

Healthcare

Manufacturing is a laborer predominant industrial sector; the success of the factory depends on the productivity of the operators. Similarly, this applies to operators in various workplaces including machinery operators and drivers, and physically and mentally stimulating jobs. Excessive occupational stress can cause serious job difficulties that negatively impact operators' productivity, safety, and health. Electroencephalography is one important brain signal acquisition and recording technique that can decode mental states and helps to recognize operators' stress with high accuracy which will improve their productivity and keep them safe. Due to such criticality, we will develop an operators' stress detection application that helps stakeholders to monitor operators' states in the intended workplace based on their brain signals. In general, through this report, we will use public datasets relating to operators' stress and build ML models trained and optimized to predict stress levels Subjects and functions have been discussed based on real research.



Smart Waste Management System Using Deep Learning and IoT

Sara ibrahim Aljafar - Deema Ali Algreeshah - Heba Musallam Alkhalaf - Batool Ahmed AlSowaiq

Supervisor

Dr.Rawabi Alsudais

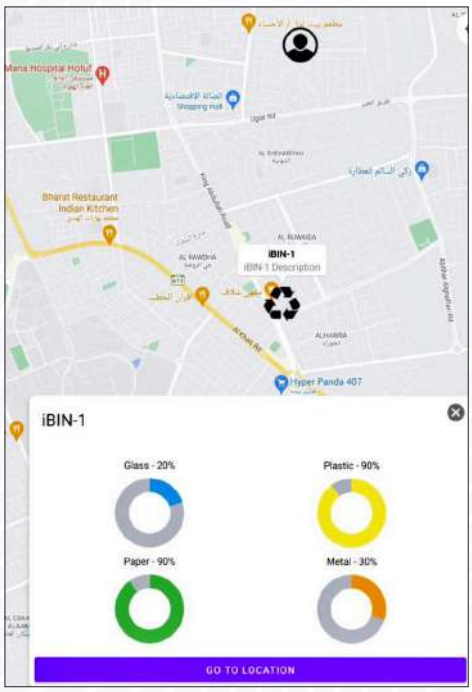
Classification

AI

Track

Energy and Environmental Sustainability

Waste management is an increasingly pressing issue in modern societies, with the volume of waste generated continuing to grow. Furthermore, the efficiency of the current recycling bins is demonstrated by the fact that individuals don't recycle properly and instead simply put their trash into the closest bin. Also, waste collectors use a lot of fuel when they collect waste from every house daily. Hence, our project aims to develop a smart waste management system, where even if the waste is misclassified by people, it carries the work automatically, with a combination of Deep Learning techniques and Internet of Things that integrates several stages, starting from waste classification, monitoring, and collection processes. The system is composed of two parts; the first part is a machine that can identify the waste using the DenseNet201 model with an accuracy of 90% as well as monitoring the five categories of the bin which are plastic, paper, metal, glass, and non-recyclable trash. The second part is an application that is designed for waste collectors to monitor the status of nearby bins and direct them to the full bin. We are certain that this system contributes to a more sustainable environment and takes a step toward Saudi Arabia's Vision 2030.



Driver Care System Using Internet of Things

Fajr Mohammed Aldabban Eshraq hassan mubarak alghufaili Shahad Mohammed Aljughayman

Supervisor

Dr. Mona Ali

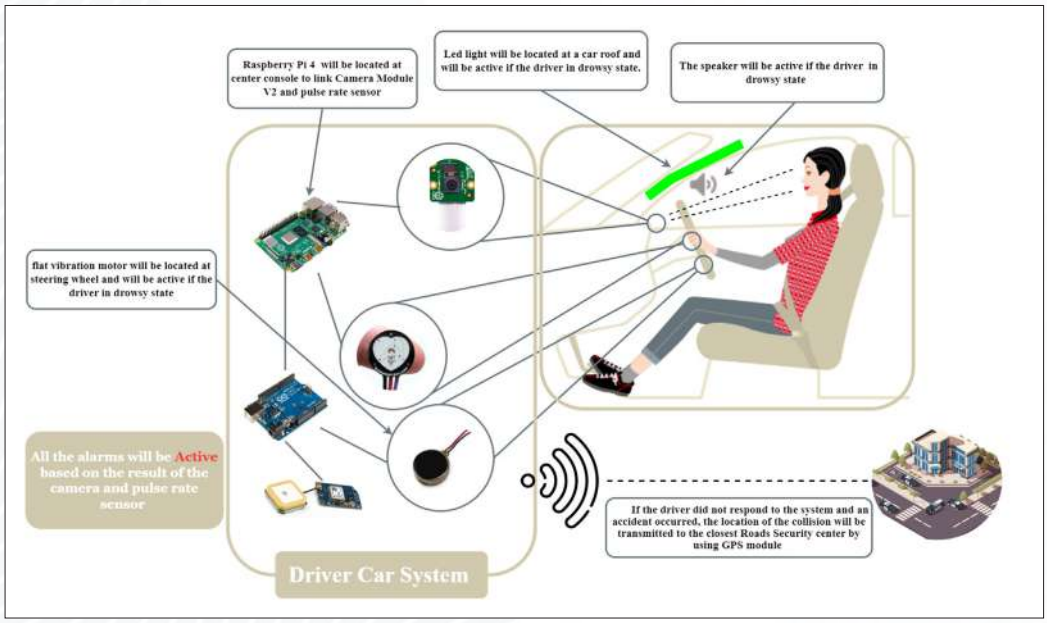
Classification

IoT

Track

Industry and Assistive Technology

With the increase of the population, there is an accident happens every minute. These road accidents are unpredictable and can be happened at any time for many reasons. One of these reasons is when the driver feels drowsy and fatigue. In order to overcome this problem, the driver need to wake up and alerted. Hence, there is a need to develop a system that will alert the driver when the driver in drowsy and fatigue state and before the accident happens. The purpose of this project is to develop a system which will use IoT, that will help in detecting the driver state and alerting the driver when the driver in drowsy and fatigue state immediately. This can be achieved by integrating a detecting camera with smart sensors within the car that can work at the time of detecting a drowsy or fatigue state. If an accident happened, the Global Positioning System (GPS) will be integrated to the system to send the location of the accidents to the nearest Road Security center.



Wa'atimuu Application

Reem Ismael Alabras - Alaa Ali Alfares - Layla Tawfiq Alabdullah - zainab yousef alfaraj

Supervisor

Ms. Fathima Rajeena

Classification

Mobile Application

Track

Industry and Assistive Technology

Visiting the Grand Mosque- 'Alharam' is one of the sacred religious rituals every Muslim all over the earth seeks to perform. Despite some obstacles, accompanying the elderly who need help completing the required rituals and continuous medical monitoring in the event of an emergency is essential. Traveling to the Grand Mosque and performing the rituals is not easy and straightforward, especially for the elderly who need to know the places of prayer, the gates available to enter, ablution sites, etc. To solve this issue, the idea of the project is to introduce the "Wa'atimuu" application. It seeks to assist the elderly who want to visit the Grand Mosque but are afraid of getting lost. It helps them see and visit the Kaaba, and they can finish the Umrah and Hajj rituals inside the mosque quickly and organize without any difficulties. The pilgrim's device's location is determined to reach the destination at the earliest. The location of the mosque is determined based on the current site for the user, which provides the most appropriate path to enter the mosque. The application discusses all cases with the elderly during his visit to the Grand Mosque. This includes emergency cases that require immediate assistance by the medical team or cases related to obtaining medical advice to know his health condition, whether the pilgrim must rest or go to the doctor. The application also facilitates in use of the Holy Qur'an. All the Quranic verses in the application are available for search using Natural Language Processing (NLP). NLP identifies and analyses the user's voice by understanding the context of the word within the audible sentence to analyze it again and convert it into a written text with the same meaning to be reached. The "Wa'atimuu" application uses artificial intelligence techniques to find results and meet the requests of the elderly when they visit the Grand Mosque in Makkah.

Tourism Smart Tool

Ghaida Alarfaj - Fatimah Aljohar - Latifah Aloseel - Ayat Abozaid

Supervisor

Dr. Eid Albalawi

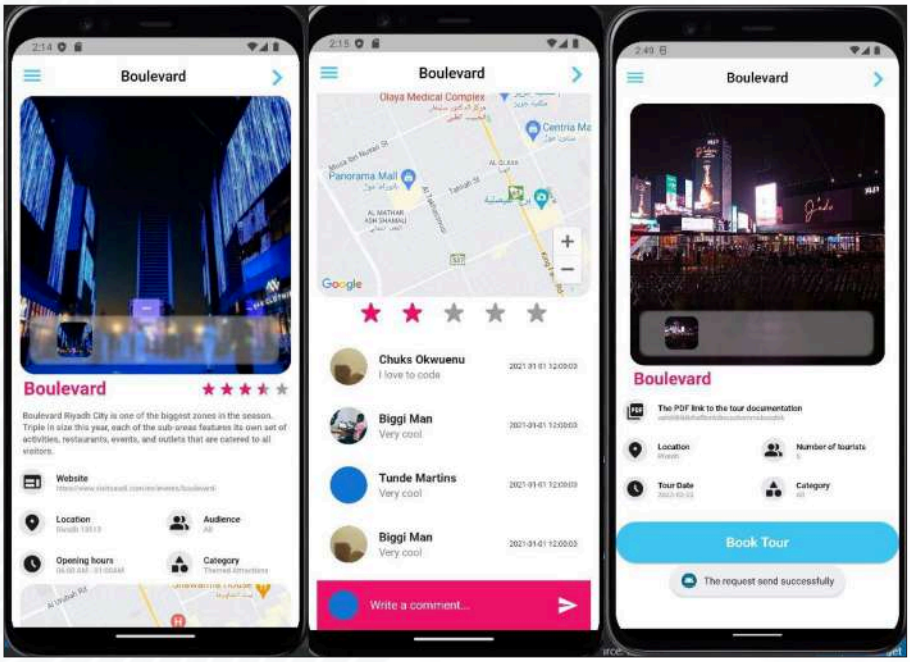
Classification

AI

Track

Industry and Assistive Technology

The tourism sector is one of the essential pillars for achieving the Saudi Arabia Vision 2030, contributing to diversifying the base of the national economy, attracting investments, increasing sources of income, and providing job opportunities for citizens. In line with the Saudi Arabia vision, the proposed project, Tourism Smart Tool, will be developed and designed to serve tourists plan their trips to Saudi Arabia with the latest events and locations provided. Furthermore, the application will help them learn about other experiences and feedback. The tourism tool is built as a cross-platform application that uses both Sentiment Analysis and Recommendations system that incorporates machine learning technologies to provide a smart and convenient solution. The proposed tool will be designed for two categories of users, which are tourists and tour guides. By the end of the project, the tool should provide the following functionalities: Tour guides can plan and schedule more than one tour, then publish and provide them to tourists. Provides a flexible bidding system giving tourists the freedom to choose from multiple service providers (Tour Guides). Provides a list of top restaurants, events, and accommodations in the chosen city, according to user interest. Provides a communication link between the trip maker and tour guide (Request, cancel, and confirm tour). Provides a chatbot conversing with the tourist to easily learn how to interact and use the application. Tourists can give their feedback on the places they visit.



Art Therapy Assistant Tool

Hawazin Turki Binkhunaiser - Shuaa Rajeh AlRajeh - Rana Raed Aljabr - Maathir Ahmed Alshehab

Supervisor

Prof. Suresh Sankaranarayanan

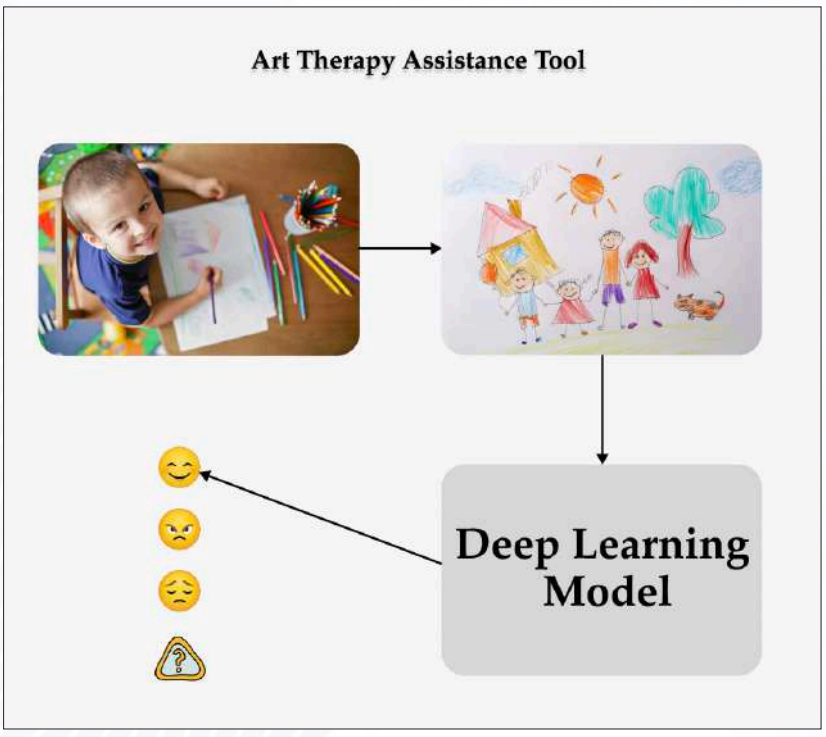
Classification

AI

Track

Industry and Assistive Technology

Art provides a very safe way for children to express themselves. It is considered an outlet for feelings. What is thought to be random scribbles can indicate the mental and phycological conditions a child might have. The practice of understanding deeper meaning in drawings is called art therapy and is done by art therapists. An art therapist needs practice and extended experience to evaluate a child's drawings properly. Moreover, the diagnosis may be affected by the therapist's subjectivity and experience. In this work, we propose a deep learning based approach to aid emotion detection. This is achieved by a user-friendly website where the user can upload a scan of drawings then an interpretation of the drawing is provided alongside a recommendation that aligns with the results. This website is integrated with a deep learning backend where neural network techniques are applied. The patterns of the drawings are analyzed. Based on the analysis, the tool will classify the child's emotions. The dataset used to train the models is gathered from local elementary school in Alahsa, published books, as well as online sources. Moreover, the accuracy of the dataset is approved by experienced practitioners. We expect our project to act as a tool that increases the reliability as well as the objectivity of art therapy for both parents and art therapists.



قلمي (Qalamy)

Hissah Saad Alwasifer - Noura Khalid Almosinad - Latifah Nasser Alhatlan

Supervisor

Dr. Badar Almarri

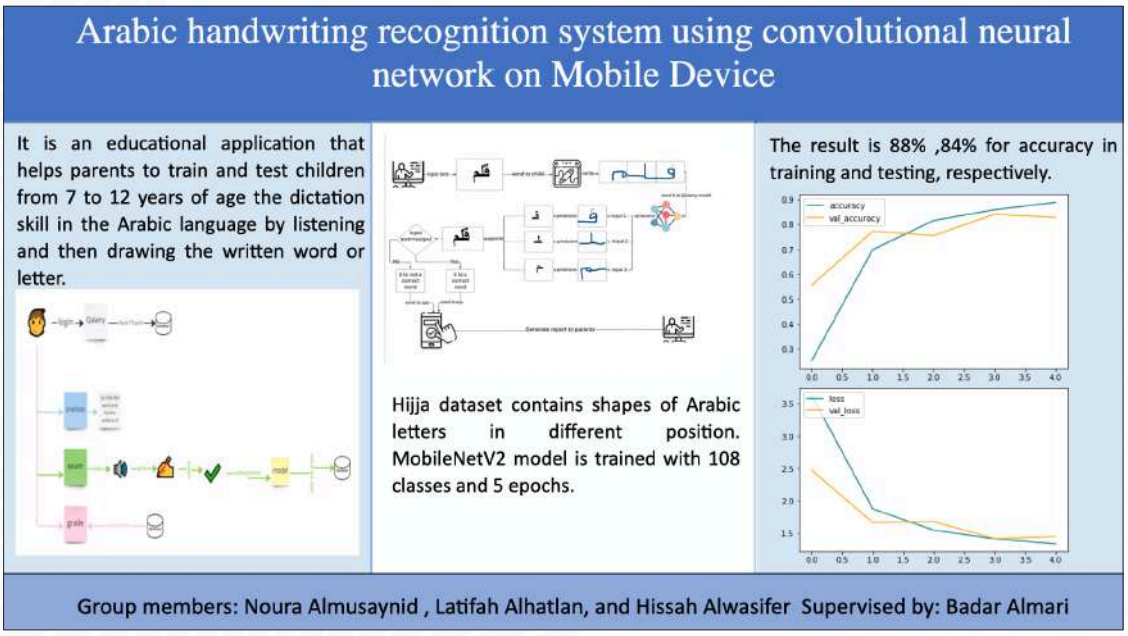
Classification

Mobile Application

Track

Industry and Assistive Technology

The Arabic language is of great importance in our lives, especially as it is related to Islam and Muslims, and it is the language of the Holy Qur'an. Teaching children the Arabic language from a young age has become a basis and a necessity to achieve our lofty glories. For our children to have a correct foundation, they are the youth of the future. From this standpoint, we thought of doing an educational app. Our goal in this project is to create an application to teach children the Arabic language by listening and writing by hand easily and smoothly. To enable children to learn in a fun and modern way. In this project, we presented the plan through which we seek to achieve the goal. It started from the general idea of the project, its goals, and motivation to do it. Then literature review that includes a summary of the related work to our project. Followed by an analysis of the system, available solutions, and databases that we can use. Then the techniques to be used and project requirements. Finally, work has been done on the back-end, system design, including the design of the interfaces.



Smart Glasses for Blind People

Maryam Khalid Aldamer - Batool Ali Alhassan - Anfal Anwar Alshawaf - Maram Abdullatif Alabdullatif

Supervisor

Dr. Hadeel Mohammed Alzoubi

Classification

AI

Track

Industry and Assistive Technology

Artificial Intelligence (AI) Technologies have played a significant role in helping visually challenged people to do their daily activities without reliance on other people. Smart glasses for visually challenged people are wearable devices that are aimed to help blind people know what is in front of them and in their surrounding environment. Text recognition tools can be embedded with smart glasses to provide helpful information for blind people and improve their independence. Many assistive tools have previously been proposed to serve text recognition for blind people. However, many of these appliances are expensive and complex since they usually require high computational costs from image processing, Natural Language Processing (NLP), Voice generating, etc. This project aims to build a novel Smart Glasses for Blind People (SGBP) that has the ability to recognize text captured from a camera and convert it to speech that can be heard with affordable prices and minimal computation cost. Moreover, the SGBP provides blind persons with the ability to recognize the texts that are around them. SGBP does not allow a blind person to physically read the texts; instead, it pronounces the texts present in front of them via earphones. With the use Optical Character Recognition (OCR) and Text to Speech (TTS) algorithms, SGBP implements a device that will serve as a pair of smart glasses for blind people in order to accomplish its main goal. Our project is supposed to be a way to motivate blind persons to be more engaged in different society activities.

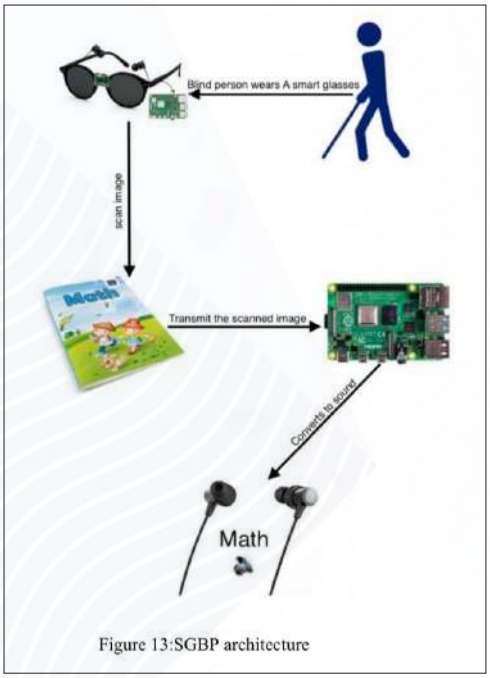


Figure 13:SGBP architecture

AI-Powered Automated Waste Sorting System

Fatimah Habib Alshawmari - Noor Bader Alhajji - Kawthar Hassan Alsalem - Fatimah Radhi Alhajji

Supervisor

Dr. Ahmed Afifi

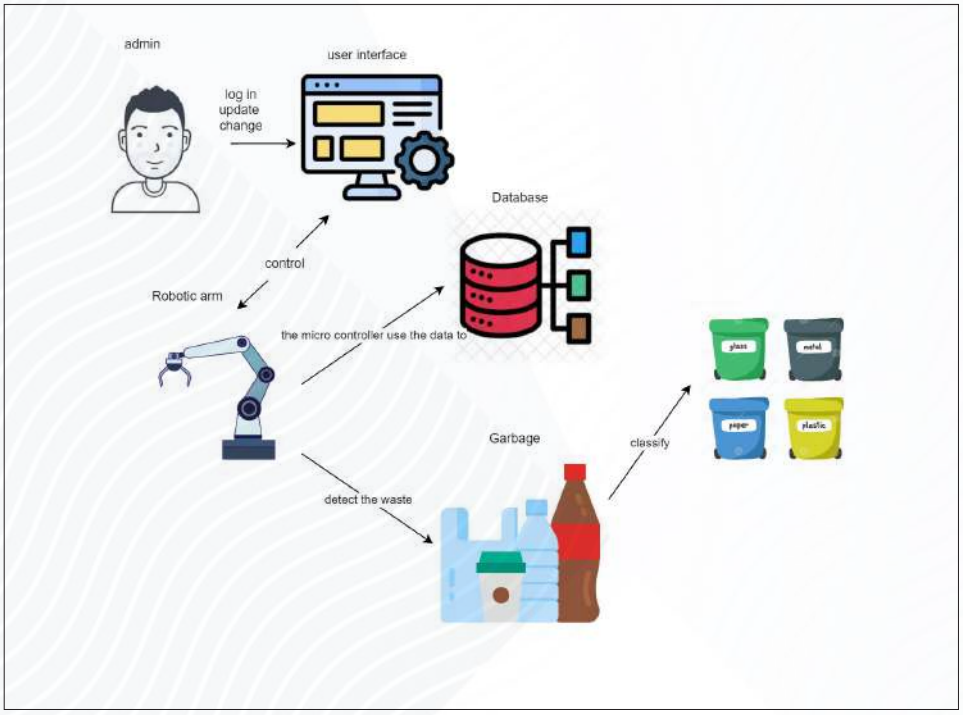
Classification

AI and KFU (Environmental Sustainability)

Track

Energy and Environmental Sustainability

The presence of a smart waste management system powered by AI techniques assists people in sorting waste, which has become critical in the garbage disposal. whereas the process of segregating waste prompts the generation of energy out of waste, reducing waste and the associated environmental and health issues if the sorting process is done accurately. The aim of this project is to design a prototype of a robotic arm and develop a smart system using deep learning models for waste detection and classification. To build reliable models, we will train a Convolutional Neural Network (CNN) model using a special waste database and install it on a Jetson Nano microcontroller. This system ensures the best way for waste management and will also speed up the segregation process with higher accuracy.



Emotion Recognition Based on Voice tone and Speech for Customer Service in Call Centers

Rawan Abdullah Alsubaie - Razan Alabdulhadi - Esra Ahmed Albahnasawi - Shaden hassan Alhudayb

Supervisor

Dr. Rawabi Alsudais

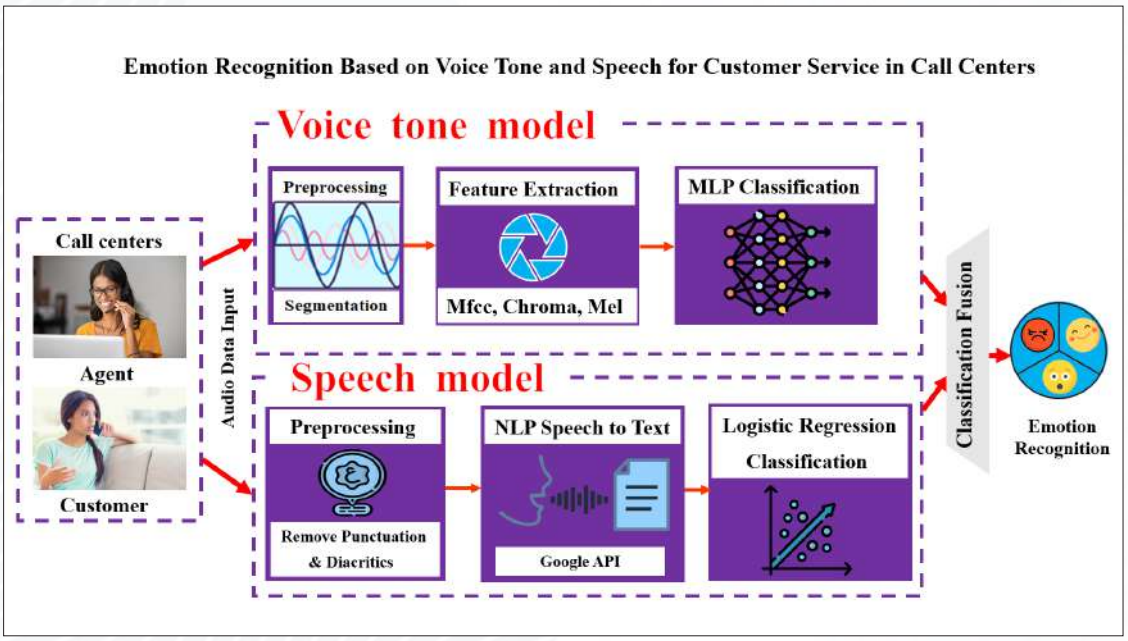
Classification

AI

Track

Industry and Assistive Technology

Among the most significant objectives of effective marketing is to improve the customer experience. In strength marketing, customer service represents the initial source of communication for clients, and customer emotion is a key marker to describe customer satisfaction. Accordingly, analyzing the user's feelings from the speech data of a customer is a very effective marketing strategy, Therefore, Speech emotion recognition is a tool that can be used to determine the emotional intensity or sentimental value of different audio recordings in a variety of industries, including customer service, education, and healthcare. This project aims to recognize emotion based on voice tone and speech in the field of customer service at marketing in order to enhance customer satisfaction, using Arabic Natural Audio Dataset and the Original Arabic Tweets-Emotion dataset observed from credible recourse at Kaggle. To build a reliable model using the combination of the Multilayer Perceptron Model (MLP) and Logistic Regression. The project mostly targets business owners that want to improve their revenues.



Property Price Predictor Application

Zyneb Ahmed Alsakran - Rawan Abdulmohsen alshaikh saleh - Renad Abdullah almoqqal

Supervisor

Dr. Hadeel Mohammed Alzoubi

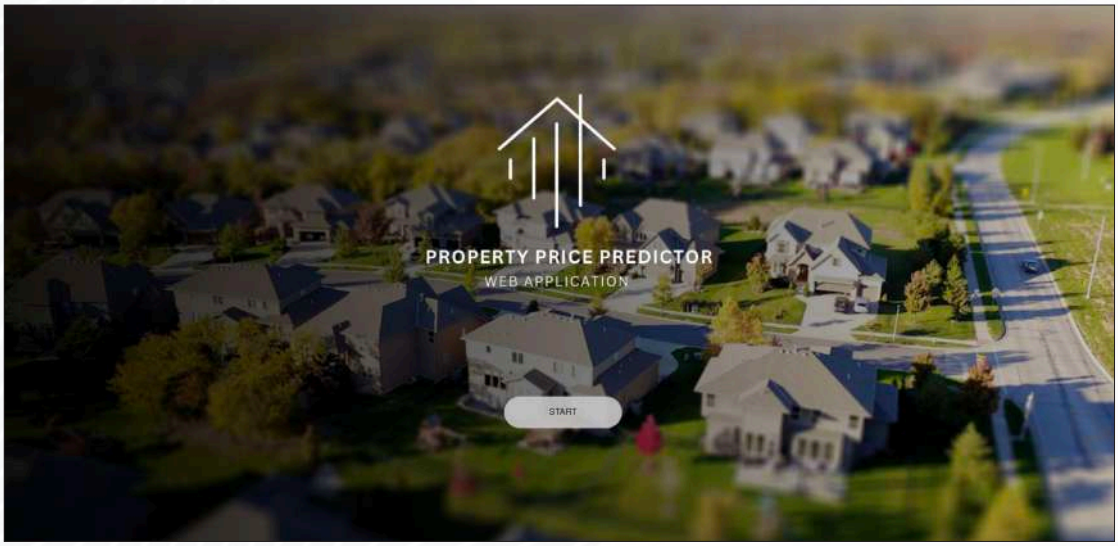
Classification

AI

Track

Industry and Assistive Technology

Considering the change in real estate prices every day. The property price predictor project aims at developing a system that users can use to predict the price of real estate. by utilizing the user's real estate information to predict the real estate price efficiently and quickly without needing a real estate agent or a real estate office. A dataset was built and used to train the machine learning model and deploy it in our systems to predict real estate costs as accurately as possible. The system relies on artificial intelligence that uses machine learning techniques, including regression models, to predict real estate prices. This project raises a problem and tries to solve it through web application development.



Currency Recognition System

Sarah Abdelraouf AbuObayd - Wed Sami Alsuwaie - Hawra Ayesh Almandeel - Zahra Ibrahim Alyahya

Supervisor

Ms. Sarah Aldossary

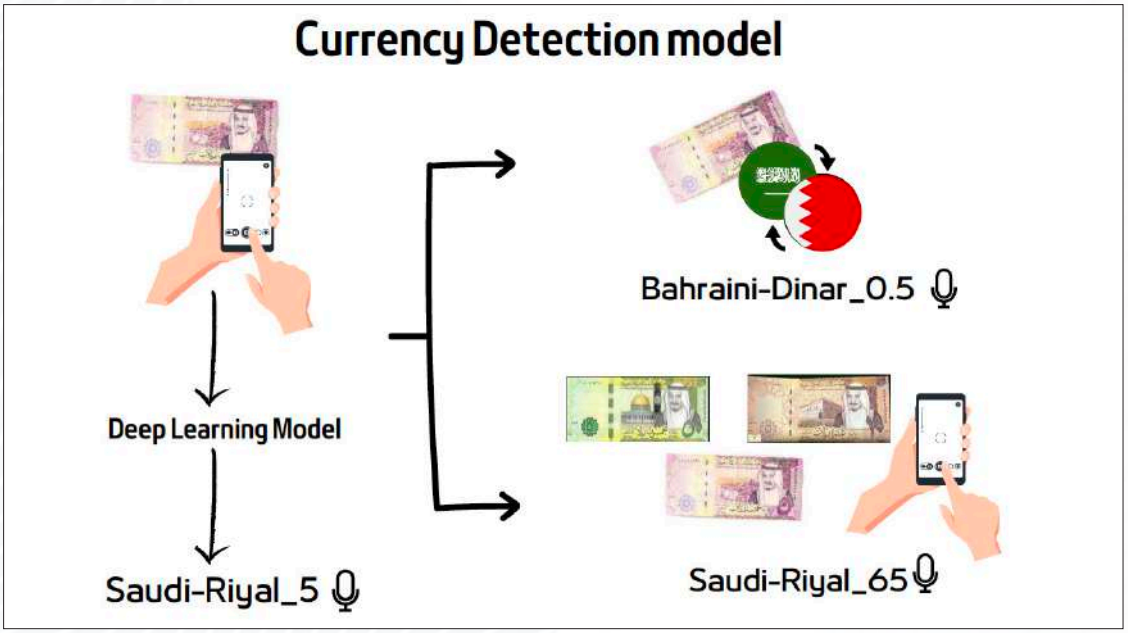
Classification

AI

Track

Industry and Assistive Technology

"This project focuses on developing an Android application that utilizes deep learning techniques to classify GCC countries' currencies through images. The application aims to provide users with advanced functionalities such as currency counting and conversion between different currencies. The application is designed to be useful to residents or individuals visiting GCC countries, and its feature to help count physical currency in hand is particularly noteworthy. It also provides sound notifications on the results obtained and can present the results in both local currencies or any preferred GCC currency of the user's choice. The application aims to help users better manage their financial transactions while travelling or living within GCC countries. The ease of use and convenience provided by this Android application will undoubtedly make it the go-to tool for anyone seeking to simplify and streamline their currency conversion and counting needs."



Clustering and classification of email contents

Rahaf Mohammed Alharbi - Aishah Yosef Alafisan - Fatima Mohammed Alhajji - Arwa Ibrahim Alamer

Supervisor

Ms. Sarah Aldossary

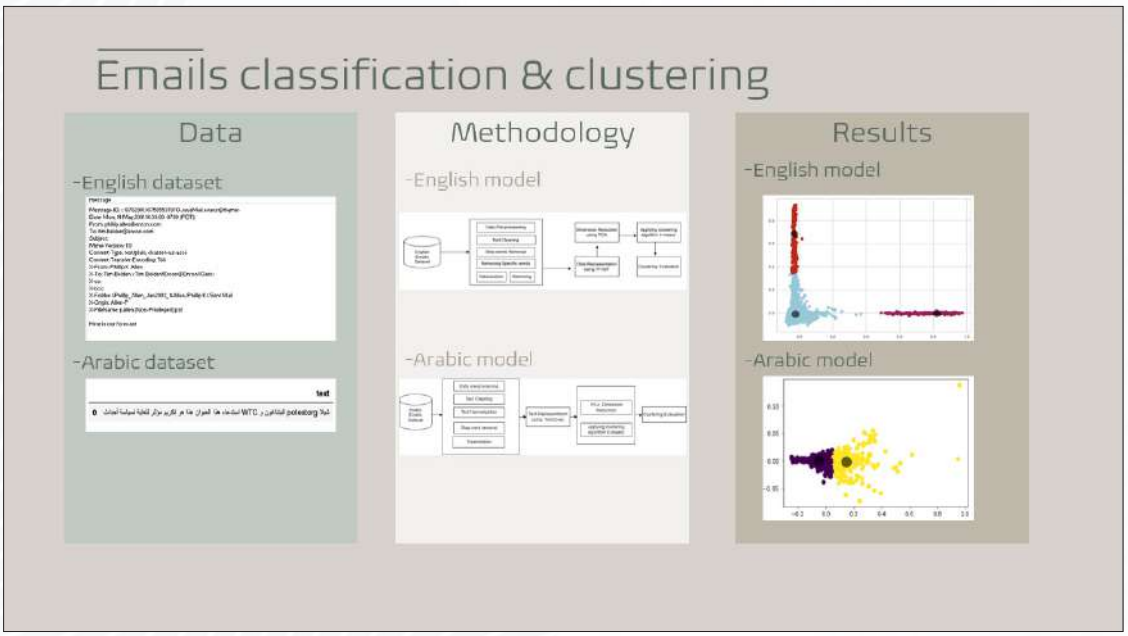
Classification

AI

Track

Industry and Assistive Technology

The main purpose of this project is to create a system that assists users in organizing their emails and prevents important emails from being lost. This can be done with the help of natural language processing (NLP). NLP is a computer science branch that aims to understand, and process written and spoken human language. In order to make this project, we need to work on text classification and clustering. This can help students to have accessible and organized email.



System to diagnosis Alzheimer's disease with MRI images using CNN model with deep learning

Hind Nasser Alqahtani - Dalia Ahmed

Supervisor

Dr. Sharmila Sheik Imam

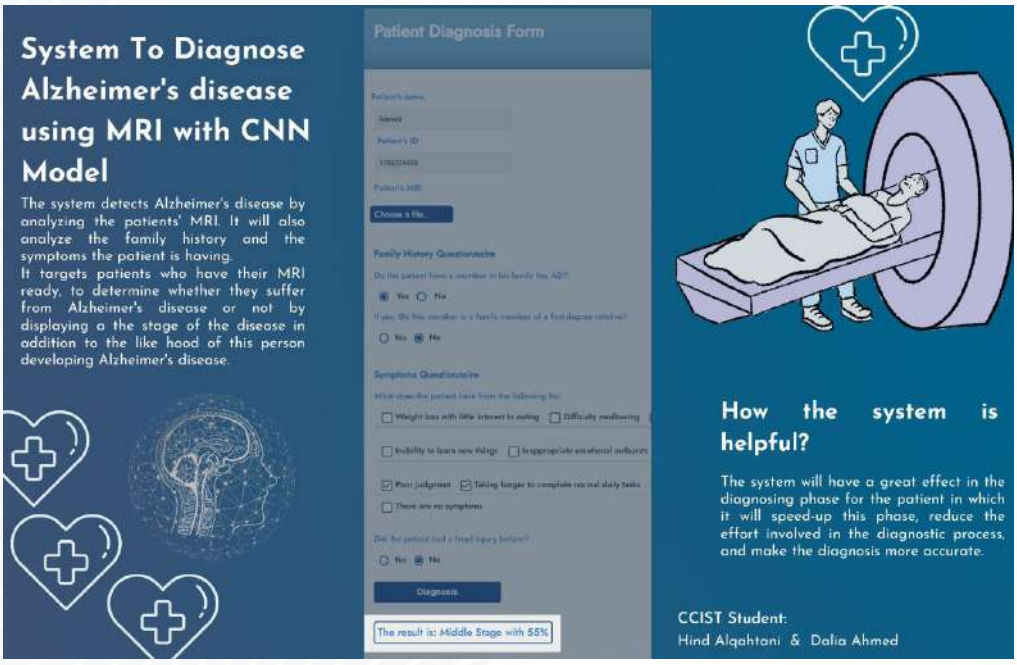
Classification

AI, health

Track

Healthcare

Alzheimer's Disease (AD) is a brain ailment that gradually impairs thinking and memory abilities as well as the capacity to do even the most basic tasks. AD is the most common cause of dementia among the elderly. The symptoms of AD might confuse people to think that it is a normal part of aging, but it is not. There are many methods used to diagnose a person with AD. However, the most accurate one is by using magnetic resonance imaging (MRI). In recent times there exist a lot of systems that use machine learning (ML) to diagnose AD including our system which will use Convolutional Neural Networks (CNNs) deep learning model to analyze the person's MRI images and give the diagnosis. In addition to MRI, the system will use two more diagnosing methods which are family history and symptoms analysis. The system will be used by doctors, radiologists, or neurologists in hospitals, diagnostic centers, or clinics. Our project's primary goal is to help neurologists in the Kingdom of Saudi Arabia by reducing the time and effort spent in diagnosing Alzheimer's patients using our system.



Traffic Signal Automation

Abdulmohsen fahad alagnam - Mohammed Anwar Alshawaf - Jaafar Aqeel Albahrani

Supervisor

Prof. Alaa Sagheer

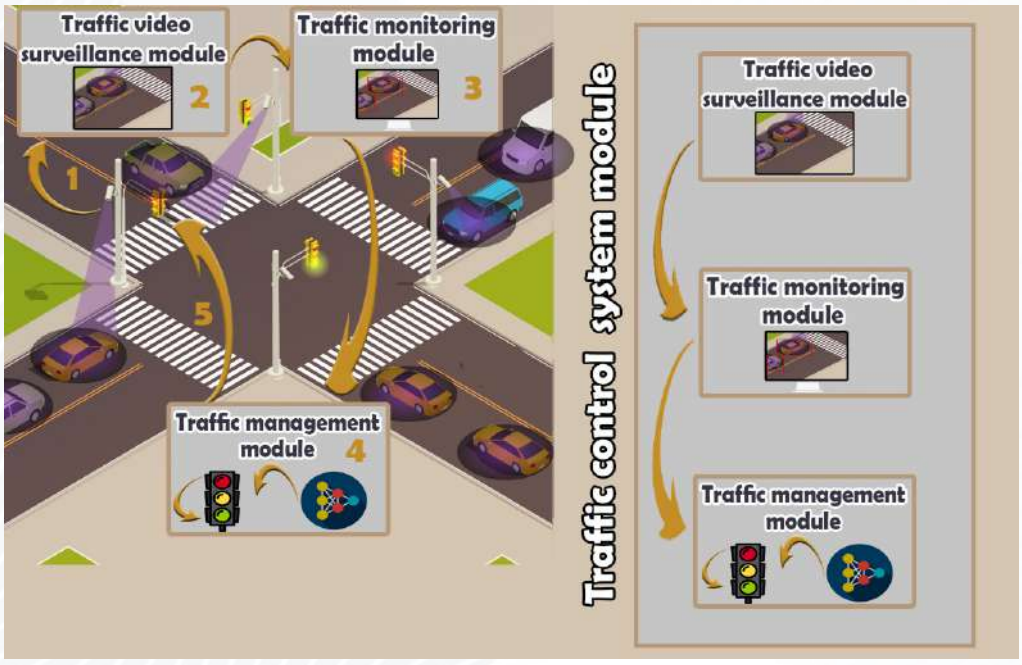
Classification

AI, Traffic

Track

Energy and Environmental Sustainability

This project is concerned about the waste of time and resources at traffic signals. Our proposed project aims to save time for drivers using automated traffic signals. The system will also help in reducing traffic violations and accidents. Automated traffic signals should help to provide smoother traffic especially at light traffic times. The solution would be implemented by using sensors, cameras, to control the traffic in the streets and organize them in the best way. This project's main goal is to cut down the dead time of the traffic signal that is not in use at this time. The system shall use computer vision and pattern recognition with the help of sensors and process this data to come up with solutions. The system will not have authorities such as activating or closing traffic lights for any emergency.



Traveling assistant web app

Abdulrahim khalid Al khatib - Yousef hassan Albariqi - Ahmed ali Alsaif - Fahad salah Bunhayah

Supervisor

Dr. Abulraouf Khan

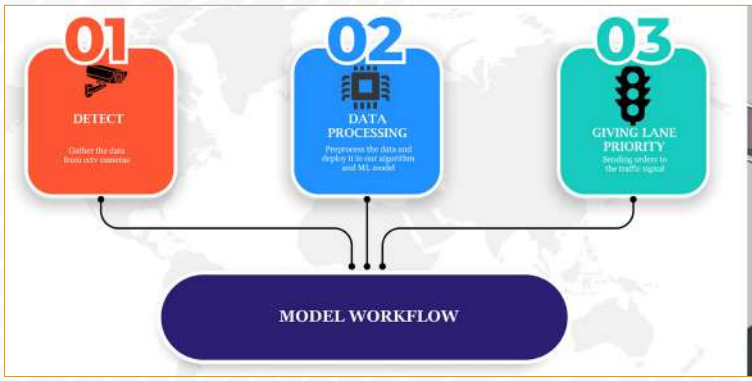
Classification

AI

Track

Industry and Assistive Technology

In the last two decades, technology has played a big role in everyone's life, it makes life more convenient, in Saudi Arabia, we have used technology and utilized it to the fullest, unfortunately, it hasn't been utilized in the field of tourism, we want to make tourism easier and more comfortable with the help of technology. In our project, we will take tourism to the next level by giving you the right recommendation and it will be able to schedule your trip. MurshidPlus is a tourist recommendation and planning software to help customers with the organization of leisure and tourist agenda. First, a recommender subsystem list of the city places that are likely of interest to the user. This listing takes into consideration the person's demographic classification, the person's likes in former journeys, and the possibilities for the next visit. making plans, module schedules, the listing of recommended locations and social media high quality reviews. It has a special planner that determines how and when to recognize the recommended activities. Having the listing of recommended activities prepared as an agenda (i.e., an executable plan) is a relevant characteristic that most recommender systems lack



Adaptive Road Traffic Control System (ARTCS) using Deep Learning

Mohammed Ali Al-Abdulwhab - Amar Abdullah Al-Hussain - Ismail Hussein Alsalmanalsaleh

Supervisor

Mr. Conrado

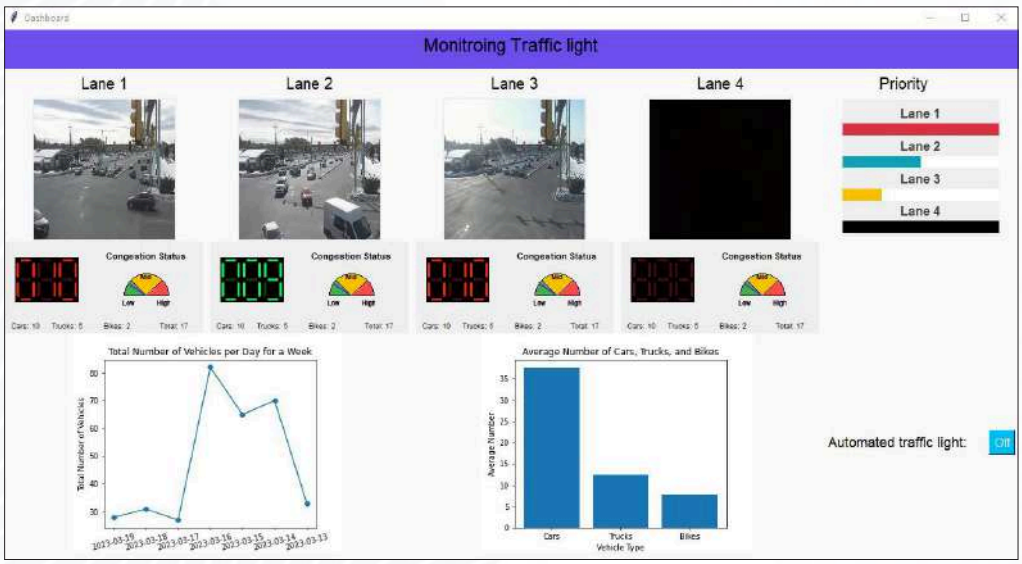
Classification

AI , Traffic

Track

Energy and Environmental Sustainability

This project presents an adaptive road traffic control system (ARTCS) that utilizes deep learning (DL) techniques to improve traffic flow efficiency. The system utilizes real-time traffic data from surveillance cameras and DL algorithm to predict traffic conditions and adjust signal timing accordingly. By using DL algorithm and computer vision, the system can adapt to changing traffic patterns and make real-time adjustments to traffic signals to optimize traffic flow. The objective of this project is to improve the quality of life for citizens and enhance the efficiency of transportation systems in Saudi Arabia. By integrating smart technologies, the country can reduce traffic congestion, improve road safety, reduce gasoline consumption and enhance the overall driving experience for commuters. With its ability to learn and adapt, this system can also help reduce carbon emissions by minimizing the time spent idling in traffic to minimize its environmental impact. This is particularly important in urban areas, where traffic congestion is a major contributor to air pollution. By reducing idle time, this system can contribute to a cleaner and more sustainable environment. The Saudi Vision 2030, which aims to transform the country into a technologically advanced and sustainable society is supported by this project. By leveraging smart technologies, Saudi Arabia can achieve its vision of becoming a global leader in innovation and environmental sustainability. This technology has the potential to revolutionize the way Saudi Arabia manages traffic in urban areas and can lead to significant improvements in transportation efficiency.



STUDENT GRADUATION

PROJECTS

Department of

IS

INFORMATION SYSTEMS

Smart Lab Management Systems

Zahra Alabbad - Sara Albinahmed - Amnah bo olayan - Zeenb bo olayab

Supervisor

Dr. Razan Ibrahim Alsawileem

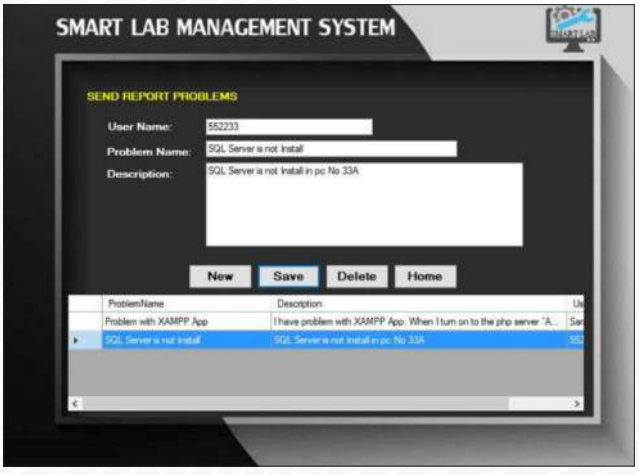
Classification

AI, Education

Track

Industry and Assistive Technology

"Smart lab management system is system that offers special solutions for students CCSIT at King Faisal University while they are enrolled courses that have labs sessions.
The project aims to develop a smart software or system that helps to install and update automatically all the required programmes for enrolled courses by students. So, this software will be only accessed by CCSIT students. The system will be designed by employing artificial intelligence technique by find the student level software that will identify the texts of the subject name registered by students, and then the system will be able to read it and install the related labs applications to these particular subjects. With the help of AI, not every process requires human supervision. Moreover, It provides a framework for supporting students to focus directly on their labs sessions without wasting time."



Academic Advising System

Batool Ismaiel AlAhmad - Fatima Sami AlRamadhan - Fatima Amin AlAbbad

Supervisor

Dr. Abdullah Alaulamie

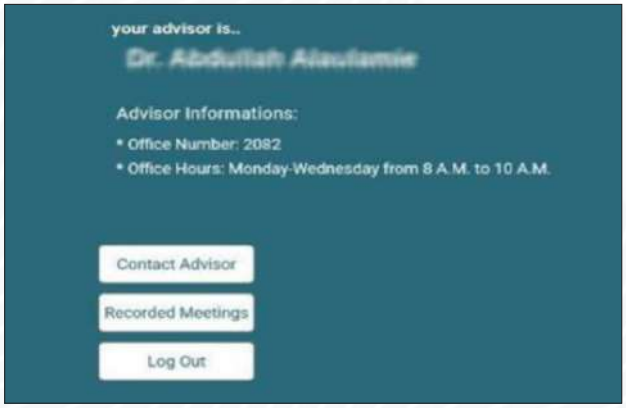
Classification

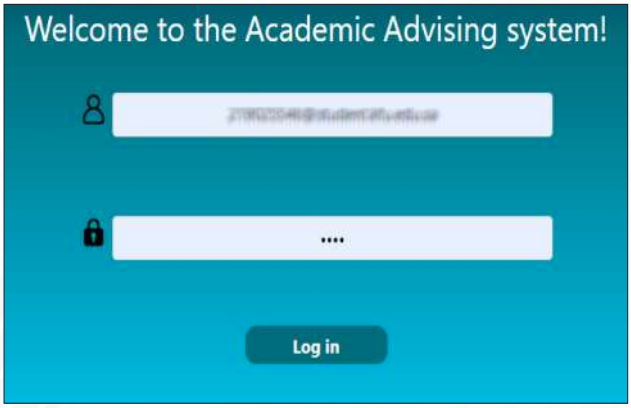
Education

Track

Industry and Assistive Technology

"A system allows a direct, easy, and effective way where college students can contact their academic advisors and vice versa. As for now, these contacts are entirely dependent on e-mails or through blackboard, which is not very convenient for both the student and the mentor. The services that the system would provide are the ability for the user to book an appointment, have an online meeting, as well as a direct text message, and much more. The students can also view all the information about their advisor, who are they, their office location, and their schedule. They also can write in their profile their points of strength and weakness so the advisor can view them easily, have better knowledge, and give the student the best advice. For a better experience, the meetings can be saved and viewed easily with a summary provided by the advisor"





Student Chatbot App

Tarifah Almulhim - Zainab ALkadire - Hawra Alamer - Noura almudaire

Supervisor

Dr. Abdulaziz Saad Al Barrak

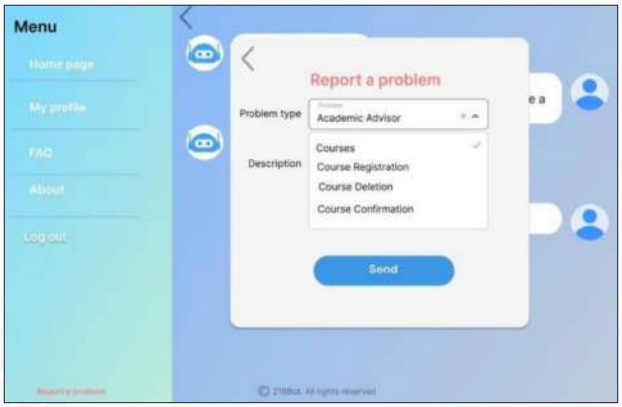
Classification

Education

Track

Industry and Assistive Technology

"In CCSIT all students are assigned to an academic advisor in their major department. It becomes nearly impossible for students to access information online or through other means in a collage as large as a CCSIT. The primary role of an academic advisor is to provide guidance, respond to questions, and assist students with their academic performance. However, E-mail or in-person communication is often limited to office hours, and the information online is distributed among multiple web pages, which are often independently administered and maintained by each subdivision. Without academic guidance, students could find themselves in college longer than necessary, not do well in some courses, or extremely overwhelmed. Academic Advisors typically work dual roles as a college professor which makes answering FAQ and replying to students extremely time consuming. Because we believe that academic advising is a support educational system, we hope to help all parties have an enhanced academic advising experience by developing a chatbot. In this document we discuss the project background and motivation, problem statement, innovation and utility of the project, scope, degree of challenge, comprehensive analysis of related work, objectives, expected outcomes, methodology, alternative solutions, project requirements, system analysis and design, project tools and techniques, and the project workplan"



Personal traveling schedule

Zainab Abdulhadi Aljaziri - Jumana Ali - Hawraa Adnan - Razan Nasser Alabdulmohsin

Supervisor

Dr. Amira Abdelwahab

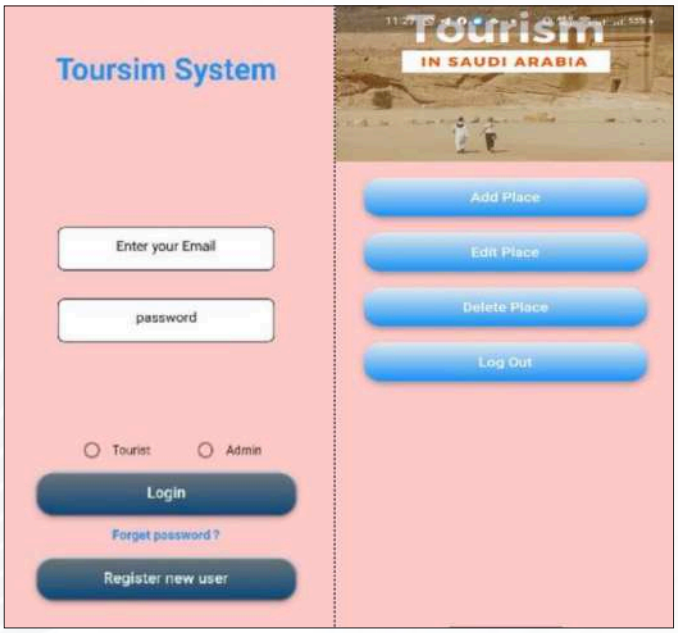
Classification

Mobile Application

Track

Industry and Assistive Technology

Tourism is one of the most important sector that needs to be promoted on a large scale to achieve Vision 2030 through various means. Promotion and advertising is the mainstay for promoting the tourism aspect. The absence of electronic applications that contribute to tourism promotion and the lack of knowledge of foreigners about the historical monuments of the country, and accordingly we will design an application that works on Android platforms to help tourists. This application will assist travelers in planning their vacation schedule in a particular city or region within the Kingdom of Saudi Arabia. The app will offer a schedule depending on the locations they want to visit. A website application will also be created that the administrator will use to manage application data. The main objective of project is the tourist can plan and set programs for his trips and choose the areas he wants to visit with specifying the start and end times of the trip and organise it on the program



Muoeen Almasajed

Zahra jassem Alhomod

Supervisor

Dr. Majed Alshamari

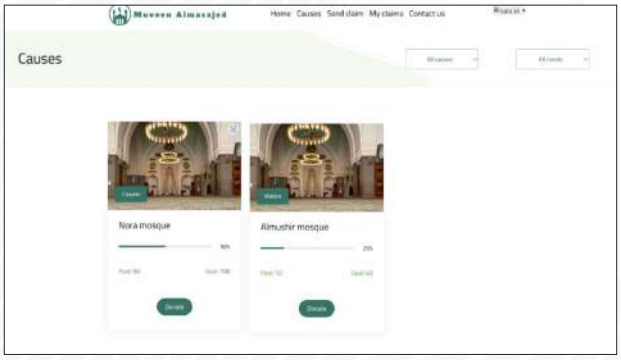
Classification

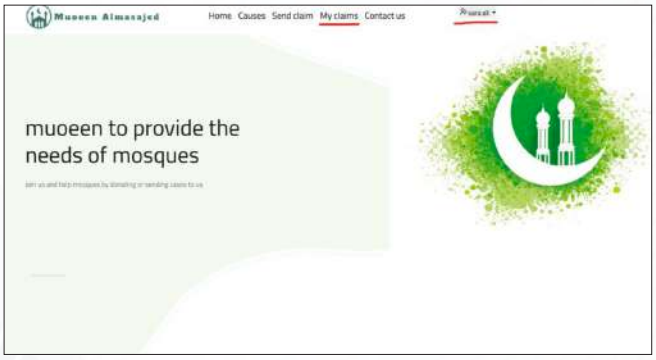
Web Development

Track

Industry and Assistive Technology

Mosques are the houses of God on earth, and God has permitted them to be raised so that he may be worshiped in them alone, and his name is mentioned in them, and his commands and prohibitions are exalted in them, from prayer, remembrance, and recitation of the Qur'an. Some people face a problem when they intend to donate to mosques, as they do not know where to search and find mosques in need and the process of searching and finding may take a long time. Therefore, this project presents a solution. This website aims to preserve and take care of mosques by collecting all mosques in need within the application and the ability of the donor to choose between mosques and see all the different needs and determine the mosque to be donated. Also, the possibility of reporting needy mosques by selecting the mosques in need from the map and determining the type of need and raising the need for a website will facilitate the donation and reporting process and help save time and effort





Mobile Bank Application Using Voice Commands

Ebraheem Ahmed Alkhars - Mohammed Majed Alqasab - Hussain Abdullah Alghazal - Ali Hussein Alalaiwi

Supervisor

Mr. Michael Pinero

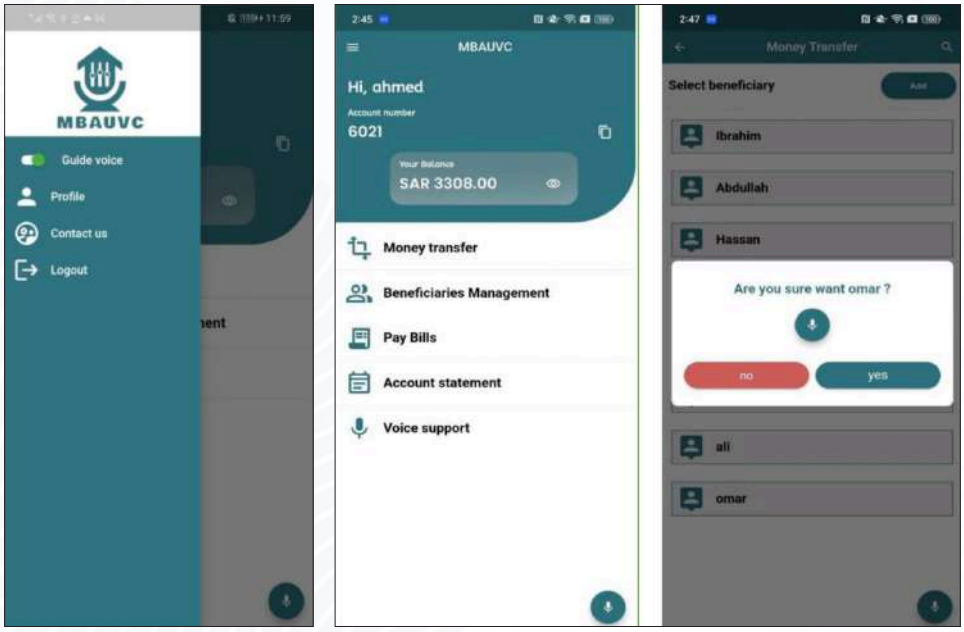
Classification

Mobile Application

Track

Industry and Assistive Technology

In todays society, people like to use devices interacted by voice, such as personal assistants or devices that receive voice commands. Due to the large number of people who like to voice commands in more areas. This project will meet the requirements of those people who want to use voice commands in mobile applications. Some people face slow or difficult understanding of the options in their bank account, especially those who use the site for the first time. From this point of view, the developed system will provide a solution to disabled people that cannot interact with phone but by using voice will pass the problem. Also, elderly people most of them cannot use mobile phone but by enabling voice control will help them use application more easily and initiate money transactions using voice commands. As soon as the user logs in, the system starts receiving voice commands, depending on whether this service is available for this page or not. The system will open the relevant page as soon as the voice command is received. It will also have the ability to add additional beneficiaries via voice commands. The application will provide customer service via voice commands. The library that has been used in application is speech to text and text to speech. Also, the application includes protocol authentication options employing high security approaches (Touch ID, Face ID, and PIN Password)



KFU Registration Organizer

Abdullah Alhumaid - Mujtaba Almeshal - Read Busbait - Abdulelah Alomair

Supervisor

Dr. Mohamad Elhassan

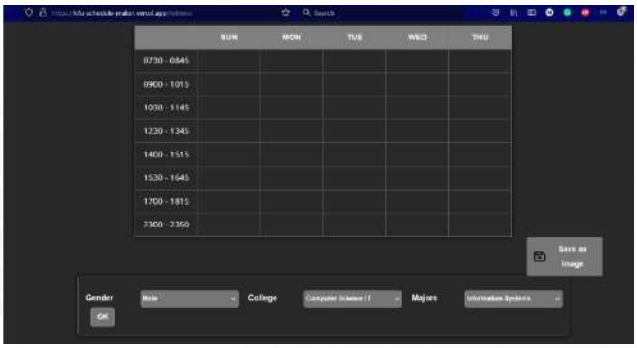
Classification

Web Development

Track

Industry and Assistive Technology

"In this project, we develop a web app that helps students in King Faisal University to organize their schedule. Currently, many students have problems with registration every semester. For example, it is not easy to detect the schedule time conflict. The current format of displaying the available courses and time slots is complicated to read and inspect visually. There is no option to search for specific course, course code, department, or activity type. There is no feature to warn students if they have courses conflict after choosing courses. Some students see the design is not clear and hard to read. Not all students remember or know the department code, and the course code they want to register or required course for it. Hence, it wastes time for these students to check these codes and their related course. The proposed app in this project will help students overcome these problems"



STUDENT GRADUATION

PROJECTS

Department of

CN

NETWORKS AND COMMUNICATIONS

IOT-BASED SMART DOOR LOCKING SYSTEM

Ashwag Mesfer Alotaibi - Fatimah Salah Al-mohammed Saleh - Ramlah Hassan Alqanbar

Supervisor

Ms. Fathima Rubeena

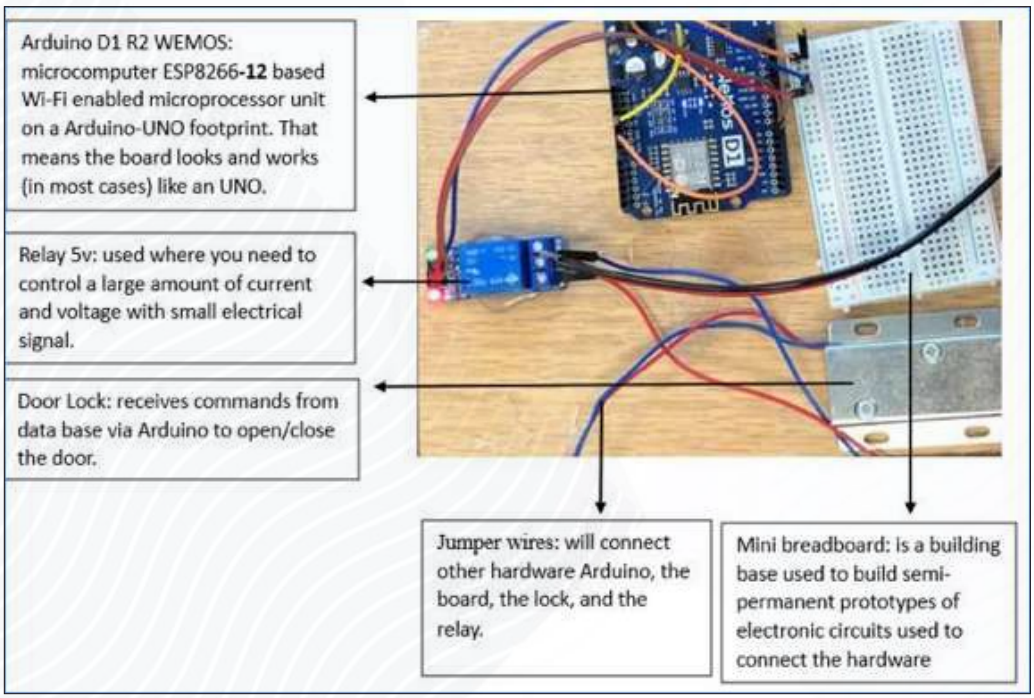
Classification

Wireless Comm, IoT

Track

Industry and Assistive Technology

This project proposes a smart door lock system as an alternative to traditional physical keys. While physical keys are widely used, they have drawbacks such as the need to carry multiple keys and the possibility of losing them. Smart locks, on the other hand, allow users to lock and unlock their doors using an electronic device, such as a mobile application. Our proposed system uses an ARDUINO unit embedded in the door locks, controlled by a mobile application that can wirelessly control all the doors of a house. The system provides enhanced security and safety from thieves, and users can monitor the status of their doors remotely through the Internet. This technology offers a promising solution for modern home security.



Microwave Indoor Propagation for 5G Indoor Planning

Raghad Aqeel Alali - Rahaf Ahmad Alaseel - Fatimah Baqer Almatawah

Supervisor

Dr. Aida Ismail Alsamawi
Dr. Liyth Nissirat

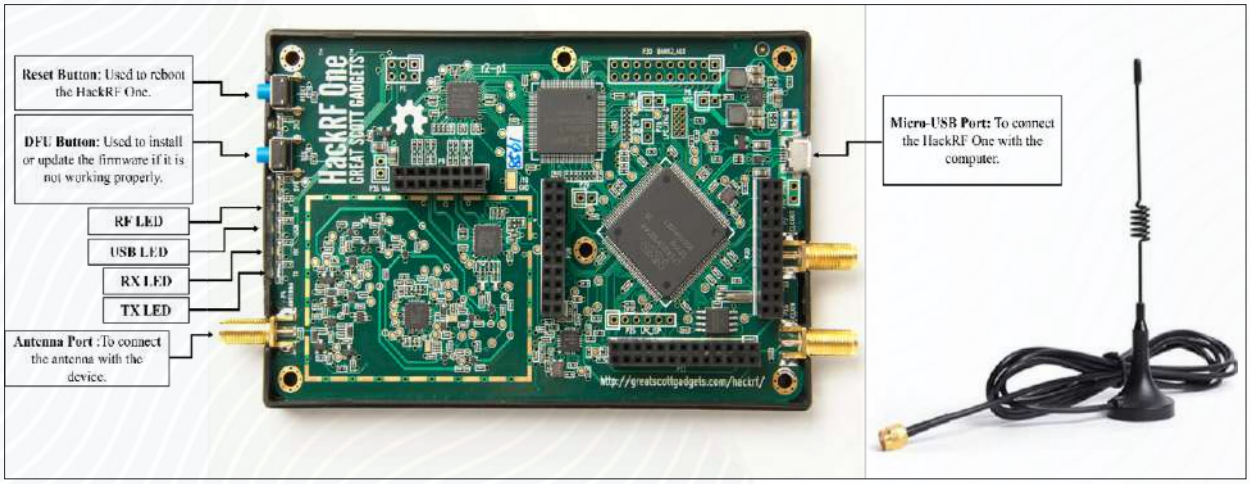
Classification

Wireless Comm & Network Planning

Track

Energy and Environmental Sustainability

This project focuses on " Microwave Indoor Propagation for 5G Indoor Planning." The poor network quality for users causes dissatisfaction with the network quality. On the other hand, many factors in the structure of the building deteriorate the quality of the signal, which sometimes leads to weakness or interruption of the network. So, this work studies the complexity of the building's structure and attenuation in the signal and plans the location of the base station to mitigate the deterioration in signal quality.



Campus Navigation System

Dalal Mohammed Aldossary - Danah Ahmed Alajwad - Aisha Mansour Alkhofy - Maryam Mohammed Alateeq

Supervisor

Dr. Aida Ismail Alsamawi
Dr. Liyth Nissirat

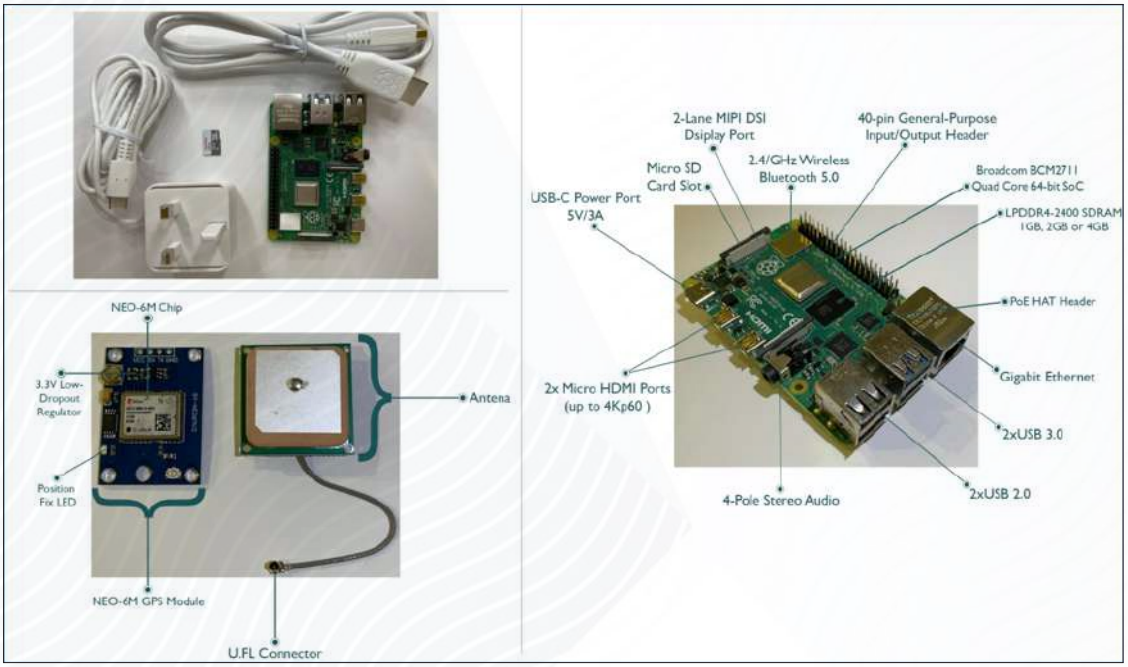
Classification

Wireless Comm, IoT

Track

Energy and Environmental Sustainability

People no longer go to new locations without the aid of a navigation system, despite the fact that navigation systems, which rely on GPS, are inaccurate in campus. This gave rise to the idea for this project, which aims to improve Campus Navigation Systems. Campus Navigation System will make it easier to find your destination by providing an on-campus navigational help system that provides the location of every building and search directions. To provide a meaningful, informative solution for campus navigation within KFU, each building should be represented by a Raspberry sensor device. The user needs additionally possess a GPS device to assist the system in determining the user's location. When a user requests a destination for a building on campus, the system will specify the user's location, and the nearest sensor will respond and navigate the user to the requested destination, which will contain all the necessary details, to ensure easy, accurate navigation and identification of various buildings, and to assist users in reaching their desired locations without confusion.



Indoor user localization using triangulation in cellular

Huda Osama Aldoghan - Nouf Khamis Alzuabi - Sara Adnan Alsalem

Supervisor

Dr. Liyth Nissirat

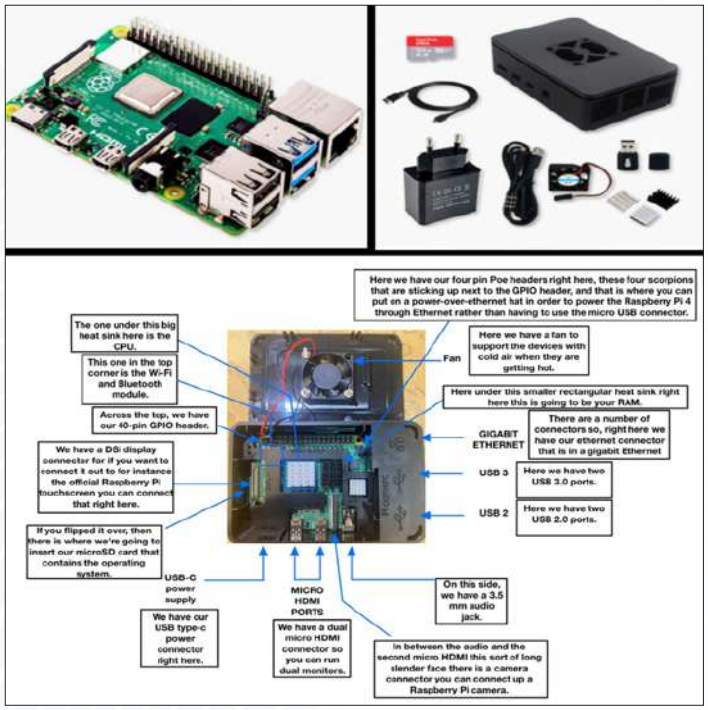
Classification

Wireless Comm & Network Planning

Track

Industry and Assistive Technology

"Indoor localization system is a fast developing technology that uses triangulation from transmitters in line-of-sight to determine the location of user inside building accurately. Inside the buildings, there is no accurate measurement of wireless signal to find the location of the specific user which leads to incorrect capture of the signal therefore, the alternative technique is localization in cellular by applying an empirical way. This research exhibits empirical indoor user localization using triangulation in cellular network strategy at King Faisal University in the College of Computer Sciences and Information Technology as a case study. The main advantage is that the system will be investigated empirically to account for differences in building structure and dimensions. In a way that would accurately locate the user inside large buildings where signal attenuation would be estimated empirically. This project is intended to be a reference for us and for all those interested in learning about our practical experience in the college of computer science and information technology. "



STUDENT GRADUATION

PROJECTS

Department of

CE

COMPUTER ENGINEERING

Machine Learning-Based Climate Controller & Shelf-Life Estimator for Dates

Abubakr AlMulla - Akeef AlHaque - Abdulrahman Fayez - Nasser Almulhim

Supervisor

Dr Ramasamy
Dr.Ali Saeed Alzahrani

Classification

AI , KFU, food

Track

Agriculture and Food Security

Dates are one of the best nutrients for thousands of years. To have better quality dates, it is vital to preserving dates in optimal conditions. However, it is equally important to know the shelf life of different types of dates. In our project, we plan to come up with a machine learning-based date shelf-life estimator. Further, our project focuses on techniques for better preservation by testing the moisturization balance and the level of fermentation. Temperature is the main factor affecting quality, but other factors like relative humidity and gas concentrations mainly ethylene (C2H4), oxygen (O2), and carbon dioxide (CO2) also play an important role in maintaining the postharvest quality of dates. The gas concentration will be measured by gas sensors and aromatic detectors. A real-time monitoring and controlling system during storage and transportation will be developed and deployed according to the estimated shelf life. The same detection techniques can be extended to other edibles for their shelf life with minor modifications.

Smart Monitoring of Soil for Crops Recommendations in Al-Ahsa

Hamad Alsowaigh - Abdulhady AlAbadi - Abdulrahman AlGhannam

Supervisor

Dr.Tassadaq Nawaz Khan
Dr.Ali Saeed Alzahrani

Classification

IoT, KFU, FOOD

Track

Agriculture and Food Security

The project aims on Internet of Things (IoT) based precision agricultural system that measures the soil and environment parameters and analyze the fertility (minerals/nutrients percentage in the soil) of soil to decide which crops are more suitable to be farmed. The sensors will be deployed to measure weather conditions (temperature, humidity, sunlight exposure) and soil health (soil temperature, moisture, nitrogen, phosphorus, and potassium (NPK) concentrations, electric conductivity, and PH) in Al Ahsa. A detailed analysis will be performed on the data collected from the deployed sensors and a knowledge-based system will be formed that maps the area under the consideration according to fertility index (FI). Therefore, FI enable us to recommend the formers to grow the particular crops in a specific area. In addition, we will provide suggestions for farmers to improve the fertility of the soil in low FI areas.

KFU
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كلية علوم الحاسب وتقنية المعلومات
College of Computer Sciences & Information Technology

STUDENT GRADUATION PROJECTS

2023

Developed by College of Computer Sciences & Information Technology