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

STUDENT GRADUATION PROJECTS

College of Computer Science and Information Technology

2025

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

01 AI-Triage System for Symptom-Based Diagnosis

Ali Assuleiteen - Mahdi Alzakari - Waeeil Alessa

Supervisor

Dr. Eid Al-balawi

Classification

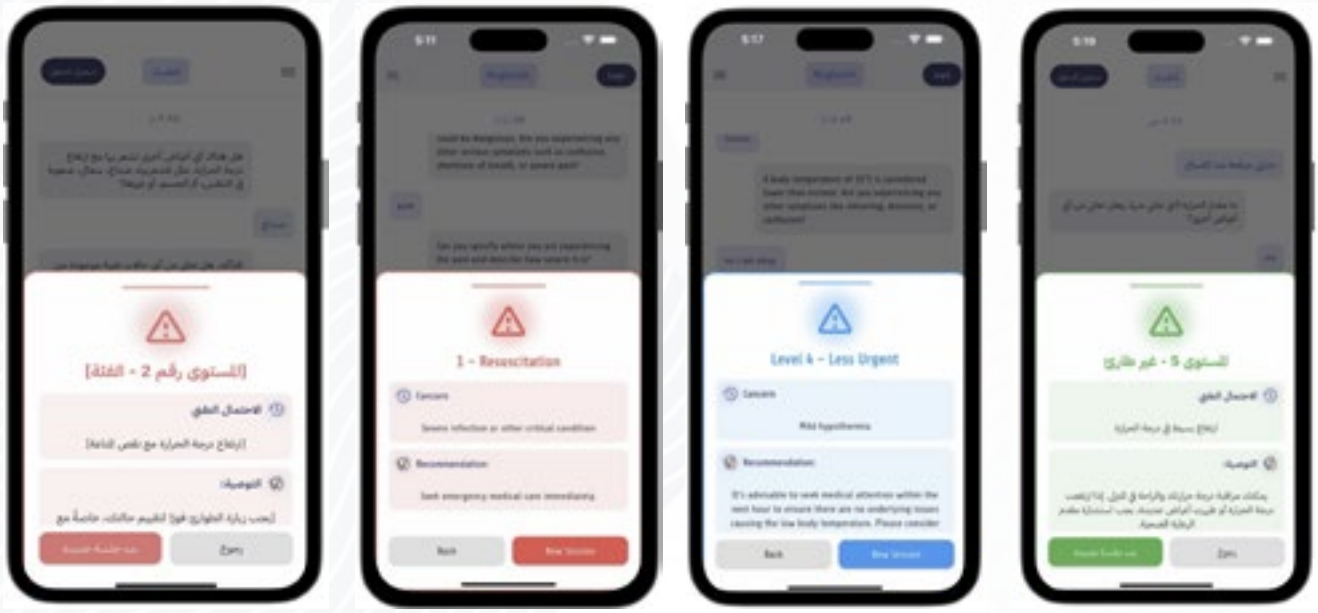
AI, LLMs,
Health Informatics

Track

Healthcare

Project Overview

An efficient triage process in healthcare, particularly in emergency departments, is important for ensuring timely care and reducing patient waiting times. Traditional triage systems, relying heavily on manual assessment, often result in delayed healthcare assessment, congestion, and dissatisfaction among patients. Studies have shown improvements in using modern technologies in the health industry, especially in facilities that use these technologies for routine tasks. This project aims to develop an AI-based triage system for the efficiency and accuracy needed in assessing patients' status. A system using a Large Language Model (LLM) to interact with, gather patients' information, extract symptoms, predict a diagnosis, and classify them according to the Canadian Triage and Acuity Scale (CTAS), reducing reliance on human judgment and minimizing errors. It will reduce waiting time and enhance patient satisfaction by offering faster and more accurate triage, which can also be done outside the walls of a health facility to help patients judge their condition much earlier. This innovative approach aligns with Saudi Arabia's Vision 2030 by developing modern, AI-based healthcare solutions that improve emergency care efficiency and support patient and healthcare staff satisfaction. The system was evaluated using real-world patient scenarios and reviewed by an independent expert, demonstrating its ability to conduct medically relevant follow-up questions and generate reliable triage levels based on CTAS guidelines.



02 Aban: Algorithmic Model - Predicting the ADOS Score from Upper Body and Eye Gaze for ASD children

Jinan Al-Maghlouth - Nujud Al-Obaid - Maryam Al-Dulami - Aisha Al-Khateeb - Sara Al-Jamea

Supervisor

Dr. Badar Almarri

Classification

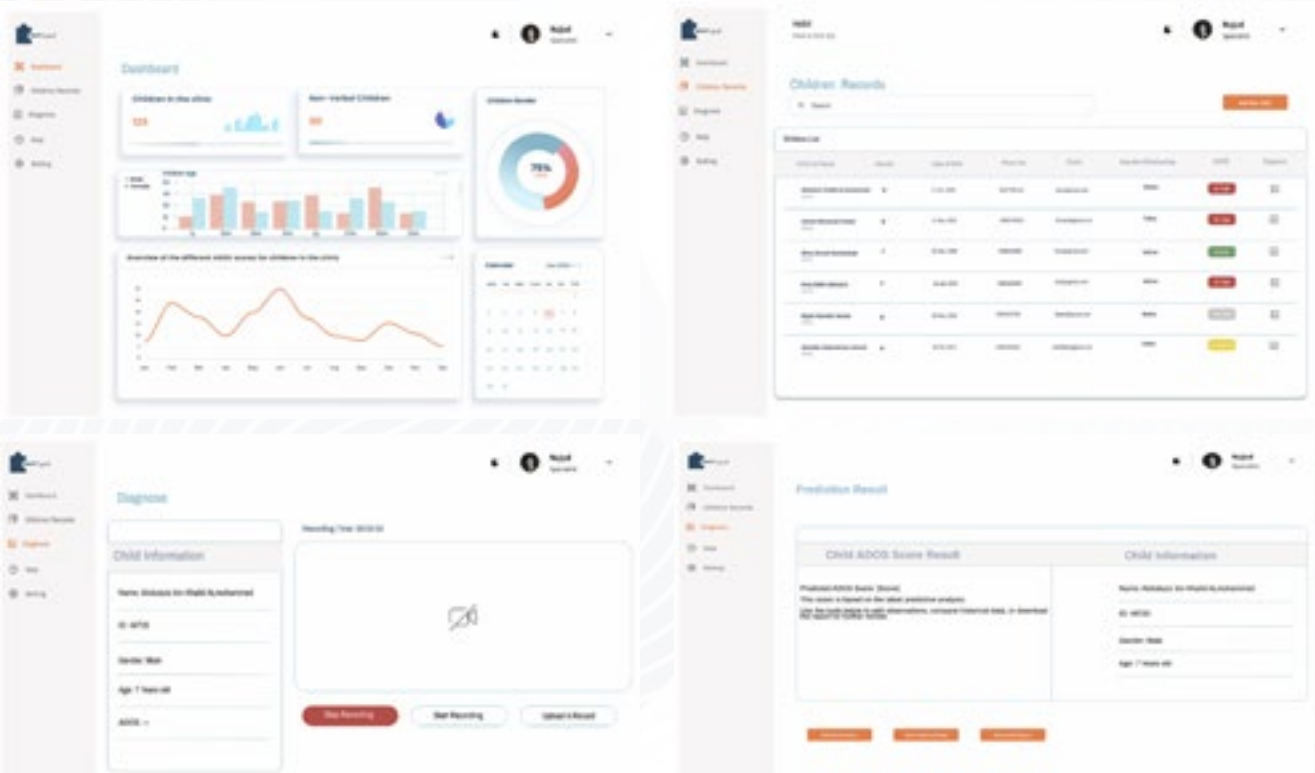
AI, Deep Learning, RNN

Track

Healthcare

Project Overview

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition that causes challenges in social interaction, communication, and behavioral issues. Reaching the diagnosis early is important for timely intervention and improved developmental outcomes. One of the most widely used tools for assessing ASD severity is the Autism Diagnostic Observation Schedule (ADOS). In this project, we developed a deep learning model to predict ADOS scores by utilizing the DREAM dataset, which was collected during therapeutic sessions using three RGB cameras and two RGBD (Kinect) cameras. The dataset includes eye-gaze and upper body movement data. To capture the sequential and temporal nature of this dataset, we employed Recurrent Neural Networks (RNNs), specifically a Bidirectional Long Short Term Memory (BiLSTM) architecture. Our model achieved a classification accuracy of 95.54 in predicting ADOS scores ranging from 4 to 20. This approach demonstrates the potential to support the diagnostic process by offering a more objective method for ASD severity assessment, reducing reliance on subjective evaluation, and providing a scalable, data-driven solution for early ASD assessment.



03 AI-Based Calorie Estimation and Food Classification for Health Monitoring

Bader Alkhamees - Fahad Albakheet - Mohammed Alqurqush

Supervisor

Dr. M Shujah Sameem

Classification

AI, Computer Vision, Deep Learning

Track

Healthcare

Project Overview

This project focuses on creating an artificial intelligence (AI) system that will enable users to estimate the number of calories in their meals and identify the food types consumed. The latest AI technologies, particularly convolutional neural networks (CNNs), mainly allow for the identification of food products from photos that users provide. The identified foods are then cross-referenced with a food nutritional database that will enable accurate calorie estimation. This framework is designed to streamline the process, making it more efficient and accessible, particularly for users without a technical background. The system uses a mobile application interface where users can upload photos of the food eaten, estimate the number of calories taken, and see their caloric intake. Our objective is to utilize AI to encourage people to be healthier and change their eating habits positively. By simplifying this process, the project aims to automate manual calorie counting and the problems associated with it, such as the inaccuracies and the time it takes to complete. The outcomes of this project can have a positive impact on the health and eating behavior of the community.

04 An AI-Powered Exercise Feedback System

Faris Hassan Alsalmi - Mohammad Albeladi - Mahdi Almutawa - Ahmad Suwaidan

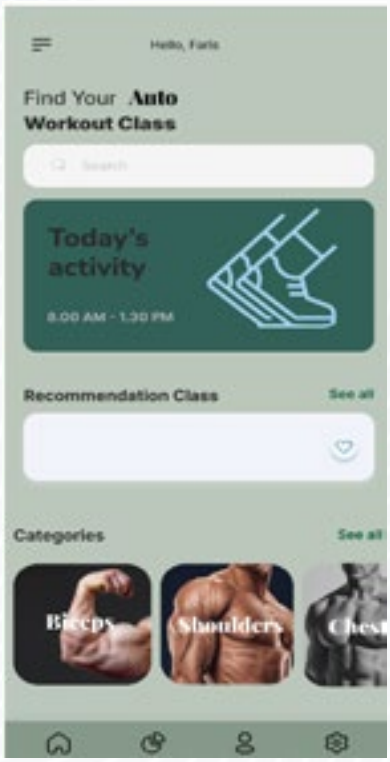
Supervisor
Dr. Raid Alzubi

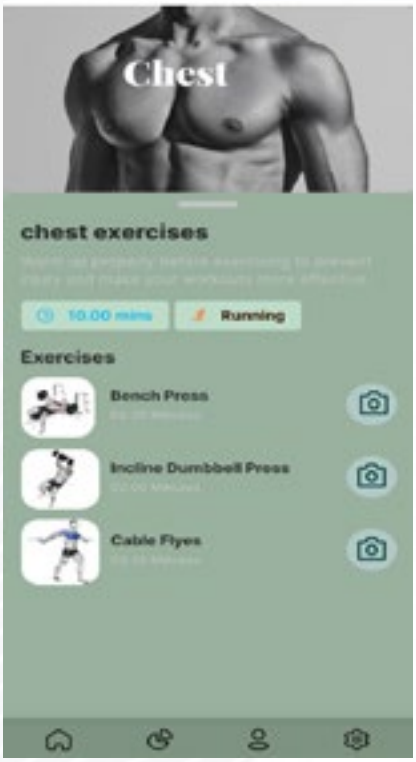
Classification
AI, Computer Vision

Track
Healthcare

Project Overview

This project describes the development of Traxercise, a mobile application that uses Artificial Intelligence (AI) and Computer Vision to provide real-time feedback about form while doing exercises. Traxercise aims to empower users in executing exercises-squats, lunges, and push-ups-with good posture to avoid injuries and perform better in workouts. The document details the scope of the project, underlining the use of pose estimation technology to analyze user movements and give corrective feedback. It also includes related work analysis, highlighting the gaps in existing fitness applications, and explains how this project addresses those limitations. The methodology involves data collection, model training using labeled exercise data, and real-time analysis via a smartphone camera. The challenges and solutions associated with real-time feedback systems are discussed in this document, along with the expected outcomes: a user-friendly and mobile-optimized application.





05

An Intelligent Glaucoma Screening and Diagnosis System

Khalid Hawkash - Abdullah Almudayris - Azzam Alkulaib

Supervisor

Dr. Ahmed Afifi

Classification

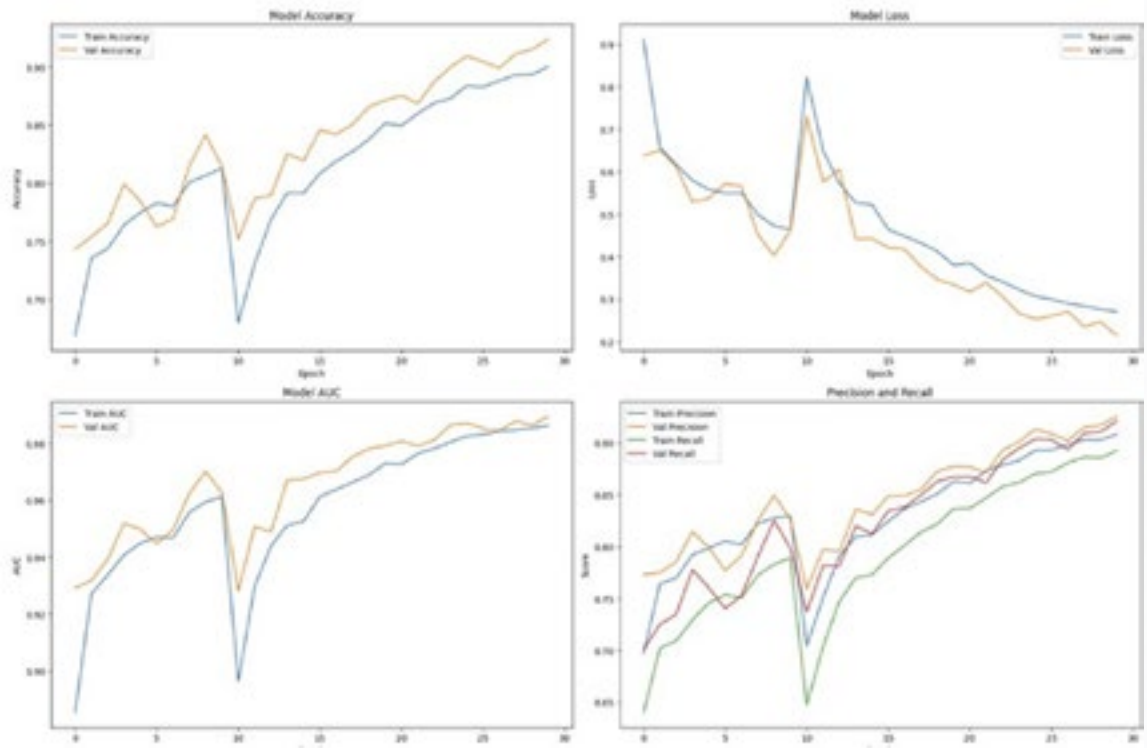
AI, Deep Learning, Computer Vision

Track

Healthcare

Project Overview

Glaucoma is one of the leading causes of irreversible blindness worldwide, with its progression often occurring silently and without noticeable symptoms. Early detection is essential to prevent permanent vision loss and preserve patients' quality of life. However, current diagnostic methods rely heavily on expensive equipment and highly trained specialists, limiting access in many regions. In this project, we propose a cloud-based AI diagnostic assistant for the early detection and grading of glaucoma using Optical Coherence Tomography (OCT) images. The system leverages state-of-the-art deep learning models, particularly Convolutional Neural Networks (CNNs), to analyse OCT scans and determine both the presence and severity of glaucoma. Unlike conventional approaches that offer only binary classification, our solution provides a comprehensive grading system aligned with clinical stages, enabling more precise and personalized treatment planning. Additionally, the platform will comply with healthcare data security standards to ensure safe and ethical handling of medical information. By integrating AI into the clinical workflow, this system aims to support ophthalmologists, reduce diagnostic burden, and expand access to early glaucoma screening especially in under-resourced settings ultimately contributing to the prevention of vision loss on a global scale.



06 Enhanced Agricultural Efficiency through Crop and Weed Detection

Abduladhim Alkhalifah - Ayman Alghazal - Abdullah Almusa - Mohammed Alsubaie

Supervisor

Prof. Fawaz Alsaadi
Dr. Ahmed Zaher Afifi

Classification

AI, Computer Vision, Sustainable Technology

Track

Agriculture and Sustainability

Project Overview

Weed management is a critical challenge in agriculture, often resulting in reduced crop yields and excessive resource use. Traditional methods, such as manual weeding and chemical herbicides, are labor-intensive and environmentally harmful. This project aims to develop an affordable and user-friendly Crop and Weed Detection System utilizing machine learning and simple hardware, including Raspberry Pi and camera modules. The system will employ advanced image recognition techniques to accurately distinguish between crops and weeds under various environmental conditions, reducing the need for herbicides and minimizing labor costs. We will use benchmark datasets to train robust machine-learning models for accurate classification. Key project objectives include the collection of a diverse dataset of crop and weed images, training robust machine-learning models for accurate classification, and deploying these models on low-cost hardware for real-time field use. The expected outcomes are a functional prototype capable of reliable weed detection and a solution that promotes more sustainable farming practices. By addressing the limitations of existing weed detection systems, such as high costs and performance variability, this project aims to deliver an accessible and effective tool for precision agriculture, helping farmers enhance productivity while reducing their environmental impact.

07 EventHub - Event Planning Solution

Hanin Alhaidar - Noor Alkhars - Aeshah Aljughayman - Fadk Alhazzaa

Supervisor

Dr. Majed Al Saeed

Classification

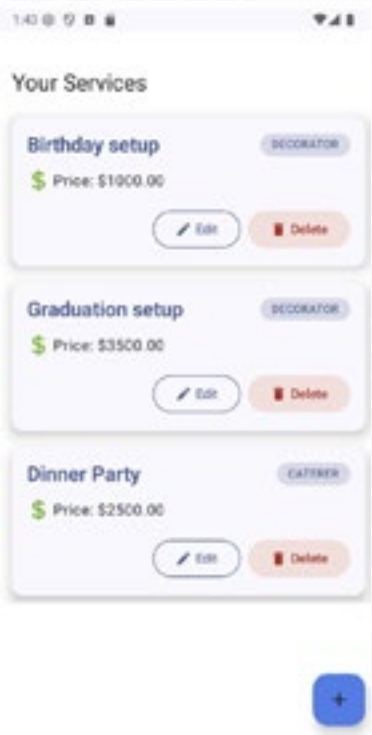
Mobile Application

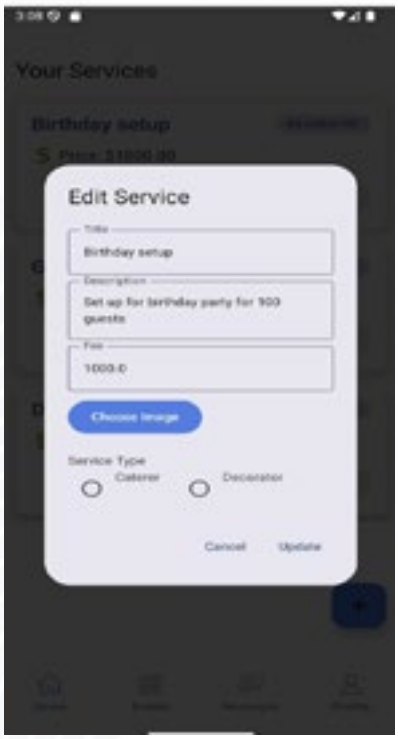
Track

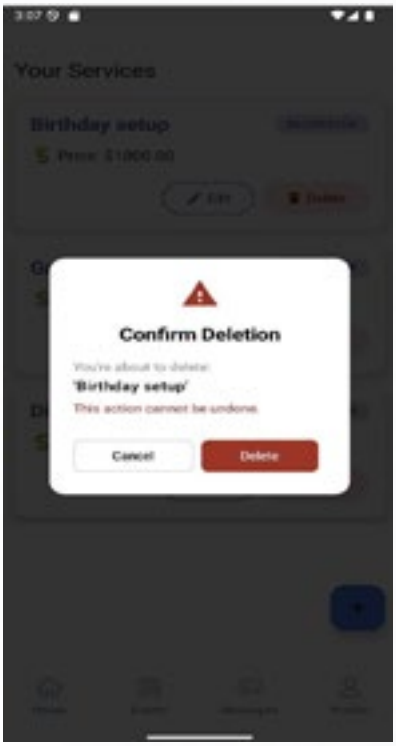
Business Management

Project Overview

Event planning is essential in a variety of industries, from corporate conferences to social gatherings, facilitating networking and enhancing community engagement. The integration of technology and event planning applications has transformed the industry by streamlining operations and dramatically improving user experiences. Addressing key challenges faced by organizers, the EventHub application offers features including task assignment, budget management, payment tracking, and real-time communication with service providers. Bringing together caterers, event organizers, and event coordinators in one unified application, EventHub is a seamless, easy-to-use, Android compatible application that is an all-in-one solution designed to simplify event planning and management. With its innovative approach, EventHub aims to revolutionize event planning, ensuring that every gathering, be it a corporate event or a social celebration, is well-organized and enjoyable for all involved. Furthermore, the project utilizes various techniques and tools, such as project management methodologies and data analytics, to optimize resource allocation and improve event outcomes.







08 Smart Medicine Dispenser

Haya Alothman - Aisha Albelahi - Ghadeer Alhafith - Jihan Alshakhs

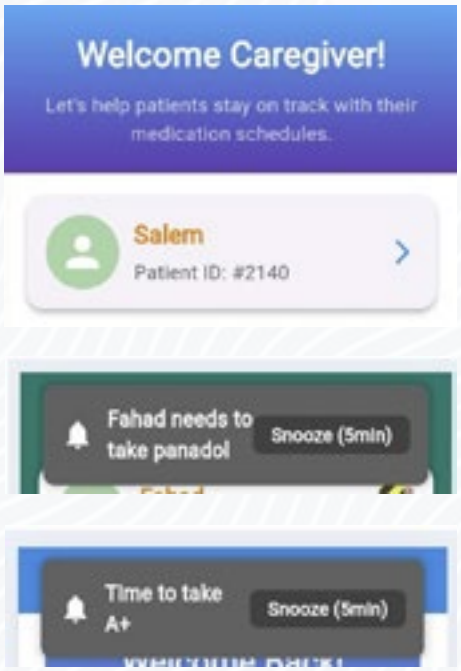
Supervisor
Ms. Safa Alsalman

Classification
IoT, Mobile Application

Track
Healthcare

Project Overview

Medication adherence is a critical issue in the healthcare sector, as failure to take medications at the correct time and in the prescribed dosage can reduce treatment effectiveness and lead to serious health complications. This project proposes a technical solution by integrating Internet of Things (IoT) technologies with healthcare to support patients in managing their medication routines more reliably. We designed and developed a smart medicine dispenser paired with a mobile application to address this challenge. The system enables patients and caregivers to schedule medication times and dosages, track adherence, and receive timely alerts. Caregivers can manage multiple patients through their accounts, making it easier to oversee medication routines and intervene when necessary. The solution is designed to reduce the burden on caregivers and minimize the need for frequent clinical visits. The project was implemented using an agile development approach to ensure flexibility and continuous refinement. It consists of two main modules: a scheduling module that allows precise timing and dosage setup, and an automatic dispensing module that ensures accurate delivery of medication. As a result, a functional prototype was successfully developed, demonstrating the ability to dispense medication based on a scheduled time, provide visual and audio reminders, and allow user interaction through a Flutter-based mobile application. While the system achieved its core objectives, limitations such as material safety, physical design constraints, and dispensing accuracy were identified. These findings suggest a set of recommendations for future improvements.



09 GetSchedule: Exam Schedule Generator for Colleges

Hala Alotaibi, Hissah Aldossari, Reham Bu Khowah, Zahra Alsaad

Supervisor

Mr. Marwan El-Haj

Classification

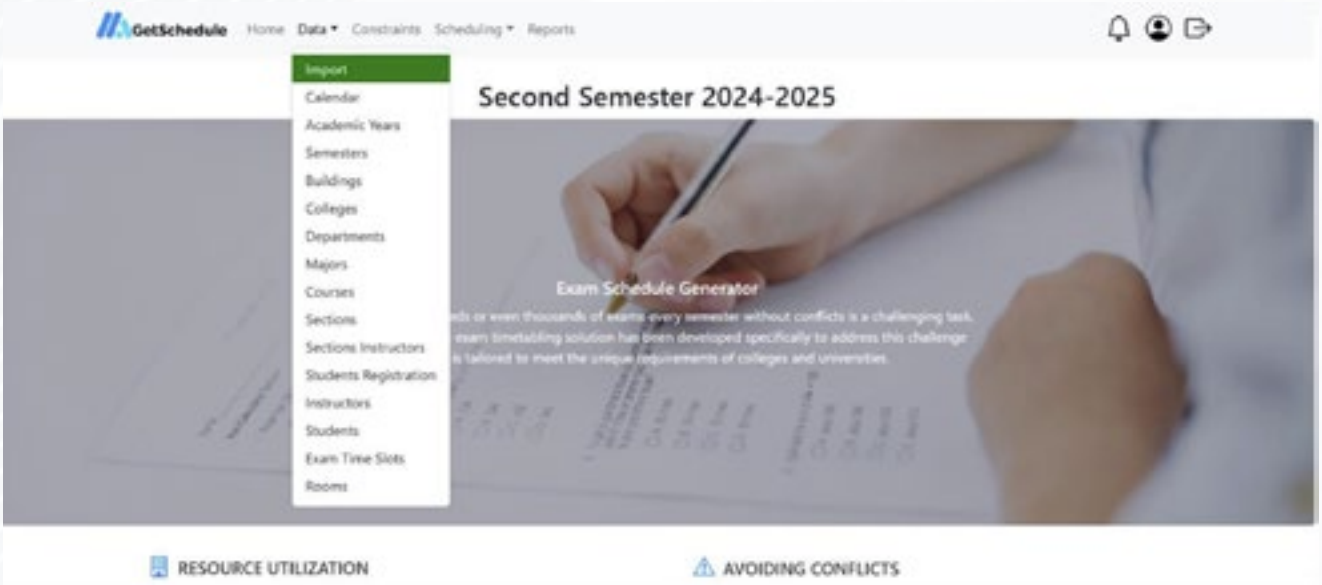
Automated Scheduling, NP-hard problems.

Track

Education, Examination scheduling

Project Overview

GetSchedule is intended to be a web-based system designed to automatically generate conflict-free exam schedules for universities. Exam scheduling is a recurring challenge faced by universities around the world. Developing a schedule often requires significant time and may not completely meet all university constraints. The scheduling problem is NP-hard and falls under the category of combinatorial optimization problems (COP), which significantly increases the difficulty of automating the process. This combinatorial optimization task involves allocating exam periods and locations to a set of courses while meeting specific constraints divided into hard and soft constraints. Hard constraints are essential for schedule feasibility. Soft constraints improve the quality of the schedule but are not mandatory for feasibility. Despite the complex nature of the process, many universities still schedule their exams manually, which increases the workload for the scheduler. As a result, GetSchedule system aims to provide an automated solution to this problem. This solution was built using the Iterated Local Search (ILS) algorithm, with the initial solution generated through the Constructive Heuristic (CH) algorithm. The result is a complete, conflict-free exam schedule that includes exam dates, times, assigned rooms, invigilators, and supervisors. ensuring constraint satisfaction and alignment with university scheduling rules.



10 CalmMind: A Mental Health Chatbot

Reem Al-Hmeli, Raghed Alotaibi, Taif Alharbi, Jouri Alyaqout

Supervisor

Dr. Hasan Alkahtani
Dr. Alhanof Almutairi

Classification

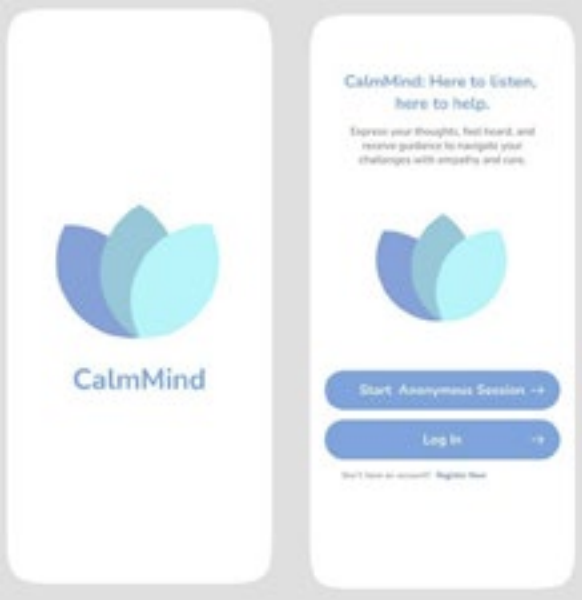
AI, LLMs, NLP

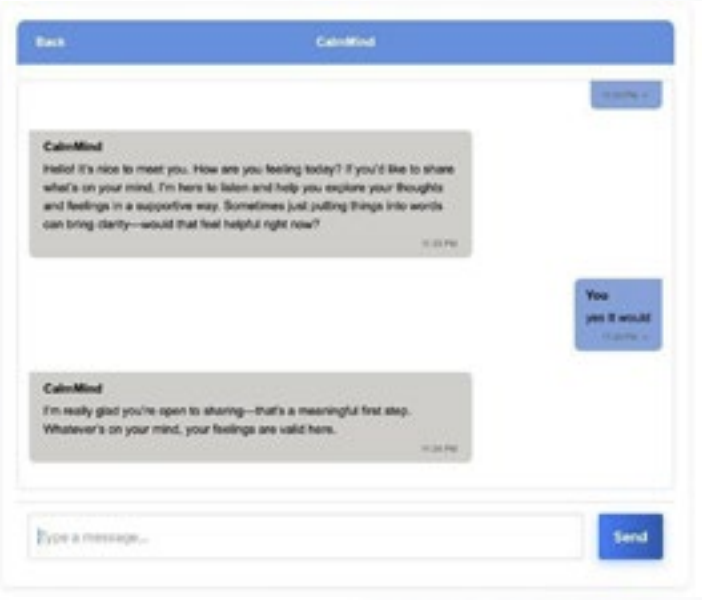
Track

Healthcare

Project Overview

The global mental health crisis has created significant challenges, including gaps in access to care, long wait times for services, and societal stigma that discourages individuals from seeking help. This project aims to develop an innovative mental health chatbot that provides personalized support, counseling, and crisis intervention to users facing mental health challenges. The ongoing global mental health crisis is having a significant impact on communities, many of which experience disparities in access to care. Lack of mental health resources results in long wait times for services, while the stigma surrounding mental health often prevents individuals from seeking the help they need. By leveraging a Large Language Model (LLM) and Natural Language Processing (NLP) techniques, the chatbot is able to understand and respond to a wide range of mental health-related queries. The system uses a federated learning framework to prioritize user privacy, ensuring that sensitive data remains on local devices while allowing the chatbot to continuously improve through decentralized model updates. The chatbot is designed with functional and non-functional requirements in mind, including high availability, reliability, speed, and emotional intelligence. By integrating diverse datasets, the chatbot can adapt to different mental health conditions and user needs without compromising confidentiality. This solution is expected to significantly improve mental health management, providing a safe, accessible and compassionate support system for individuals in need.





11 Crowd Vision: Interactive AI for Crowd Management and Safety

Lateefa Al Obaid - Batool Al Hajji - Maha Al Jaafari - Aisha Al Majed

Supervisor

Dr. Rawabi Al Sudais

Classification

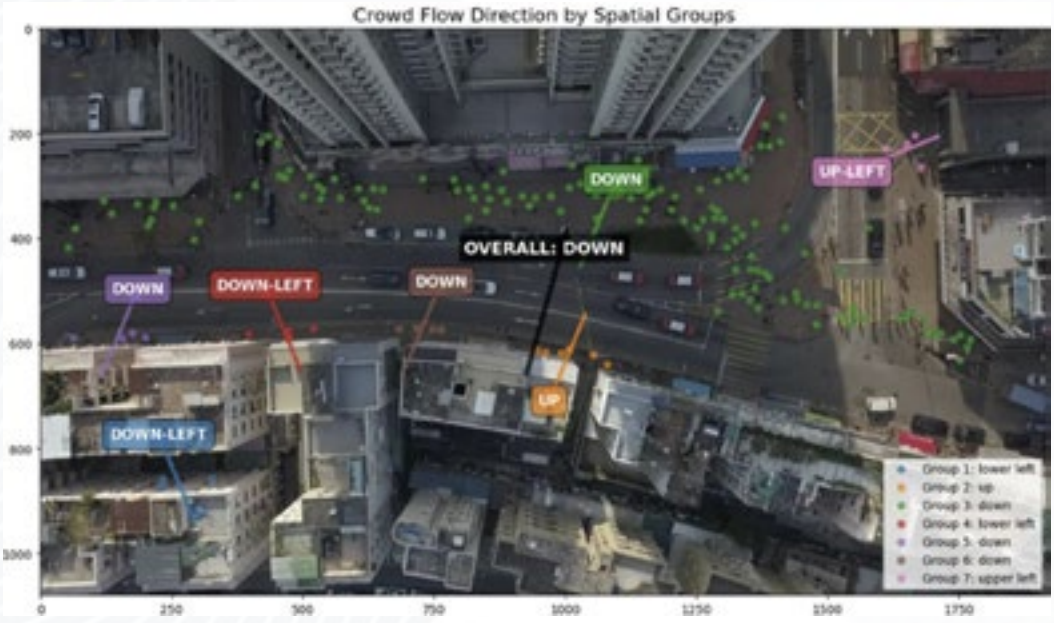
AI, Computer Vision, Deep Learning

Track

Public Safety

Project Overview

Managing large crowds during events such as religious gatherings, concerts, and public festivals presents significant challenges. Overcrowding, stampedes, and congestion can lead to injuries, fatalities, and major operational disruptions. Traditional methods of crowd monitoring based on manual observation and personnel often lack the scalability and real-time responsiveness required for modern crowd safety. Incidents like the 2015 Hajj stampede, which resulted in over 700 deaths, highlight the urgent need for intelligent and proactive solutions. This project introduces an AI-powered system that analyzes video footage to monitor and forecast crowd behavior. A Convolutional Neural Network (CNN) is used to estimate crowd density and localize individuals across video frames. The system detects and localizes individuals in each frame, calculates their movement direction, and analyzes how the crowd is distributed spatially. To understand behavior over time, a Long Short-Term Memory (LSTM) model is applied to sequences of these analyses to predict future crowd behavior. The system provides early warnings through an interactive dashboard, enabling organizers to take preventive actions before risks escalate. Its adaptable and scalable design makes it well-suited for high-density environments such as religious events, transit hubs, festivals, and public demonstrations offering a data-driven approach to proactive crowd management.



12 Tabshor: AI- Powered Analysis of Children's Drawing for Psychological Insights

Najla Alduraib - Haneen Aljalal - Heleen Alshareef

Supervisor

Dr. Hala Hamdoun

Classification

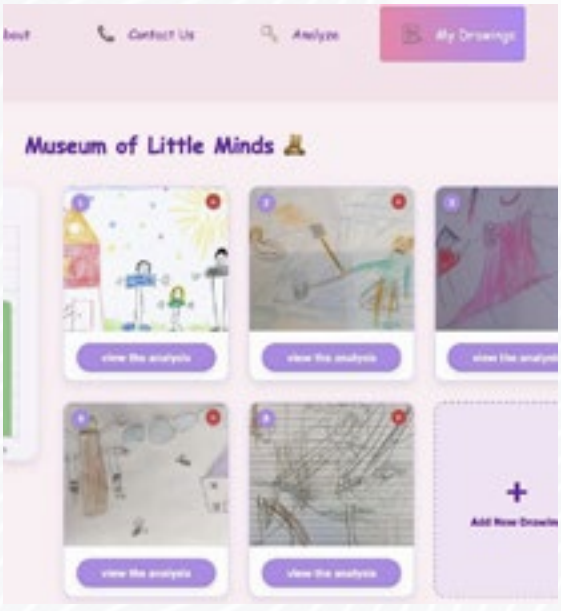
AI, RAG, NLP,
Computer Vision

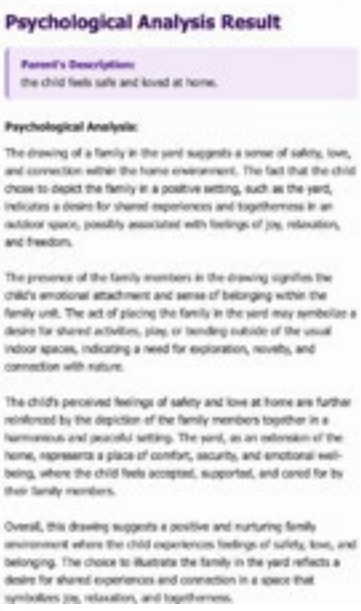
Track

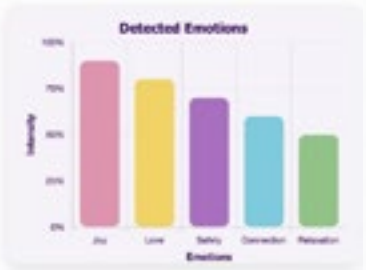
Education,
Mental Health

Project Overview

Children often express their emotions, thoughts, and experiences through drawings, offering a unique window into their psychological world. For decades, professionals in psychology have interpreted these drawings manually to identify emotional or developmental concerns. While effective, this traditional approach is time-consuming, subjective, and not easily scalable. This project presents an AI-powered system designed to automatically analyze children's drawings and extract psychological insights with greater consistency and efficiency. The system utilizes a Retrieval-Augmented Generation (RAG) architecture that integrates image captioning, semantic similarity search, and advanced language models. By evaluating visual features such as color usage, object positioning, figure expressions, and drawing structure, the model generates a coherent analysis grounded in psychological theory. The tool also reduces reliance on expert interpretation, making psychological assessments more accessible to educators, parents, and non-specialists. In addition to emotional insight, the system supports early identification of behavioral or cognitive patterns that may indicate underlying developmental needs. The generated reports are structured, interpretable, and designed to complement professional evaluation rather than replace it. Ultimately, this project demonstrates how artificial intelligence can play a meaningful role in child psychology by turning creative expression into actionable understanding, offering timely support through technology-enhanced empathy.







13 Application For Handling Food Donations And Leftovers

Ahmed Alsmail - Mohammed Alkhamis - Ahmed alqurain

Supervisor

Dr. Majed Al-Saeed

Classification

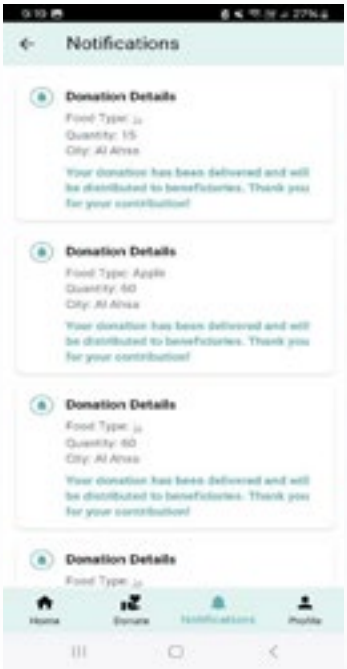
AI, ML,
Sustainable Technology

Track

Sustainability,
Food Security

Project Overview

The Application for Handling Food Donations and Leftovers is designed to tackle the critical issue of food waste while simultaneously addressing food insecurity within communities. This innovative platform connects individuals and businesses with surplus food to local charities and organizations in need, promoting a sustainable and responsible approach to food management. The application provides users with a user-friendly interface to register and list available food items, detailing their type, quantity, and expiration dates. the app enables organizations and individuals to efficiently locate nearby donations, ensuring that surplus food reaches those who need it most. users can effortlessly identify and schedule pickups from the nearest donation points. Furthermore, the application leverages machine learning algorithms to offer personalized donation suggestions, enhancing the effectiveness of food redistribution efforts. This intelligent matching system not only streamlines the donation process but also optimizes the impact of food resources, reducing waste and fostering community support. Through its holistic approach, the application not only minimizes food waste but also plays a vital role in alleviating hunger and promoting food security within the community. By facilitating seamless food donations, it aims to cultivate a culture of generosity and sustainability.



14 Satellite Imagery Based Real-Time Monitoring of Marine Debris Using Deep Learning

Naba Aljazeeri - Fatimah Alhadab - Hawraa Alhaddad - Zainab Alshurayyan

Supervisor

Dr. Noor Hafsa

Classification

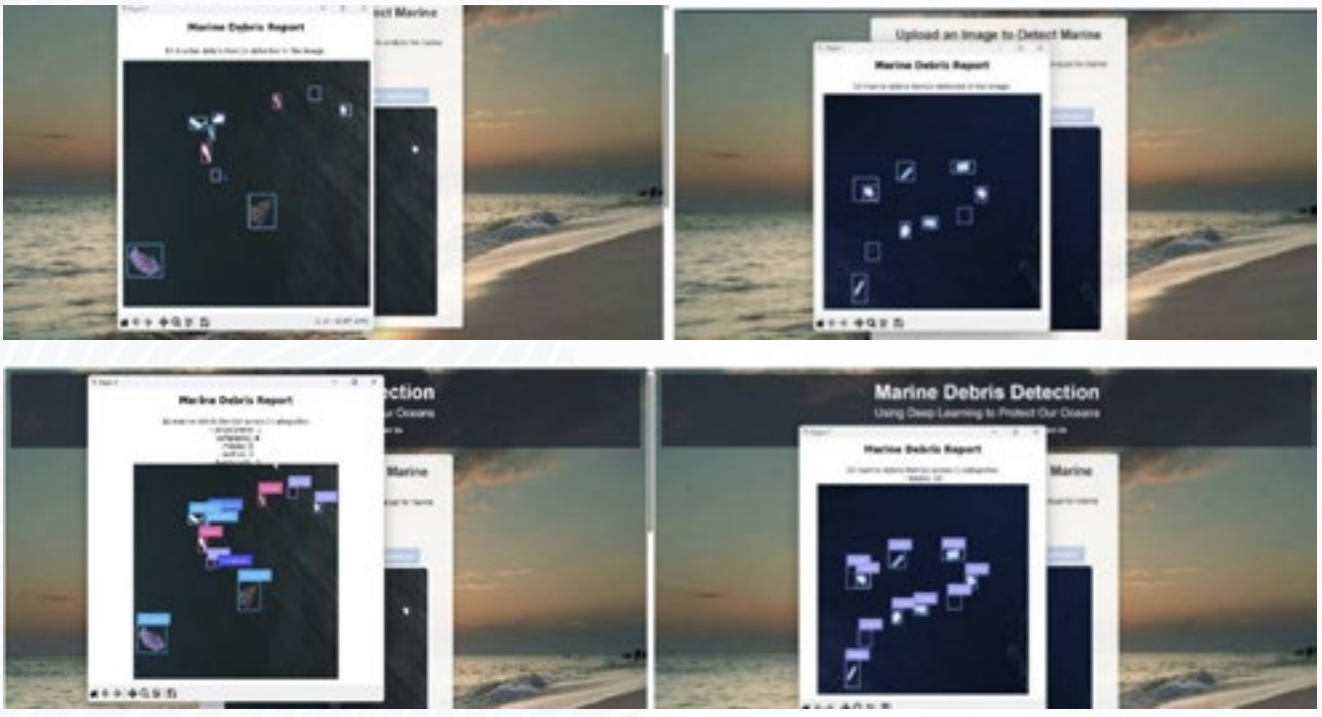
AI, Deep Learning, Comptuer Vision

Track

Environmental Protection, Marine Conservation

Project Overview

Marine debris refers to any human made solid materials that end up being in the ocean. These items can include plastic, bags, glass, and other trash. The most found litter are cigarette butts, plastic bags, and single-use plastic bottles. Marine debris has emerged as a global issue that threatens oceans, affects human health, pollutes water, and harms marine life. Removal of marine debris from ocean is necessary to eliminate pollution. An automated system capable of detecting unnecessary litter in real-time is needed. This project proposes a deep learning-based system designed to detect, localize, and classify marine debris, offering an advanced solution to monitor and mitigate ocean pollution effectively. The project's goals include understanding the challenges of marine debris, creating an effective detection system, and encouraging cleaner oceans. The proposed system aims to enhance the management of marine litter while supporting efforts to safeguard marine life and ecosystems by leveraging advanced detection and monitoring technologies.



15 A Smart Bag for Students

Walaa Al-Asmakh - Zainab Al-Kadhim - Fatimah Al-Baqshi - Khawlah Al-Musawi

Supervisor

Ms. Safa Alsalman

Classification

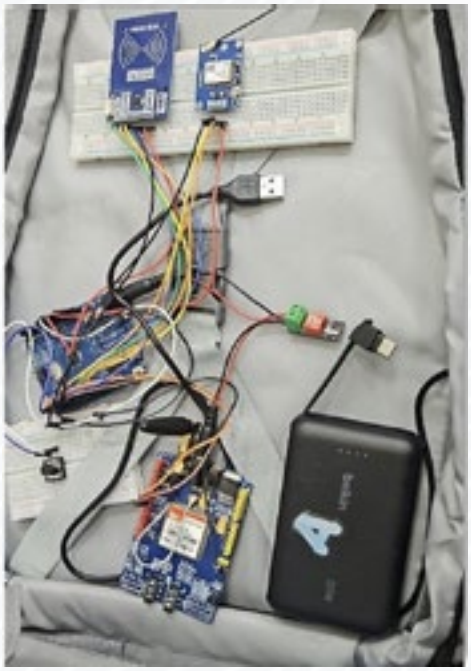
IoT, Mobile Application, Wearable Technology

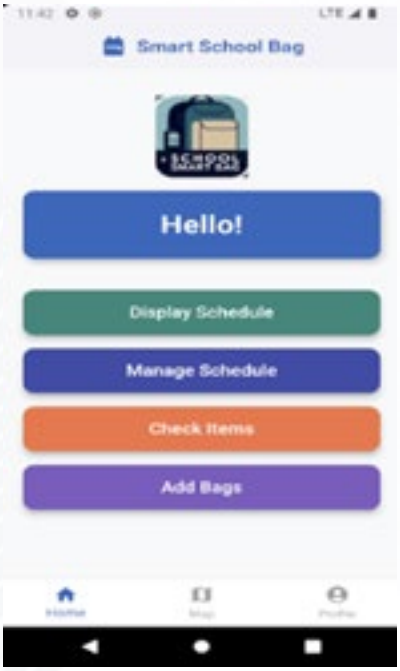
Track

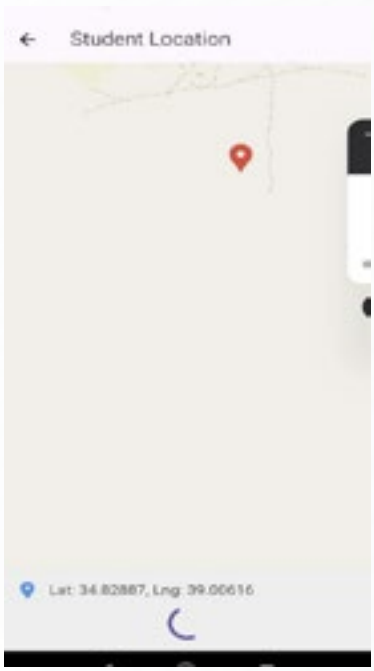
Education, Safety

Project Overview

With the increase in academic requirements and the change in the daily school schedule, one of the difficulties that students and parents often face is forgetting to pack essential items such as books or school supplies. This issue is caused by disorganization and a lack of awareness of daily requirements. Traditional manual packing methods do not reliably help students track their daily requirements, adding stress for both students and parents. The purpose of this project is to improve the organization of school bags by developing a smart bag system that uses Internet of Things technologies (IoT). It uses RFID technology to track essential items and send alerts to users in case of lost items. In addition, the smart bag will include an emergency button to ensure the safety of students and track their location through GPS for security. We implemented an incremental development approach, our result showed that the system can check items, track the student's outdoor location if the button is pressed, and send SMS notifications when needed. However, we faced challenges like poor indoor GPS and limited RFID range. To improve our system, we recommend adding indoor location tracking using Bluetooth or Wi-Fi, expanding the RFID range, and using AI for smart reminders based on the student's schedule.







16 Drug Scanner System

Nibras Aldrees - Zainab Almusabeh - Fatima Alajwad - Anwar Alawadh

Supervisor

Dr.Raid Alzubi

Classification

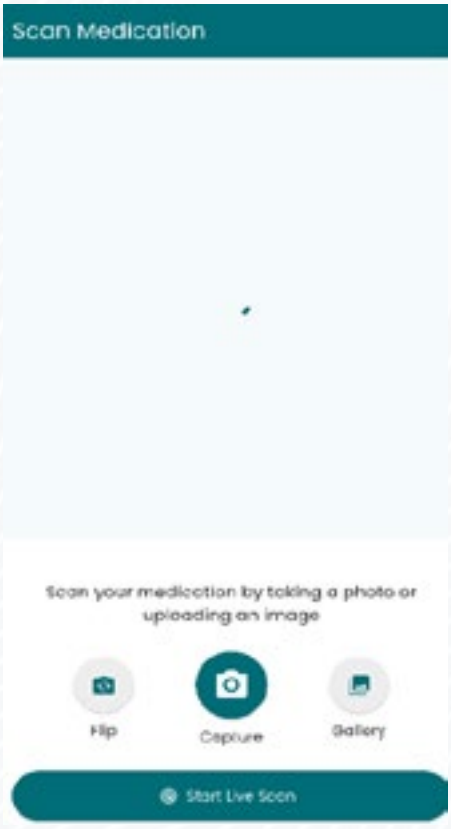
AI, Object Detection, Computer Vision

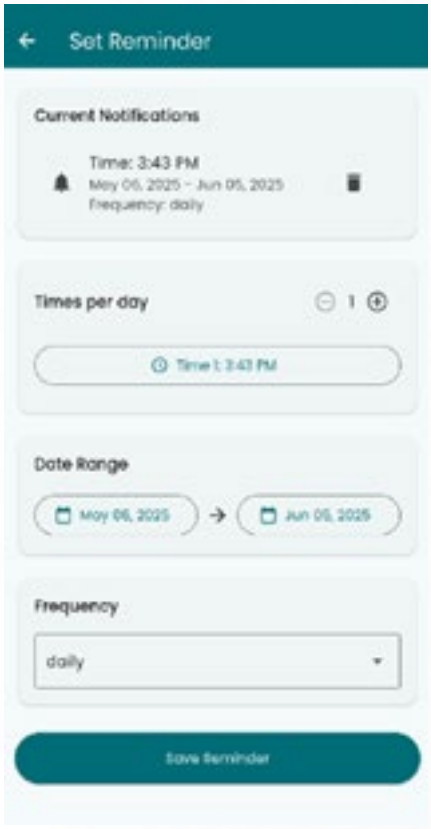
Track

Healthcare

Project Overview

Artificial intelligence significantly influences various aspects of our lives, particularly in the rapid advancement of the healthcare field. Individuals with chronic diseases often need to take multiple medications daily. The large quantity of medications can make it difficult, particularly for the elderly, to recognize the drug type and correct dosage. The presence of numerous drug brand names complicates the patient's task, potentially leading to serious consequences, such as accidental poisoning. As computer science students, we aim to apply our knowledge to address challenges related to medication consumption. In this work, we aim to develop a model that assists in identifying medications and recommending the appropriate dosage as prescribed. The proposed model leverages object detection techniques to provide personalized guidance to users.





17 Smart Travel: AI-Powered Customized Trip Plans

Athbah Alshuaibi - Danah Alasfour - Fajer Alhumaidhan - Heba Alabdullatif

Supervisor

Ms.Nora Alshuaibi

Classification

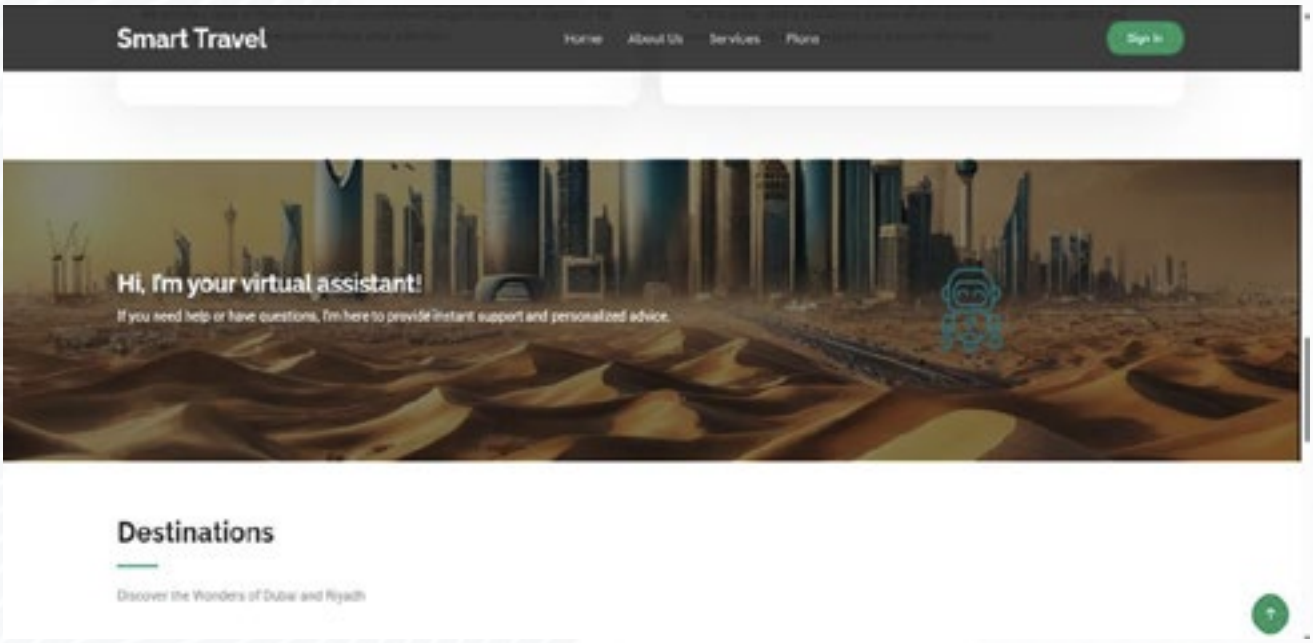
AI , ML, LLMs

Track

Tourism and Entertainment

Project Overview

Nowadays, tourism is regarded as one of the most important sources of entertainment. Moreover, it plays a central role in the national development goals outlined in Vision 2030. Planning a trip that aligns with individual preferences and financial constraints remains a common challenge for many travelers. In response to this issue, a smart tourism system was developed to streamline the travel planning process through a web based platform that delivers customized itineraries based on user-defined budgets. The system provides users with a variety of travel planning features, including the ability to choose from predefined plans or generate customized plans by entering their own budget and preferences. It also includes an interactive chatbot that responds to user inquiries in real time and allows modifying the plans, such as changing destinations, restaurants, or activities based on user needs. These features are powered by advanced technologies such as machine learning (ML) and large language models (LLM), which enable the system to deliver accurate, personalized, and intelligent travel recommendations. Finally, the Smart Travel System represents an innovative step towards simplifying the travel experience for users. By providing customized travel plans that fit various budgets, the system enables users to explore new destinations and enjoy unique experiences. The integration of AI technologies—such as interactive chatbots—not only enhances user engagement, but also allows for real-time modification of travel plans based on individual needs, such as changing restaurants or activities. Additionally, the chatbot is capable of answering tourists' questions directly, further improving the overall travel experience by making it more interactive, flexible, and user centered.



18 Diabetes Prediction and Diet Recommendation System Using Machine Learning

Mithaq Alhulaimi - Rawabi Alhulaybi - Fatimah Almousa - Marwa Alsultan

Supervisor

Dr. Sharmila Sheik Imam

Classification

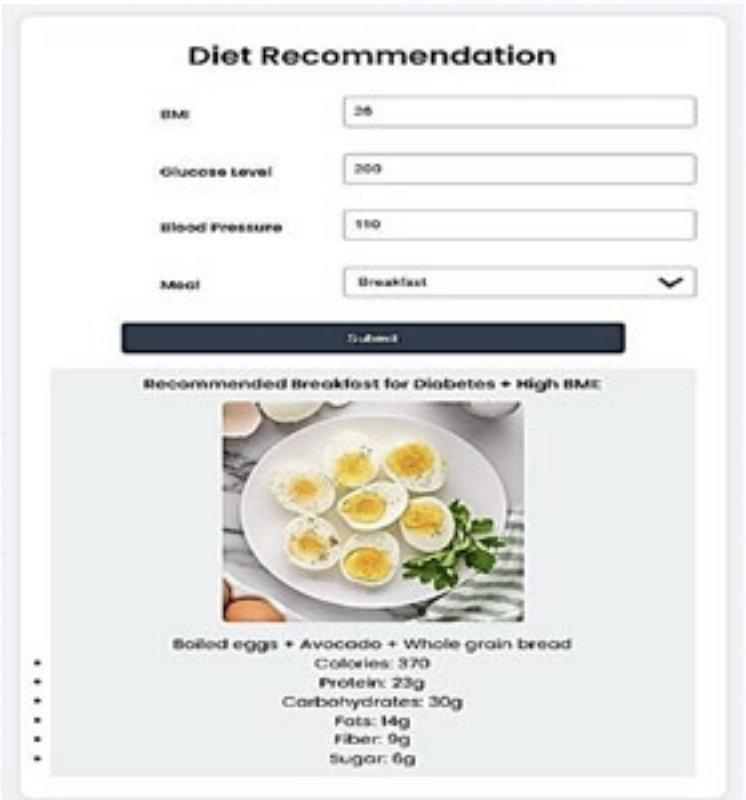
AI , ML,
Health Informatics

Track

Healthcare

Project Overview

The high rise in the number of patients with diabetes, especially in the Kingdom of Saudi Arabia, has led to increased demand for effective health management. In response to these challenges, this project proposes a web-based system designed to assess diabetes risk and provide a personalized diet recommendation based on user inputs regarding height, weight, age, body mass index (BMI), and activities. In addition to diet recommendations, the system will recommend the best hospitals within selected regions of Saudi Arabia, enabling users to seek timely professional advice. Furthermore, integrating artificial intelligence with machine learning methods encourage people toward preventive healthcare by providing early alarms to help users mitigate their diabetes risk. This approach is consistent with Saudi Arabia's Vision 2030 to achieve the goal of reducing the occurrence of diabetes using technology-based client-tailored health interventions. The project outcomes are perfectly predicted risk levels, individualized advice on nutrition, recommend hospitals and best specialists and enhanced community awareness, which in turn facilitate effective health risk mitigation and the prevention of diabetes.



19

Storehouse System

Hisham Al-Jughayman - Abdulraouf AlSultan - Abdulhakim hamam - Abdullah Al-Gosaibi

Supervisor

Prof. Alaa Sagheer

Classification

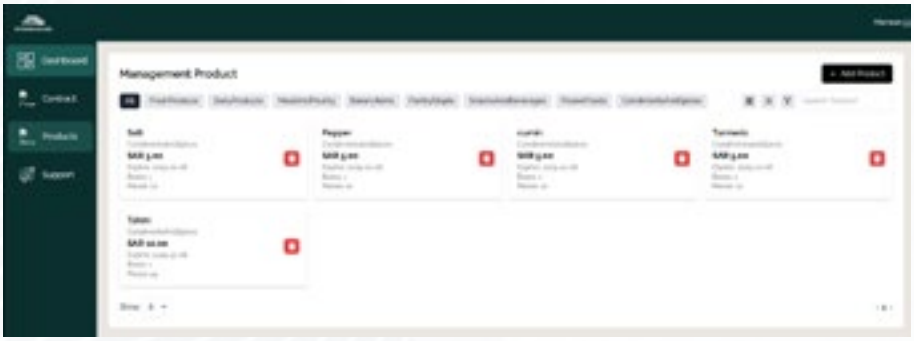
Cloud Computing, AI, Automation Systems

Track

Business Management

Project Overview

This project presents the development of the Storehouse System, a cloud-based SaaS platform designed to address the specific inventory management needs of small to mid-sized businesses (SMBs). The platform integrates real-time inventory tracking with seamless supplier coordination, helping businesses overcome common challenges such as stock mismanagement, fragmented communication, and lack of actionable insights. Developed using modern web technologies, React.js for the frontend and Laravel PHP for the backend, the Storehouse System is built to be scalable, intuitive, and user-friendly. Key features include automated alerts for low stock and product expirations, an AI-powered chatbot for customer service, and a public-facing store module for selling surplus inventory. These tools are designed to enhance operational efficiency while providing strategic support for business growth. The platform follows a subscription-based model to ensure affordability for SMBs, offering flexibility without compromising performance. By combining inventory automation, intelligent support, and supplier integration, the Storehouse System empowers businesses to reduce inefficiencies, streamline operations, and focus on sustainable growth. This project aims to fill a critical gap in the inventory management landscape by delivering a comprehensive, cost-effective, and scalable solution tailored to the evolving needs of growing enterprises.



20

DATASENSE

Hassan Almatar - Yazeed Alhawas - Saleh Alhafith - Adnan Maknoun

Supervisor

Prof. Alaa Sagheer

Classification

AI, Predictive Analytics, Business Intelligence

Track

Business Management

Project Overview

Small and medium-sized businesses (SMBs) often face significant barriers in leveraging data for informed decision-making due to the high cost and complexity of existing analytics tools. Traditional enterprise-level accounting and warehouse management systems are frequently inaccessible to SMBs, offering limited forecasting capabilities and minimal support for real-time operations. This project proposes an AI-driven dashboard tailored specifically to the needs of SMBs, aiming to democratize access to advanced analytics and predictive insights. The proposed solution automates the processing of transactional data from widely used file formats, generating intuitive visual reports that summarize financial performance. A key feature is its predictive engine, which provides forecasts such as projected monthly profits, estimated product demand, and intelligent bundling recommendations derived from historical purchasing behavior. The integrated warehouse management module delivers real-time inventory tracking, alerts for low or excess stock, and data-driven predictions for future stock requirements based on sales trends. To enhance usability, the system incorporates an AI-powered chatbot that enables natural language interaction with the platform. Users can query data or receive recommendations instantly, without requiring technical expertise in analytics or data science. By integrating AI across both financial and inventory domains, this project equips SMBs with powerful decision support tools traditionally reserved for larger enterprises—enhancing operational efficiency, profitability, and competitiveness. Ultimately, this solution bridges the technological gap between SMBs and their larger counterparts, empowering small businesses to make smarter, faster, and more informed decisions.

21 AI-Driven Emotion Analysis and NLP for Personalized Mental Health Assistance

Batool Balies - Asaeil Al-Asker

Supervisor

Dr. Hamad Naeem

Classification

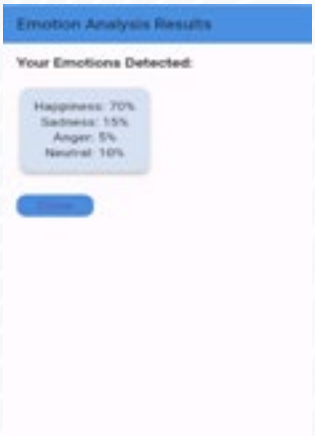
AI, NLP, Deep Learning, Emotion Recognition

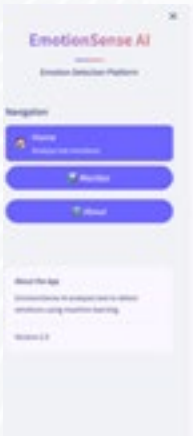
Track

Mental Health

Project Overview

Mental diseases are now pervasive around global populations example of the mental challenges are anxiety, depression, and stress. This might have become bigger issue because of the limited access to timely and personalized care. In trying to solve this issue this report will take advantage of artificial intelligence (AI), and Natural Language Processing (NLP) to develop an innovation application to analysis emotions in a real time manner to provide mental health support. The application will have a hypered deep learning architecture, to integrate bidirectional encoder representations from transformers (BERT) to have more contextual understanding and long short-term memory (LSTM) networks for sequential emotion detections. This to enable precis identification of nuanced emotional states such as joy, sadness, anger, and fear from a text of inputs used enter. The user content can be analyzed, while the system should work on providing immediate feedback and coping strategies should be followed. Such as exercise people mind and integrating relaxation techniques, and activity prompts. With fostering a dual space environment. The system should also present a secure private journal for personal reflection and anonymous public form for community engagement. The main innovation lies in the system's ability to adapt dynamically through user interactions, refining its recommendations through feedback loops to enhance personalization. The addresses critical gaps in existing mental health tools. For people who struggles through mental health this gap can be a big issue some gap in today tools is the lack of real time analysis, limited emotional granularity, and generic interventions, as observed in platforms like replica and woebot. Furthermore, stringent privacy protocols to include end to end encryption, data anonymization, and compliance with GDPR standards. Ensuring the secure handing of sensitive data user. The innovation of this application should be developed through a structural methodology encompassing data collection (using dataset like ISEAR and EmoReact), train the model, iterative testing, and user-centered design recall and F1-score metrics). It also should have real time responsiveness. An evaluation through A/B testing and a survey should be provided to user demonstrating improved mental well-being outcomes, with 85% of participants reporting heightened emotional awareness and satisfactions.





22 GymTech: An AI-Driven Personalized Fitness and Nutrition App

Abdulkhaliq Alsubaie, Ahmad Alnuwaihel, Abdullah Alhodar

Supervisor

Prof. Alaa Sagheer

Classification

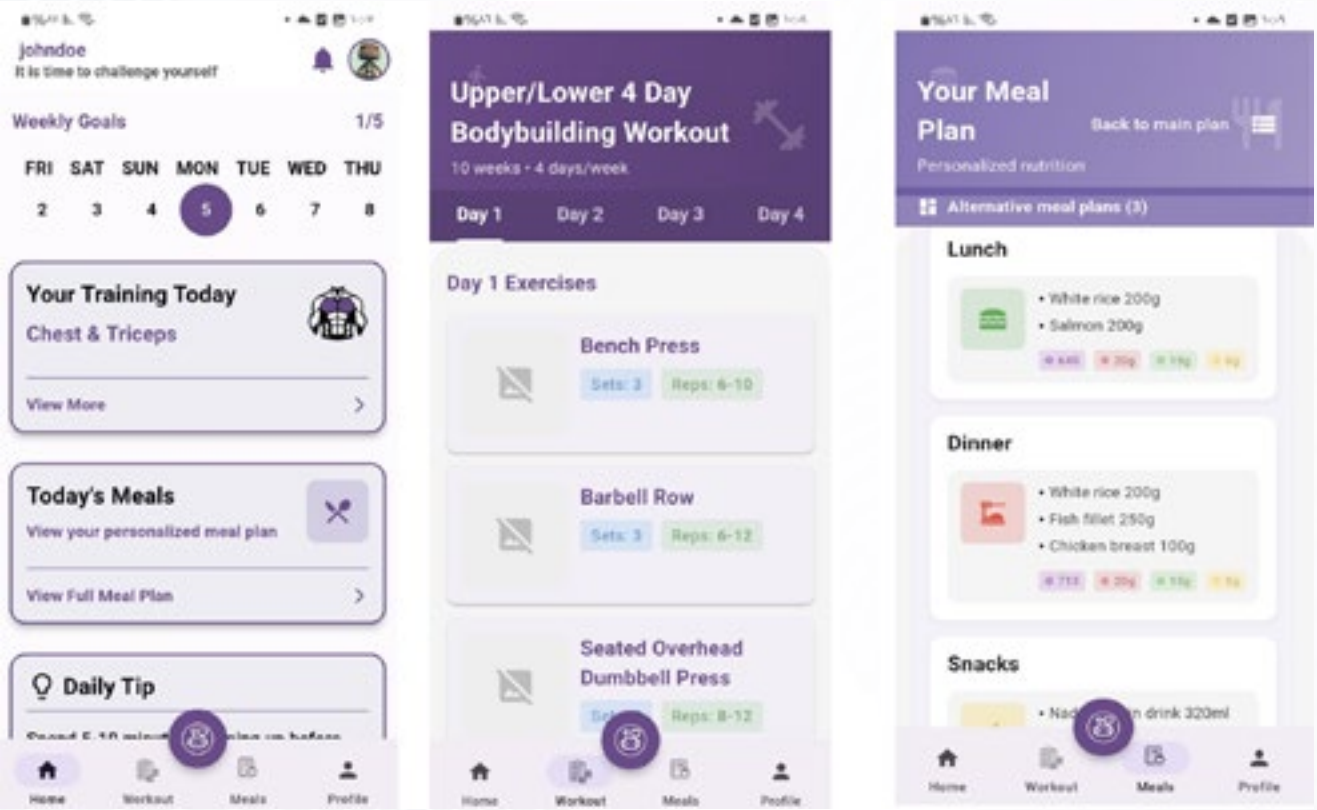
AI, Mobile Application, Recommedation System

Track

Health and Fitness

Project Overview

The GymTech project proposes the development of an intelligent fitness application that integrates personalized workout routines and meal plans powered by artificial intelligence. Designed to support fitness beginners, the app addresses common challenges such as information overload, lack of tailored guidance, and difficulty maintaining motivation. Core features include an AI-driven workout generator, nutrient tracking, and a real-time chatbot offering instant assistance and recommendations. Users can define personal fitness goals, monitor their progress, and receive continuous support to stay focused and engaged throughout their wellness journey. The primary objective of GymTech is to simplify the fitness experience by offering a unified, easy-to-use platform that combines exercise and nutrition in a personalized manner. By leveraging AI to adapt to user needs, the app aims to improve fitness outcomes, increase user retention, and promote the adoption of long-term healthy habits. Ultimately, GymTech fills a gap in the current fitness app ecosystem by delivering an accessible, effective, and sustainable solution for individuals seeking structured yet flexible support in achieving their fitness goals.



23 Infant Monitoring and Cry Classification System (Falatha)

Mohammed Alabdulmuhsin, Mohammed Nasser - Ahmed Sayed Kotby

Supervisor

Dr. Hasan Alkahtani
Dr. Hafiz Farooq

Classification

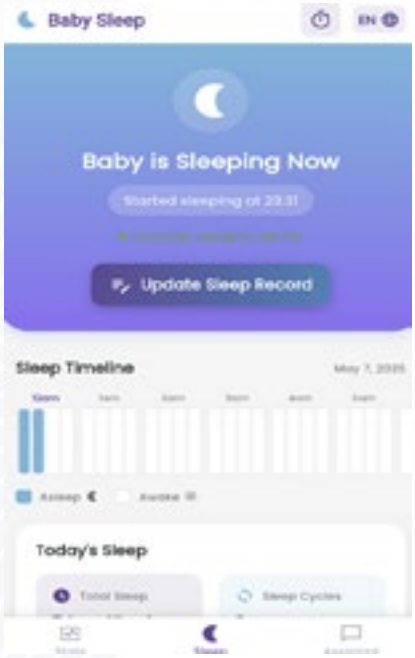
AI, ML, IoT,
Mobile Application

Track

Healthcare

Project Overview

The wellbeing of infants is paramount, and timely intervention in monitoring vital signs and interpreting distress signals can significantly improve outcomes in early childhood. This project introduces the Infant Monitoring and Cry classification System (Falatha), which integrates IoT-based sensors with artificial intelligence to create a comprehensive monitoring solution. The system addresses the limitations of traditional baby monitors by combining biometric monitoring, environmental sensing, and intelligent cry analysis into a unified platform. The project implements a multi-layered architecture where wearable sensors continuously track vital signs including heart rate, body temperature, and oxygen levels, while environmental sensors monitor room conditions. The system employs machine learning algorithms, specifically trained on infant cry datasets, to accurately classify different types of distress signals. This integration enables real-time health monitoring and automated alerts through a mobile application, providing caregivers with immediate insights. The implementation utilizes Raspberry Pi 4 Model B and ESP32 microcontrollers for data processing, alongside sensors such as MAX30102 for heart rate monitoring and MLX90614 for temperature sensing. The software architecture combines TensorFlow and PyTorch frameworks for cry classification, while Flutter enables cross-platform mobile application development. The system operates in both online and offline modes, ensuring continuous monitoring regardless of network connectivity.



24 Exploring and Simulating DoS and DDoS Attacks and Evaluating IDS-Based Cybersecurity Defenses

Louay Abrame , Talal Alreda

Supervisor

Dr. Khaled Riad

Classification

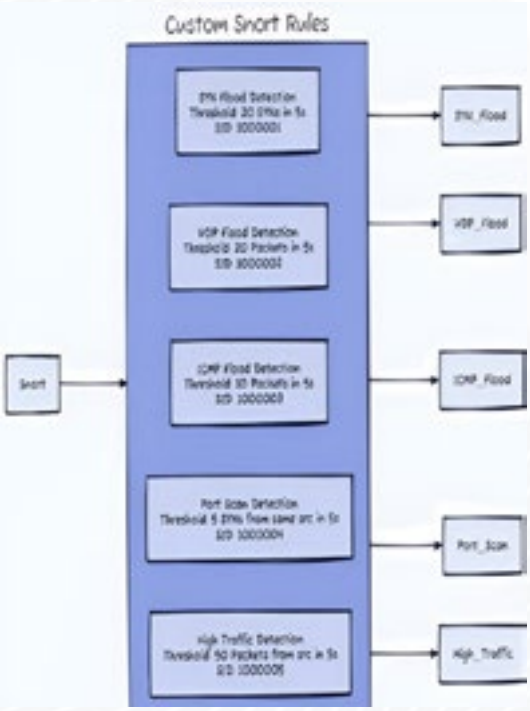
AI, ML,
Intrusion Detection Systems

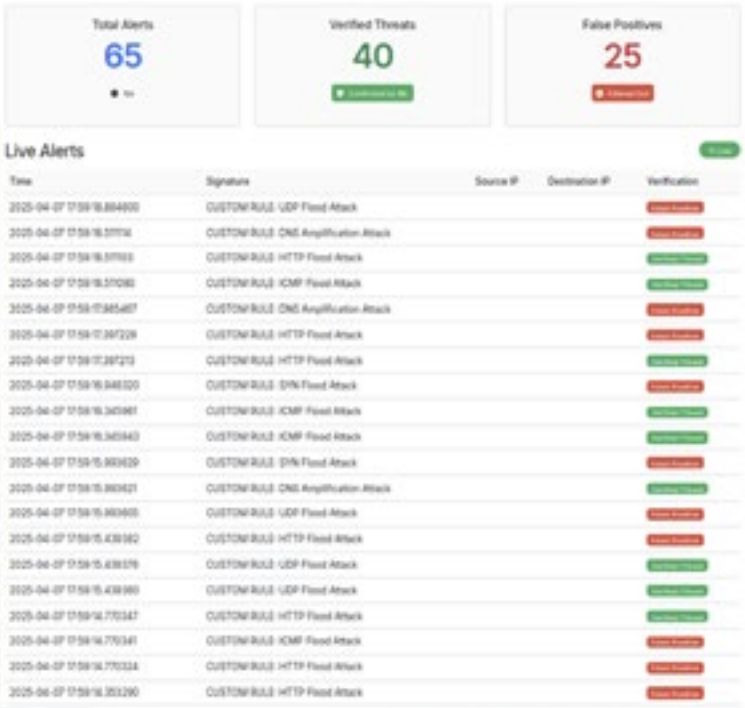
Track

Security

Project Overview

Denial of Service (DoS) and Distributed Denial of Service (DDoS) attacks are among the most serious threats to modern networks, aiming to exhaust system resources and disrupt services. Traditional Intrusion Detection Systems (IDS) like Snort use signature-based detection, which struggles to identify novel attack patterns and often produces high false positive rates. This project enhances Snort by integrating it with machine learning (ML) models in a controlled virtual lab using Kali Linux to simulate attacks. The system uses the NSL-KDD dataset to train and evaluate Decision Tree (DT), Random Forest (RF), and Support Vector Machine (SVM) models. While standalone Snort recorded a 45% false positive rate, the Snort + DT hybrid achieved 92% accuracy with a 25–30% reduction in false positives and an average alert processing time of 0.5 ms. RF and SVM also improved performance, reducing false positives by 20–25% and 15–20%, respectively. A web-based interface was developed for real-time alert visualization and performance monitoring. The results show that ML enhanced IDS, especially with DT significantly improve detection accuracy, reduce false alarms, and offer a scalable, adaptive solution for modern cybersecurity challenges.





25 Predictive Analytics for Enhancing Sustainability in Petroleum Operations

Ziyad Bu Dukhi - Moataz Al Khaldi - Mohammed Harb

Supervisor

Dr. Khaled Riad

Classification

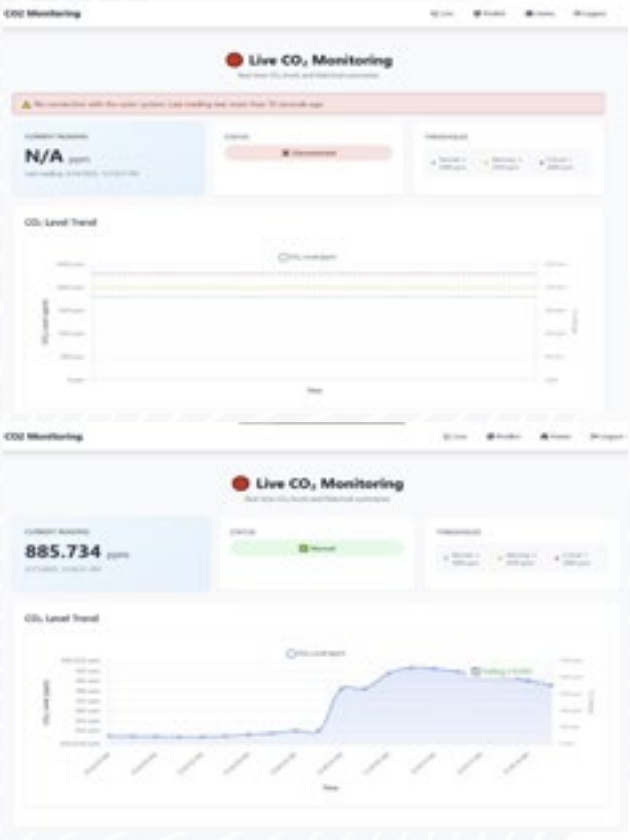
IoT, AI, ML, Deep Learning

Track

Environmental Monitoring, Sustainability

Project Overview

The significant contribution of CO_2 emissions to global climate change created a need for innovative solutions in emissions monitoring and forecasting. This project introduces an Internet of Things (IoT)-enabled system designed to measure real-time CO_2 emissions and integrate these data into a Hybrid learning framework for forecasting future emissions. Utilizing both Deep learning (DL) and Machine learning (ML) techniques such as Long Short-Term Memory (LSTM) networks and Extreme Gradient Boosting (XGBoost), the system analyzes historical and real-time data to identify patterns and trends. The IoT device leverages precise sensors to ensure accurate emission tracking, which supports both operational optimization and compliance with environmental regulations. This integrated approach enables proactive decision-making, enhancing resource management and aligning with sustainability goals. Designed with scalability and accessibility, the system provides actionable insights through an intuitive interface, bridging technical and non-technical stakeholder needs.



26 CaviSense: Cavity Detection System using Smart Toothbrush

Fatimah Alyousef - Fatimah Aldukhi - Shahad Bu Saqer

Supervisor

Dr. Rawabi Alsedais

Classification

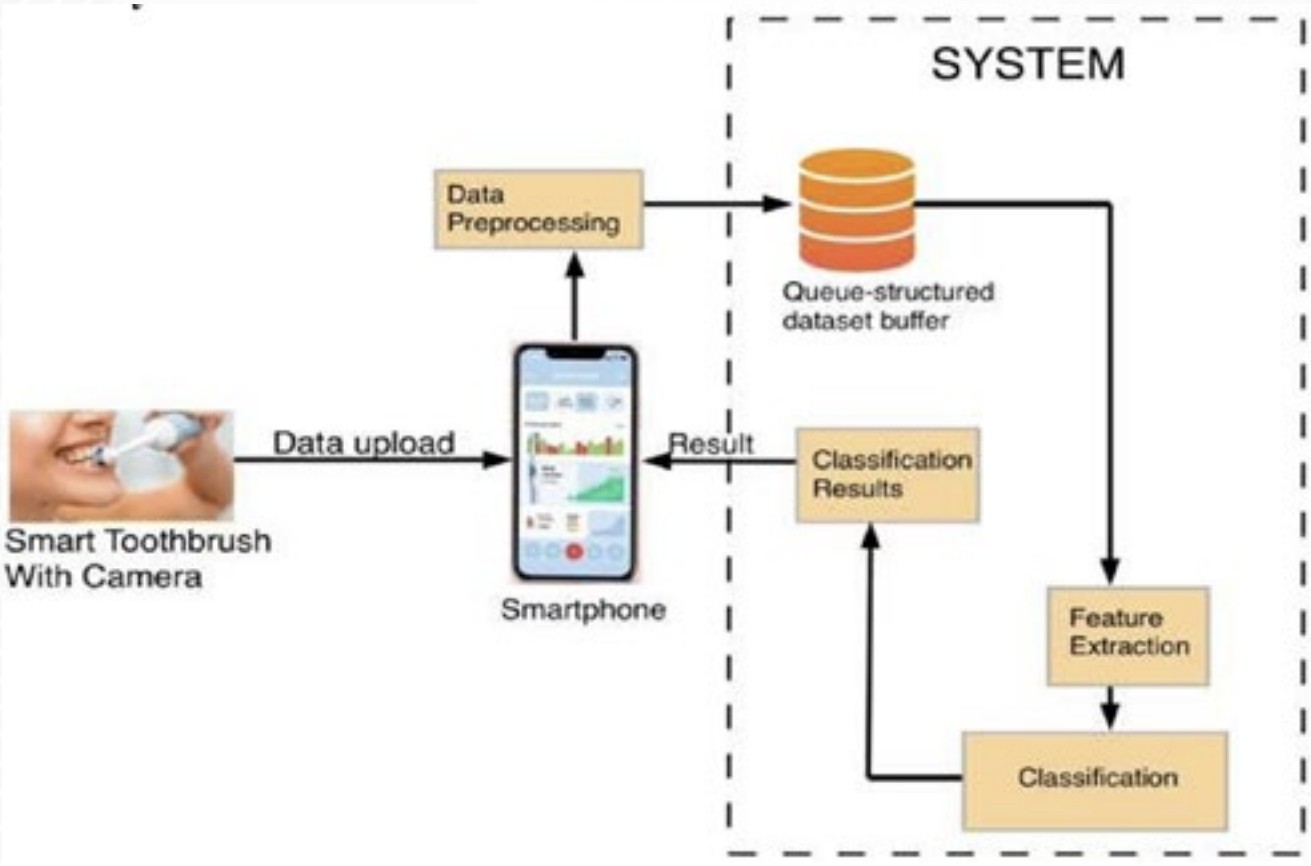
AI, ML,
Computer Vision

Track

Healthcare

Project Overview

In today's world, oral health care is an essential part of a healthy lifestyle, contributing significantly to overall well-being and the prevention of various health issues. However, dental caries remains one of the most common problems faced by people globally, often going undetected until they worsen, causing pain and health complications that require costly medical interventions. With the technological advancements we are witnessing, the concept of an AI-powered smart toothbrush is set to revolutionize oral care. This innovative toothbrush utilizes advanced image analysis techniques to enable early detection of dental caries through a built-in camera that captures high-resolution images of the teeth during brushing. These images are then analyzed by machine learning algorithms to detect potential cavities, allowing users to take early preventive measures to maintain dental health and reduce the need for complex treatments in the future.



27 Melanoma Lesion Detection

Komail Ishaq Albasri - Ali Aldiwani - Ahmed Alswileh - Mohammed Alswileh

Supervisor

Prof. Fawaz Alsaade
Dr. Ahmed Zaher Afifi

Classification

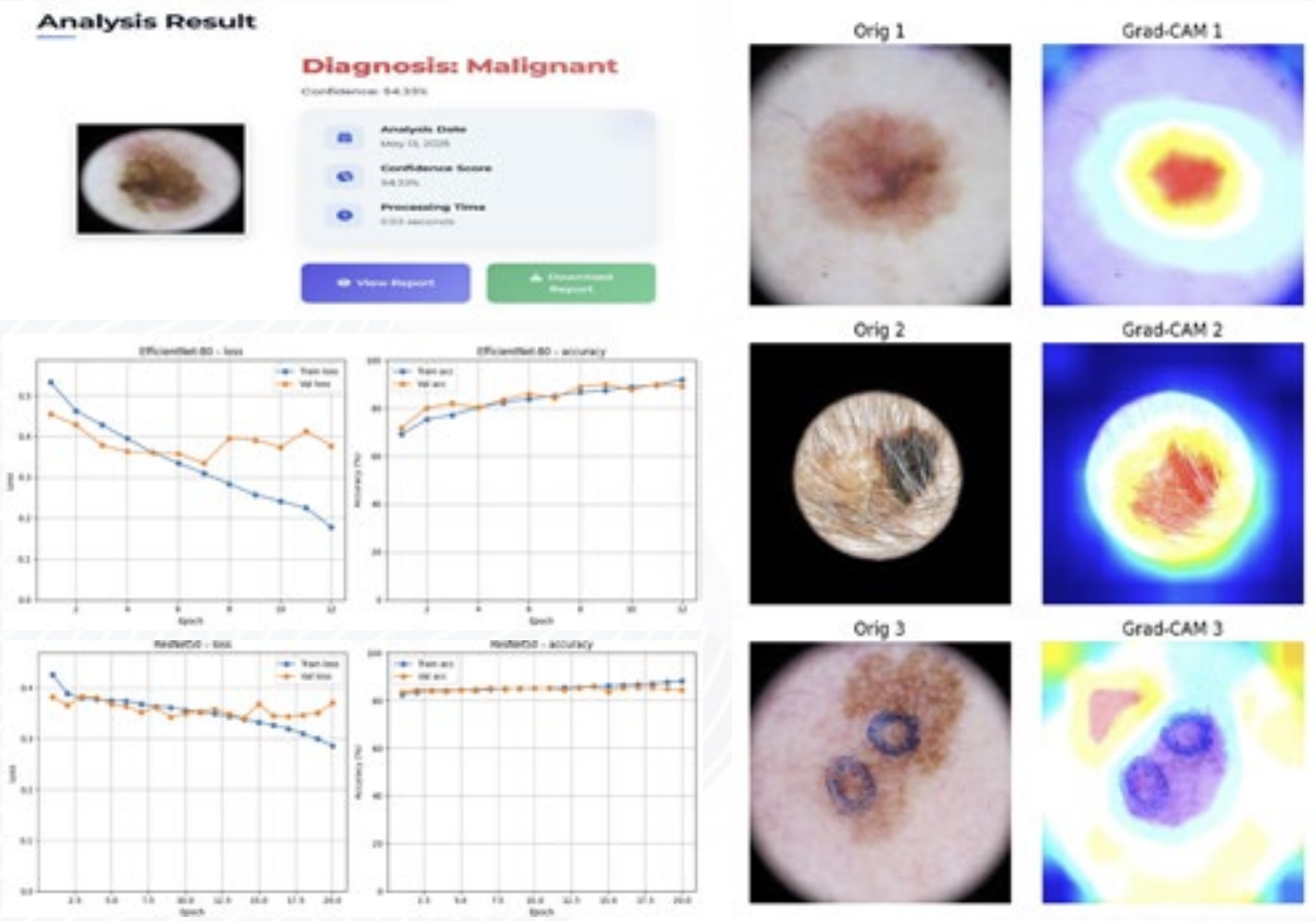
AI, ML,
Computer Vision

Track

Healthcare

Project Overview

This project aims to create an automated melanoma detection system using skin image data and advanced computer vision techniques. Melanoma is one of the leading causes of death from skin cancer, so its effective treatment depends on early detection. The system improves the availability and accuracy of diagnosis by identifying melanoma using dermatoscopic imaging. We use the ISIC dataset, which contains clearly labeled images of skin lesions, to train our system. The project addresses the primary challenges in melanoma identification, including the processing of atypical data and the calculation of relevant clinical factors, through the application of advanced data analysis techniques. We anticipate that this system will provide a scalable and effective solution for detecting early stage melanoma, potentially enhancing patient outcomes, particularly in rural or underserved areas.



28 A Web-Based Medical Image Retrieval Platform

Abdullah Alabdulkader - Saad Alqahtani - Abdalmohsen Alanazi - Mohammed Almulhim

Supervisor

Dr. Hamad Naeem

Classification

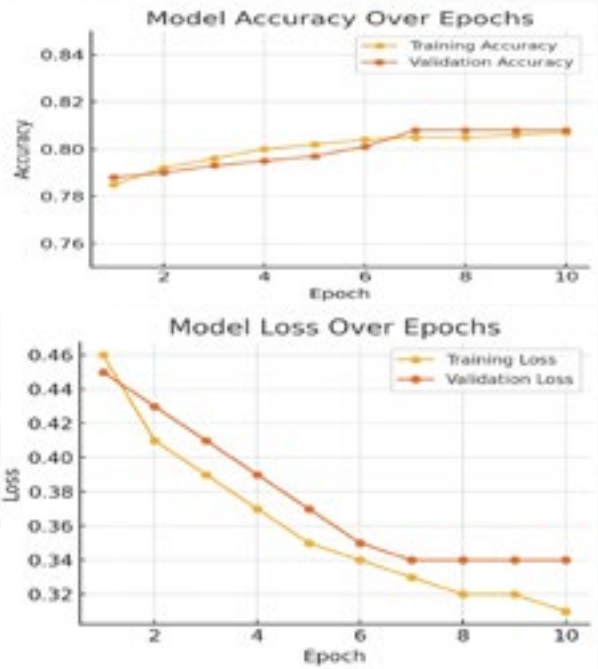
AI, Computer Vision, Deep Learning, CNNs

Track

Healthcare

Project Overview

The rapid advancement in medical imaging technologies has led to an increased reliance on digital image analysis for accurate and timely diagnosis of skin conditions. In the medical field, Content-Based Image Retrieval (CBIR) enhances diagnostic accuracy by enabling the retrieval of patient images based on visual content, allowing healthcare professionals to compare cases, identify diseases, and support clinical decisions with the aid of large medical image databases and advanced machine learning techniques. This project presents a Content-Based Image Retrieval (CBIR) Web Application that supports healthcare professionals by automating the analysis of medical images, specifically skin lesions, to aid in diagnosis. The proposed CBIR web application system first preprocesses the input skin lesion image and then extracts prominent skin lesion features using pre - trained CNN architectures. Leveraging a Convolutional Neural Network (CNN) trained on the HAM10000 dataset, the application processes each uploaded image to identify conditions and assess severity levels, categorized as low, medium, or high. The system's web-based interface provides an intuitive platform for doctors to upload images, receive diagnostic predictions, and access a detailed assessment of the condition's severity. Further enhancing communication, the application integrates a WhatsApp feature, allowing doctors to directly share diagnostic results with patients, thus facilitating timely, patient-centered care. This CBIR Web Application aims to streamline the diagnostic workflow, reduce human error, and improve accuracy in medical image analysis, contributing to a more efficient, accessible, and reliable healthcare system.



29

Smart Farming System

Abdullah Alessa - Omar Alabdullatif - Mohammed Badry - Abdulelah Alwadani

Supervisor

Dr. Mohammed Alabdullatif

Classification

IoT, AI, Big Data

Track

Agriculture

Project Overview

The rapid advancement of science and technology has significantly transformed various aspects of daily life, including the agricultural sector. As part of this transformation, smart farming systems are emerging as a sustainable solution to enhance agricultural efficiency and resource management. These systems leverage cutting-edge technologies to optimize farming practices and improve overall productivity. One of the key technologies driving this transformation is the Internet of Things (IoT), which enables real-time monitoring of environmental factors such as soil moisture, temperature, and humidity. Additionally, Artificial Intelligence (AI) enhances decision-making by analyzing collected data and automating critical agricultural processes, such as irrigation and fertilization. This integration helps farmers reduce resource waste, lower costs, and improve crop yields. This project aims to develop a smart farming system that integrates IoT, AI, and automation to create an intelligent and efficient agricultural environment. The system will provide real-time insights through an interactive mobile and web-based interface, allowing farmers to remotely monitor and control farming activities. By optimizing the use of water, energy, and fertilizers, the system promotes sustainable and eco-friendly farming practices. The project has significant implications for smart agriculture, as it combines real-time monitoring, AI-driven automation, and remote access technologies to enhance farming operations. The integration of IoT, AI, and smart automation in agriculture represents a major step toward precision farming, ensuring food security, resource efficiency, and environmental sustainability.

30 Train Obstacle Detection System Using IoT

Ali AlHassan - Saleh Alsubaie - Fahad Hamad - Mustafa Abdi Jami

Supervisor

Dr. Mohammed Alabdullatif

Classification

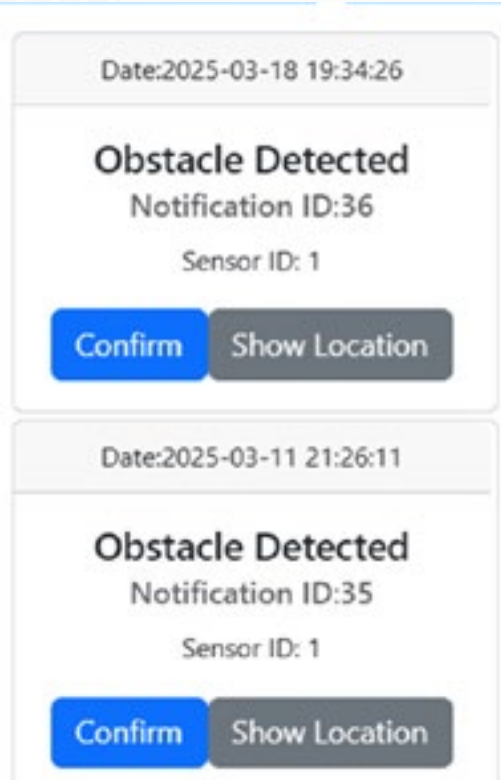
IoT,
Automation & Alert Systems

Track

Transportation

Project Overview

Trains are influential, cost-effective, and reliable for transporting passengers and goods. With increasing train usage in Saudi Arabia, ensuring their safety is paramount. Neglecting safety can lead to devastating consequences, including system delays, economic losses, and potential loss of life. To address this, we propose the development of a train obstacle detection system using IoT technology. The system will employ ultrasonic sensors installed at accident-prone locations along the railway, such as areas where wildlife is known to reside near the tracks. These sensors will transmit data to a website, where a user can monitor the system and receive notifications when an obstacle is detected and manage it. There will be an admin that manages who can add or remove users or make them an admin in the system.



31 Wellness Wise Smart Choices for Skin Care

Zahra Alali - Layla Algahfli - Narjes Alammar - Lojain Alhaj

Supervisor

Dr. Mona Abdelbaset Ali

Classification

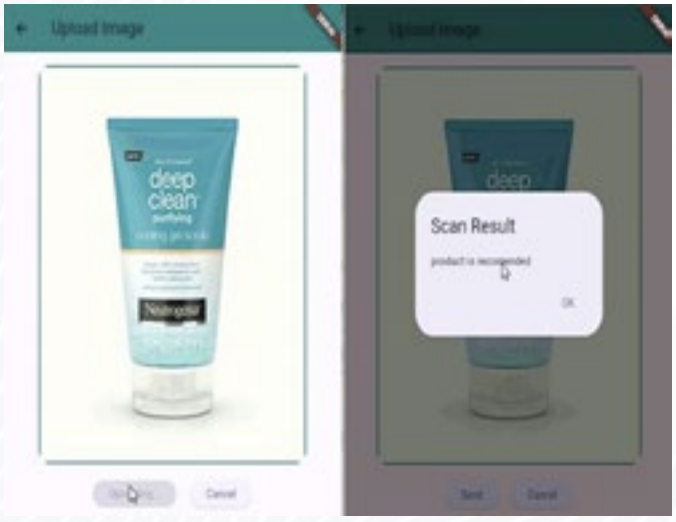
AI, Computer Vision, NLP, Deep Learning

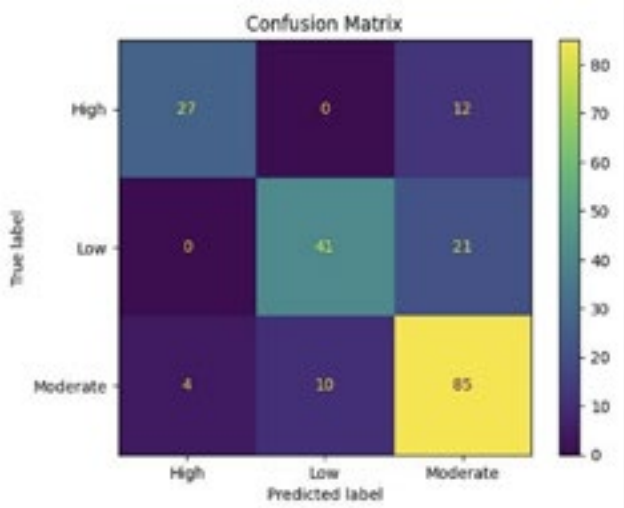
Track

Healthcare

Project Overview

WellnessWise is an innovative mobile application that empowers users to make informed skincare choices by providing real-time analysis of product ingredients using advanced artificial intelligence techniques. The application leverages Convolutional Neural Networks (CNNs) for robust Optical Character Recognition (OCR), enabling accurate extraction of text from product labels. Subsequently, a Multi-Layer Perceptron (MLP) neural network analyzes the extracted ingredient data in conjunction with user specific information (such as skin type and health concerns) to classify product suitability and provide personalized recommendations. This project focuses on the partial implementation of key functionalities, demonstrating the seamless integration of these AI models with backend services (developed using PHP) and a cross-platform mobile interface (built with Flutter and Dart). The core AI algorithms, developed in Python using TensorFlow and NLTK, ensure precise text recognition and intelligent ingredient analysis, enhancing user decision-making for healthier skincare practices.





32 Reusing Air Conditioning Water For Agriculture

Ghzayel Alhajri - Donia Alzahrani - Noura Almarri - Rawan Alomair

Supervisor

Dr. Mona Abdelbaset Ali

Classification

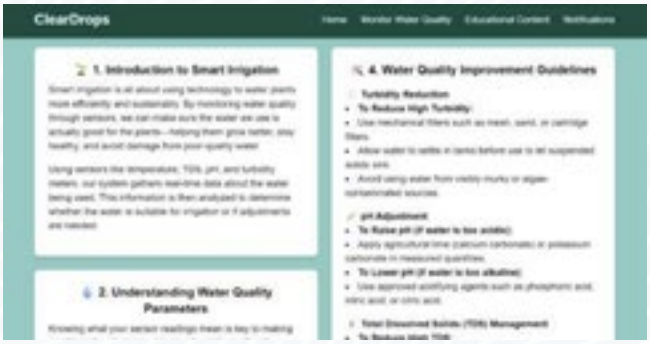
AI, ML, IoT

Track

Agriculture

Project Overview

In regions with hot climates such as Saudi Arabia, air conditioning systems are indispensable, yet they produce large amounts of condensate water that often goes to waste. This project addresses the growing need for sustainable water resources by developing a smart system that repurposes air conditioning condensate for agricultural irrigation. The proposed solution integrates a sensor-based IoT system with machine learning algorithms to monitor and assess water quality in real time. Key water parameters—pH, temperature, turbidity, and total dissolved solids—are measured and transmitted to a cloud-based server where a Support Vector Machine (SVM) model classifies the water as suitable or unsuitable for irrigation. A web-based dashboard presents real-time data and alerts users when water quality falls outside safe thresholds. The system promotes sustainable practices by transforming waste into a valuable resource, reducing dependence on freshwater, and supporting environmental goals such as afforestation. Evaluations showed a classification accuracy of over 98% with justifications, demonstrating the feasibility and effectiveness of using AC condensate as an alternative water source for agriculture.



33 AI-Powered Fake Instagram Business Account Detection System

Abdulelah Alshaban - Osama Alhamdan - Ahmed Alramadhan -Hassan Alseny

Supervisor

Dr. Abdulelah Algosaibi

Classification

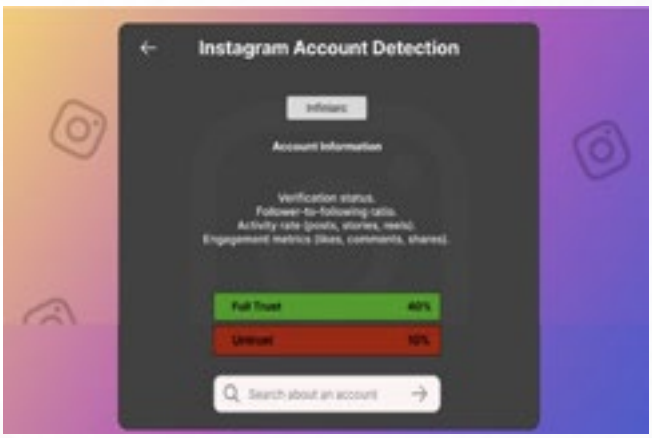
AI, LLMs, Web Scraping

Track

Business

Project Overview

This project aims to develop a website designed to detect fake Instagram business accounts through the use of the Instagram API, web scraping, and GPT techniques. The website will gather account statistics, including likes, comments, shares, mentions, tags, hashtags, and audience data, all extracted from the account's API. Additionally, the platform will assess whether the account is verified by its VAT Number/Maroof, which serves as an official business verification identifier. By analyzing these criteria, the system will provide a trustworthiness percentage score, indicating the probability of the account being legitimate. The goal is to offer users a reliable method to evaluate Instagram accounts for verification. The site will use a combination of API data extraction, web scraping, and algorithmic analysis to produce helpful and actionable results to determine the authenticity of an Instagram account.



34 AutoInvest

Ahmad Al-Fares - Muid Alzaily - Mohammed Mudahij - Ahmed Al-Bahrani

Supervisor

Dr. Abdulelah Abdallah

Classification

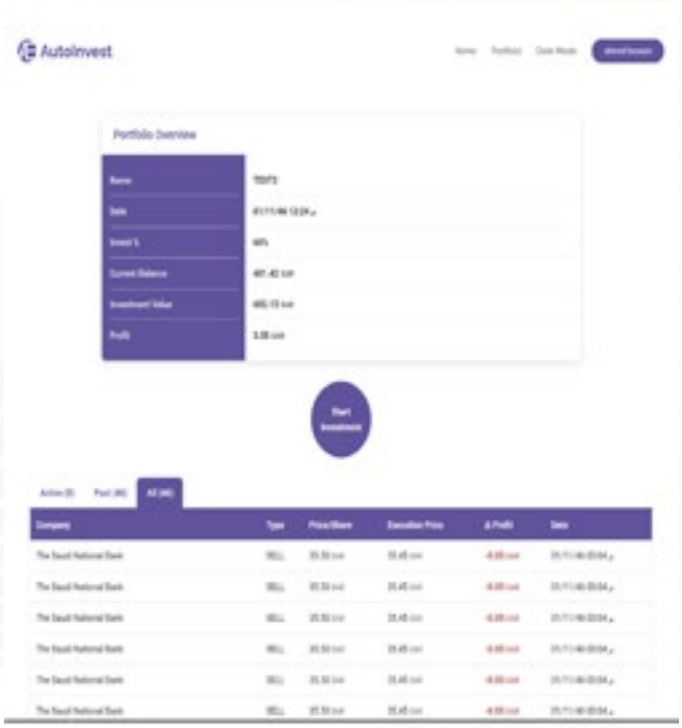
AI, Data Engineering,

Track

Finance

Project Overview

AutoInvest is a specialized fintech platform developed to give college students practical exposure to automated portfolio management and technical analysis. The system's architecture combines an ASP.NET Core MVC web front end with Python-based data pipelines, leveraging the yFinance API to retrieve live market prices. Key indicators, Relative Strength Index (RSI), SuperTrend, and Volume-Weighted Average Price (VWAP), are computed in real time and fed into a lightweight decision engine that generates buy and sell signals with sub-second latency. Users allocate a chosen percentage of virtual funds to speculative portfolios and watch as the platform autonomously executes trades according to the indicator-driven ruleset. In controlled trials using Saudi stock data, AutoInvest produced net gains of 5.00 SAR over 20 trades, 7.37 SAR over 32 trades, and 3.55 SAR over 46 trades, confirming the effectiveness of the integrated technical signals in capturing small price differentials. By blending web technologies, background-hosted services, and cross-language interoperability, AutoInvest maintains high responsiveness on standard personal computers. Its modular design supports future extensions, such as expanded indicator suites, adaptive risk controls, and additional asset classes, making it both an educational sandbox and a scalable prototype for research in algorithmic trading.



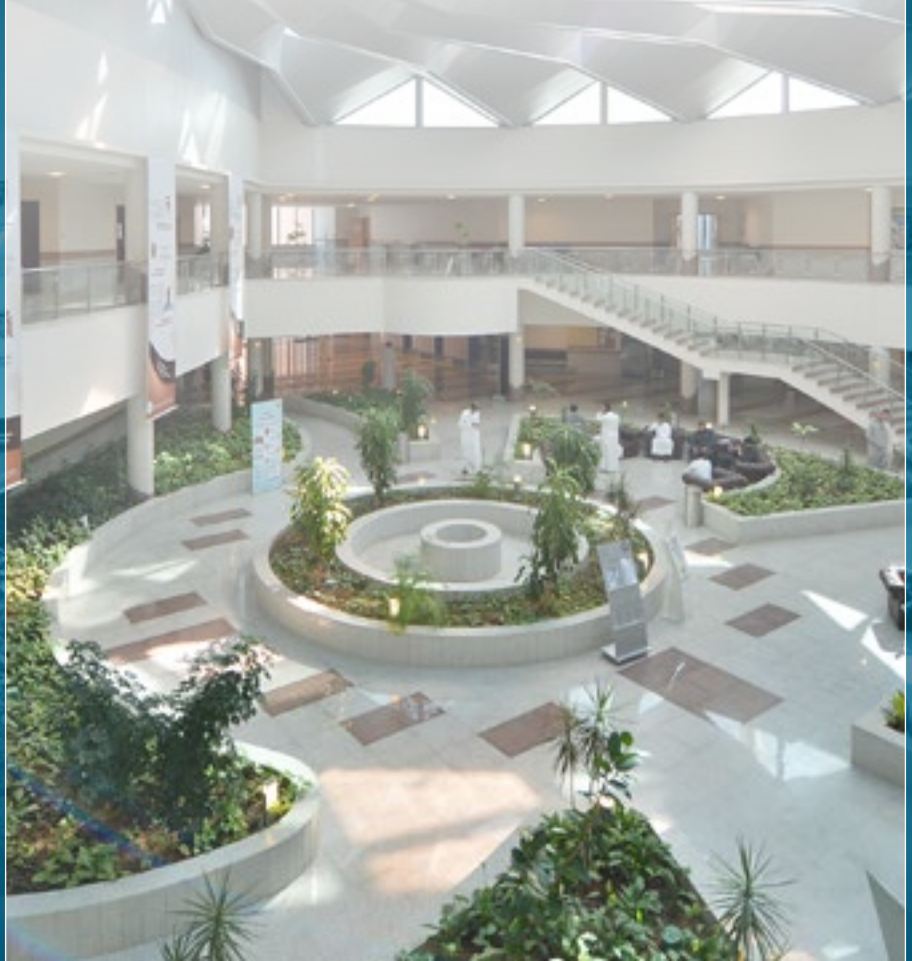
STUDENT GRADUATION

PROJECTS

Department of

IS

INFORMATION SYSTEMS



01

AgriRipen

Asma Alshreedah - Sama Alshaqaq - Zahra Alabdulsalam - Bibimaliga Abulhamid

Supervisor

Ms. Laila Ababneh

Classification

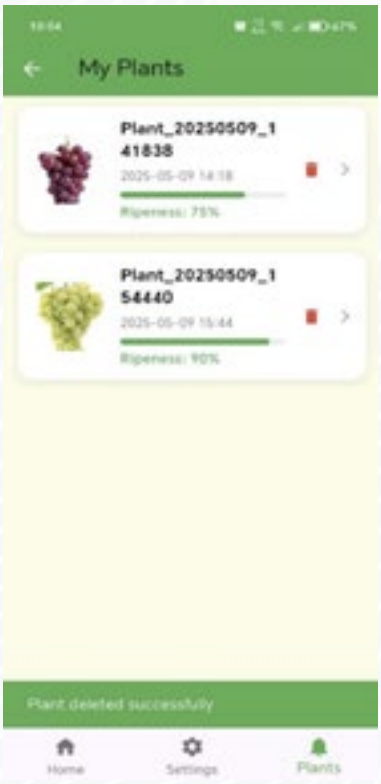
ML,
Mobile Application

Track

Agriculture

Project Overview

This project aims to revolutionize fruit harvesting by developing a smart application designed to assist farmers and hobbyists in determining the optimal time for picking fruit, ultimately reducing waste associated with premature or delayed harvesting. Utilizing machine learning, our application accurately analyzes ripeness stages, providing users with detailed, percentage-based ripeness assessments to accommodate varied preferences on ripeness levels. Additionally, it forecasts the approximate time until full ripeness, enabling farmers to plan harvests with precision and avoid premature or overripe picking. Users can set reminders for picking dates to help prevent missed harvesting windows and potential spoilage, while also maintaining detailed plant records to log planting dates, estimated maturity. By empowering users with these tools, our project supports sustainable agriculture practices by minimizing food loss and optimizing yield quality, making it an essential asset for efficient crop management.



02

Athar

Danah Alamer - Alghala Alamer - Deema Albunyan - Rahaf Almarri

Supervisor

Dr. Asma Alshuhail

Classification

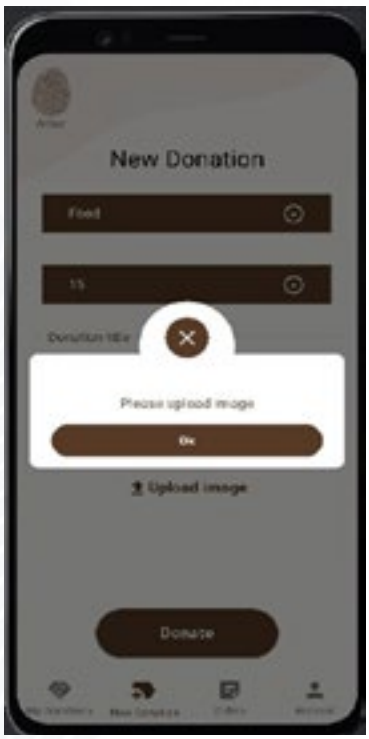
Web & Mobile Application

Track

Community Engagement

Project Overview

The Athar application is a comprehensive donation management platform that connects donors, charities, and livestock owners in a streamlined and efficient manner. It facilitates the donation of food, clothing, and books, ensuring that resources are allocated to appropriate recipients in real-time. After extensive testing and validation, the application has been fully developed and now covers most regions in Saudi Arabia, with a strategic plan to extend its coverage to all areas in the near future. Key features such as user registration, real-time tracking, and instant notifications are fully operational, supported by a robust data management system. Looking ahead, Athar aims to incorporate advanced analytics for enhanced decision-making and explore potential partnerships with delivery services to further streamline the donation process. This initiative not only promotes community engagement and sustainability but also establishes a transparent and user-friendly platform for managing charitable donations effectively.



03

Bloomscape – Plants Care

Fatimah Alghadeer - Hessa Al Fehaid - Atheer Almusawi

Supervisor

Dr. Amira Abdelwahab

Classification

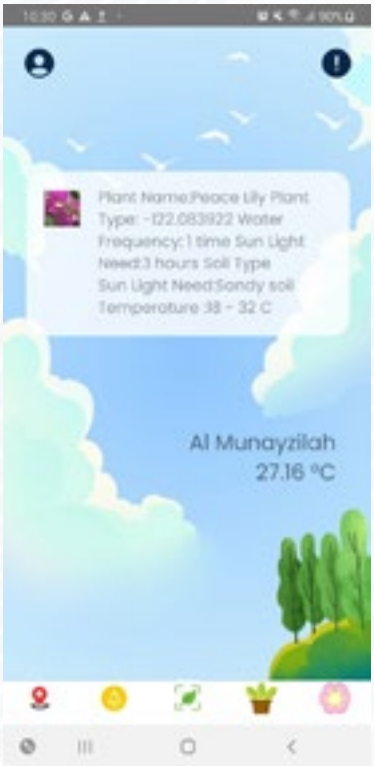
Mobile Application,
Sustainable Technology

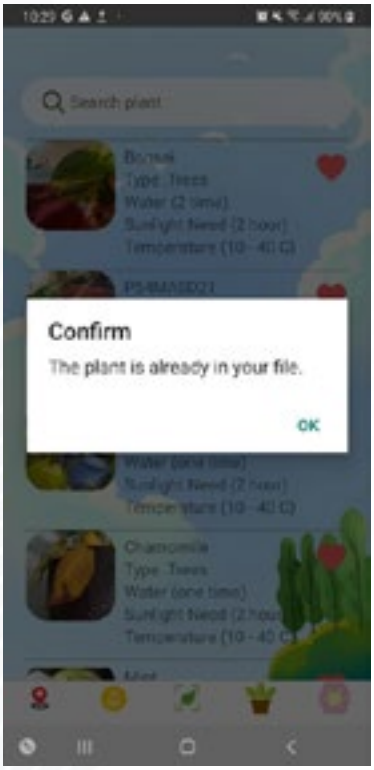
Track

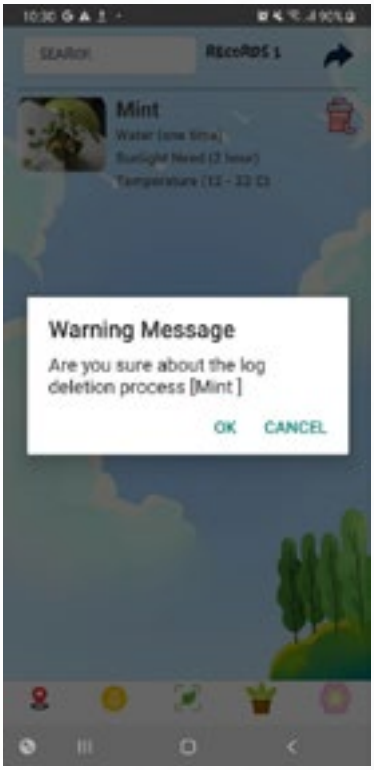
Agriculture

Project Overview

In recent years, the popularity of houseplants and personal gardens has increased, which has led to the discovery of a large gap in the available and specialized information on plant care. The number of individuals who have started gardening has increased due to its psychological and physical benefits. However, there are major challenges today due to the huge amount of information and advice available on the Internet, which is often incomplete due to the lack of consideration for external and personal conditions, which causes frustration and resentment of users and their abandonment of gardening. Therefore, our project "Bloomscape - Plants Care" aims to develop a distinctive mobile application that provides personalized recommendations for plant care. By taking advantage of technology, we aim to improve the user experience by adding personal reminders and climate information, thus promoting a culture of gardening and sustainability. This application will not only enhance the experience of owning plants but will also help users grow healthy and distinctive plants, ultimately bridging the gap between enthusiasm and successful gardening.







04 Code Lab Management System

Maryam Alarfaj - Sulafh Alsolan - Hissah Almubarak - Munira Alshuaibi

Supervisor

Dr. Meshael Aljubairah

Classification

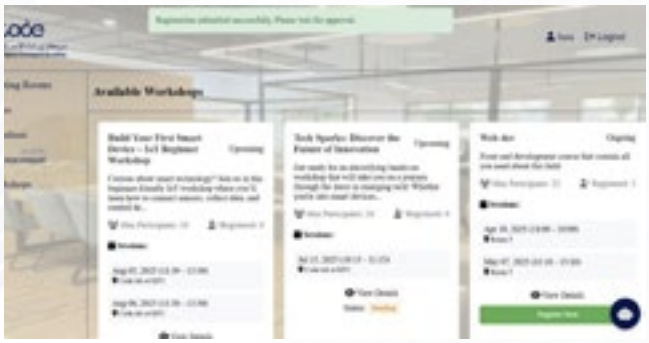
Web Application,
Business Process Automation

Track

Education,
Business Management

Project Overview

Code Labs is a place in King Faisal University, and is the premier destination for entrepreneurs, combining comprehension with support for startups. Their system has many deficiencies that affect their efficiency. The main services are mostly reservations for meeting rooms, appointment consolation, workshops and events. However, the system lacks other services in the university's activities that can be performed to strengthen efficiency of system and maximize system utilization. Upgrading the system will provide a better delivery service, enable the staff to provide higher quality IT services and assist the customers to save time and effort for final services. This project aims to build an advanced efficient website system that will complete the deficiencies in the system and solve the issues affecting their delivery service. The methodology of upgrading the website system is agile/scrum with JavaScript development that suits the university's demands and customer satisfaction. The comprehensive analysis in this project can specify the solutions and enable the university to accelerate the approach for the system.



05 COOP CCSIT'S Training Portal

Dalia Alsuwailem - Marah Aljumaiah - Kawther Alanazi - Moajebah Alshaiban

Supervisor

Dr.Ahmad Alyahya

Classification

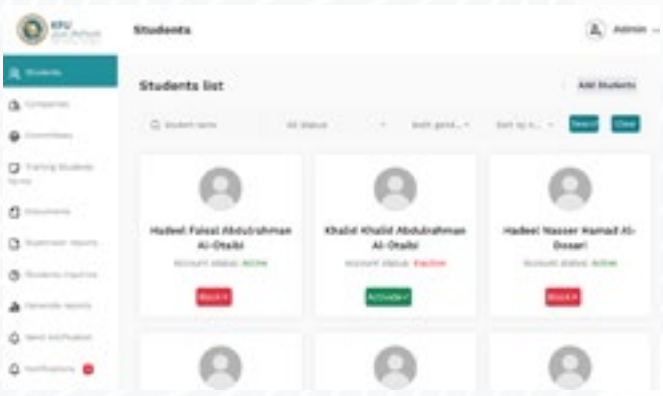
Web Application Development, Workflow Automation

Track

Education, Business Management

Project Overview

The cooperative training system at King Faisal University (KFU) requires an integrated electronic platform to streamline and automate its processes. This project proposes the development of a web-based platform designed to enhance various aspects of cooperative training management. The platform will facilitate student registration, filtering of suitable opportunities based on user-defined criteria, and application tracking. It will also support inquiry management, provide performance analytics, and enable administrators to efficiently manage training opportunities. Additional features include automated document submission and custom alerts. These functionalities will improve the system's overall efficiency and ensure organized management of the cooperative training process.



06

Fit Zone

Banin Alghalawin - Jannat Alshakhs - Majeda boholaiqa - Sara Almutawa

Supervisor

Dr. Razan Alsawileem

Classification

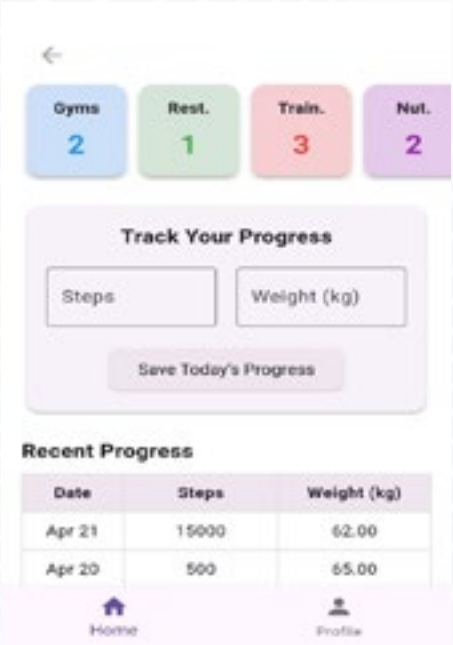
Mobile Application,
Reward Systems & Gamification

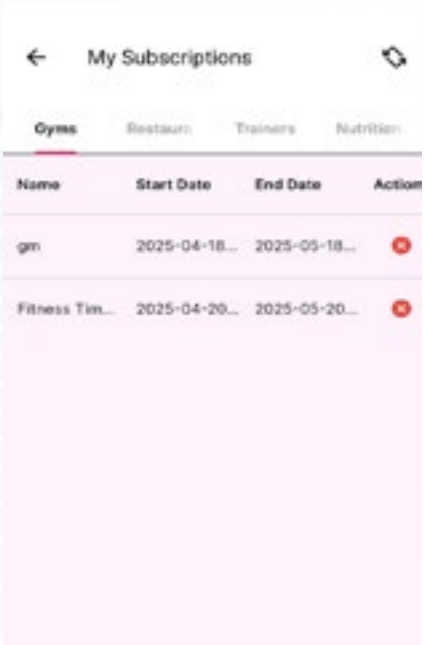
Track

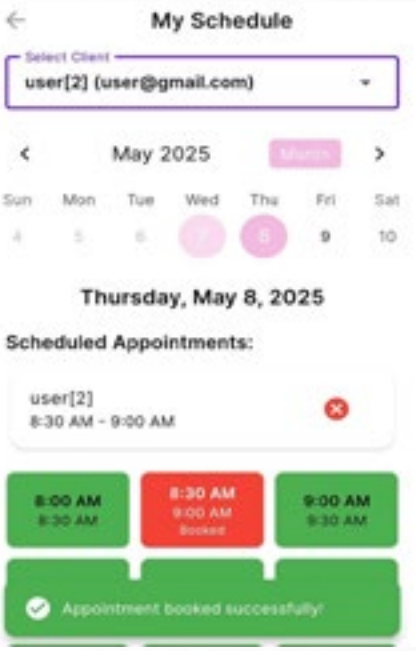
Health and Fitness

Project Overview

Women in Al-Ahsa face challenges in finding high-quality gyms with experienced trainers. The Fit Zone app focuses on providing a comprehensive platform that brings together gyms in Al-Ahsa, making it easier for women to access all available options. Additionally, it offers a range of restaurants that provide subscription services for healthy meal plans. The app aims to cover various options to cater to different needs and capabilities. It also includes features like communication with nutrition experts for cases such as obesity, offering health advice on suitable diets and exercises. The primary goal of the app is to promote physical health and maintain fitness, and it will be developed using Agile methodology. This approach has been chosen to ensure an effective and efficient development process. The app also supports women with health conditions such as diabetes, heart issues, pregnancy, and muscle separation by simplifying access to certified trainers and healthcare professionals. Through the integration with Google Maps, users can easily locate suitable gyms based on proximity, services, and prices. Fit Zone allows direct communication with personal trainers and nutrition specialists within the app to provide personalized training plans and advice. To motivate users and encourage continuous engagement, the app includes a point-based reward system that tracks user progress and offers discounts. Seasonal promotions are also provided by gyms and restaurants within the platform. Fit Zone is designed to serve women in Al-Ahsa by improving access to fitness and health resources, contributing to a healthier lifestyle and aligning with the goals of Vision 2030.







07 Graduation project management systems (GPMS)

Fedaa Alessa - Zahraa Alhashim - Muntaha Alghareeb - Rahaf Alsaleh

Supervisor

Dr. Mashael Aljubairah

Classification

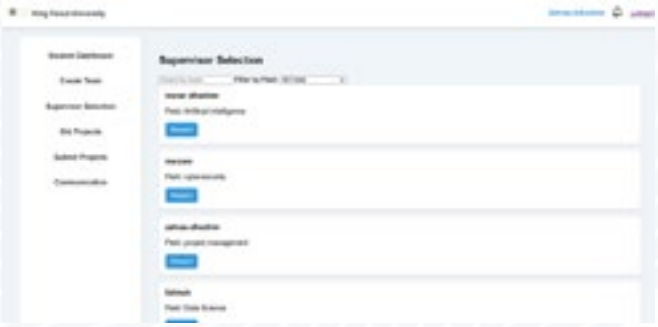
Web Development,
Workflow Automation

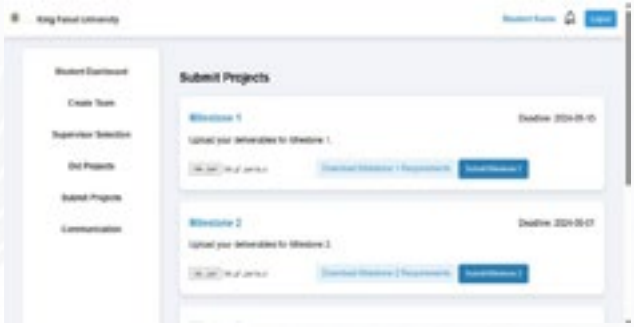
Track

Education,
Business Management

Project Overview

The Graduation Projects Management System (GPMS) is a project aimed at facilitating the management of graduation projects at King Faisal University. It was created to reduce the obstacles that the student may face while working on the graduation project. It aims to improve communication between students and supervisors and clarify requirements from students, which leads to facilitating the work of the team, where one of the most prominent and important goals of the system are to collect and provide the services needed by the student, supervisor, and committee in one platform to facilitate the process of delivery, supervision, and communication. This report discusses the requirements and methodologies that will be used for this system. It also explains the services that the system will provide to raise the efficiency and quality of project management, such as displaying supervisor profile files and the possibility of selecting students and forming a team. It also displays delivery dates and provides a field for submitting project files. In conclusion, this system is expected to enhance the efficiency and effectiveness of managing graduation projects.





08 Health and Fitness Tracker

Fatimah Alawadh - Hajeer Al Nuhayan

Supervisor

Dr. Abdulaziz Albarrak
Dr. Mohammed Abdulrhman

Classification

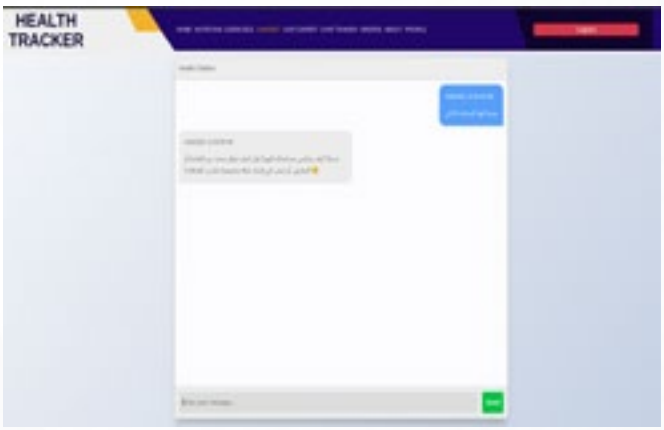
Web Development,
Chatbots, Health Informatics

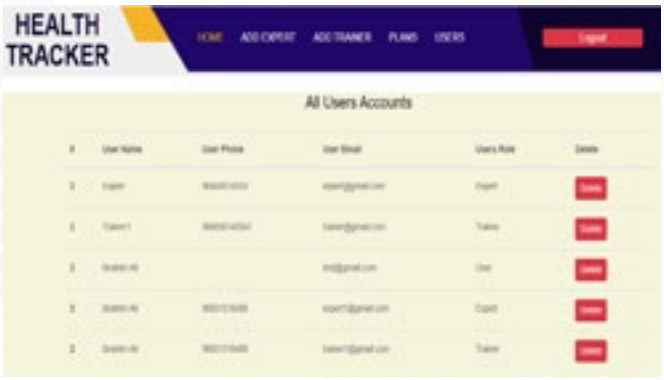
Track

Health and Fitness

Project Overview

Many individuals find it difficult to create and follow fitness and nutrition plans that meet their specific health goals. With so much general information available, knowing what advice to follow can be hard, leading to slow or inconsistent progress. Current apps often offer one-size-fits-all plans, which don't consider individual needs like specific health conditions or personal preferences. This shows the need for a solution that provides personalized, expert guidance to help people stay on track with their health goals. To solve this problem, we plan to develop a website that connects users with certified nutritionists and fitness trainers. This website will offer customized meal plans and workout routines for each person's needs. A key feature will be a chatbot that answers users' questions in real time, providing expert support whenever needed. The goal is to make it easier for users to get personalized advice and steadily progress in their fitness and health journeys.





09

Lost and Found Items Platform

Nourah aldosari - Ibhar Alotaibi

Supervisor

Dr. Razan Alsawileem

Classification

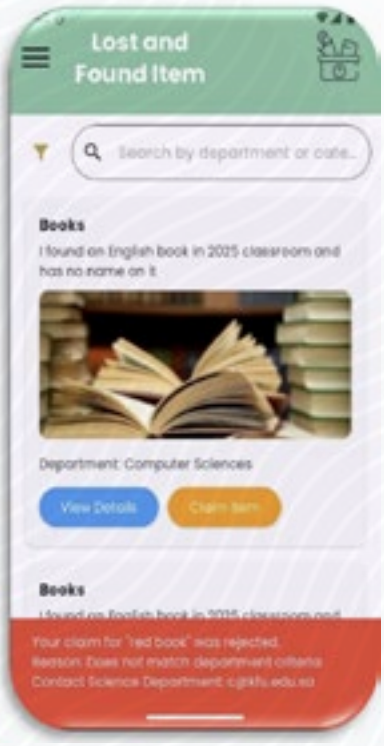
Mobile Application, Workflow Automation

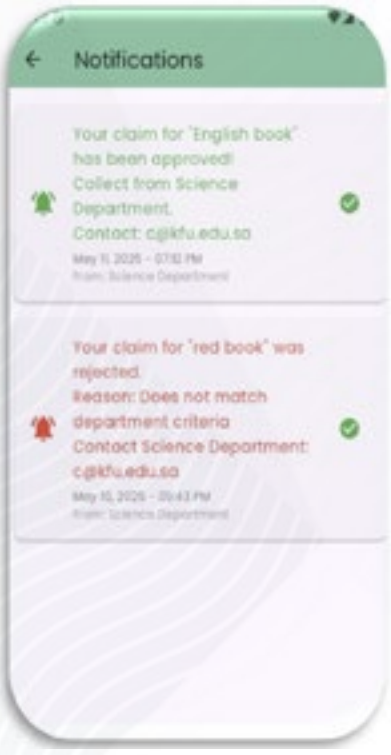
Track

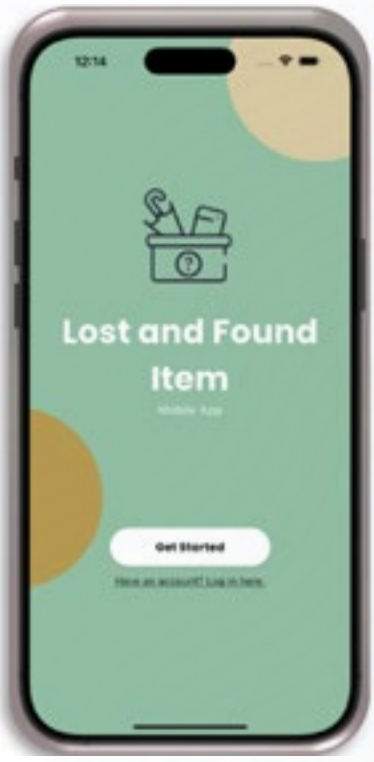
Business Management

Project Overview

The Lost and Found Items Platform focuses on creating an innovative mobile application designed to streamline the process of recovering lost items on university campuses. This platfor m provides a user friendly and efficient system for students, staff, and administrators to report lost or found items, search for them using filters, and claim items with secure verification processes. One of its standout features is the integration of real time notifications, ensuring users stay updated on the status of their claims. The platform also includes advanced filtering options by category and department, enabling users to locate items quickly. Additionally, an intuitive admin dashboard facilitates the management of reports and claims, ensuring a smooth workflow and maintaining accountability. The Lost and Found Items Platform employs a user-centric approach, starting with research to identify user needs, followed by iterative development using Agile methodology to allow for continuous improvements and efficient delivery. This platform exemplifies the potential of technology to address everyday challenges and promote a supportive and connected university environment.







10 Smart Attendance System based on BLE Technology

Nada Alruwaished - Manar Alabdulathim - Fatiamh Alsahood - Najd Almarri

Supervisor

Ms.Maram Almajhad

Classification

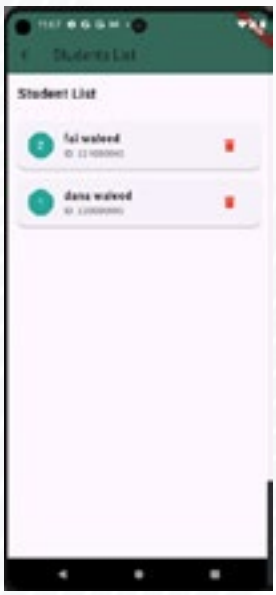
Bluetooth Low Energy (BLE,
Mobile Application,
Workflow Automation

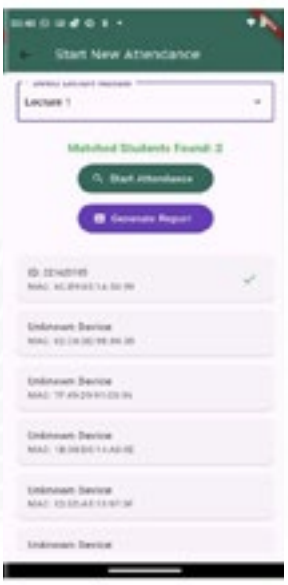
Track

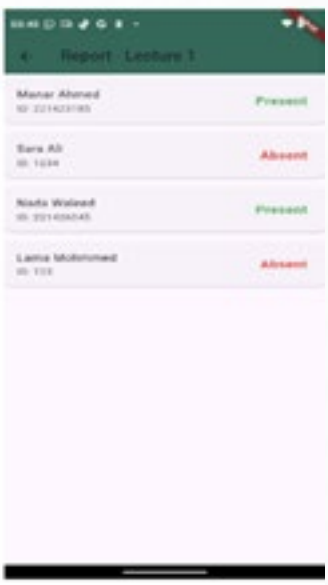
Education

Project Overview

Attendance recording is essential for faculty members to track student attendance and monitor their commitment to lectures. However, many educational institutions, including King Faisal University, face challenges in managing attendance effectively. Faculty members at King Faisal University rely on Banner, an electronic system used to manage academic and administrative processes related to students and faculty members, such as managing class schedules, issuing grades and certificates, and recording attendance. However, recording attendance using Banner can be time-consuming and labor-intensive, especially when dealing with large numbers of students, which can significantly increase the workload and the risk of errors. Our proposed project aims to develop a smart application that enables faculty members to manage attendance easily and accurately using Bluetooth Low Energy (BLE) technology, a low-power wireless communication technology used to detect nearby devices. The application features a one-click attendance recording system, where attendance is automatically recorded once students are physically present in the classroom. When a faculty member clicks the attendance recording button, the application detects the presence of students in the classroom via BLE technology and automatically records their attendance. The proposed system serves as a supportive tool for the Banner system at KFU, facilitating the attendance recording process by generating reports of absent students. This allows faculty members to enter attendance data into Banner efficiently, minimizing time and effort while ensuring a smooth and accurate attendance management experience.







11 Smart Vision Testing Application

Zahra Alhussain - Noor Alali - Maryam Altaweel - Fatema Alhamuod

Supervisor

Prof. Majed Alshamari

Classification

Mobile Application
Health Informatics

Track

Healthcare

Project Overview

Eye health is one of the essential factors that influence the quality of daily life, as vision plays a vital role in our interaction with the world around us. With the increasing use of electronic devices and changing lifestyles, vision problems have become more common across all age groups. Therefore, regular eye examinations are necessary for the early detection of any issues that may affect vision. Believing in the importance of eye examinations, our research aims to develop an innovative application (Smart Vision Test Application) designed to conduct comprehensive eye tests, providing an easy and accessible means for users to assess their eye health. We offer a range of interactive tests that help individuals identify conditions such as myopia and hyperopia, in addition to measuring visual acuity. Through this application, we aspire to raise awareness about the importance of eye examinations and facilitate access to healthcare services.

12 Smart Warehouse Management System

Ashjan Alahmad - Banin Almonasef - Norah Almujayrin

Supervisor

Dr. Abdullah Albuali
Dr. Reem Alenazi

Classification

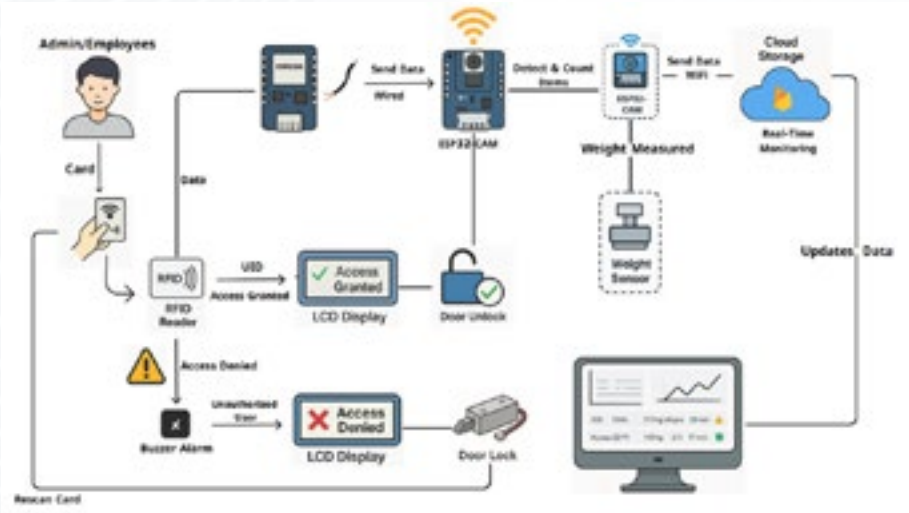
AI, IoT,
Workflow Automation

Track

Business Management

Project Overview

To greatly increase the effectiveness, security, and precision of activities within storage facilities, this project proposes the design and implementation of an intelligent warehouse management system. Dependency on manual procedures, human error, delayed data updates, poor inventory management, and excessive labor expenses are just a few of the drawbacks of traditional warehouse systems. These problems frequently lead to monetary losses, decreased output, and inefficiencies in logistics processes. The suggested system incorporates several state-of-the-art technologies to overcome these obstacles, such as weight sensors for accurate inventory measurement, AI-based smart cameras for object detection and counting, and Radio-Frequency Identification (RFID) for safe authentication and access logging. These devices are linked to a microcontroller unit that gathers, processes, and transmits data in real time to a Firebase cloud platform. High precision and the elimination of inconsistencies during stock transactions are ensured by the synchronization of data between the weight sensors and the item detection system. To assess the system's practical implementation, the technique comprised researching comparable technology solutions, determining their advantages and disadvantages, and creating a prototype. The findings demonstrated that the smart system had a 100% security effectiveness in preventing unwanted access, an average reaction time of 3.2 seconds, and an inventory accuracy rate of over 98.5%. Technology decreases the need for human intervention, minimizes errors, saves operating costs, and facilitates prompt decision-making by automating crucial warehouse activities. With industries rapidly embracing smart and autonomous technology, this project shows a forward-thinking approach to warehouse digitalization and has the potential to transform the way logistics and inventory operations are managed.



13 Sign Language Translation System

Zahra Alhaddaf - Sukainah Alsuhaibi - Moudi AL-khalaf - Zahra Alrajab

Supervisor

Dr. Amira Abdelwahab

Classification

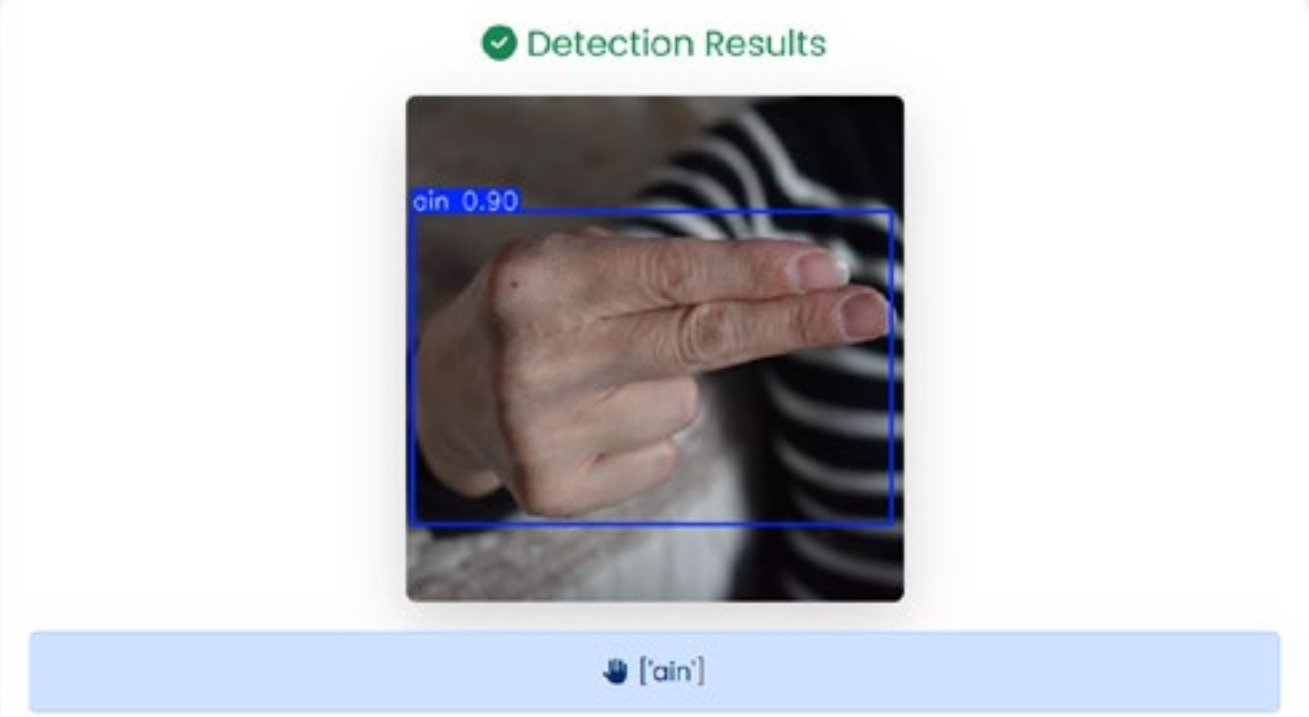
AI, NLP,
Computer Vision

Track

Assistive Technology

Project Overview

We have embraced the inclusive vision of King Faisal University in addressing societal challenges, focusing on bridging communication gaps for the hearing-impaired community. The purpose of this project is to provide assistance and serve as a medium for effective communication between individuals with hearing impairments and others. The Sign Language Translation System utilizes artificial intelligence to translate sign language into natural speech and vice versa. Users can input images, videos, or text for seamless and accurate translations, enhancing mutual understanding. This project specifically aims to empower individuals with hearing impairments, facilitating their participation in social and professional settings. The system provides users with real-time translations, a user-friendly interface, and support for Arabic and English languages. The application emphasizes accessibility and privacy by not requiring user registration. The methodology used is the iterative process model, ensuring adaptability and continuous improvement. This project outlines system analysis, design, and user interface development, with most functions nearing completion. The proposed system aspires to break communication barriers and enrich the quality of life for its users.



14 UniBus Application

Huda Al-turaiki - Mariam Al-omran - Shikah Al-yemni - Ghadeer Al-bati

Supervisor

Dr. Mohammed Alhassan

Classification

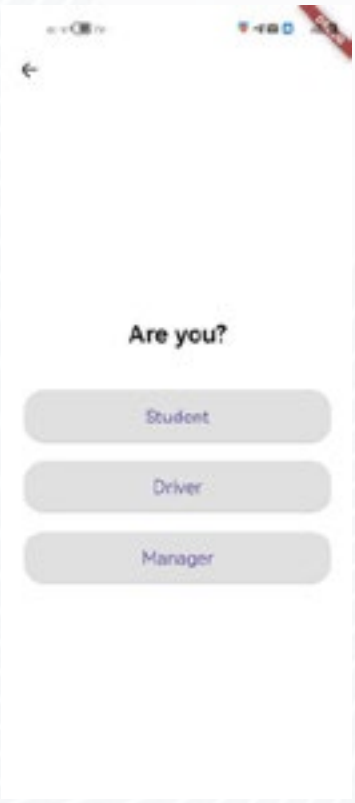
Mobile Application, Workflow Automation

Track

Transportation

Project Overview

Uni Bus Application is proposed to enhance communication between bus drivers and passengers, improving the public transportation experience. While WhatsApp is a popular messaging tool, it lacks features specific to transportation management, leading to information overload and disorganized communication. Additionally, reliance on private cars increases traffic congestion. Our proposed application addresses these issues with features like real-time bus location updates, schedules, and service changes. It also plans to provide a user-friendly interface aiming to increase public transport efficiency. This project seeks to design and plan the application to meet stakeholder needs and promoting sustainable.



15 Attendance Scanner for Students

Abdulmalik Al-Dwairej - Faisal AL-Hussain - Abdulrahman Al-abdullatif

Supervisor

Dr. Tauseef Rana

Classification

Web Application, Workflow Automation

Track

Education

Project Overview

In modern educational environments, efficiently managing classroom attendance is crucial yet often time-consuming and error-prone when done manually.The Smart Attendance Scanner Website is a web-based system that streamlines classroom attendance using QR code scanning and location verification. Designed for speed, accuracy, and ease of use, students can scan a unique QR code with their smartphones to instantly log attendance, which is securely linked to their ID and visible to instructors in real-time dashboards. The system reduces manual workload, minimizes errors, and prevents fraudulent check-ins, while offering mobile compatibility, secure login, and personal dashboards for students. Though not yet integrated with university systems like Banner, the scalable prototype demonstrates strong potential for real-world deployment. This project marks a significant step toward digital transformation in education, combining innovation with practical solutions for more efficient academic management.

16 Aoun

Ahmed Al-Nuaim - Ali Alahmed - Abdulsalam Alsunaid - Abdullah alhumam

Supervisor

Dr. Abdulmohsen Albesher

Classification

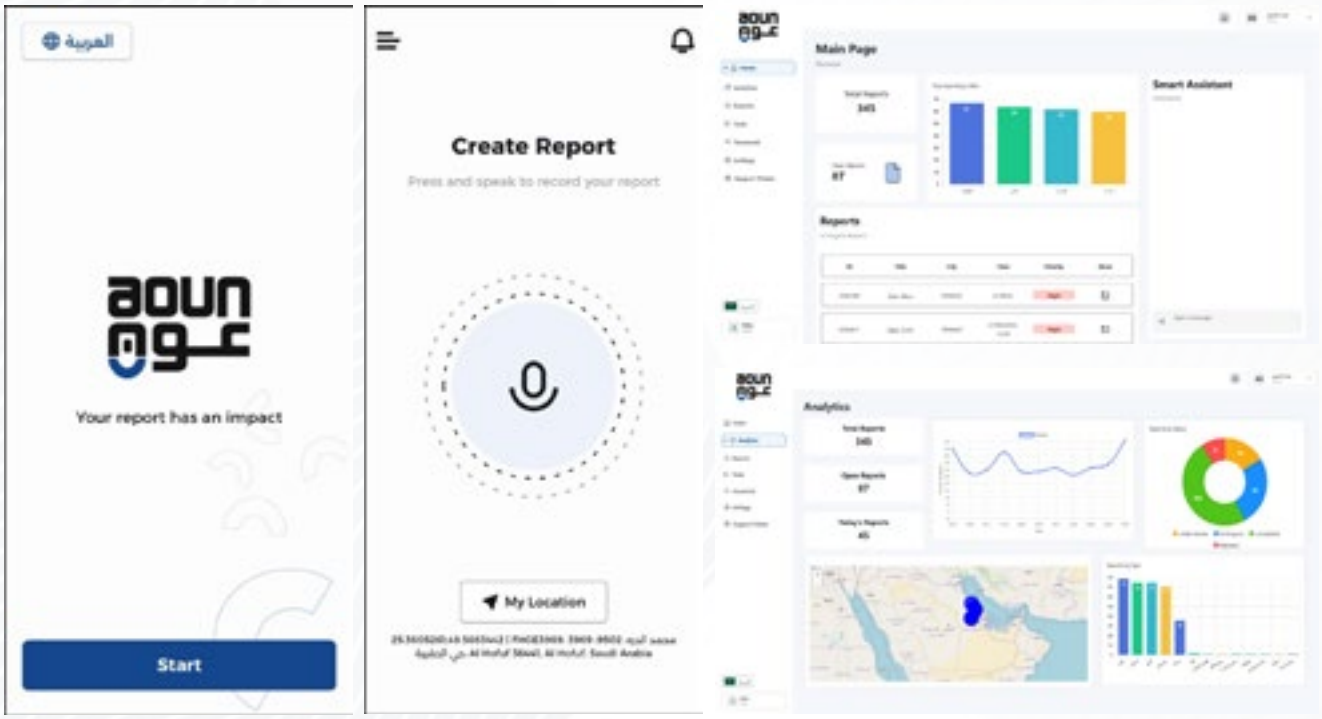
AI, Voice Recognition, Mobile and Web Application

Track

Safety

Project Overview

Aoun is a comprehensive solution designed to streamline the process of reporting incidents, ranging from emergencies to non-emergency situations in the Kingdom of Saudi Arabia. Current reporting systems rely on traditional methods such as phone calls, which often result in inefficiencies, delays, and miscommunication. Our proposed system uses artificial intelligence (AI) and voice recognition technologies to automate the classification, analysis, and routing of reports to the appropriate authorities, thereby enhancing response time and reducing manual intervention. The project includes a mobile application for citizens to submit their reports and a web-based application for administrative departments to receive, manage, and respond to them in real time. By integrating multiple departments such as police, medical services, and local municipalities into a single platform, the system ensures efficient coordination and timely responses. The inclusion of AI-powered classification and automatic routing makes the system both user-friendly and efficient. This project supports the goals of Saudi Arabia's Vision 2030, particularly the National Transformation Program (NTP), in modernizing public services and improving emergency response efficiency.



17 Car Spare Parts Application (CSPA)

Mohammed Al Marhoon - Mohammed Alhassan - Abdulmohsen Alhassan - Sadeq Alhadaf

Supervisor

Dr. Ahmed Alyahya

Classification

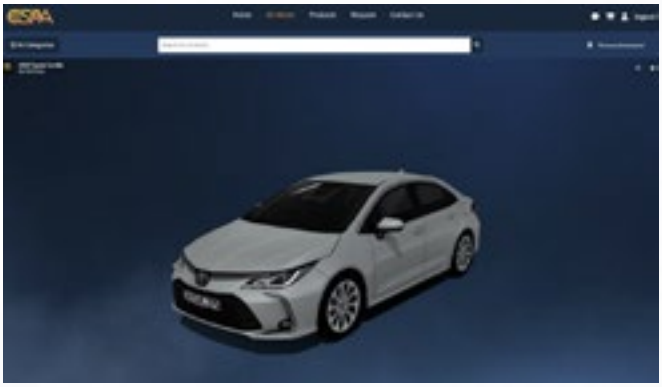
AI, 3D Modeling, Web Application

Track

Automotive Services

Project Overview

The car spare parts application is developed to solve common problems and challenges that car owners may face when searching for high-quality spare parts at an affordable price. The system provides a web-based platform that connects the user with authorized distributors and agents, ensuring reliability and quality. Features such as 3D vehicle model service, AI-powered similarity identification, and reverse auction capabilities enhance and facilitate the user experience, saving time and costs. In addition, the application will provide the steps for installing spare parts through the interactive AI feature, which enhances the user's comfort and knowledge. This application enables the user to maintain their vehicles with confidence and ease by providing an effective and easy-to-use interface. The reason for choosing a web-based platform is due to its scalability, ease of access, and compatibility with the advanced features required for a distinctive and comprehensive car spare parts system that meets the needs of users.



18 Construction Machinery Rental Web-Based System

Hassan Aldoughan - Ahmed Al-Hajji - Hussain Albannay

Supervisor

Prof. Majed Alshamari

Classification

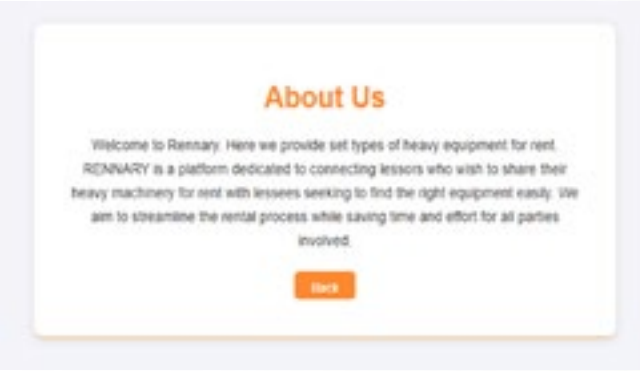
Web Application, Workflow Automation

Track

Business Management

Project Overview

The web-based rental platform of the construction machinery will solve problems that face businesses and people while trying to acquire heavy construction equipment. This would bring ease in machine rentals, price comparison, and delivery scheduling by customers through a friendly digital marketplace. This technology simplifies the rental process, increases the efficiency of resources, and contributes to the goals of economic sustainability envisioned by Saudi Vision 2030 through the organization of various equipment providers into one effort. Among several key features that can help make the construction industry a lot greener and more efficient are safe transactions, planning rentals, and delivery by third-party providers.



19 CoopConnect

Mohammed Alzarah - Nawaf Alahamed - Nawaf Alhmydw - Alhassan Alfehaid

Supervisor

Dr. Abdulmohsen Albesher

Classification

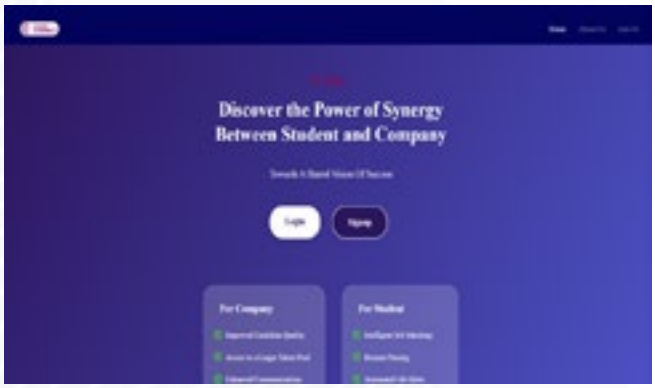
Web and Mobile Application

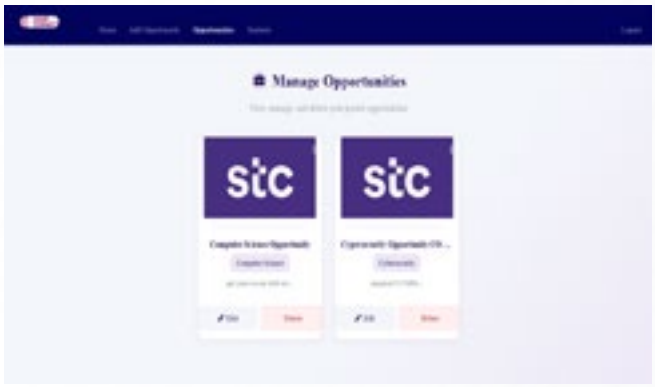
Track

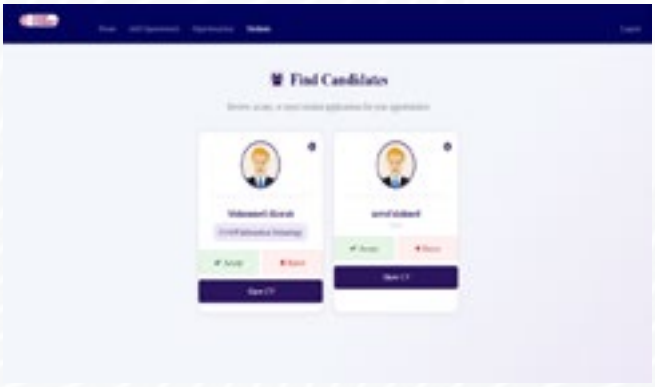
Education,
Business Management

Project Overview

CoopConnect is the essential platform for students seeking co-op training opportunities. By connecting students with employers, CoopConnect simplifies the search for valuable training experiences and enhances their educational journey. This web and mobile application allows users to explore co-op listings, apply for positions, and receive personalized AI-driven recommendations to improve their resumes and skills. With features like real-time job alerts and access to relevant training certifications, CoopConnect empowers students to make informed decisions and streamline their transition into the workforce.







20 Tourist Guide System (Tour & Tourism)

Mahdi Al-Majed - Mohammed Al-Abdulmohsin - Meshal Al-Zayyat - Nassir Abu Soroor

Supervisor

Dr. Sajid Iqbal

Classification

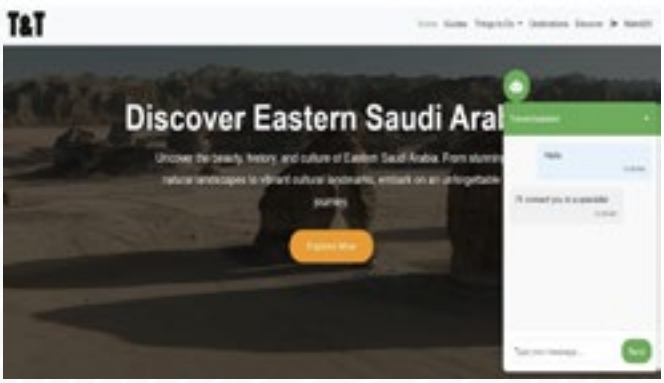
Web and Mobile Application, Chatbots

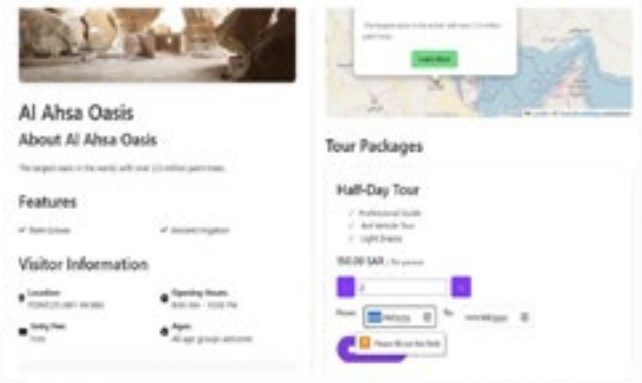
Track

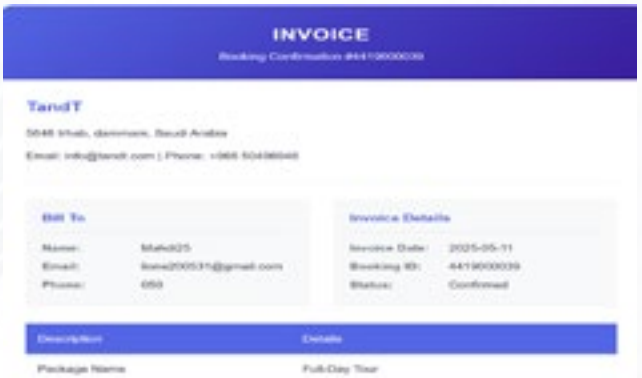
Tourism, Entertainment

Project Overview

The Tourist guide (Tour & tourism) system it is designed to enhance the tourist experience in Saudi Arabia by providing a comprehensive guide to the nation's attractions and improving navigation and promoting Saudi culture. This project are aligned with Saudi Arabia's Vision 2030 which seeks to diversify the economy away from oil dependence by fostering the tourism sector. The system addresses most challenges in the tourism industry, including language barriers and insufficient tourist guides and inadequate transportation options. Through advanced technologies such as AI-powered assistance and the Tourist Guide System helps tourists efficiently navigate cities and access events and interact with cultural landmarks. This initiative not only enriches the tourist experience but also boosts economic growth and creates job opportunities also promotes Saudi culture globally. For the system features that include personalized travel recommendations and event notifications and multilingual support and secure payment integration. By improving the overall tourist experience the Tour & Tourist system positions Saudi Arabia as a prime global travel destination.







21 Munqith

Mohammed Alabdullah - Abdelmohsen Albanyan - Mohammed Albagshi - Abdullah Aljadidi

Supervisor

Dr. Fahad Al-Humaidan

Classification

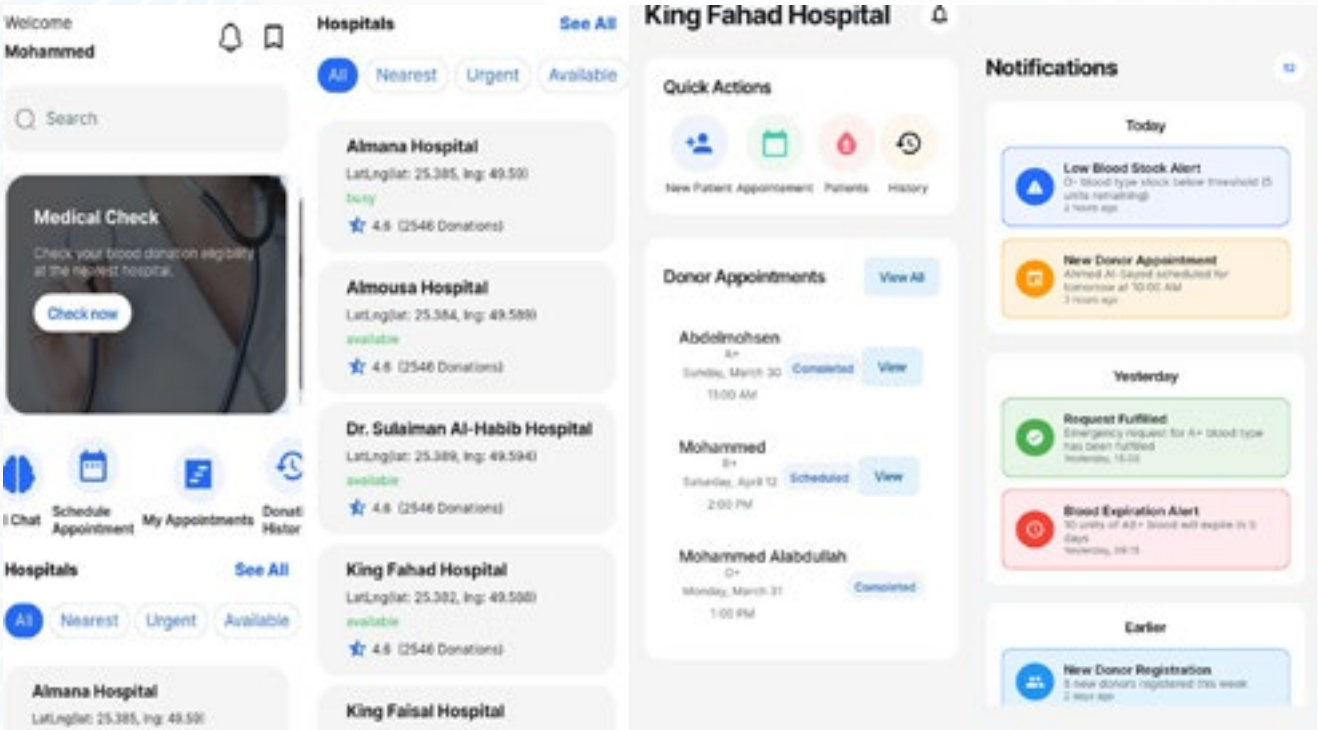
Web and Mobile Application, Health Informatics

Track

Healthcare

Project Overview

This project aims to develop a comprehensive blood donation system designed to facilitate direct connections between individuals willing to donate blood and those in urgent need. The system enables users to register as either donors or recipients, offering features such as real-time matching based on location, blood type, and urgency of need. By integrating advanced technologies like GPS tracking, push notifications, and real-time data analysis, the system ensures that blood donations are made available quickly and efficiently, particularly in emergency situations where time is critical. In addition to simplifying the donation process, the system reduces reliance on intermediaries, thus minimizing delays and ensuring that suitable donors are connected to recipients with minimal administrative overhead. The platform will also incorporate measures such as encrypted communication and verified user profiles to maintain the privacy and safety of users. The primary goal is to create a user-friendly and intuitive interface that improves the availability, accessibility, and reliability of blood donations. By leveraging modern technology, this system aims to make life-saving blood donations more efficient, ultimately saving lives by ensuring timely access to critical blood supplies.



STUDENT GRADUATION

PROJECTS

Department of

CN

NETWORKS AND COMMUNICATIONS

01 Automated Rodent Control System

Saad Almoosa - Abdullah Albarrak

Supervisor

Mr. Mohammed Alghowanem

Classification

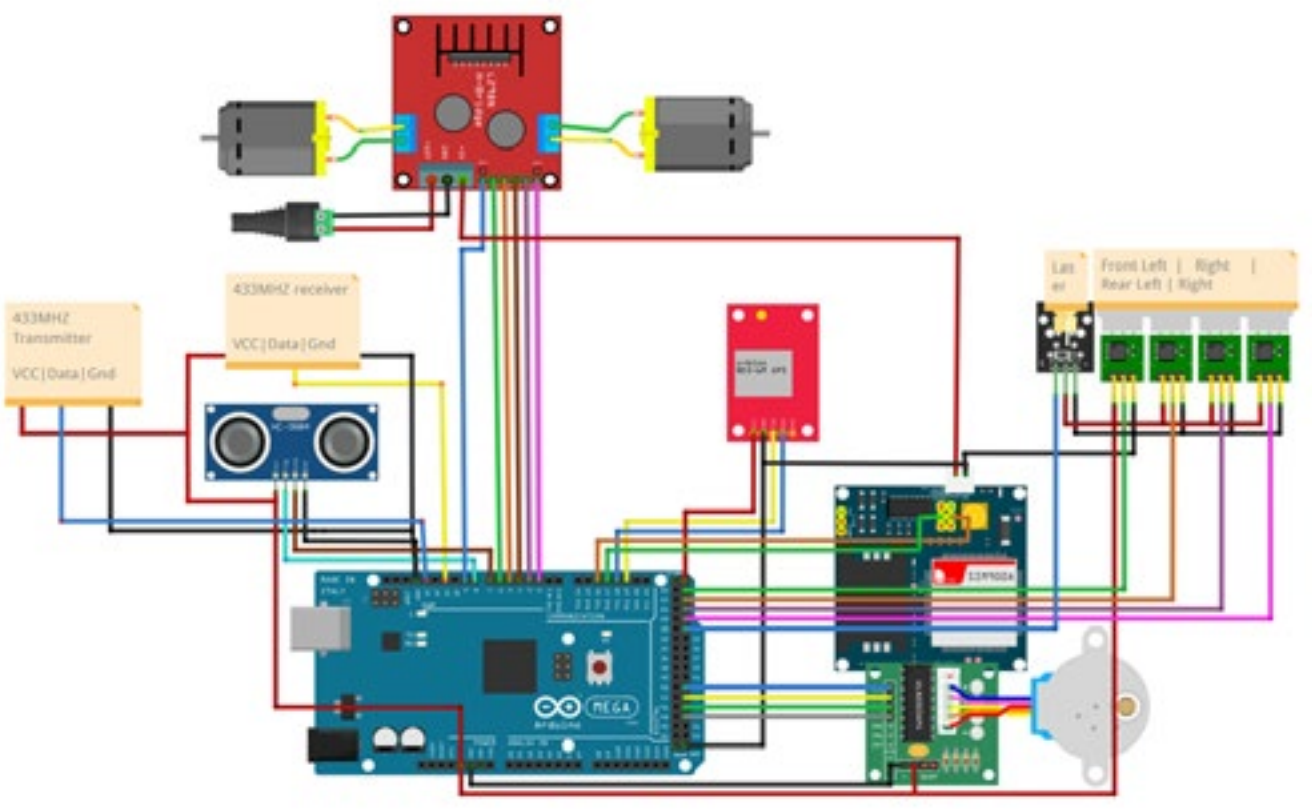
Robotics, Remote Control Systems

Track

Agriculture and Farming

Project Overview

This project demonstrates the design and development of an automated rodent control system that will help farmers in controlling rodent infestations in their fields or farms. The system includes a remote-controlled vehicle with sensors to detect and eliminate rodents using a turret gun mounted in the car. the available solutions for small to medium-sized farms that they can afford are not environmentally friendly and it can target non-targeted animals, our project aims to provide them an eco-friendly and affordable so the farmers reduce the consumption of chemical poison that can harm the wildlife. Our project aims to provide a reliable, easy to use system that focus on sustainable approaches for rodents management.



02 Wireless Robotic Hand

Abdulaziz Aljuairy Aldawsari - Osama Alrashidi

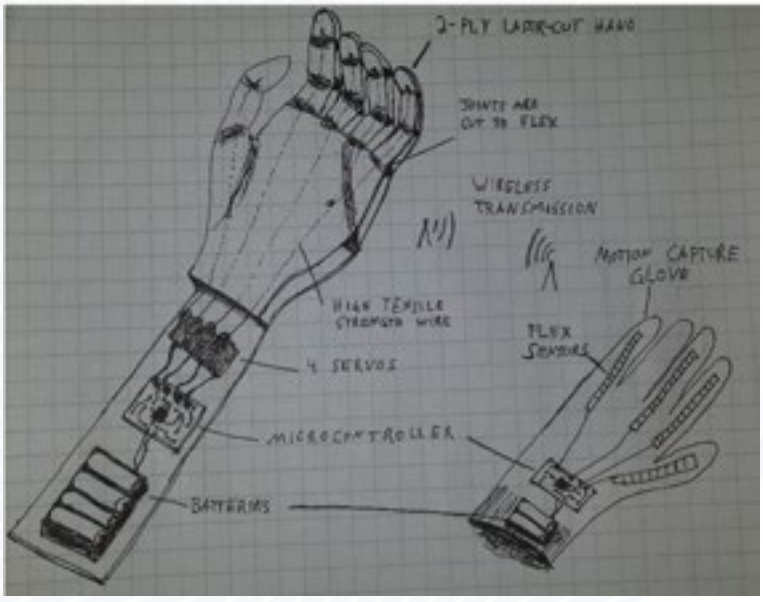
Supervisor
Dr.Mohammed Alnuaim

Classification
Robotics, AI, ML

Track
Assistive Technology

Project Overview

In order to improve human-robot interaction and offer novel solutions in domains like rehabilitation, assistive technology, and remote manipulation, this project investigates the creation of a wireless robotic hand. The robotic hand achieves real-time control and feedback through the use of wireless communication protocols and advanced sensor technology. Users can mimic natural hand movements by controlling the hand with ease thanks to the integration of the hardware used in the project. The design features a lightweight, modular structure equipped with actuators that enable a range of motions, allowing for versatile applications. As part of our approach, we use machine learning algorithms to increase responsiveness and gesture recognition. We evaluate the hand's functionality in a range of settings through comprehensive testing, emphasizing accuracy, dependability, and user comfort.
The project's goal is to improve robotic dexterity while also making a positive impact on the expanding field of industrial robotics, which will eventually lead to more simple and cost effective robotic solutions in daily life.



03 Blind Assist: Smart Mobility and Navigation Device

Ahmed Hashim Alajlani - Abdullah Almubarak

Supervisor

Dr.Mohammed Al Zahrani

Classification

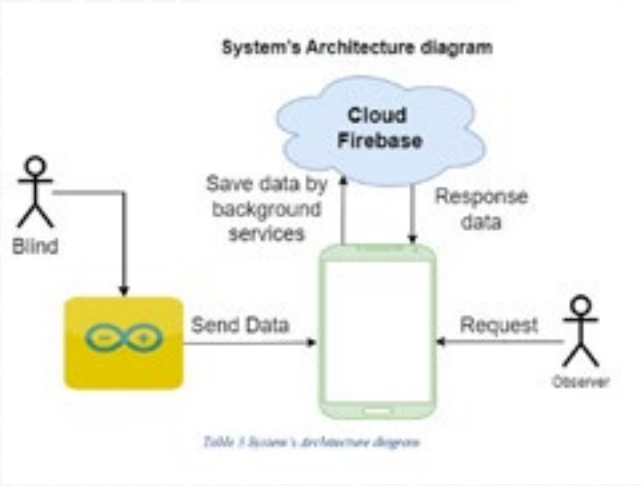
IoT, Wearable Technology

Track

Assistive Technology

Project Overview

The Blind Assist: Smart Mobility and Navigation Device for the Visually Impaired is designed to help those who have visual impairments lead a more independent life by navigating them through real-time situations and object detection. Ultrasonic sensors, GPS technology, and voice feedback allow users to safely navigate through their surroundings. The ultrasonic sensors either vibrate or play an audio clip to let the wearer know they have come across something but being navigated by GPS when outdoors using the system, based on their location. Lightweight and easy to use, the device is wearable or portable and offers a simple solution for people with lower mobility due to vision impairment problems. This work will benefit individuals who are blind by promoting their independence and confidence in their everyday movements.



04 School Kids Tracking System

Ahmed Aleid - Raed Aljuwaiber

Supervisor

Dr.Munam Ali Shah
Dr. Abdullah Albuali

Classification

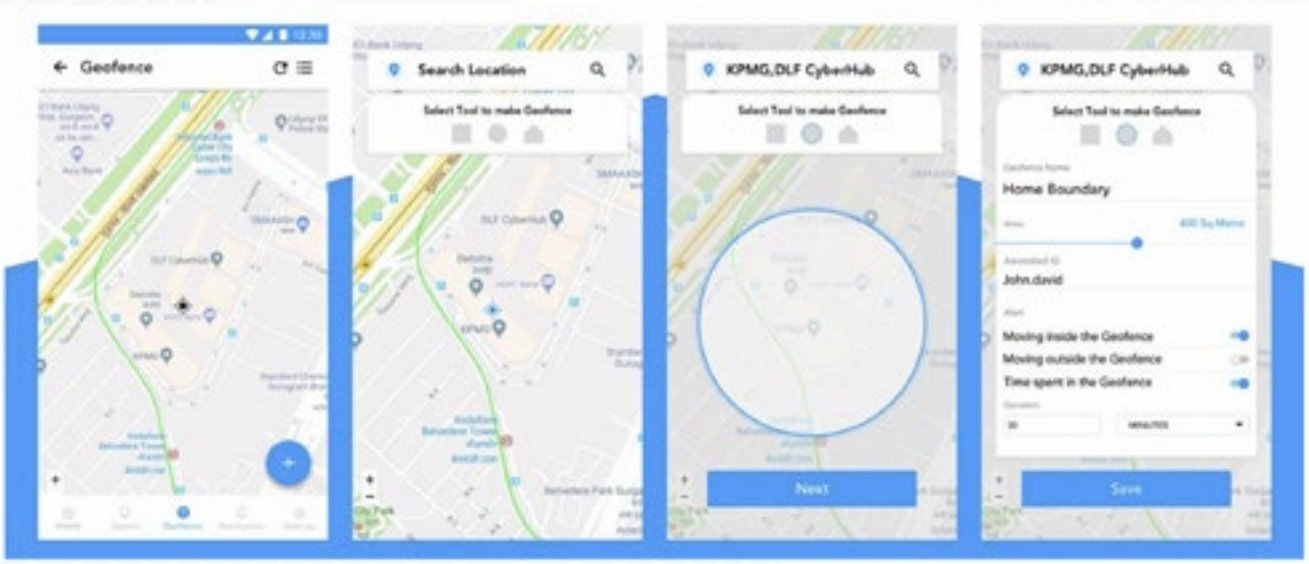
IoT, Wearable Technology, Tracking System

Track

Child Safety

Project Overview

This project aims to enhance the safety and security of school kids during transportation by developing a School Kids Tracking System. With growing concerns over child abduction and other transit-related dangers, traditional tracking methods have proven insufficient. To address these risks, the system integrates GPS technology, IoT sensors, and mobile applications to provide real-time location tracking. School kids will wear GPS-enabled devices, transmitting their location to a server accessible by parents via a mobile web app. The app offers real-time alerts and notifications when children leave school, arrive home, or deviate from planned routes. This system seeks to alleviate parental concerns and improve child safety during commutes through an innovative, user-friendly solution.



05 Smart Water Pollution Detection System based on Internet of Things

Tamim Alshehri - Saad Alquaymi

Supervisor

Prof. Mounir Frikha

Classification

IoT, Wi-Fi, Cloud Computing

Track

Water Quality

Project Overview

Water pollution is a pressing global issue that poses significant threats to human health and the environment. Traditional water quality monitoring methods often involve manual sampling and laboratory analysis, which can be time-consuming, labor-intensive, and prone to errors. To address these limitations, this project proposes a smart water pollution detection system utilizing Internet of Things (IoT) technology, an ESP32 Wi-Fi module, and an Arduino microcontroller. The proposed system integrates various sensors to measure key water quality parameters such as pH, temperature, and turbidity levels. These sensor readings are then transmitted to a cloud-based platform via an ESP32 Wi-Fi module, enabling real-time monitoring and analysis of water quality data. The Arduino microcontroller serves as the central processing unit, handling sensor data acquisition, processing, and communication with the cloud platform. The proposed system offers several advantages over traditional methods. It enables real-time water quality monitoring, providing timely insights into pollution events.

06

Water Leakage Detection

Amnah Abdulaziz - Hawra Alabdullah - Dhay alorik

Supervisor

Mr. Mohammed Al-Ghwanem

Classification

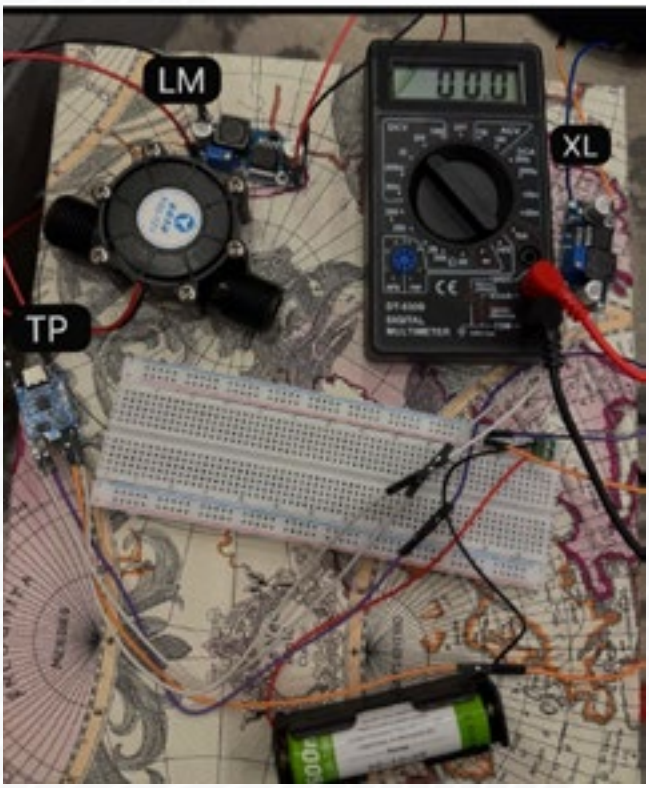
IoT, Sustainable Technology

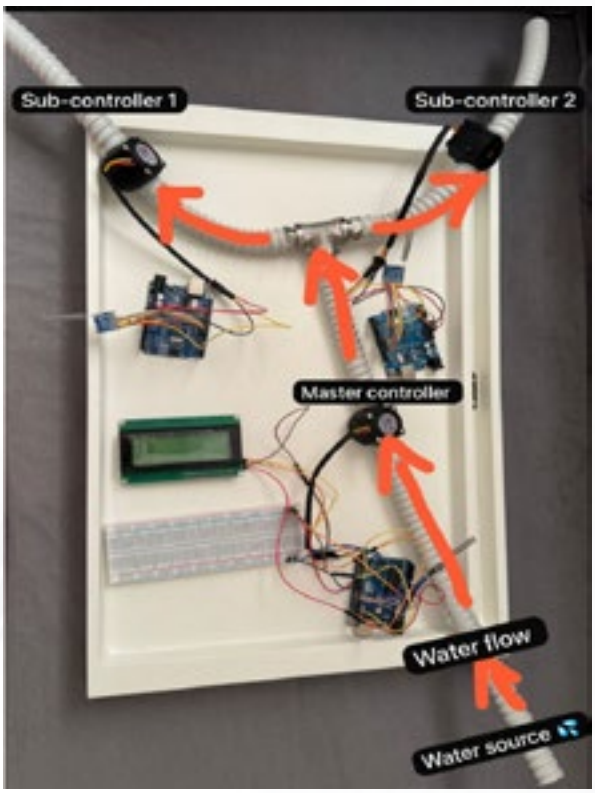
Track

Infrastructure Management, Sustainability

Project Overview

The Water Leak Detection System aims to develop an innovative solution for identifying water leaks within infrastructure. This project consists of three controllers distributed along the main pipelines, with each controller connected to one sensor, totaling Ttree sensors to effectively monitor leaks. The system features a main controller connected to a display screen, which can be programmed using Arduino. This screen will provide precise information about the location of any detected leaks, allowing for quick and efficient responses. Additionally, a turbine will be installed inside the pipes to detect water flow and generate energy from the movement of the water. This energy can be utilized to power the system, promoting sustainability and reducing reliance on external power sources. Key benefits of this project include early leak detection, which helps prevent larger issues and property damage, as well as efficient resource management. Overall, this project aims to combine innovation and modern technology to address a common issue related to water leaks.





07 Email Security for Electronic Gamers: Identifying Phishing Attacks

Maryam Al Sarhan - Fatima Alsalman

Supervisor

Dr. Fatima aljaafari

Classification

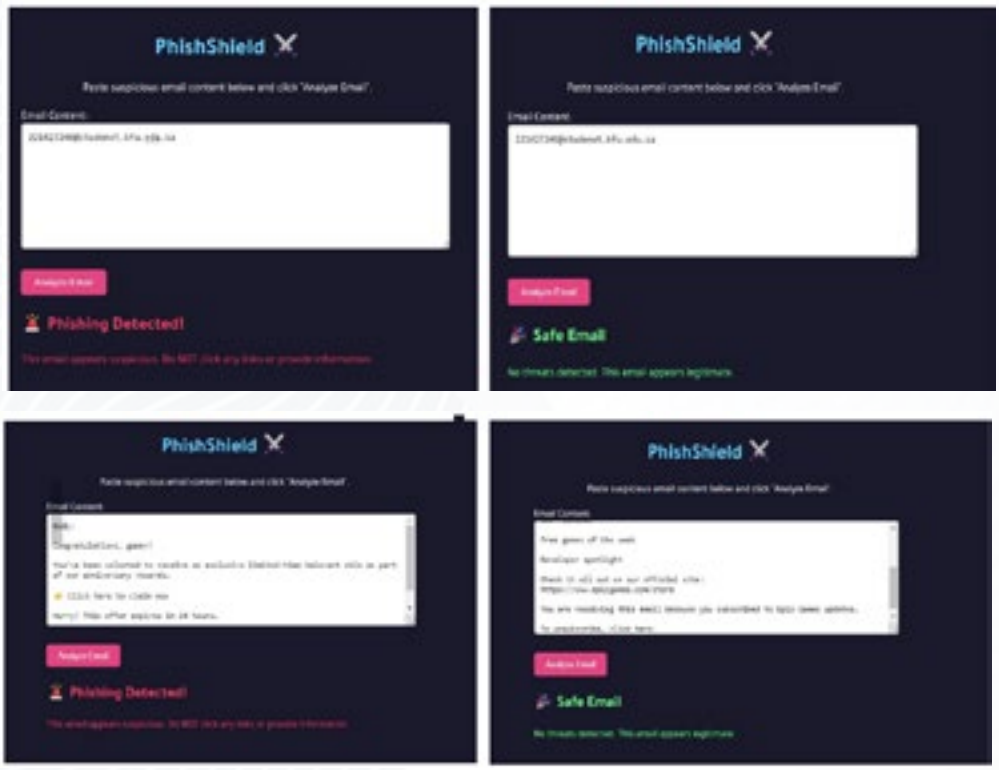
AI, NLP, Cybersecurity

Track

Gaming and Entertainment

Project Overview

As the gaming industry expands globally, gamers increasingly find themselves the target of sophisticated cyber threats, particularly through email phishing. These attacks exploit the high volume of communication between gamers and gaming platforms, aiming to gain access to personal information, gaming accounts, and financial assets. While phishing is a well-known threat, existing email security solutions fail to address the unique needs of gamer, leaving them vulnerable to targeted scams and identity theft. This project addresses the rising threat of email phishing attacks targeting electronic gamer, a demographic increasingly vulnerable to cyber threats due to their frequent online interactions. As gamer receive numerous communications from various platforms, distinguishing legitimate emails from phishing attempts has become a significant challenge. This study proposes the development of a specialized web-based platform designed to enhance email security for gamer by utilizing advanced detection methodologies, including machine learning algorithms that analyze email content, sender domains, and embedded links.



08 Intelligent URL Safety Assessment (IUSA)

Reema Almallah - Dalal Alzuabi

Supervisor

Dr. Hafizur Rahman
Ms. Fatimah Alsulmi

Classification

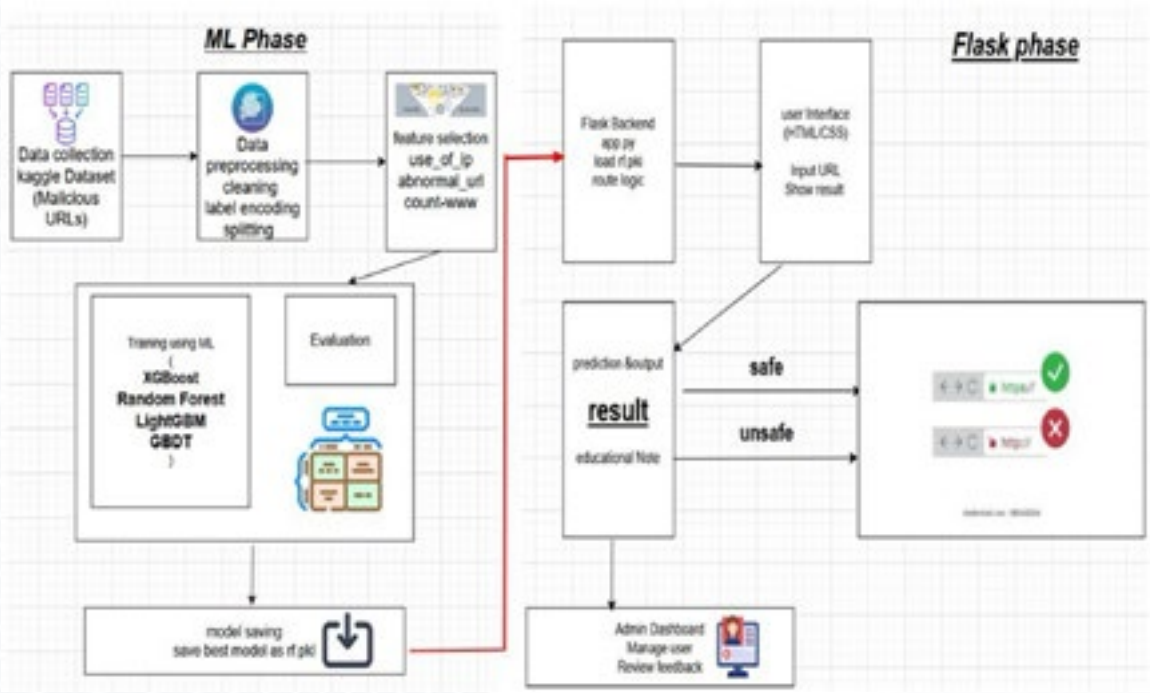
AI, Cybersecurity, Data Science

Track

Internet Security

Project Overview

The rapid growth of cyber threats, particularly through malicious URLs, necessitates advanced solutions to protect users and organizations from phishing, malware, and data breaches. The Intelligent URL Safety Assessment (IUSA) project aims to develop an innovative system that integrates heuristic analysis with machine learning techniques for real-time detection of suspicious links. By leveraging a dataset like Malicious URLs Dataset, the system evaluates URL attributes such as structure, length, and embedded keywords to classify links as safe or harmful. The project emphasizes usability through a web-based interface, built using Flask, ensuring accessibility for users with varying technical expertise. Key features include real-time URL analysis, intuitive feedback mechanisms, and an educational component to raise cybersecurity awareness. A comprehensive methodology underpins the project, covering data acquisition, model development, system integration, and scalability planning. To ensure systematic execution, the project adopts a structured work plan, guiding each phase from conceptualization to system analysis. Tools such as drwo.io, and Google Colab Notebook enhance collaboration and technical implementation. The outcome is a scalable and adaptable system designed to address evolving cyber threats while promoting proactive online safety.



09 Optimized Path Selection in Wireless Mesh Networks Using DSR Algorithm with NFV and SDN Integration

Atheer Alkulaib - Manar Alsalman

Supervisor

Ms. Rubeena Fatimah,
Ms. Hoyda Ahmed

Classification

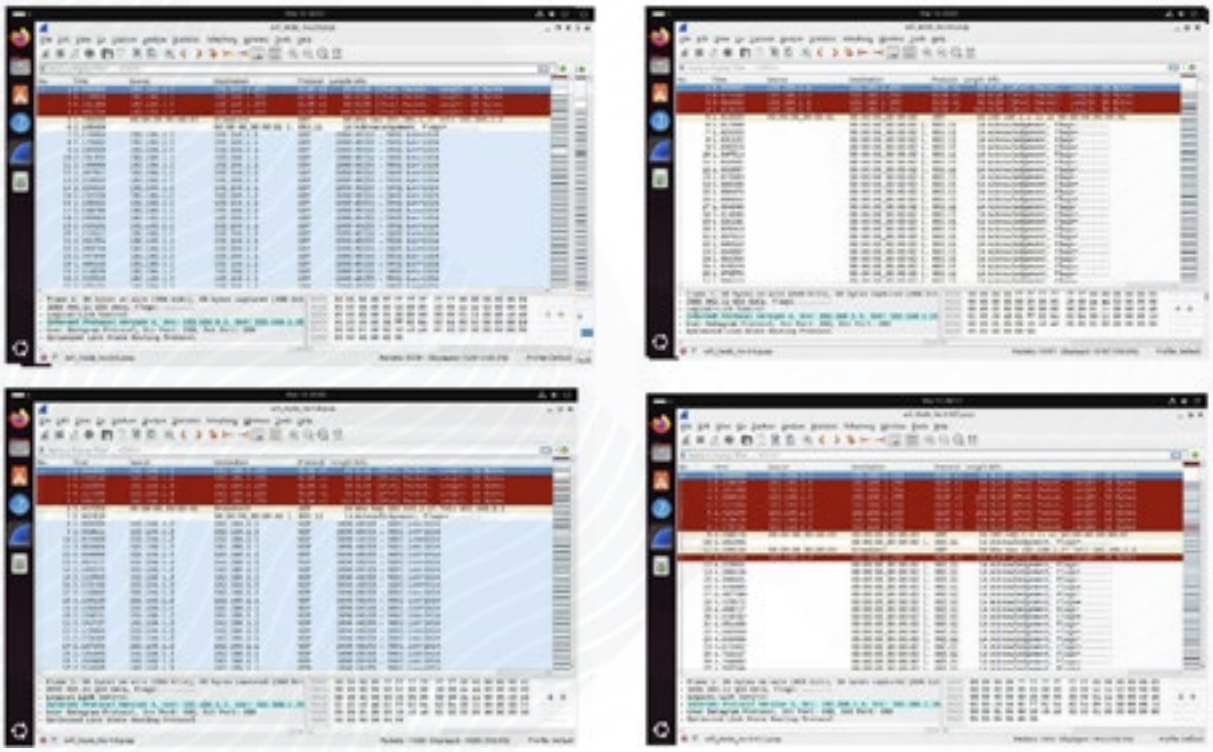
Adaptive Networking,
Network Optimization

Track

Smart Cities

Project Overview

In wireless mesh networks (WMNs), optimizing path selection for data transmission across multiple hops is critical due to dynamic changes in network topology. This project explores the integration of Dynamic Source Routing (DSR), Software-Defined Networking (SDN), and Network Functions Virtualization (NFV) to achieve more efficient path selection. DSR is a reactive routing protocol, dynamically discovering routes as needed. By integrating SDN, the project enables centralized control of network paths, allowing real-time adjustments based on current network conditions. NFV further enhances this framework by virtualizing network functions, which enables flexible management of resources and fast deployment of services. Through simulations and empirical evaluations, the combination of DSR, SDN, and NFV demonstrates significant improvements in routing efficiency, packet delivery, and overall network reliability. The proposed framework is particularly effective in dynamic and high-interference environments, providing a resilient solution for data transmission. This research contributes to the advancement of adaptive networking technologies and offers valuable insights for applications in smart cities, IoT, and other complex network environments.



10 Wildlife and Environmental Monitoring System (WEMS)

Maliha Albassam - Jawaher Alanzi

Supervisor

Dr. Tayseer Al-khdour

Classification

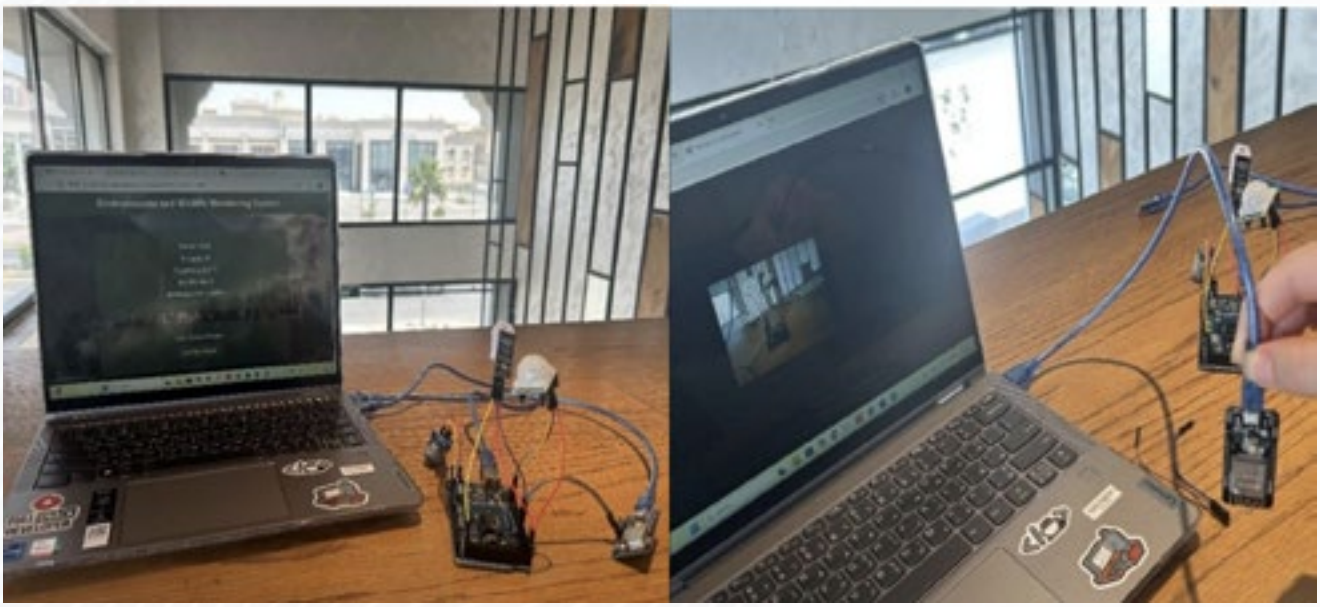
Arduino, Wireless Sensors, Data Analysis, Live Video Streaming

Track

Air Quality, Environmental Monitoring, Wildlife Monitoring

Project Overview

Environmental challenges require effective real-time monitoring to prevent long-term damage. Current systems for monitoring environmental conditions and wildlife behavior are often expensive, inflexible, and fail to provide real-time alert. To fix these issues, this project proposes a real-time environmental monitoring system using IoT and wireless sensor networks. The system aims to use sensors and a camera to analyze data and send alerts. A web-based interface will display this data as a live video stream and show immediate notification alerts on the website if dangerous is found. The system's web-based interface enables users to monitor environmental factors and respond quickly to potential risks. The proposed solution is designed to be cost-effective, flexibility, fast analysis, and accessible, ensuring that real-time data is available. The results show that by combining these functions, the system will help improve the environment and reduce dangers.



11 Voice/Eye Recognition Smart Wheelchair

Zubaidah Almomatin - Dalal Almansour

Supervisor

Dr. Mohammad Alzahrani

Classification

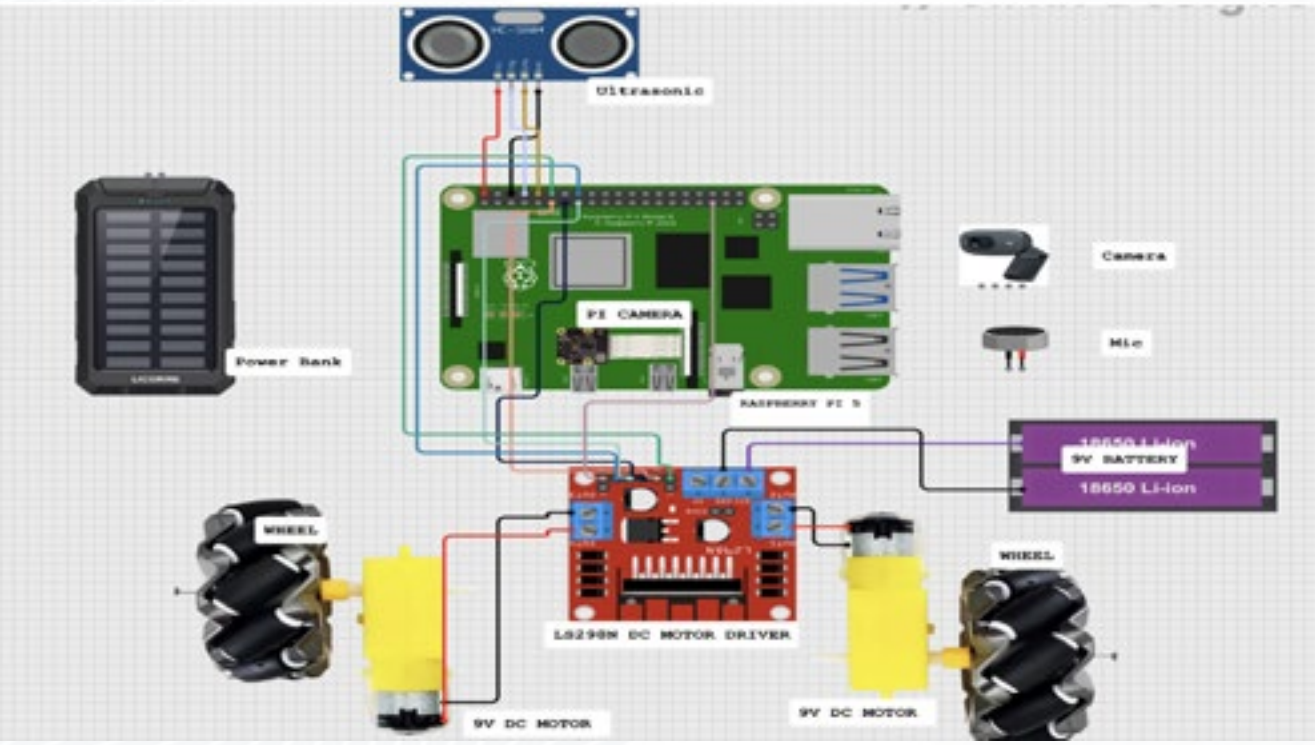
Robotics, Voice Recognition, Eye-Tracking, Human-Computer Interaction (HCI)

Track

Assistive Technology, Healthcare, Elderly Care

Project Overview

The Smart Wheelchair is a mechanically controlled device designed for self-mobility based on user commands. It significantly reduces the physical effort required compared to traditional wheelchairs, making it easier for individuals with visual or physical impairments to navigate their movements. Equipped with voice and eye recognition sensors, it helps disabled people in directing their movement. Recently, there has been a surge of interest in smart wheelchairs, particularly for transportation purposes, and they are especially beneficial in nursing homes for elderly individuals facing mobility challenges. This innovation is a lifesaver for those who have lost their ability to move independently. While various models of smart wheelchairs have been developed over the years, the latest versions minimize the need for user input. Disabled people will have very simple actions to make in order to control the smart wheelchair. This project aims to create an intelligent wheelchair that will assist users in their movement, enhancing their independence and mobility.



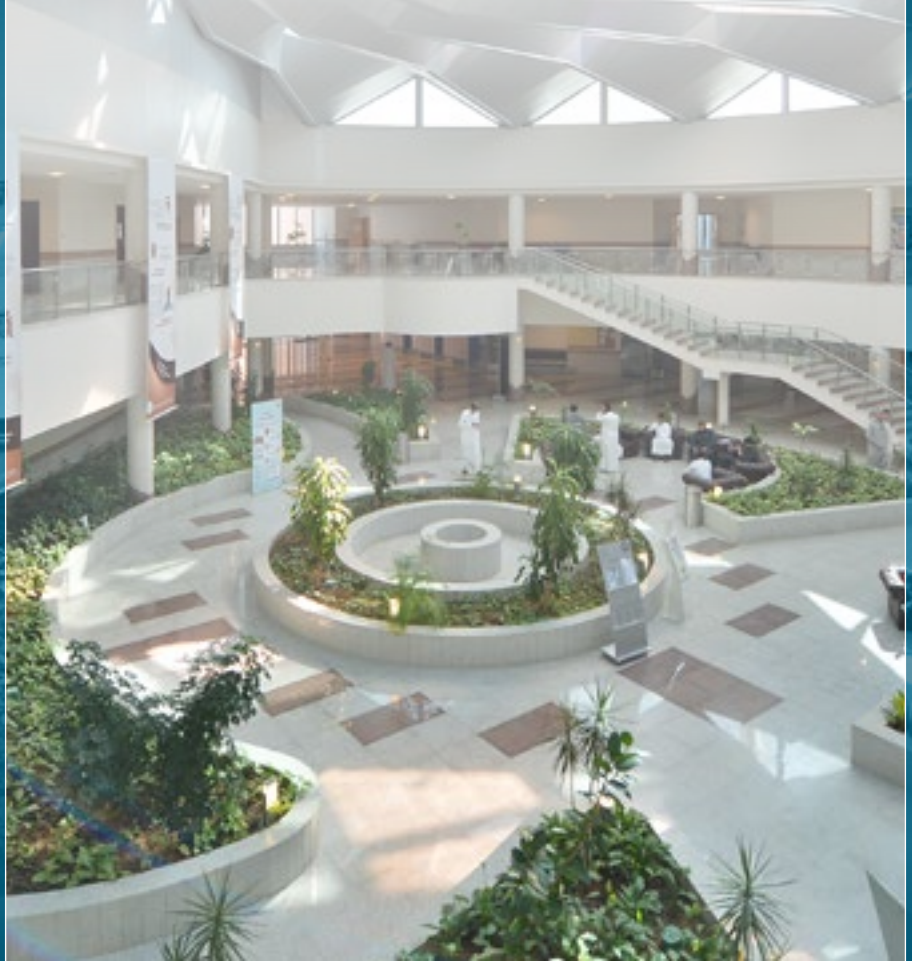
STUDENT GRADUATION

PROJECTS

Department of

CE

COMPUTER ENGINEERING



01 Advanced Search and Rescue Vehicle for Desert Environment

Hussain Al-Smhan - Abdullelah Al-Hussein - Adam Al-Momaten - Saud Al-Hathlool

Supervisor

Dr.Ali Saeed Alzahrani
Mr. Mohammed Al-Ghawanem

Classification

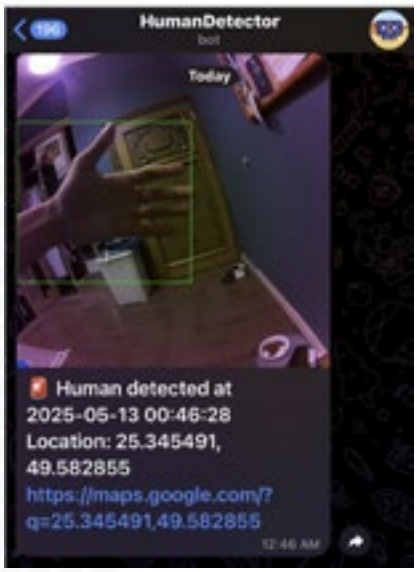
AI , Robotics, IoT, Computer Vision

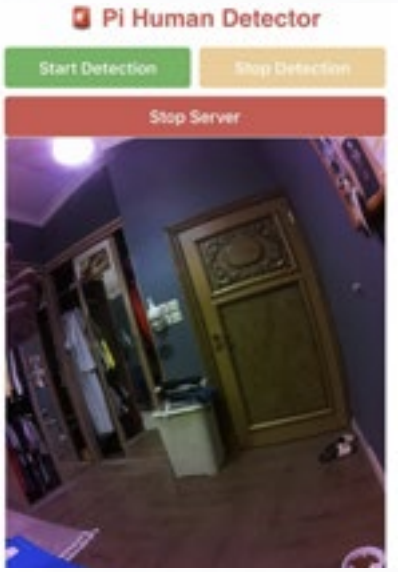
Track

Search and Rescue, Emergency Response

Project Overview

This project presents the design, development, and deployment of an advanced autonomous vehicle system tailored for search and rescue missions in desert environments regions known for their extreme heat, unpredictable terrain, and lack of infrastructure. Traditional search methods in such conditions often face substantial limitations, including delayed rArduino Unoonse times and restricted access, which can lead to life-threatening consequences for missing individuals. To overcome these limitations, this project introduces a 4-wheel-drive (4WD) autonomous ground vehicle equipped with a combination of embedded systems, artificial intelligence, and real-time communication modules. At the hardware level, the vehicle integrates a Raspberry Pi 5 and an ARDUINO UNO microcontroller to handle computation, communication, and peripheral control. For visual recognition, the system uses an IMX219-160IR wide-angle camera connected to the Raspberry Pi, enabling real-time image capture. The captured frames are analyzed on device using the YOLOv8 object detection model, trained specifically to recognize human figures in desert conditions, while ultrasonic sensors mounted on a servo-controlled platform offer dynamic obstacle detection and avoidance. To enable user interaction, a custom-designed web-based interface was developed using modern web technologies (HTML), offering live image previews, and future capabilities for remote vehicle control. Communication between the vehicle and the operator's system is established through a USB Port from the Arduino and the Pi.





02 Smart Integrated Helmet Detection System

Salman Albu Shaqraa - Mohammed Al Balam - Hussain Almzydi - Abdullah AlYousef

Supervisor

Dr.Ali Saeed Alzahrani
Mr. Mohammed Al-Ghawanem

Classification

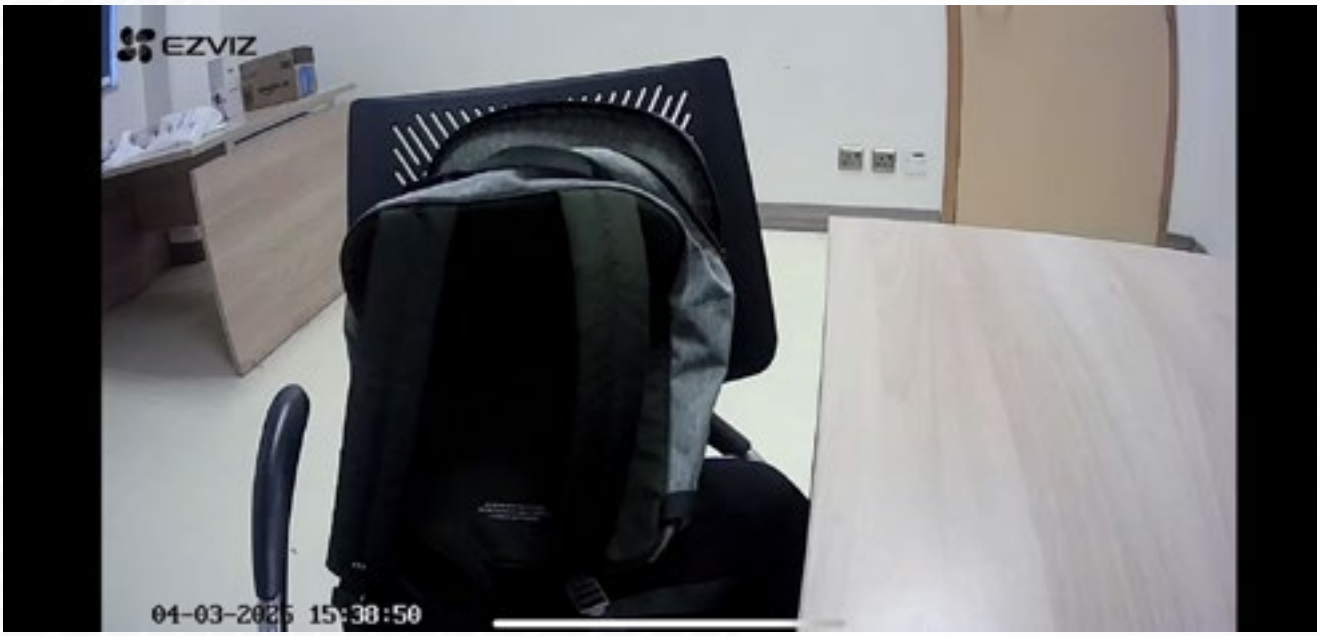
IoT, Industry 4.0

Track

Industrial Safety
Oil & Gas Industry

Project Overview

To ensure their safety, workers in the petrochemical, oil, and gas industries must wear helmets. Smart helmets can enhance industry yield and quality by measuring CO_2 levels, temperature, and humidity; incorporating GPS trackers and cameras; and enabling remote monitoring of workers. The objective of this project is to develop smart helmets that enhance productivity, accuracy, and sustainability in industry management. These helmets will support Industry 4.0 and Vision 2030 initiatives while reducing expenses and improving decision-making. The adoption of smart helmets will have a profound impact on factory project management by allowing managers to oversee multiple projects across various locations, thereby saving time and resources. This aligns with Saudi Arabia's advancements in areas such as manufacturing and industrial innovation.



03 Exercise Monitoring and Evaluating System

Abdulaziz Alabdulkarim - Saleh Boshalf

Supervisor

Dr. Faisal Bashir

Classification

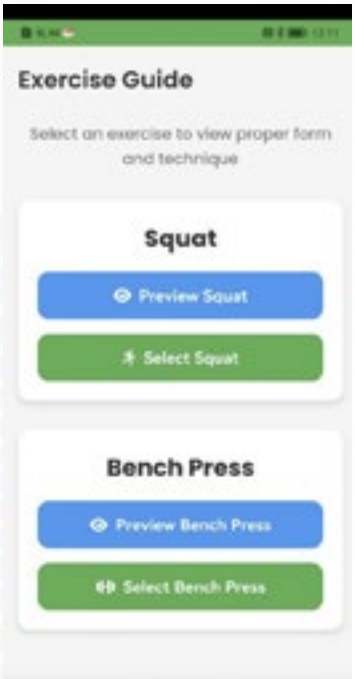
AI, Wearable Technology

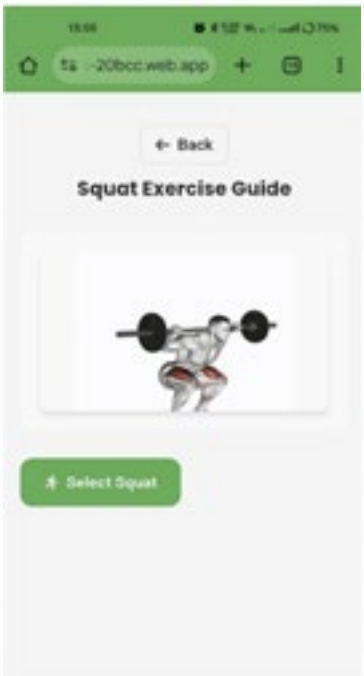
Track

Health & Fitness

Project Overview

As everyone around the world focuses on health and fitness, technology now plays an important role in boosting both our results and the experience we have when working out. This project presents the Exercise Monitoring and Evaluating System, a wearable solution designed to improve the quality, precision, and enjoyment of weightlifting exercises. The efforts of the system support the aims of the Saudi Quality of Life Program by providing new training methods to individuals and teams. Essentially, the device relies on the 3D accelerometer and gyroscope embedded in the Arduino Nano 33 BLE Sense Rev2 to provide instant information about movements while exercising on the X, Y and Z axes. The data is analyzed by a neural network model from Edge Impulse on the microcontroller, allowing the device to evaluate exercises well and count every single movement. Feedback about the progress is shown instantly on a simple interface. The system keeps the training safe and effective by comparing each person's movement to professional standards. Because it fits comfortably and is very reliable at low latency, the system works both for personal workouts and professional athletic events. Guided by passion and new ideas, the project hopes to improve both exercise tracking and education at King Faisal University and among other groups.





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