FINAL YEAR PROJECTS 2024

Department of Software Engineering

Mehran University of Engineering & Technology

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Chairman
Department of
Software Engineering

Designed By

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MESSAGE FROM THE DEAN

It is matter of great pleasure to address on the occasion of publication of Final Year Project (FYP) Catalogue by Software Engineering Department. This catalogue showcases the state-of-the-art projects in the field of Software Engineering addressing the problems currently faced by our society.

Software Engineering field is growing at an exponential rate and touched the lives of millions of people around the globe. It is to be proudly mentioned that the department of Software Engineering is contributing significantly towards the growth and development of software at the graduate level, with focus on research, and innovation. The success of the department lies in the aspiration of student, the hard work of outstanding faculty members and unwavering support of the leadership. It gives me immense pleasure and satisfaction to see to that the students of 18 SW batch have made such wonderful and innovative projects which can greatly contribute towards the betterment of society of the society.

MESSAGE FROM THE CHAIRMAN

In the current era there is growing need for talented Software Engineers across the globe. Software Engineering has deeply penetrated in almost every apvplication ranging from inance and banking to healthcare and national security. Our department's vision is to produce professionals who have a mastery of principals, theory, practices and processes necessary to produce quality Software systems.

Department of Software Engineering prepares its students to proficiently apply their engineering and interpersonal skills to design develop, deploy and maintain software applications. The department also aspires to develop a capacity for innovation, research and a passion for lifelong learning is its graduates. The final year students (19 SW) of Software Engineering Department have applied tremendous efforts to build valuable final year projects catering solutions to diverse problems areas ranging from healthcare to business and commerce. I would like to express my gratitude to all faculty memebers for their valuable suggestions and supervison to the final year students.

The Cold War Chronicles: FPS Game

Abstract

The Cold War Chronicles: FPS Game project aims to deliver an immersive and engaging gaming experience developed within the Unity Game Engine environment. This project represents the culmination of our academic journey, combining advanced game design principles, cutting-edge technology, and creative storytelling to create a captivating virtual world.

In this FPS game, players will step into the shoes of a skilled operative thrust into a high-stakes, action-packed narrative. The game will offer a meticulously crafted game world filled with meticulously designed environments, enemy AI, and a wide array of weapons to enhance the player's gaming experience.

Key features of the project include realistic physics, responsive controls, and interactive elements, all of which contribute to a seamless and dynamic gameplay experience. The project will also incorporate multiplayer capabilities, allowing players to team up or compete against one another in a variety of game modes.

By the end of this project, we aim to not only demonstrate our proficiency in game development but also provide gamers with an exciting and unforgettable experience, pushing the boundaries of what is achievable in the realm of FPS games within Unity Game Engine.

System Description:

Title: The Cold War Chronicles: FPS Game

Objective: Create an immersive FPS game using Unity Game Engine.

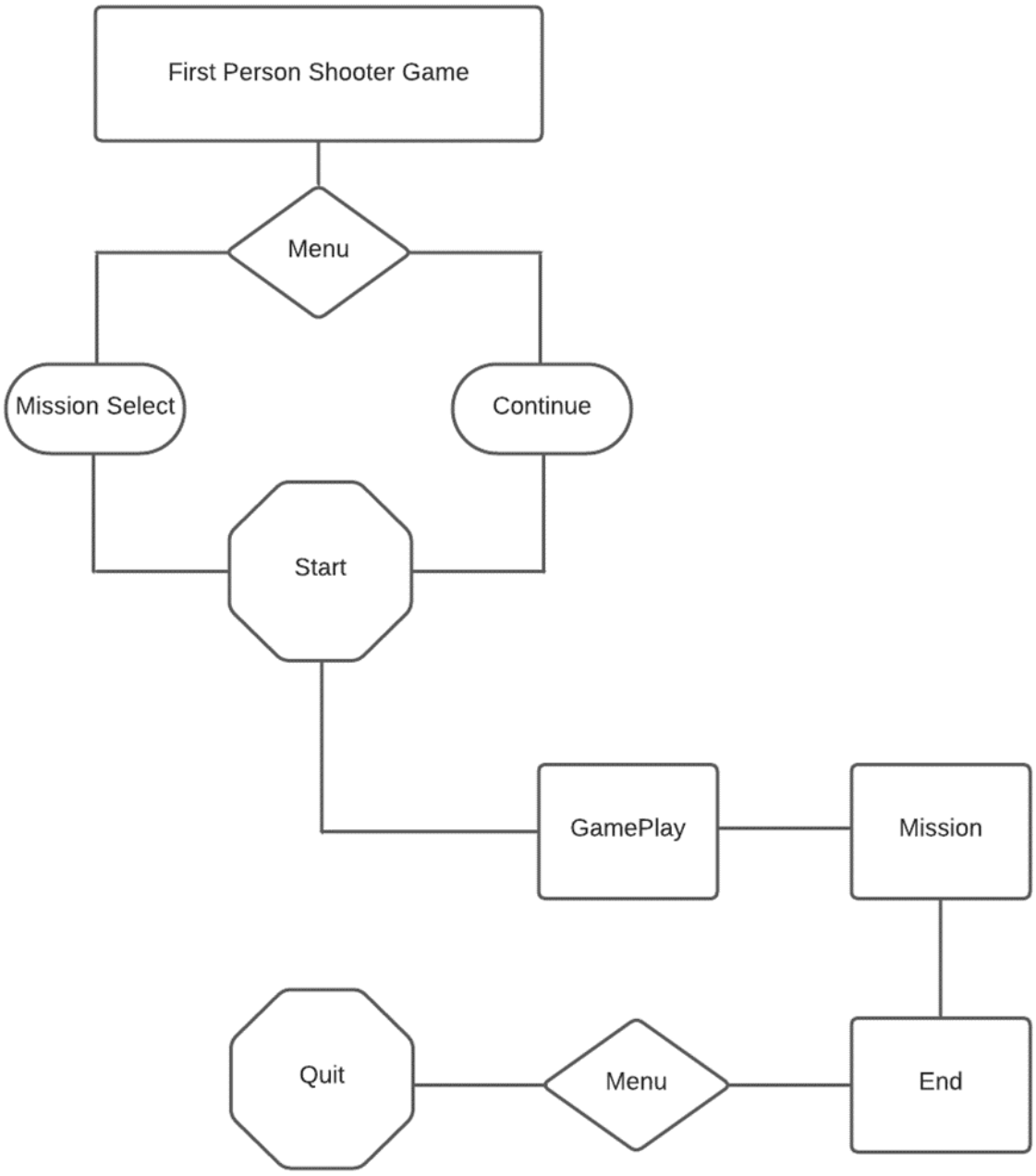
Gameplay: Players assume the role of an operative in diverse environments, engaging in narrative-driven scenarios.

Features: Realistic physics, responsive controls, multiplayer support, interactive elements, and a variety of weapons.

Technical Foundation: Built on Unity Game Engine for advanced graphics, physics, and AI capabilities.

Distribution: Prepared for distribution on platforms like PC, with potential publishing opt

System Workflow Diagram



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IntelliFarm – Farm Supervision & Productivity Analysis Platform

Abstract

As we know that agriculture is the backbone of the Pakistan's economy. The majority of the population of Pakistan is directly or indirectly dependent on this sector, it contributes significantly to the country's Gross Domestic Product (GDP). However, it is plagued by inefficiencies in management and lack of coordination between landlords and farmers. In addition to this, vast tracts of lands owned by landlords are often poorly managed, unable to reach their full potential yield.

The solution to all of these problems lies in our app "*IntelliFarm*" which is a comprehensive, unified, tailored and adaptable farm management system developed using flutter framework, designed to streamline the complexities of farm management which helps to stimulate communication, organization, efficiency and centralization in farmland management.

It offers a wide range of features that benefit landlords, tenants, and related stakeholders. Key functionalities include tenant management, expense tracking, financial report generation, and seamless communication. The system also facilitates farmer screening/verification and event tracking via an integrated calendar.

The main purpose of our application is to reduce the complexity of managing farmlands and utilizing historical data to make informed decisions thereby maximizing productivity of farms.

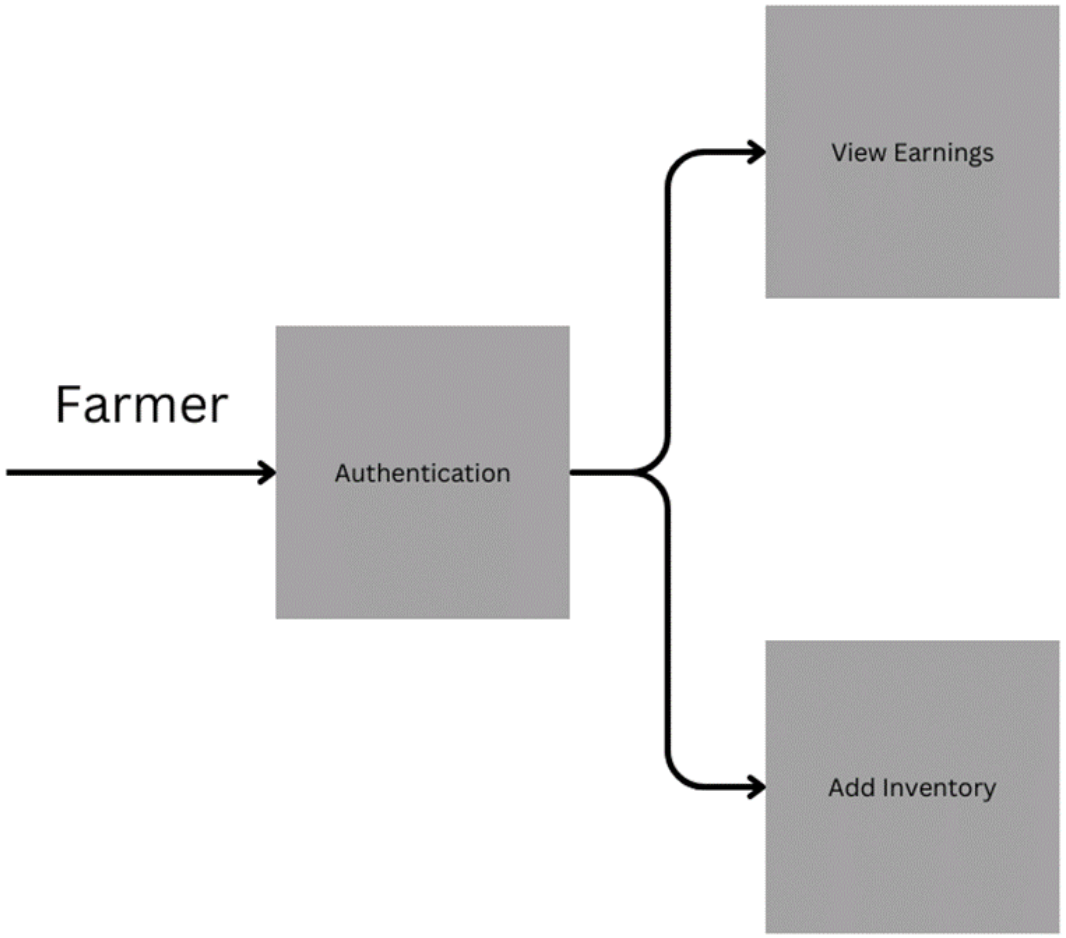
Sustainable Development Goals

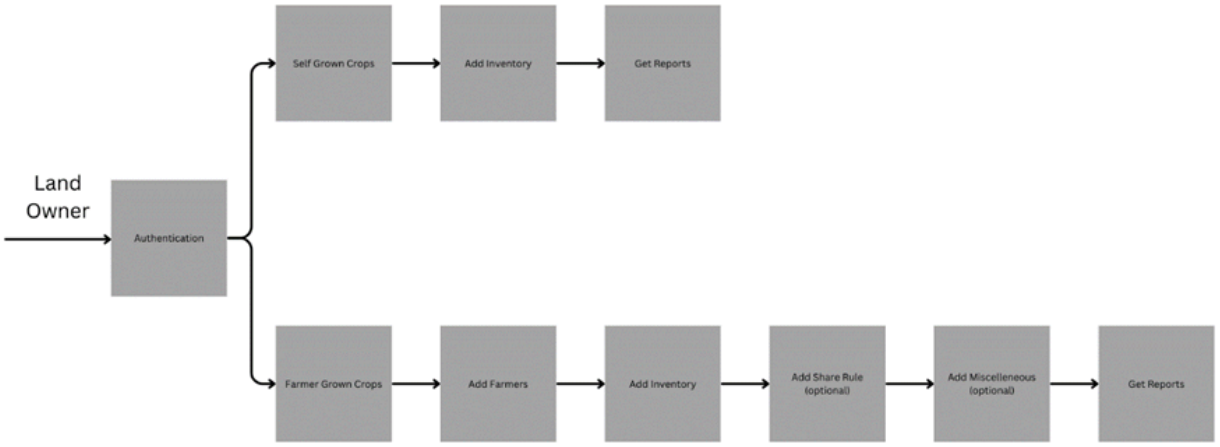
Our application targets the following sustainable development goals which are described below:

- **SDG 8**: **Decent Work and Economic Growth:** One of the main goals of IntellifFarm is to maximize the productivity of agricultural farmland which will in turn undoubtedly result in overall economic growth.
- **SDG 9**: **Industry, Innovation, and Infrastructure**: IntelliFarm embodies innovation and leverages mobile technology, enhancing infrastructure and promoting innovation in farmland management.

- **SDG 15**: **Life on Land**: For agricultural leases, IntelliFarm helps manage farmland sustainably and promotes responsible land use practices.
- **SDG 12**: **Responsible Consumption and Production**: The system encourages responsible consumption of resources by optimizing farm management, reducing maintenance waste, and improving efficiency in agriculture.

System Workflow Diagram





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RUNNERS ACOLYTE - ELEVATING YOUR RUNNING EXPERIENCE

Abstract

Running has evolved into a widely embraced activity for promoting physical fitness and overall well-being. This phenomenon has given rise to the use of Running Tracker mobile applications, catering to diverse users, including Health Enthusiasts, Marathoners, and individuals preparing for roles in Police, Military, and Paramilitary forces. Despite the popularity of these applications, challenges persist in effective run tracking, goal setting, and maintaining motivation, leading to inconsistent running patterns and an increased prevalence of cardiovascular diseases, even among young adults.

In response to these challenges, the proposed project, Runners Acolyte, stands as an innovative running tracker Android application that transcends conventional functionalities. It aims to create a holistic environment for runners by introducing Unique Value Propositions (UVPs) such as a Coach A.I bot for personalized guidance, connectivity with wearable devices (smartwatches) to monitor advanced health metrics (Heart rate, Blood Pressure, SPO2), music integration with earphones, strong reminders, pace detection, and the incorporation of intermittent fasting guidance, and a practice gaining popularity.

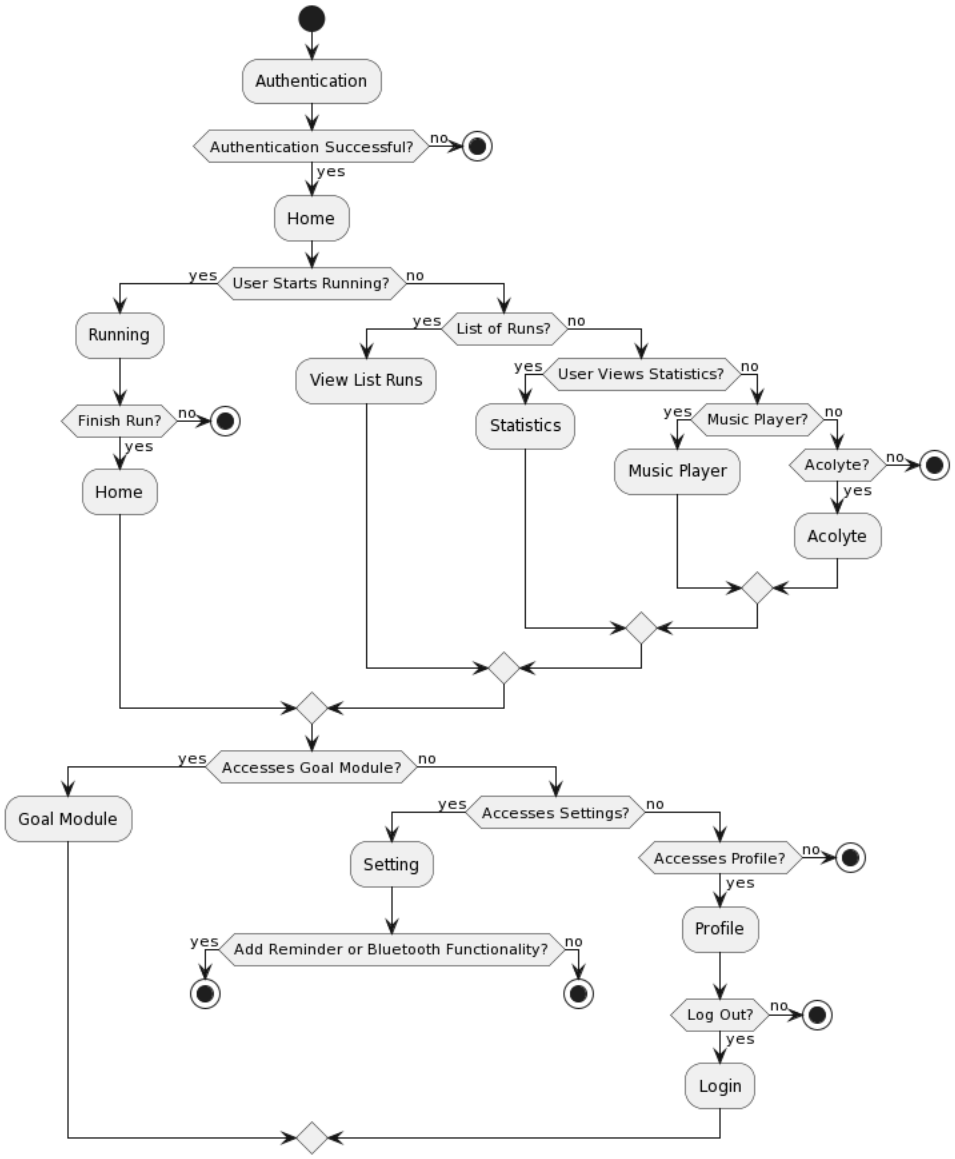
The development of Runners Acolyte follows a systematic approach, encompassing Machine Learning, Native Android Development using Kotlin with efficient hardware accessibility, Data Analysis, MongoDB Database, and Server-side processing through Node JS for comprehensive data management.

Sustainable Development Goals

1. **SDG 3: Good Health and Well-being**
    - Runners Acolyte focuses on promoting physical fitness and well-being by encouraging regular running and providing features like health monitoring through wearable devices, intermittent fasting guidance, and a Coach A.I bot for personalized guidance. The application contributes to the overall health and well-being of users, potentially reducing the risk of cardiovascular diseases and promoting a healthier lifestyle.

2. **SDG 9: Industry, Innovation, and Infrastructure**
    - The project incorporates advanced technologies such as Machine Learning, native Android development, and integration with wearable devices, representing innovation in the health and fitness industry.
3. **SDG 17: Partnerships for the Goals**
    - The project's emphasis on data analytics, server-side processing, and collaboration with wearable devices demonstrates the potential for partnerships between the health and technology sectors, promoting collaborative efforts towards common goals.

System Workflow Diagram



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ListenLink: Joining Minds Through Audio Books

Abstract

In the digital age, prolonged screen exposure during e-book reading raises concerns about eye strain and fatigue. To address this issue and improve the digital reading experience, we propose the development of an online PDF-to-audio converter with integrated progress tracking features.
The primary goal of this project is to provide users with an alternative method for consuming digital content, alleviating the tedium associated with prolonged screen viewing. By converting PDF documents into audio files, users can listen to their desired content instead of reading it on a screen. This approach not only reduces the risk of eye strain but also offers greater flexibility and accessibility for individuals with visual impairments or those who prefer auditory learning styles.
Furthermore, the platform will include language translation capabilities, allowing users to convert PDFs into audio files in (English and Urdu) language. This feature caters to the diverse linguistic backgrounds of users, making digital content more accessible and inclusive.
In addition to the conversion functionality, the platform will offer progress tracking features to monitor users' reading activity. By keeping track of reading progress and achievements, users can stay motivated and engaged with their digital reading materials over time. This encourages consistent reading habits and fosters a sense of accomplishment.

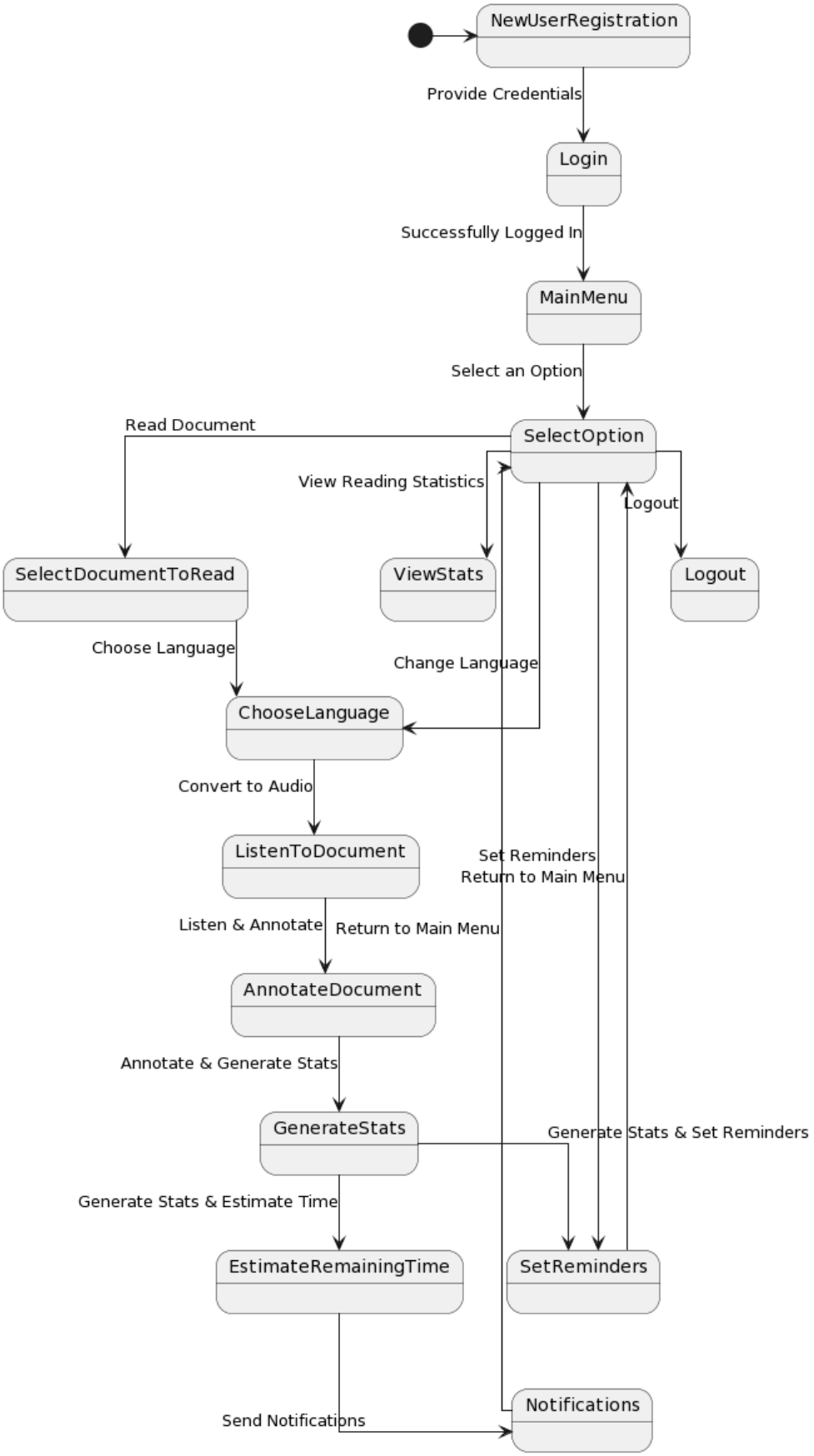
Sustainable Development Goals

SDG 3: Good Health and Well-being - Improving digital reading experiences reduces eye strain and fatigue, promoting better health outcomes.

SDG 4: Quality Education - Enhancing accessibility to digital content supports inclusive and equitable education for all learners, regardless of language or visual impairments.

SDG 10: Reduced Inequalities - Providing language translation and alternative reading methods ensures that digital resources are accessible to diverse populations, thus reducing inequalities in access to information and education.

System Workflow Diagram



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Mall Visitor Tracking and Heatmap Analysis

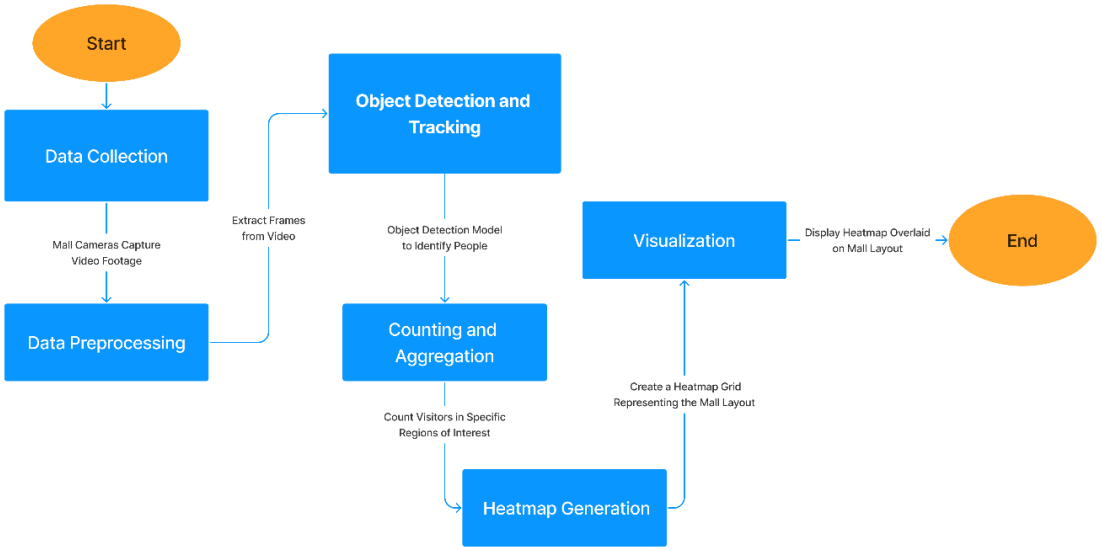
Abstract

One of the issues that management has in Pakistani malls is identifying visitor behavior trends. Recognizing the importance of analyzing visitor flow and interaction, it is vital to create a complete system that efficiently satisfies these requirements. In this paper, our objective is to create a system capable of tracking and analyzing visitor movements within malls. By using the power of mall cameras, we aim to provide real-time insights into visitor behavior, such as traffic flow, dwell times, and preferred routes. While numerous technologies like Bluetooth iBeacon, WiFi, and RFID provide viable solutions, we choose cameras because of their versatility and effectiveness. Unlike other technologies, cameras provide a complete view of the mall environment, grasping details that other technologies may overlook. Additionally, cameras offer a non-intrusive solution that respects visitor privacy while still delivering accurate data for analysis. Furthermore, our system will incorporate advanced analytics algorithms to process the captured data efficiently. These algorithms will enable sophisticated analysis, including dwell time analysis, trajectory mapping, and heat mapping. These considerations will provide deeper insights into visitor behavior and preferences, facilitating informed decision-making for mall management. Through our system, mall management will gain invaluable insights into visitor behavior, enabling them to optimize mall layouts, enhance customer experiences, and ensure the safety and security of all visitors. Moreover, the data generated by our system can inform strategic decision-making, such as marketing campaigns, tenant selection, and facility management strategies, ultimately contributing to the overall success and competitiveness of the mall.

Sustainable Development Goals

Our project contributes to the United Nations **Sustainable Development Goal (SDG) 9: "Industry, Innovation, and Infrastructure."** By enhancing the efficiency and data-driven decision-making in malls, we support the development of innovative solutions in the business and infrastructure sector. Additionally, our project indirectly aligns with **SDG 11: "Sustainable Cities and Communities,"** as it aims to create safer and more enjoyable urban spaces within malls, contributing to the overall well-being of communities. In Pakistan, where malls serve as social hubs, our project embodies the spirit of making cities more sustainable and visitor friendly.

System Workflow Diagram



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Cyberguard pro

Abstract

In the ever-changing world of keeping things safe online, organizations always deal with the challenge of finding and fixing problems to protect their wesbistes. The bad computer attacks are getting smarter, so we need a solution that makes it easy to check and fix these issues. That's where CyberGuard Pro comes in. It's like a superhero tool that helps find vulnerability in a website.

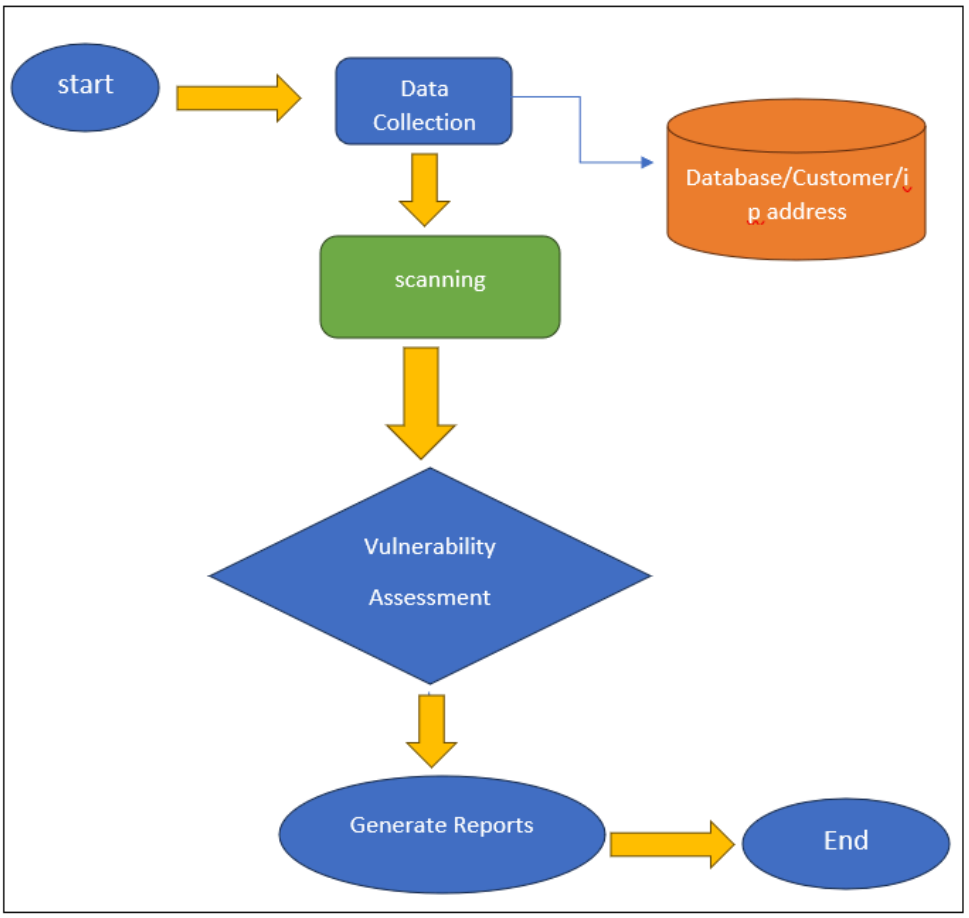
CyberGuard Pro does five important things to make sure everything is safe: it looks around (reconnaissance), checks things (scanning), finds weak spots (vulnerability assessment), fixes problems the right way (exploitation), and tells a clear story about it (reporting). All these steps are done automatically, making it easy for security experts to find and fix issues in websites . And don't worry, it's all done in a fair and honest way!

CyberGuard Pro is like having a superhero on your side. It helps us become stronger against online threats by finding and fixing problems before the bad guys can do anything. The best part is the tool talks in simple language through its reports, making it easy for us to make smart decisions and stay safe. Plus, CyberGuard Pro encourages organizations to always get better, so they can handle new problems and stay safe in the digital world. It's like having a trusty sidekick in the ever-evolving battle of online security!

Sustainable Development Goals

CyberGuard Pro aligns with **Sustainable Development Goal 9: Industry, Innovation, and Infrastructure**. By providing a robust cybersecurity tool, the project contributes to building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation. The tool's proactive approach supports the development of secure digital ecosystems, essential for the advancement of industries and economies in an interconnected world.

System Workflow Diagram



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Smart Restaurant Management System for Hyderabad Gymkhana

Abstract

The Smart Restaurant System, implemented at GYM Khana Hyderabad, is transforming the dining experience by introducing innovative features that enhance both efficiency and customer satisfaction. Customers can conveniently access digital menus with vivid images and detailed descriptions through their smartphones or tablets, simplifying the ordering process. Kitchen operations have become more streamlined with digital order transmission, minimizing errors and expediting service, thanks to real-time kitchen displays that assist chefs in managing multiple orders with precision.

In addition to streamlined mobile payments, the system also enhances the dining experience with innovative features. Guests can explore personalized recommendations and specials tailored to their preferences directly through the website, elevating their dining choices. Furthermore, real-time updates on order status and preparation times keep customers informed, reducing uncertainty and enhancing overall satisfaction.

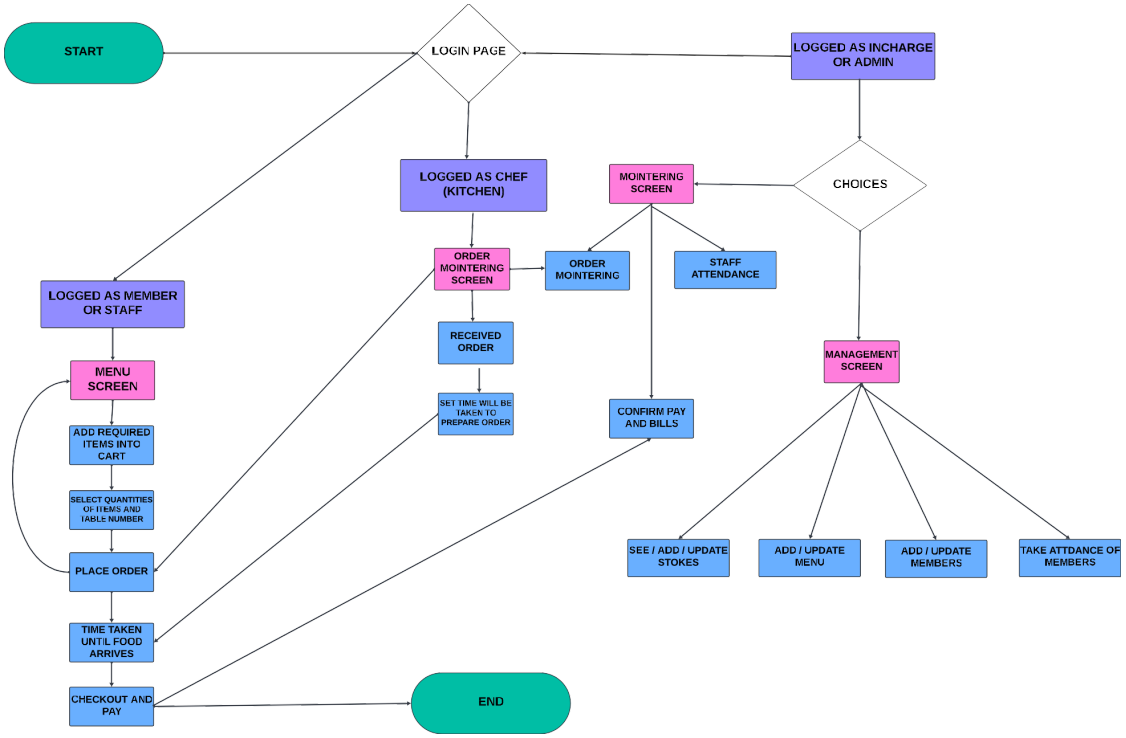
Personalization is a key focus, with the system collecting customer feedback and storing preferences and dining histories, allowing for tailored recommendations on return visits. GYM Khana Hyderabad also benefits from enhanced staff management and training, creating a skilled and motivated workforce to provide a higher standard of service.

In summary, the Smart Restaurant System at GYM Khana Hyderabad is a pioneering solution that redefines the dining experience, emphasizing convenience and personalization. It not only enhances customer satisfaction but also streamlines restaurant operations, setting the stage for success in a competitive industry.

Sustainable Development Goals

Goal 9: Industry, Innovation, and Infrastructure: Embracing technological advancements and innovation in restaurant management systems improves operational efficiency, enhances customer experience, and drives industry growth, thereby contributing to sustainable infrastructure development and fostering innovation.

System Workflow Diagram



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Implementation of Autonomous Delivery Robot using Reinforcement Learning-based Localization

Abstract

Humans are responsible for the majority of package deliveries in Pakistan. When compared to other delivery systems, Autonomous Delivery Robots (ADRs) offer more advantages because they are capable of transporting the items, deal with its environment on its own, and work for extended periods of time without human intervention. Many challenges like driver shortage, damaged and stolen products, failed delivery attempts,delayed delivery etc can be addressed using our Autonomous Delivery Robot (ADR). This proposed system stimulates an Autonomous Delivery Robots (ADR) that travels from point A to point B without the need for human involvement.

Different sensors are used for Autonomous Navigation of the robots to Detect and Avoid obstacles and Plan Path accordingly. For the purpose of achieving a state of complete autonomy, the robot must be able to take information from sensors, localize itself precisely in the world, and finally devise an optimal plan to achieve its goal.

Traditional localization methods, such as GPS, often fall short in providing the required precision for ADRs, especially in complex and dynamic environments. To address this , our project focuses on the integration of Reinforcement Learning (RL) techniques for the localization of our ADR.

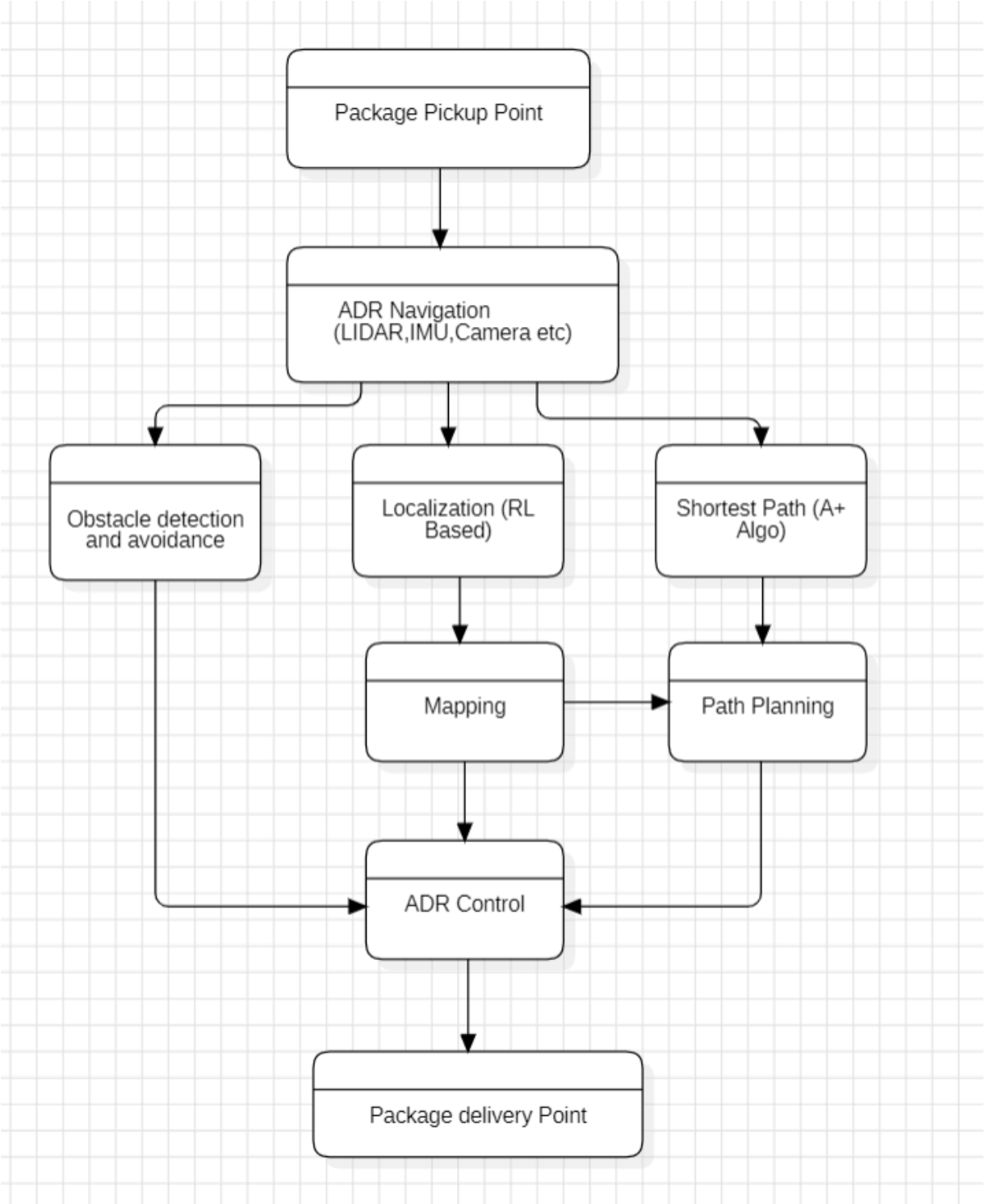
In summary, our aim is to enhance the efficiency of Autonomous Delivery Robots (ADRs) by the exclusive implementation of Reinforcement Learning (RL) in the localization process.

Sustainable Development Goals

SDG 9: Industry, Innovation, and Infrastructure

SDG 11: Sustainable Cities and Communities

System Workflow Diagram



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RealView: A Software for

Image Authenticity Verification

Abstract

In this digital age, the surge of deepfake images pose a significant threat to the authenticity of visual content. This abstract introduces Deepfake Image Detector called “RealView”, desktop-based software designed to detect the increasing number of deepfake images.

RealView uses leading machine learning algorithms, neural networks, and image analysis techniques for detailed image authentication with impressive accuracy. The software employs a two-fold approach, combining both visual and behavioral analysis. It scrutinizes subtle anomalies, artifacts, and

inconsistencies that often accompany deepfake images, making it a powerful tool for spotting manipulated visual images.

Key Features of the Deepfake Detector:

Intuitive User Interface: RealView offers a user-friendly interface, enabling users of varying technical backgrounds to navigate effortlessly.

Machine Learning Magic: Powered by machine learning models, the software continuously learns and adapts to new deepfake techniques, ensuring its effectiveness against evolving threats.

Visual Analysis: The software conducts pixel-level analysis to identify irregularities, such as unnatural lighting, and color gradients.

Behavioral Analysis: RealView can recognize inconsistencies in facial expressions, and eye movements offering a deeper level of authenticity check.

Detailed Reports: The software generates comprehensive reports detailing the authenticity assessment of each image, providing users with clear and actionable results.

Real View is set to be a crucial tool for professionals and organizations that rely on visual content for decision-making and authenticity assurance. Its desktop-based architecture ensures data privacy and control, making it a reliable solution for safeguarding against the ever-evolving deepfake threat landscape.

With RealView, users can trust the authenticity of their visual content, helping them make informed decisions and reduce the risks tied to manipulated images This software represents a significant step forward in the ongoing battle against the spread of deepfake media.

Sustainable Development Goals

Industry, Innovation, and Infrastructure: RealView promotes innovation by leveraging advanced technologies like machine learning to fight digital manipulation. It contributes to the development of digital infrastructure for ensuring image and video authenticity.

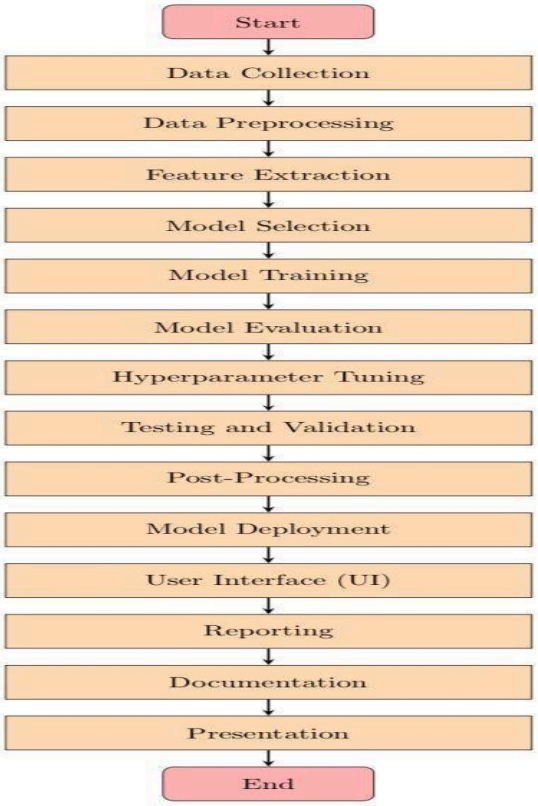
Peace, Justice, and Strong Institutions: By identifying and preventing the spread of misleading deepfake content, the software supports the goal of promoting peace, justice, and strong institutions. It helps in maintaining the integrity of information and reducing the potential for misinformation to spread.

Quality Education: RealView indirectly supports quality education by promoting media literacy. It raises awareness about the existence of deepfakes and encourages individuals to verify the authenticity of visual content.

Sustainable Cities and Communities: The software can aid law enforcement and city authorities in monitoring public safety by identifying potential threats posed by deepfake content.

Gender Equality: RealView can help protect individuals, particularly women, from malicious deepfake content that could be used for harassment or defamation, thereby promoting gender equality and safety.

System Workflow Diagram



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EventHorizon - Transforming Software Department Event Dynamics

Abstract

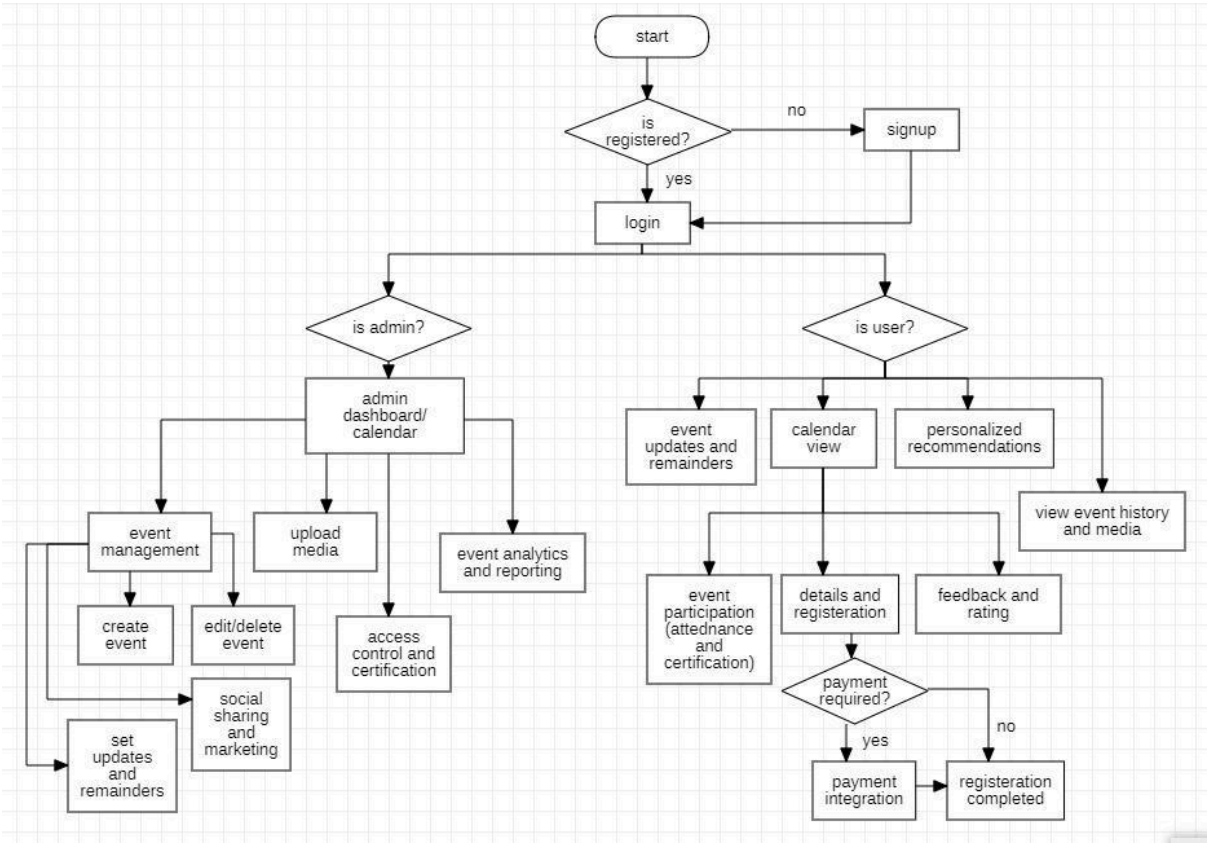
In our software department, there's always something happening - seminars, workshops to bootcamps, lectures, and competitions by the clubs and societies like SES, GDSC, and AWS Club. But keeping track of all these events can be a headache for both organizers and attendees. Organizers struggle with planning, promoting, and getting feedback, while attendees often miss out because they can't find event details or sign up easily. That's where EventHorizon comes in. It's a handy event management app that brings all these events together in one place. You can find events easily, sign up with just a few clicks, and get all the info you need right there. The app offers a user-friendly interface for attendees to seamlessly explore, register, and access event particulars. Personalized recommendations and reminders support attendee engagement, while features such as attendance tracking, multimedia access, and certificate issuance enrich the event experience. Concurrently, organizers benefit from streamlined event planning, promotion, feedback gathering, and certificate distribution, optimizing efficiency and facilitating data-driven event refinement. EventHorizon offers event analytics functionality, enabling the maintenance of a comprehensive history of past events. This feature allows for insights into event popularity, engagement levels, and highlights the most favored events. With EventHorizon, everyone stays in the loop, making event management a breeze and ensuring that everyone gets the most out of every event. EventHorizon ensures everyone has clear and easy access to event information, transforming departmental event management into a more organized, accessible, and enriching experience for all.

Sustainable Development Goals

Quality Education (SDG 4): An event management app can contribute to quality education by facilitating better communication between students and faculty, improving access to educational resources and information about events, workshops, and seminars.

Industry, Innovation, and Infrastructure (SDG 9): If the app promotes technological innovation and supports the efficient organization of events, it can contribute to SDG 9 by enhancing infrastructure, promoting sustainable industrialization, and fostering innovation.

System Workflow Diagram



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Simplified Real Estate, Construction, and Design Hub

Abstract

Our project, titled the "Simplified Real Estate, Construction, and Design Hub," is aimed at addressing the multifaceted challenges that plague the real estate, construction, and interior and exterior design industries. These sectors have long grappled with fragmentation, making it a daunting task for consumers and professionals to navigate the complexities involved.

The problem we seek to solve is twofold: first, the fragmentation of services, where consumers struggle to find a centralized platform that caters to their diverse needs, including property listings, construction expertise, design services, and access to construction raw materials. Second, the lack of reliable and up-to-date information on properties, construction professionals, design specialists, and material suppliers further compounds these challenges.

Our solution strategy revolves around the development of a user-friendly web application that acts as a one-stop solution for all related needs. This innovative platform brings together property listings, construction expertise, design services, and raw material procurement into a single, accessible hub. It empowers users, both buyers and sellers or service providers, by facilitating the effortless discovery of the right professionals, services, materials, and design expertise.

The benefits of our proposed project are manifold. Firstly, it streamlines processes, reducing the time and effort required to find and connect with the right professionals and services. Secondly, it enhances transparency by providing accurate and real-time information on property details, service offerings, pricing, and material costs, enabling users to make well-informed choices with confidence. Lastly, it simplifies the real estate, construction, and design experience for everyone involved, whether you are a buyer looking for your dream property or a seller or service provider seeking clients.

Sustainable Development Goals

Our project aligns with several Sustainable Development Goals (SDGs), including:

- ✔ **SDG 8: Decent Work and Economic Growth -** Our platform supports professionals in the construction and design industries, creating opportunities for decent work and economic growth.

- ✔ **SDG 9: Industry, Innovation, and Infrastructure -** We promote innovation by digitizing and streamlining processes in the real estate and construction sectors.

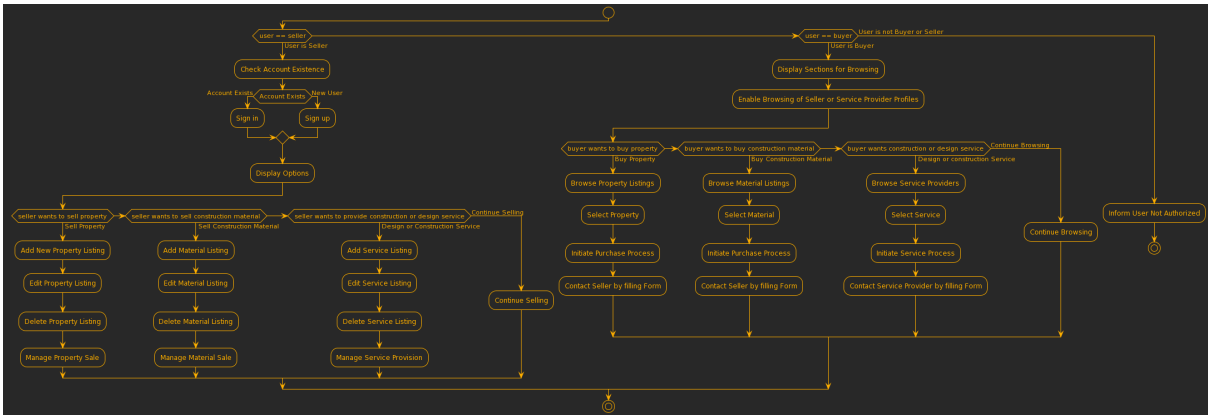
- ✔ **SDG 10: Reduced Inequality -** We aim to reduce information and access inequality within the real estate and construction sectors.

- ✔ **SDG 11: Sustainable Cities and Communities -** By simplifying access to construction and design services, we contribute to building sustainable communities.

- ✔ **SDG 12: Responsible Consumption and Production -** Facilitating the buying and selling of construction raw materials promotes responsible consumption and production practices.

- ✔ **SDG 17: Partnerships for the Goals**: Our project facilitates partnerships and collaboration among various stakeholders in the real estate, construction, and design sectors, contributing to the broader goal of achieving sustainable development through cooperation.

System Workflow Diagram



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FARMx (A Digital Platform for Agricultural Trade)

Abstract

This application is meant to solve the trade problems that farmers and commodity traders face due to lack of communication and market knowledge among the farmers. This application provides a platform where farmers can sell their agricultural commodities and the respective traders can buy such commodities. Also, farmers can buy the essentials for their crops like fertilizers, pesticides etc.

The application will be user friendly and does not require any computer knowledge. It will also be available in different languages based on different regions of Pakistan. This ensures that farmers and traders from various backgrounds can access and utilize the platform effectively, regardless of their language preferences.

The goal of developing such applications is to promote the agriculture and digitalize the agricultural eco system of Pakistan. By leveraging technology and the internet, the application aims to modernize and revolutionize the way agricultural trade is conducted in the country. By providing a centralized and comprehensive solution for farmers and traders, the application seeks to enhance efficiency, transparency, and profitability within the agricultural sector.

The purpose of this system is to enhance Agricultural trade by digitalizing it and provides complete solution for the Farmers/Traders through a single get way using the Internet. The application aims to empower farmers, promote fair trade practices, and contribute to the overall growth and development of the agricultural sector in Pakistan.

Sustainable Development Goals

Goal 2: Zero Hunger: Digitalization in agriculture can improve food security by increasing agricultural productivity, reducing food waste, and enhancing supply chain efficiency. It can help ensure that people have access to sufficient, safe, and nutritious food.

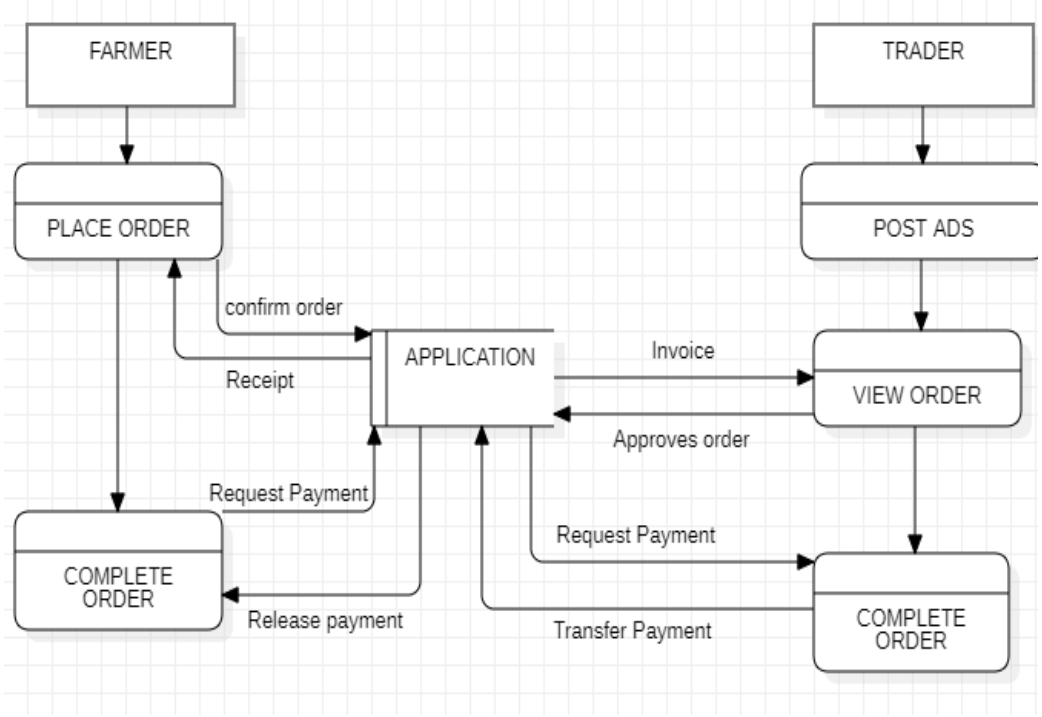
Goal 8: Decent Work and Economic Growth: Promoting digitalization in agriculture can lead to increased productivity, income generation, and employment opportunities in rural areas. It can contribute to sustainable economic growth, particularly in developing countries where agriculture plays a significant role in the economy.

Goal 9: Industry, Innovation, and Infrastructure: Digitalization in agriculture involves innovation in farming practices, the use of technology, and the development of digital infrastructure. This goal supports advancements in agricultural technology and infrastructure.

Goal 17: Partnerships for the Goals: Achieving the goal of promoting agricultural trade through digitalization often requires partnerships between governments, private

sector companies, and international organizations to develop and implement digital solutions and policies.

System Workflow Diagram



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Task Track

Abstract

TaskTrack is a comprehensive task management application designed to streamline productivity by integrating a to-do list, alarm system, and calendar functionality into a single platform. In today's fast-paced world, individuals often struggle to keep track of their daily tasks and appointments, leading to decreased efficiency and increased stress levels. TaskTrack addresses this problem by providing users with a centralized hub where they can organize their tasks, set reminders, and manage their schedules effortlessly.

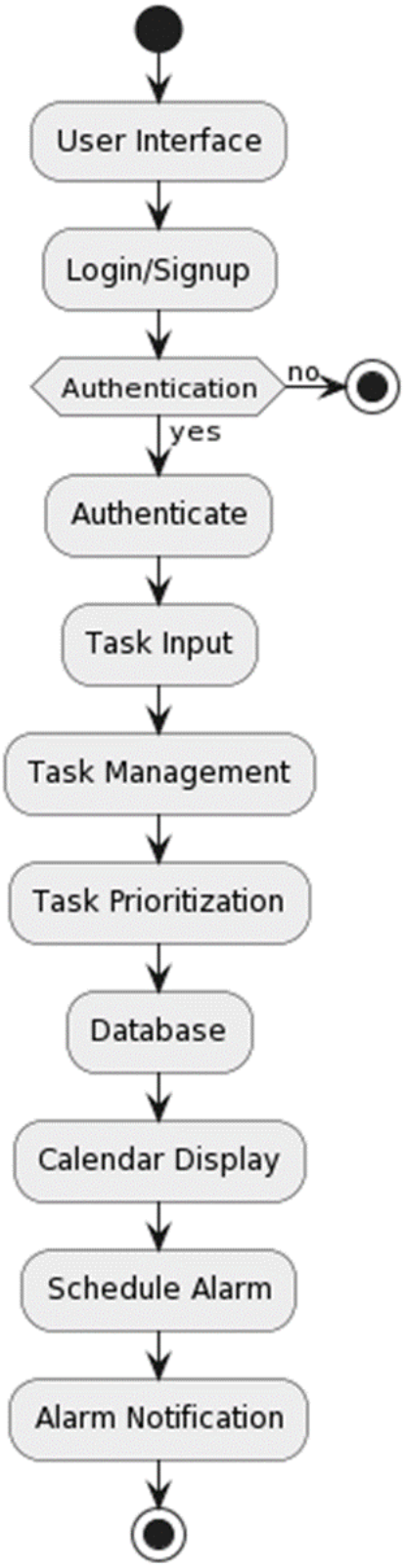
One of the key challenges faced by many task management applications is the fragmented nature of task tracking and scheduling tools. Users often find themselves switching between multiple apps to create to-do lists, set alarms, and manage their calendars, resulting in a disjointed user experience. TaskTrack solves this issue by offering a unified solution that combines all these features into a seamless interface, allowing users to streamline their workflow and stay organized more effectively.

Furthermore, TaskTrack prioritizes user experience and simplicity, with an intuitive interface that makes it easy for users to create, edit, and prioritize tasks. The integrated alarm system ensures that users never miss an important deadline or appointment, while the calendar functionality allows them to view their schedule at a glance and plan their day accordingly.

Sustainable Development Goals

TaskTrack aligns with Sustainable Development Goal 9: Industry, Innovation, and Infrastructure. By providing users with an innovative solution for task management, TaskTrack contributes to the development of sustainable infrastructure by promoting efficiency and productivity in both personal and professional settings. By helping individuals optimize their workflow and manage their time more effectively, TaskTrack supports economic growth and sustainable development.

System Workflow Diagram



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RidePool: A Dynamic Ride Sharing Application

Abstract

In a world increasingly dominated by technology breakthroughs, accessibility and convenience have become critical. RidePool, a groundbreaking ride-sharing app, emerges as a game changer, precisely built to reshape the transportation scene for both drivers and passengers. Unlike standard ride-hailing services, RidePool prioritizes route optimization and passenger compatibility, resulting in efficient and seamless rides. RidePool revolutionizes the travel experience by combining smart ride matching, real-time ride tracking, transparent pricing, and social elements.RidePool provides drivers with a wealth of incentives. RidePool's clever algorithm seamlessly connects drivers with passengers on similar routes, increasing ride acceptance rates and revenues. Drivers value the opportunity to select their availability and desired driving hours, resulting in a work-life balance that meets their demands.

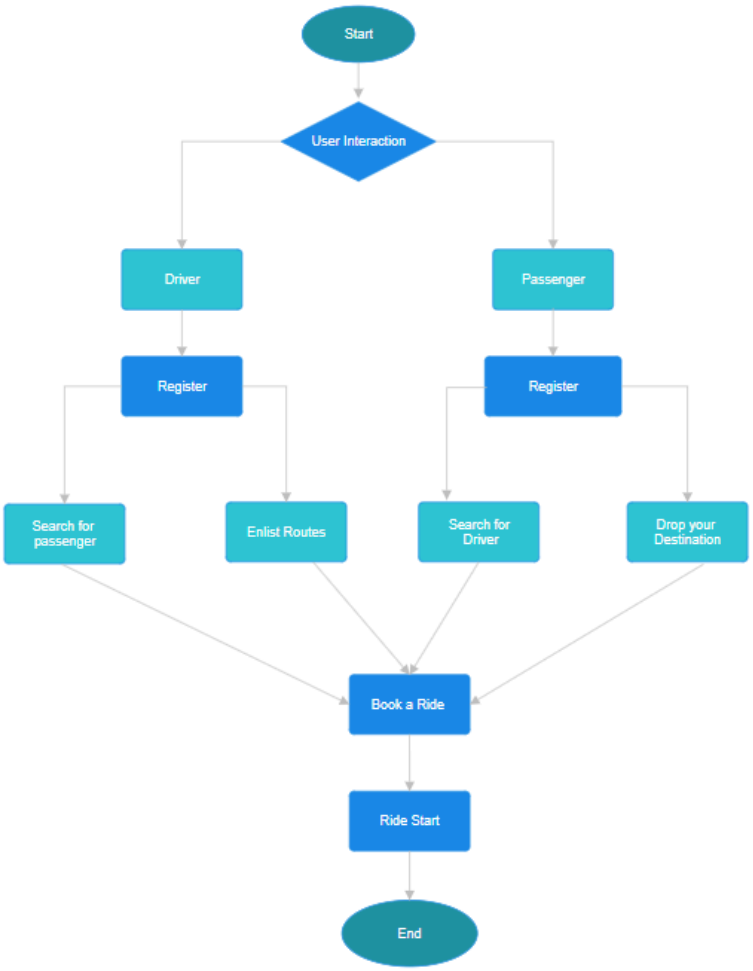
Transparent pricing gives drivers complete control over their fares, ensuring appropriate pay for their services. Passengers benefit from RidePool's creative approach. RidePool's route optimization and shared seating choices reduce the overall cost of travel. Enhanced safety pervades every element of the RidePool experience, as verification protocols and in-app communication tools promote a safe and dependable travel environment.

This innovative project not only transforms the ride-sharing sector, but it also reflects the concepts of inclusivity and empowerment, resulting in a more equitable and efficient transportation network for all.

Sustainable Development Goals

- **SDG 9: Industry, Innovation and Infrastructure:** RidePool is an example of how technology can be used to improve transportation systems and make them more sustainable

System Workflow Diagram



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Med Chronicle: A Mobile Application Based on Flutter and Machine Learning

Abstract

The creation of effective and user-friendly medical applications has become crucial in the era of digital healthcare and it is also observed that carrying notepads for taking a history of the patients creates a hassle of documentation for the doctors. This introduces a state-of-the-art Med Chronicle (a History-taking application) that will be built on Flutter which will transform how medical practitioners collect and organize patient data. It also allows the patients to see the data as the app will have three portals one for the medical officer, one for the doctors and the third will be for patients to view their records. The Doctor portal will enable the doctors to do analysis on the examination data which will be done by using Machine Learning. So our app provides many features like graphical view of the data, image to text conversion, accuracy and consistency. Our app allows medical officers to upload the lab tests and others reports and medications. It enhances diagnosis, personalizes treatment and improves patient outcomes. By providing an extensive solution for medical professionals, our innovation intends to transform the healthcare sector.

Sustainable Development Goals

Our project aligns with two Sustainable development goals:

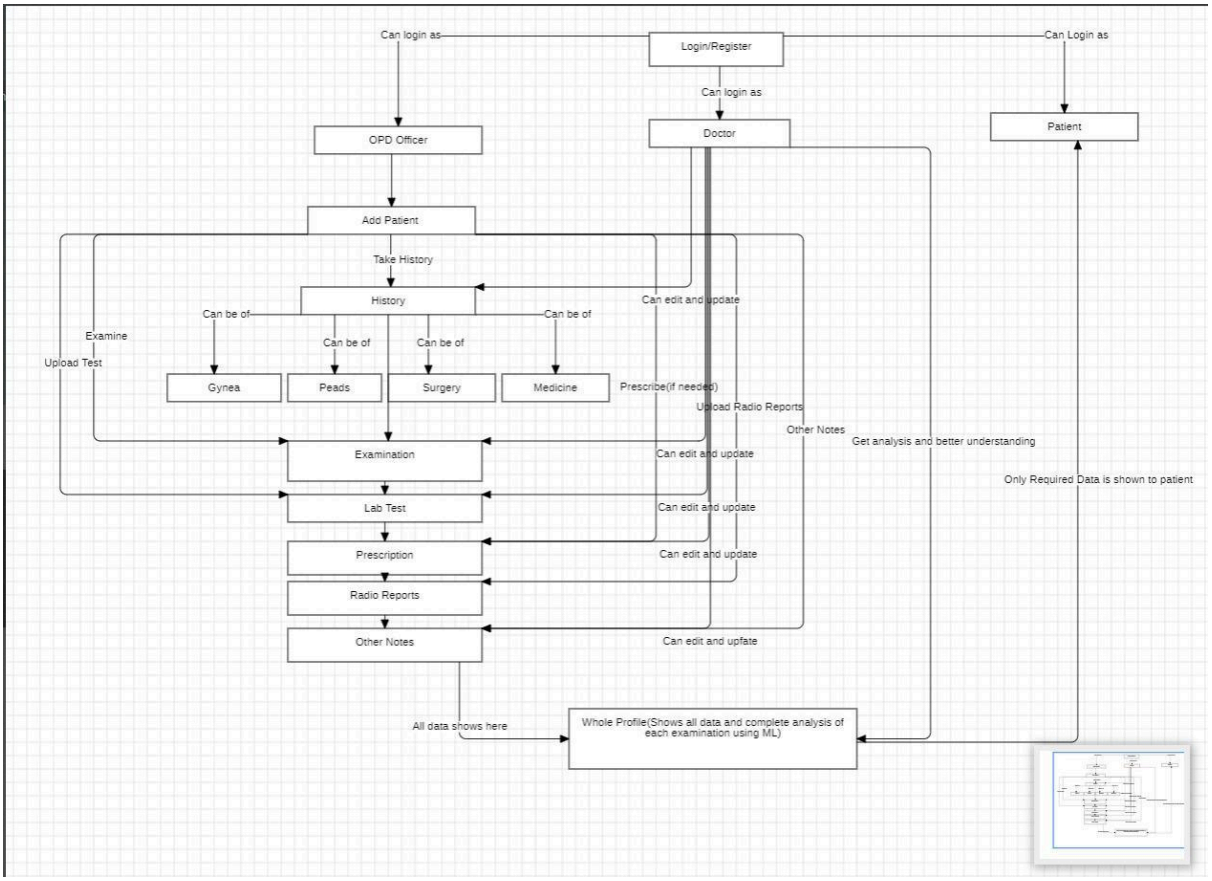
1. **SDG 3: Good Health and Well-being**

Our application directly contributes to SDG 3 by improving the quality of healthcare services. It enhances access to healthcare through features like patient data management, laboratory result integration, medication management and AI-driven preventive care recommendations. By streamlining healthcare processes and providing advanced tools for healthcare professionals, it promotes better health outcomes and overall well-being.

2. **SDG 9: Industry, Innovation, and Infrastructure**

Leveraging cutting-edge technology and modern infrastructure, the application aligns with SDG 9 by revolutionizing healthcare practices. It introduces innovation by digitizing and optimizing healthcare workflows, making them more efficient and accessible. This innovation not only improves the quality of care but also fosters economic growth in the healthcare sector.

System Workflow Diagram



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Enhancing Student Academic Journey through Clustering Analysis

Abstract

This project aims to assess and enhance student progression through the application of clustering techniques on academic data. Focusing on key performance indicators such as grades, attendance, and participation, we employ various clustering algorithms, to identify meaningful patterns within the student population. The resulting clusters represent distinct groups of students with similar academic characteristics.

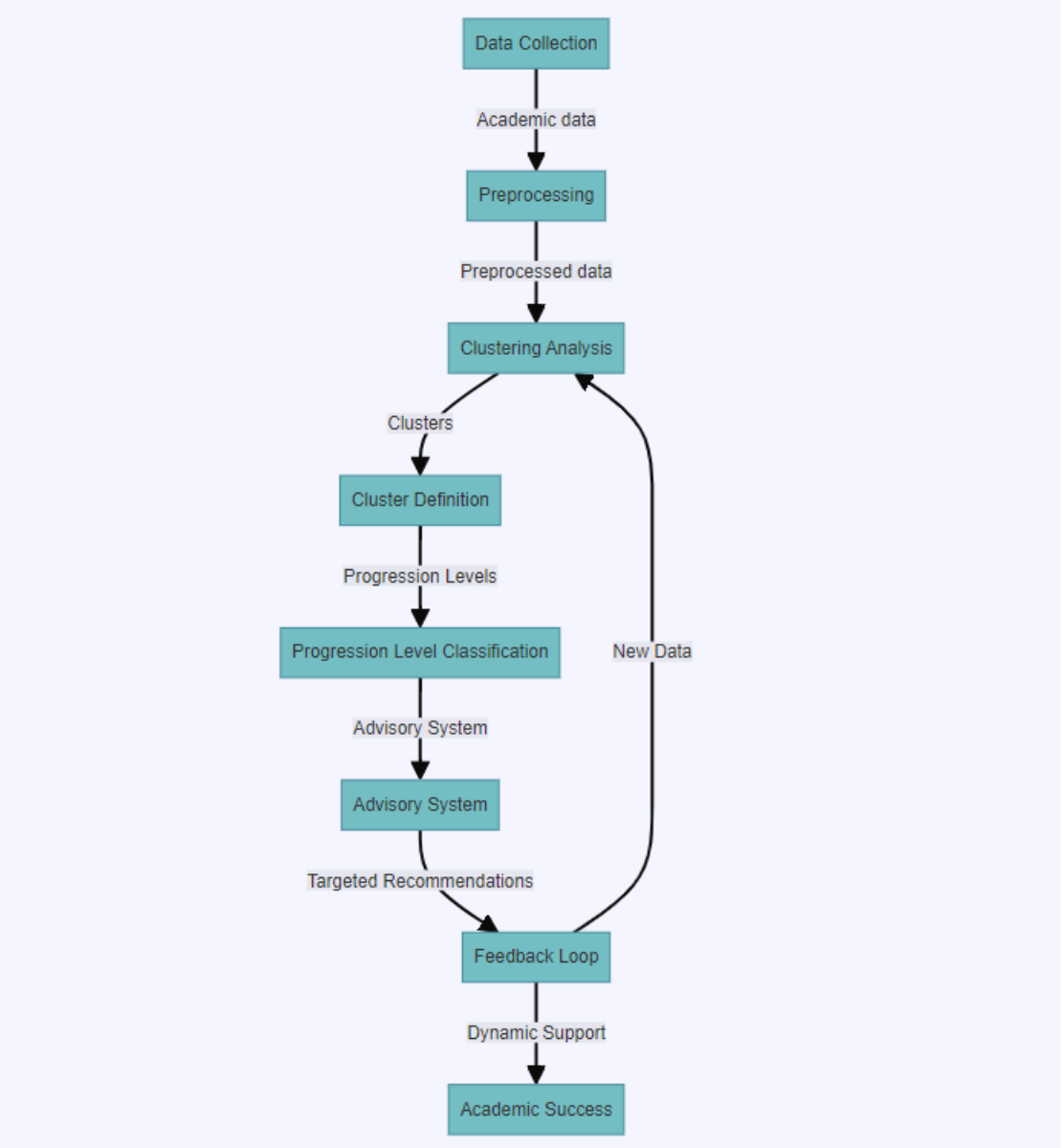
Once clusters are established, we define progression levels, categorizing students into high, medium, and low progression groups. These clusters serve as the foundation for personalized advisories, offering targeted recommendations to students based on their academic profile. The advisory system is designed to guide students on areas of improvement and optimize their educational journey.

This project takes a thorough look at how students are doing in their studies, integrating clustering methodologies with actionable advisories to foster academic success.

Sustainable Development Goals

- **Quality Education (SDG 4):** This project focuses on student progression, clustering, and personalized advisories, it contributes to the goal of ensuring fair quality education for all.

System Workflow Diagram



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BidBuy

(Online Auction Platform)

Abstract

The "Online Auction Platform" is a Web application developed using Flutter that provides a virtual marketplace for users to buy and sell items through auction-style listings. This platform enables users to engage in the thrilling experience of bidding on a wide range of items, from collectibles and electronics to art and antiques.

Key Features:

1. **User Registration and Authentication**: Users can create accounts, sign in securely, and manage their profiles.
2. **Item Listing**: Sellers can create detailed listings for items they wish to auction, including item descriptions, images, starting prices, and auction end times.
3. **Bidding System**: Participants can place bids on listed items, with the highest bidder winning when the auction timer expires. Real-time updates display the current highest bid and auction countdown.
4. **Payment Processing**: A secure payment gateway is integrated to facilitate transactions between buyers and sellers, ensuring safe and reliable payment handling.
5. **Notifications**: Users receive notifications for outbid alerts, auction status updates, and item listings matching their interests.
6. **User Profiles**: Users can view and manage their profiles, monitor bidding history, and track listed items.
7. **Search and Filters**: A robust search and filtering system enables users to discover items of interest by category, price range, and other criteria.
8. **Backend Infrastructure**: The application is backed by a robust server infrastructure responsible for user management, item listing, bidding logic, and database operations.

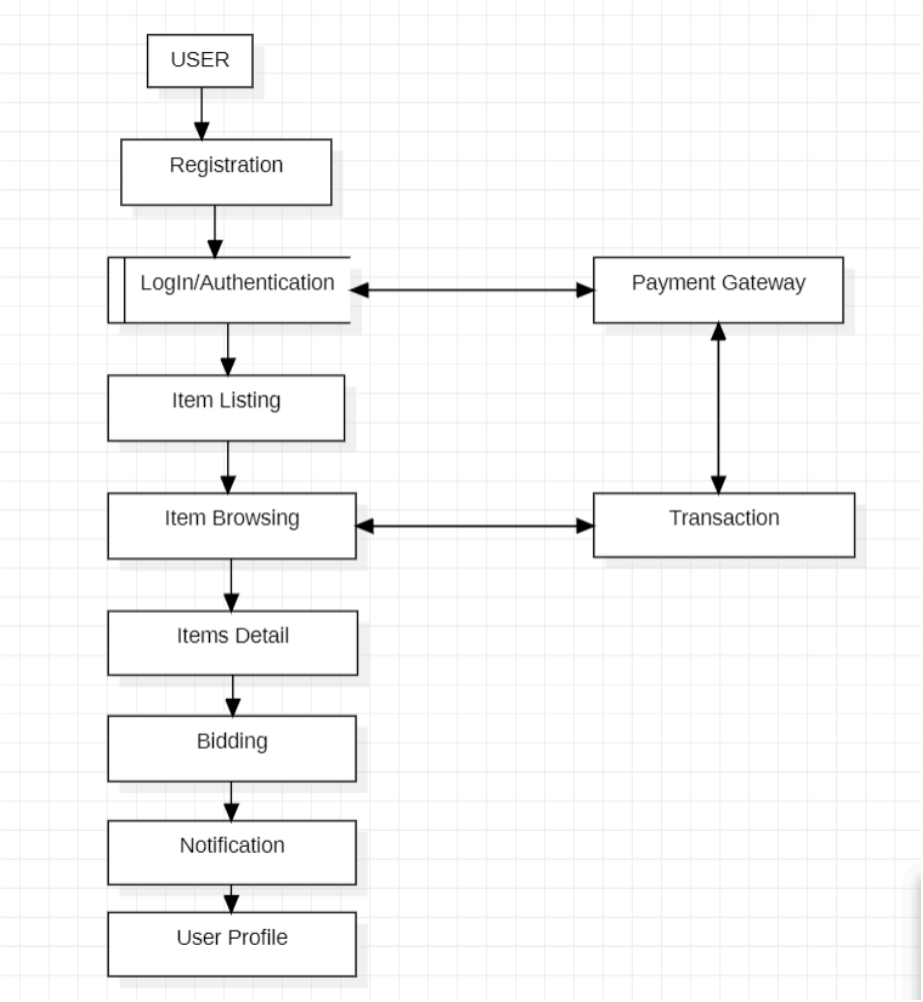
9. **Security**: Stringent security measures are implemented to protect user data, prevent fraud, and ensure the integrity of auctions.

The "Online Auction Platform" offers an engaging and convenient way for users to explore, bid, and win items in a competitive online auction environment. Whether users are collectors seeking rare treasures or sellers looking to auction their goods, this application provides a seamless and enjoyable auction experience.

Sustainable Development Goals

1. **SDG 8: Decent Work and Economic Growth**: An auction platform can stimulate economic activity by providing a marketplace for buying and selling goods and services, potentially creating job opportunities, and fostering economic growth.
2. **SDG 12: Responsible Consumption and Production**: Auction platforms can promote responsible consumption by facilitating the resale and reuse of items, reducing waste and the environmental footprint associated with producing new products.
3. **SDG 9: Industry, Innovation, and Infrastructure**: Developing and maintaining a digital auction platform involves innovation in technology and infrastructure, contributing to the advancement of SDG 9.
4. **SDG 1: No Poverty**: By enabling people to sell items they no longer need, auction platforms can help individuals generate income, potentially contributing to poverty reduction.
5. **SDG 17: Partnerships for the Goals**: Collaborations between auction platforms and non-governmental organizations (NGOs) or charitable organizations can promote fundraising and support various social causes related to the SDGs.

System Workflow Diagram



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Detection of AI-Generated Voices & Images

Abstract

In an age where AI seamlessly mimics human voices and images, concerns arise over the potential misuse of such technology for deceptive purposes, including the creation of convincing deepfakes. This Final Year Project (FYP) tackles the threat posed by AI-generated content by developing an efficient detection system.

The project's focal challenge is discerning between authentic and AI-generated content, with misinformation, privacy breaches, and breaking of trust. To combat this, our proposed solution leverages advanced machine learning algorithms and deep neural networks, dissecting subtle patterns and artifacts in AI-generated voices and images. By training on a diverse dataset featuring various AI models and incorporating large pre-trained models, the system becomes adept at recognizing emerging techniques and adapting to evolving threats.

The methodology involves curating a dataset, applying state-of-the-art machine learning techniques for feature extraction, and training a robust model for precise AI-generated content detection. This project contributes to the restoration of trust in digital media and shielding individuals from potential harm.

In conclusion, this FYP strives to create a reliable, adaptable system for detecting AI-generated voices and images. By addressing the pivotal issue of content authenticity in the era of advanced AI, the project contributes to broader efforts in securing digital media integrity and upholding ethical standards in artificial intelligence.

Sustainable Development Goals

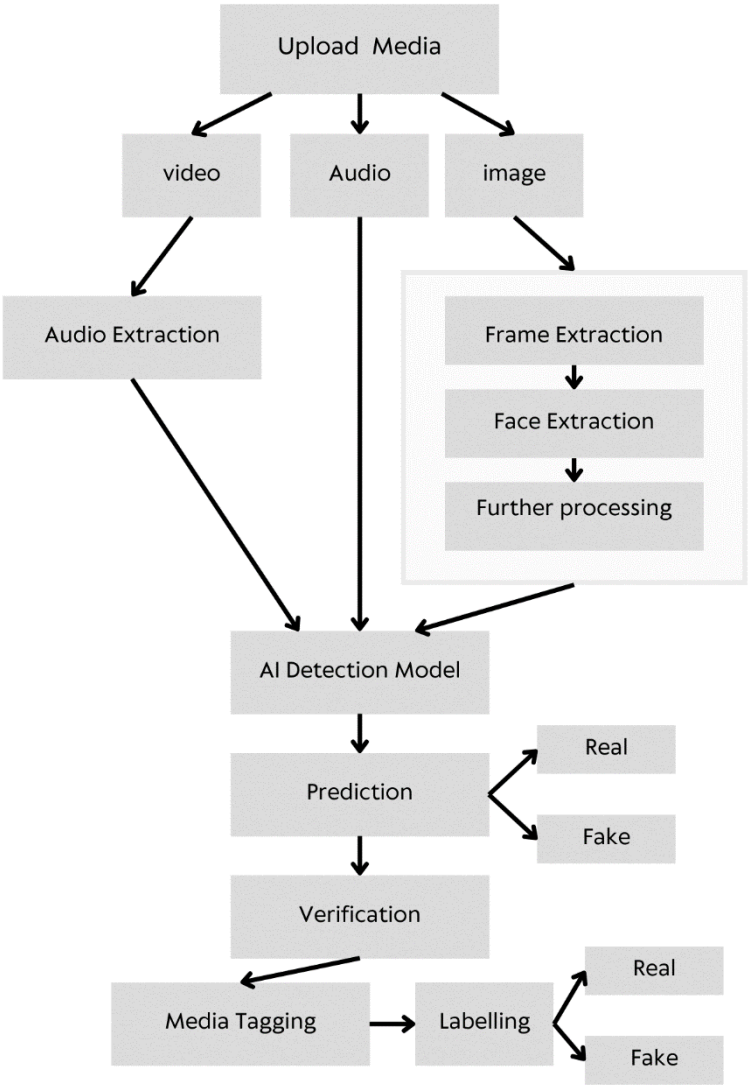
SDG 9: Industry, Innovation, and Infrastructure

The project directly contributes to SDG 9 by addressing the challenges posed by the rapid advancement of artificial intelligence (AI) in generating realistic voices and images. The development of an effective detection system for AI-generated content is essential in safeguarding the integrity of digital media, thereby supporting sustainable and resilient industrial innovation.

SDG 16: Peace, Justice, and Strong Institutions

The project also indirectly relates to SDG 16 by addressing the potential misuse of AI-generated content for malicious purposes, such as misinformation and manipulation. The development of a reliable detection system contributes to the creation of a more just and transparent digital environment.

System Workflow Diagram



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An ERP System for The Zai's System of Education

Abstract

Our project aims to develop an Enterprise Resource Planning (ERP) system for one of the most renowned schools situated in Hyderabad – The Zai's System of Education.

Currently, the school relies on disparate systems and manual methods for managing student records, academic schedules, staff information, financial transactions, and inventory tracking. This fragmentation leads to data redundancy, errors, and inefficiencies, hindering the smooth operation of schools.

To solve this problem, we propose the development of an ERP system that integrates all essential functions into a unified platform.

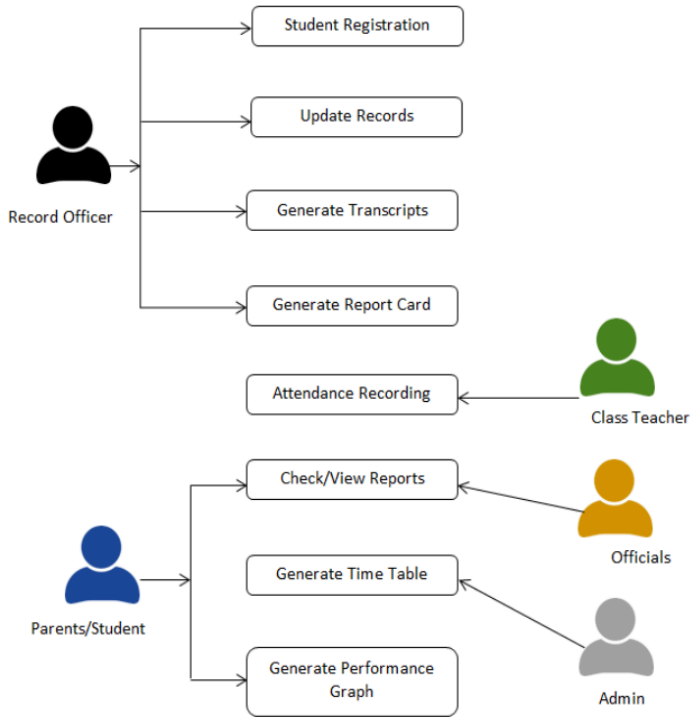
Key modules will include student management, staff management, academic management, finance management, etc.

The system will feature an intuitive user interface designed to accommodate different user roles and facilitate ease of use.

Sustainable Development Goals

Quality Education (SDG 4): By enhancing administrative and academic management processes, the ERP system supports efforts to provide equitable access to quality education, improve learning outcomes, and promote lifelong learning opportunities.

System Workflow Diagram



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RecipeRover App

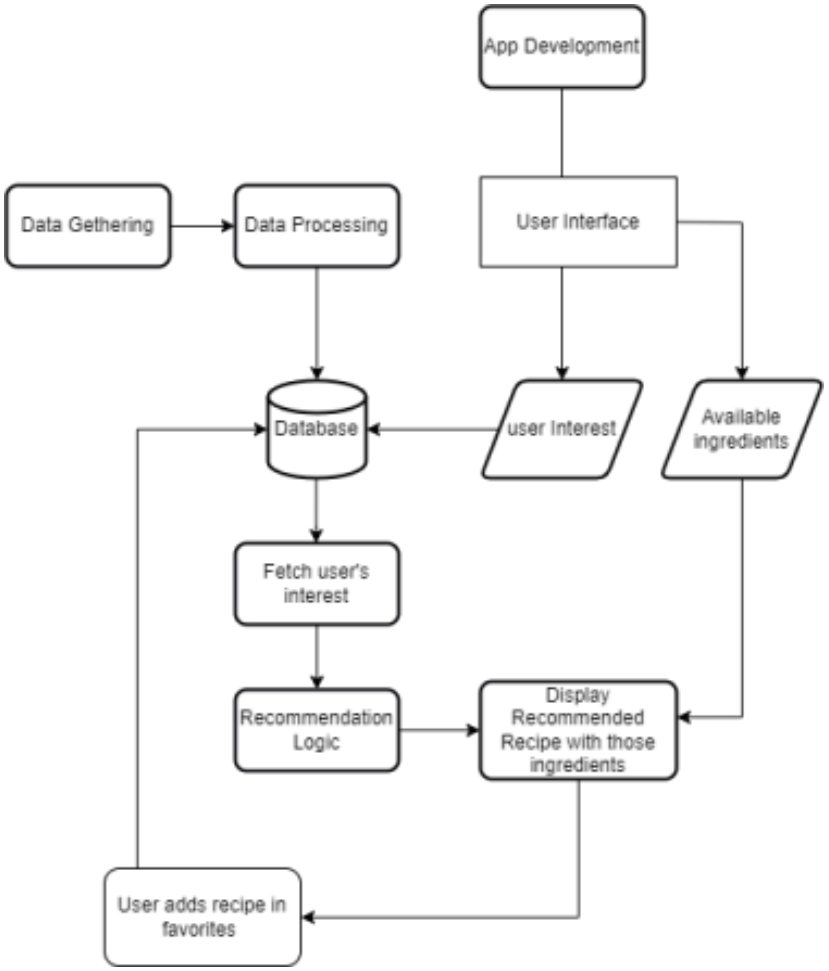
Abstract

In our busy lives, many people, especially those on tight budgets like lower to middle-class bachelors, struggle to cook meals because they have limited ingredients and can't always afford to eat out. The RecipeRover app is designed to address the common challenge of meal planning by providing personalized recipe recommendations based on the ingredients users have on hand and their culinary preferences. In today's fast-paced world, individuals often struggle with deciding what to cook with the ingredients available in their kitchen, leading to food waste and repetitive meal choices. This project aims to streamline the cooking process by offering a convenient solution for users to discover new and exciting recipes tailored to their taste preferences and available ingredients. The proposed solution involves developing an intuitive mobile application that allows users to input the ingredients they have on hand. Utilizing recipe databases and smart recommendation logics, the app will analyze the input ingredients and generate a curated list of recipes that users can prepare using those ingredients. Additionally, the app will incorporate user to provide personalized recipe recommendations tailored to their culinary preferences. The RecipeRover app promotes efficient use of resources by reducing food waste through using available ingredients. It enhances user satisfaction and culinary exploration by suggesting a wide range of recipes that match individual preferences and available ingredients. Moreover, by encouraging users to experiment with different cuisines and ingredients, the app fosters creativity in the kitchen and promotes healthier eating habits

Sustainable Development Goals

This app not only solves the challenges of meal planning and cooking but also contributes to Sustainable Development Goals by reducing food waste, promoting healthier eating, encouraging responsible consumption, and supporting climate action through reduced food waste.

System Workflow Diagram



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Digital School Management System

Abstract

To address the evolving landscape of education in the digital era, characterized by the rapid advancement of technology and changing learning paradigms, this project suggests creating an all-encompassing Digital School Management System. The goal of this system is to provide school administrators with the resources they need to effectively access, manage, and preserve vital student data from any location.

The Digital School Management System is made up of several key modules, such as the Teacher Portal for managing timetables and attendance, the Admin Panel for managing users and enrollment, Certificate Management, Result Management, Parent Management, and Parent Management for facilitating parent engagement and communication.

The system's goal is to enable the digital transformation of school procedures by providing seamless integration of various modules, guaranteeing smooth operations and efficient communication among stakeholders. The goals of the project and its potential advantages for improving school administration in the digital era are summarized in this abstract.

Sustainable Development Goals

- **Quality Education (SDG 4):** By improving education quality via the effective administration of school resources, student data, and instructional procedures, our initiative directly contributes to SDG 4.
- **Gender Equality (SDG 5):** Gender equality may be advanced by our initiative by giving male and female students, parents, and instructors equal access to educational opportunities and resources.
- **Reduced Inequalities (SDG 10):** By implementing a digital school management system, you can help reduce inequalities by ensuring that all students, regardless of their socio-economic background, have access to quality education and resources.
- **Sustainable Cities and Communities (SDG 11):** Our project supports the development of sustainable communities by fostering digital innovation in educational institutions and promoting efficient management practices.
- **Peace, Justice, and Strong Institutions (SDG 16):** A well-functioning digital school management system promotes transparency, accountability, and good governance within educational institutions, contributing to peaceful and just societies.

System Workflow Diagram

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An AI-Based Applicant Tracking System for HR

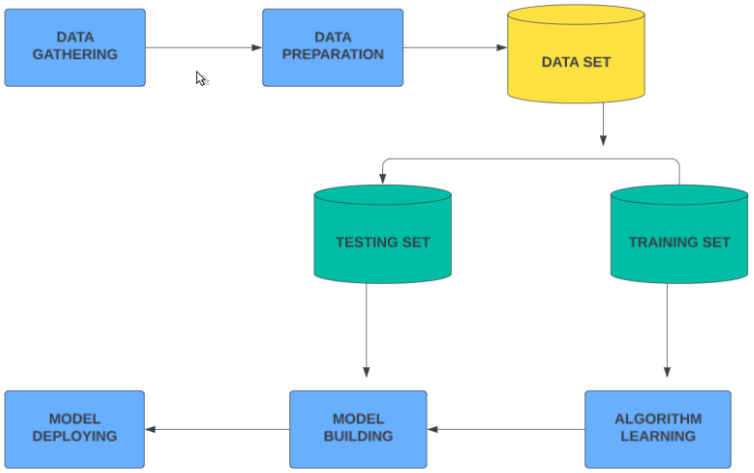
Abstract

The human resource department with in any organization faces problems while recruiting the right candidate for the job. It faces resource shortage, time management and applicant tracking issues for quick and effective hiring process. To resolve such issues and make the hiring process smoother, we have developed an AI-based Applicant Tracking System. The research proposes a 3-stage automated hiring procedure in our Web app for job applications starting with CV scanning via AI-based model to conducting an online test for shortlisted candidates. The system not only ranks the applicant's resume among several other job opportunities but also takes an online aptitude test for the short listed candidates based upon the resume's score. With our proposed model we will try our best to remove biasness and delays in the hiring process and help track the progress of every candidate so as to ensure credibility and accountability of any organization's HR department. It is concluded that by using AI solutions we can provide better results in less time as compared to man power involvement in the HR department.

Sustainable Development Goals

- Decent Work and Economic Growth
- Industry, Innovation, and Infrastructure
- Partnerships for the Goals

System Workflow Diagram



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Unveiling Shadows: A Study on Detecting Depression in Roman Text Through Sentiment Analysis

Abstract

Social media platforms are an important means of communicating feelings and experiences in the current digital era. Roman Urdu stands out among the various language expressions as a common means of communication, especially when talking about delicate subjects like mental health. Depression is a worldwide issue that has a significant impact on people and requires early identification in order to provide appropriate assistance and treatments.

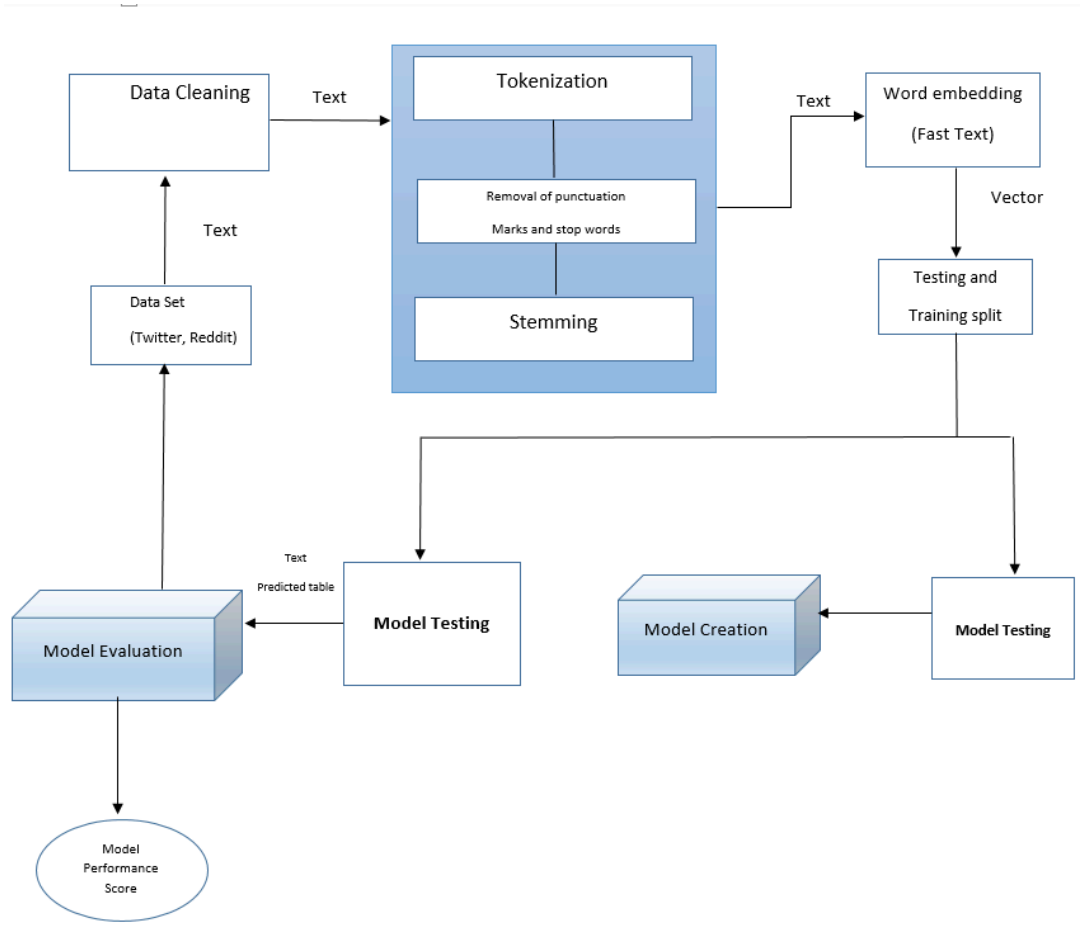
Given that a lot of people use Roman Urdu on social media sites like Reddit and Twitter to express their emotions, this project explores the novel field of applying machine learning algorithms to identify early indicators of depression. Because they take a long time, are expensive, or create social stigma around asking for assistance, traditional diagnostic techniques frequently fall short.

The research aims to develop scalable and effective approaches for the early detection of depression by focusing on the linguistic nuances, contextual clues, and language patterns observed in Roman Urdu social media posts. The machine learning algorithms will be trained on labeled datasets through the analysis of user-generated content, making it possible to accurately identify potential indicators of depression in this particular language context. In the context of Roman Urdu expression on social media, this program holds the potential to provide prompt help and intervention for persons navigating the intricacies of mental health

Sustainable Development Goals

- **Goal 3: Good Health and Well-being**: Enhancing mental health globally by introducing an innovative approach to early depression detection.
- **Goal 4:Quality Education**: The project fosters knowledge in machine learning and data analysis, contributing to quality education and skill development.
- **Goal 9: Industry, Innovation, and Infrastructure:** Leveraging advanced technology and algorithms, the project supports innovation for societal well-being.

System Workflow Diagram



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Autistic Spectrum Disorder Detection using Machine Learning

Abstract

Autism Spectrum Disorder is a type of neurological disorder affecting a person's ability to communicate and interact with others. According to WHO, every in 1 in 100 children is autistic and autistic individuals have special needs that need to be fulfilled. Children start showing signs of autism at early age of 2 but they are not diagnosed until much later on. If a child is diagnosed and provided 2 years of intervention, the average IQ gain is 17 points.

Our proposed solution aims to revolutionize autism detection in children through a synergistic approach. We propose integrating two distinct methodologies: a parental questionnaire and facial scanning technology, each empowered by machine learning algorithms.

1. Parental Questionnaire:

A meticulously designed questionnaire targets behavioral markers associated with autism spectrum disorder (ASD). Parents provide insights based on their observations.

Advanced machine learning techniques, including decision trees and logistic regression, will analyze questionnaire responses, revealing potential indicators of ASD.

2. Facial Scanning:

Cutting-edge facial scanning technology captures and scrutinizes children's facial expressions and features.

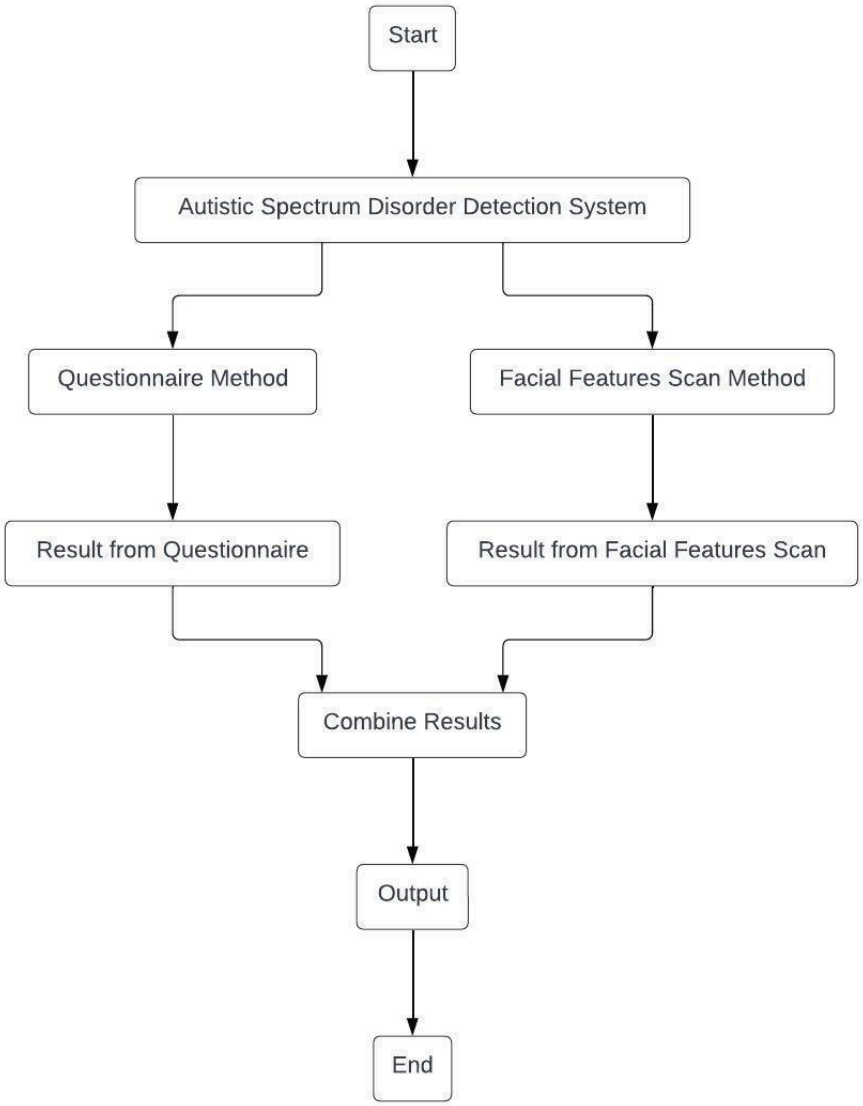
Utilizing convolutional neural networks (CNNs) or analogous deep learning models, we train algorithms to recognize patterns indicative of ASD in facial data.

Presently, the wait time for receiving autism diagnosis spans approximately one year, with the process demanding significant resources. Through our project, we aim to empower parents by providing them with preliminary insights into their child's condition. This early indication will enable them to initiate various therapies promptly, thereby enhancing their child's quality of life and well-being.

Sustainable Development Goals

SDG 3 : Good Health and Well-Being: Detecting early diagnosis will lead to early intervention which will improve quality of life of individuals.

System Workflow Diagram



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Roman Reviews Analyser

Abstract

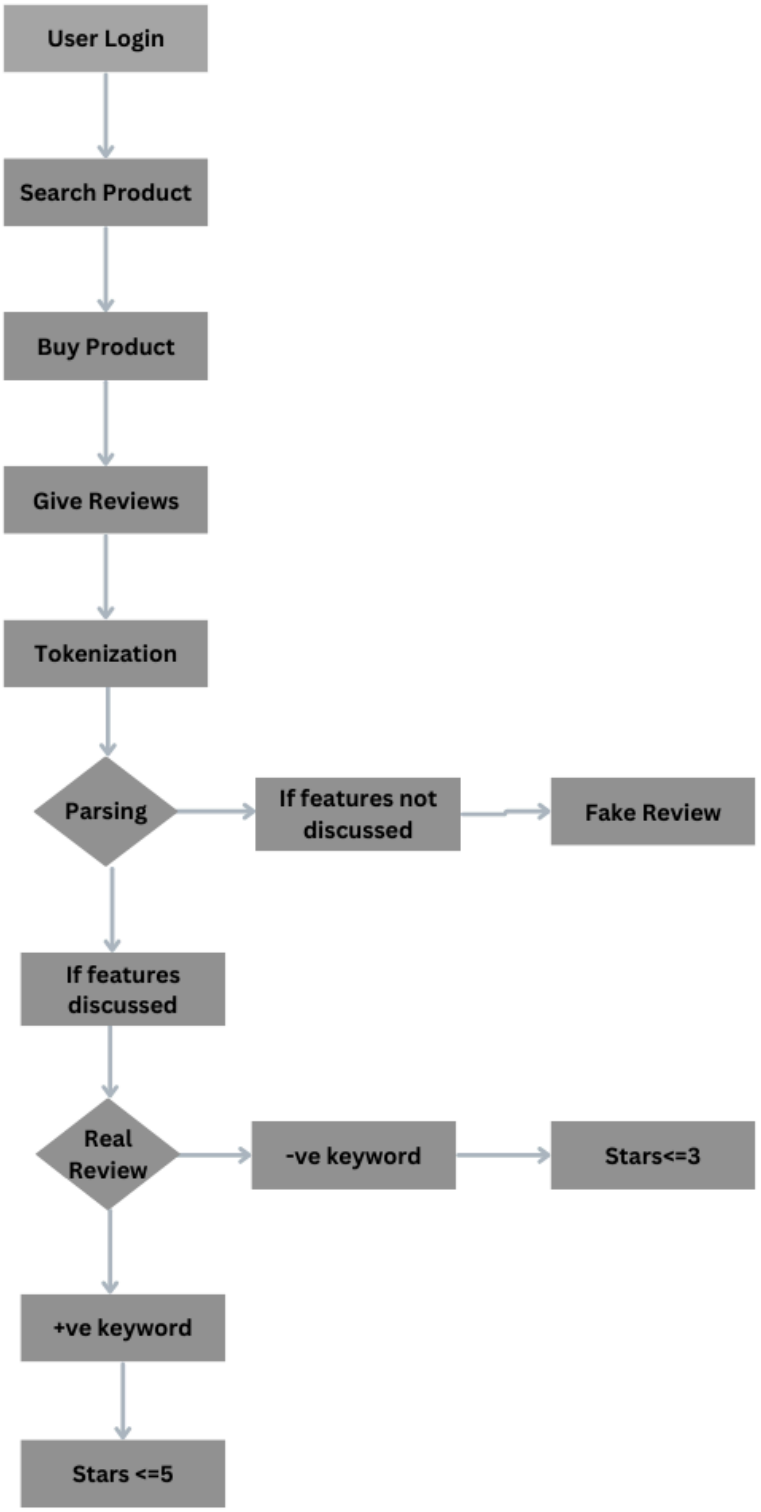
In today's busy world, people prefer online shopping to onsite shopping. Facing hectic job schedules and busy routines, they are unable to manage their time for shopping. Hence, they look forward to any online, authentic, and scam-free shopping platforms. Today, the biggest problem for an online customer is the trust issue and the authenticity of the service provider. Addressing this problem, we find a solution that will help customers develop confidence in their shopping. Our system will notify the customer about real and fake reviews based on NLP algorithms, which will not only help the users buy authentic and fault-free accessories but will also perform sentimental analysis of the reviews of the customers. This feature of our system will not only help in decision-making but will also resolve all the trust issues of our customers. Also, to give the best results to the user input, our system will be using the rake algorithm (rapid algorithm keyword extraction). In the future, we will be adding barcode scanners to get rapid and frequent results.

Sustainable Development Goals

Goal 9: Industry, Innovation, and Infrastructure – Our system involves innovation in online shopping platforms, which contributes to the advancement of technology and infrastructure.

Goal 12: Responsible Consumption and Production - By helping customers distinguish between authentic and fake products, our system promotes responsible consumption.

System Workflow Diagram



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HAIRHUB

Abstract

In the men's salon services industry, traditional booking systems often lack customization and innovation, leading to lower user satisfaction and inefficient salon processes.

HairHub revolutionizes men's salon services with a dynamic mobile app. Our App is AI based and uses machine learning algorithms to offer a sophisticated platform. Through intricate models trained on vast datasets, users can engage with the 'try-on' feature, which dynamically overlays various hair and beard styles in real-time. This functionality harnesses the power of computer vision techniques, facilitated by frameworks like OpenCV, to accurately render styles onto live camera feeds. Additionally, Our App integrates augmented reality technologies, leveraging frameworks such as AR Core, to provide an immersive try-on experience. Users benefit from a technically advanced system that seamlessly blends machine learning, computer vision, and augmented reality to facilitate informed style decisions.

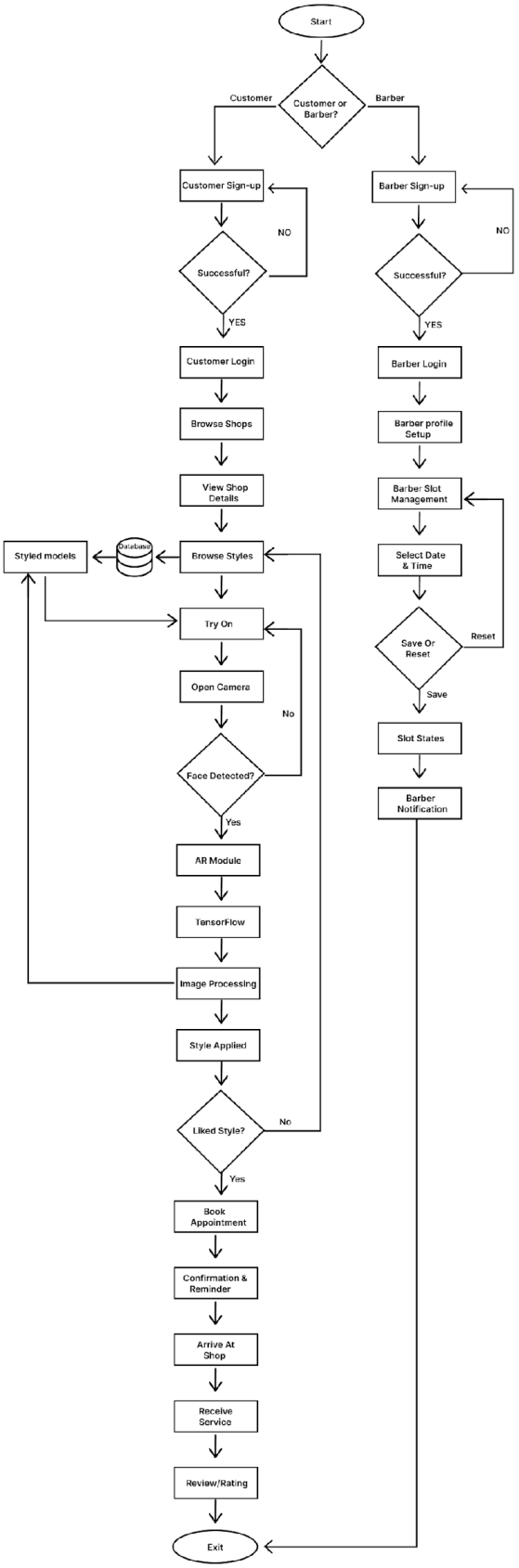
HairHub redefines booking systems with innovative features, enhancing user satisfaction. With dual interfaces for barbers and customers, it simplifies appointment scheduling and style discovery. Barbers manage their slots for each day effortlessly while users enjoy easy registration and daily slot bookings, alongside a visually appealing style gallery showcasing various hairstyles and beard styles.

In the men's maintenance sector, HairHub raises the bar for ease and customer satisfaction by proactively involving users and streamlining salon processes.

Sustainable Development Goals

Decent Work and Economic Growth, the eighth sustainable development target, is in line with HairHub. HairHub promotes sustainable economic growth and the creation of quality employment in the styling sector by utilizing technology to improve customer experiences and streamline salon operations

System Workflow Diagram



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CARS HUB

Abstract

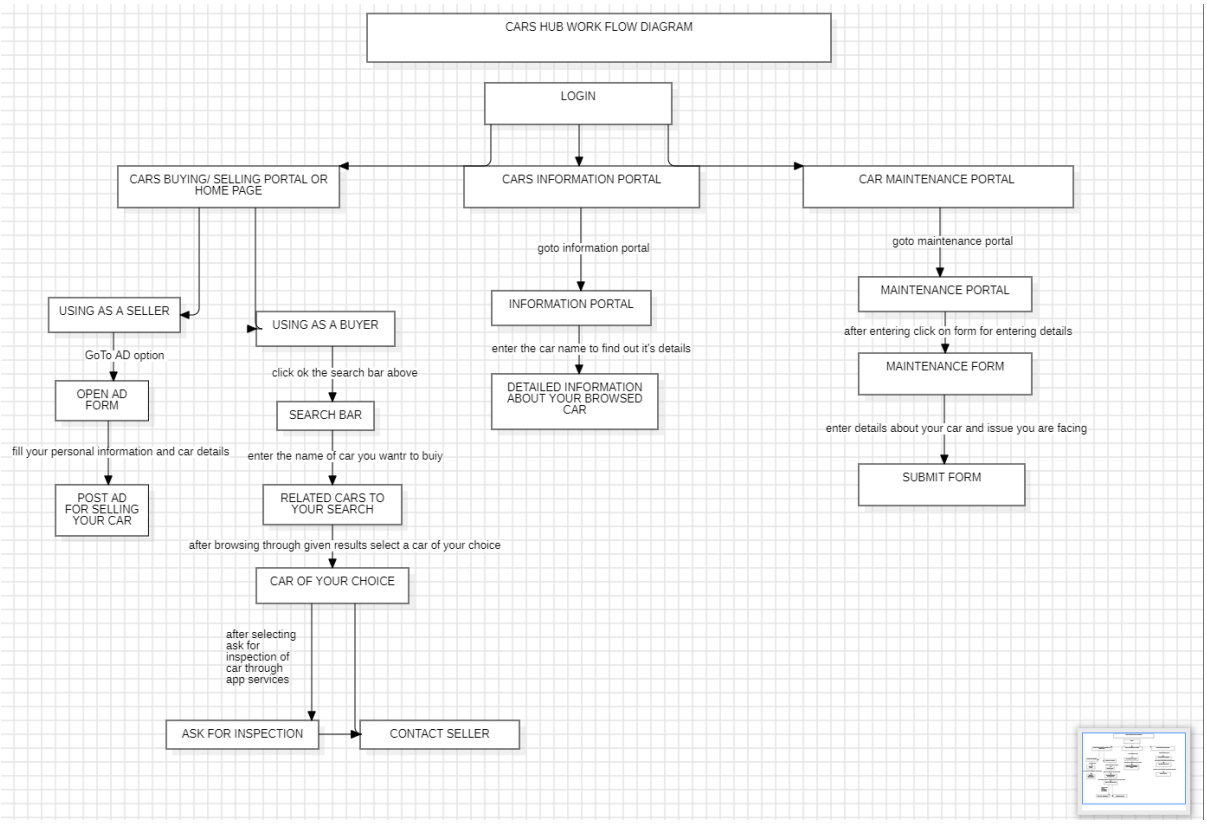
The Cars Hub project is a sophisticated and user-friendly mobile application designed to streamline the process of buying and selling cars. In today's fast-paced world, the demand for a one-stop automotive marketplace has never been greater and aims to bridge the gap between prospective buyers and sellers, offering an all-encompassing platform that revolutionizes the automotive retail experience. You can also get all the useful information related to any car of your choice. You can post ads on this app offering your car at a specific price, buyer will go through the ad and will contact you and will arrange a meeting for further selling process. Users can explore an extensive database of cars, including detailed specifications, pricing information, and high-quality images for vehicles. This feature empowers users with the knowledge they need to make informed decisions. Along with buying and selling of cars app will also provide detailed knowledge of cars and their specs so you can also use this app for learning about cars and knowing every detail of your car. By combining a user-friendly interface with essential features, Cars Hub redefines the automotive retail experience, making it a go-to solution for car enthusiasts, so they can know every piece of detail about cars of their choice.

Sustainable Development Goals

8. Decent Work and Economic Growth

Through this app we are helping people in buying and selling cars which will help them to grow economically, whereas the information portal will educate them about cars.

System Workflow Diagram



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Trip-Tender

(Your Ultimate Travel Companion)

Abstract

Trip-Tender simplifies travel by combining trip planning and budget tracking in a convenient app. This application tackles the challenges of planning trips and managing expenses effortlessly. By leveraging advanced technology, Trip-Tender streamlines the process of creating travel itineraries and keeping tabs on spending. Users can input their budget and desired destination, and the app responds with well-thought-out trip suggestions, including detailed pricing for accommodations, dining options, and booking fees. What sets Trip Tender apart is that it not only saves time and makes travel more straightforward but also provides a comprehensive, fully planned trip, ensuring every aspect aligns with the user's financial plan. This makes Trip-Tender the perfect companion for modern travelers, empowering them to save time, travel with ease, and make mindful spending decisions.

Sustainable Development Goals

Trip-Tender aligns with several Sustainable Development Goals (SDGs):

1. **SDG 9**: Industry, Innovation, and Infrastructure: By leveraging innovative technology, Trip-Tender streamlines travel planning and expense management, contributing to advancements in the travel industry.

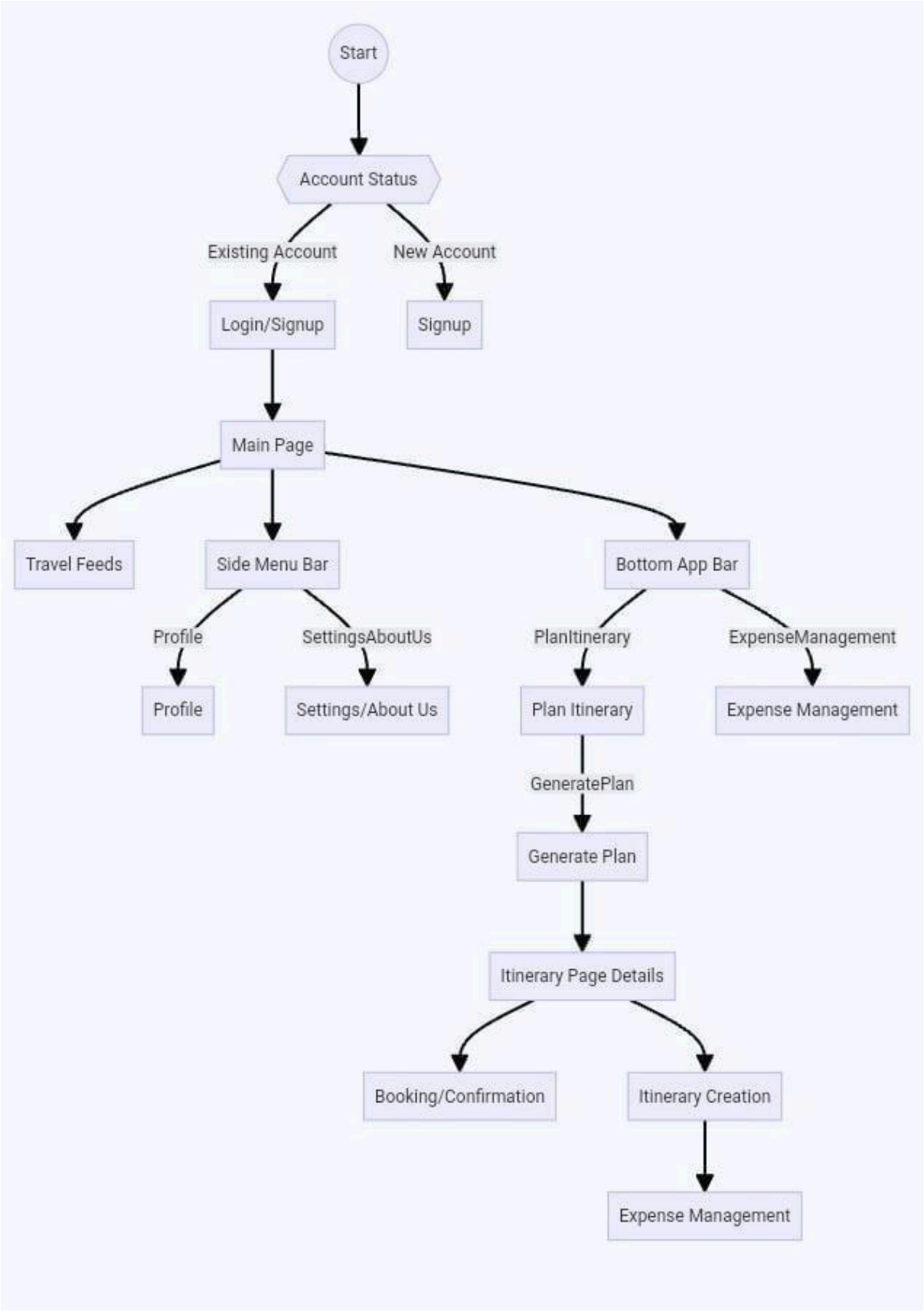
2. **SDG 11**: Sustainable Cities and Communities: Trip-Tender promotes sustainable travel practices, enhancing efficiency in travel planning and reducing environmental impact, thereby supporting the development of sustainable communities.

3. **SDG 12:** Responsible Consumption and Production: Through budget-friendly trip recommendations and expense tracking, Trip-Tender encourages responsible spending habits, contributing to sustainable consumption patterns.

4. **SDG 8:** Decent Work and Economic Growth: Trip-Tender creates opportunities for economic growth within the travel sector by facilitating convenience and efficiency in travel planning.

5. **SDG 17:** Partnerships for the Goals: Trip-Tender can collaborate with stakeholders to promote sustainable travel practices and contribute to the achievement of SDGs through partnerships and collaboration.

System Workflow Diagram



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SmartAttendance - AI-Enhanced Geofencing and Biometric Student Attendance System

Abstract

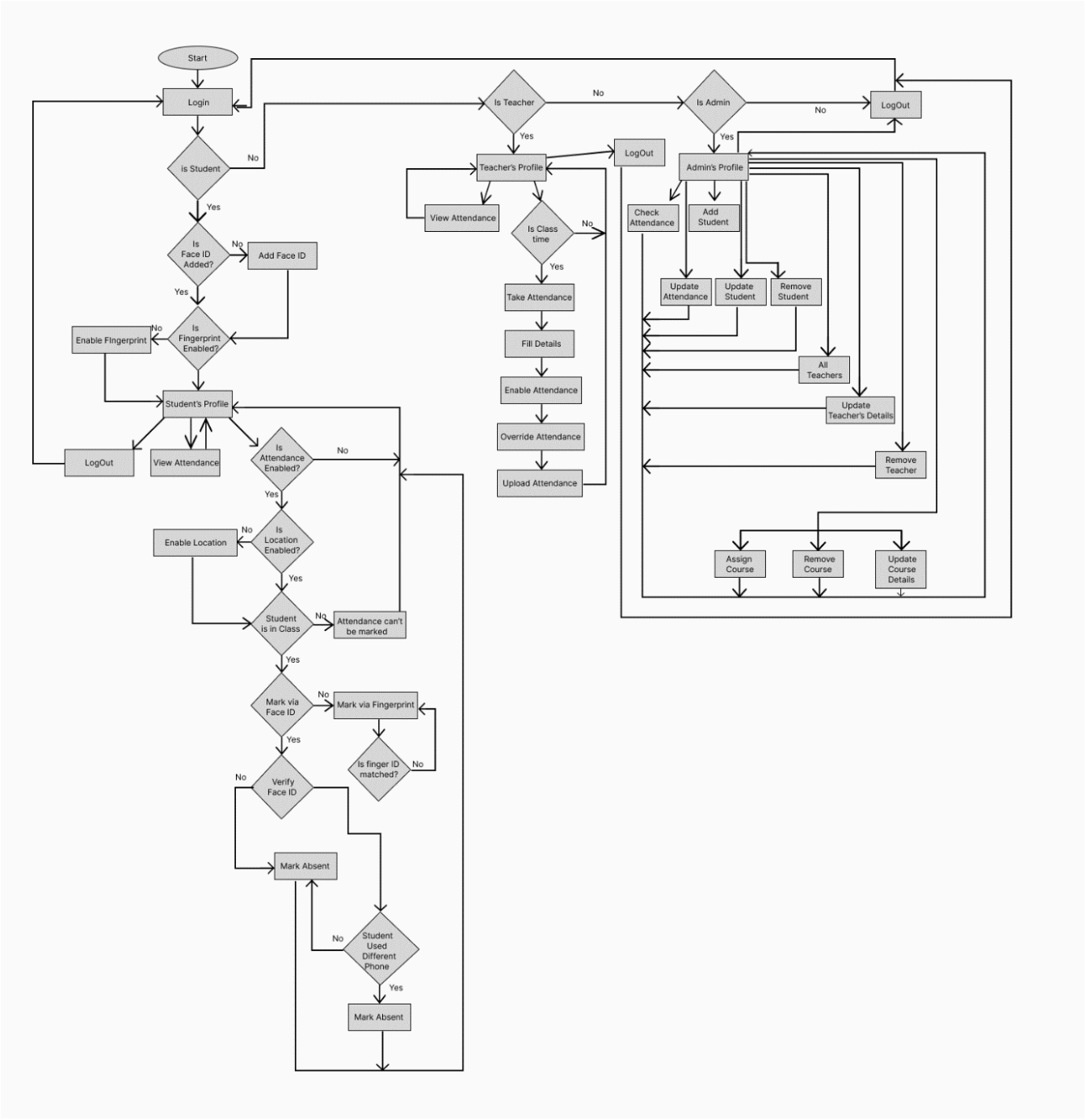
Traditional methods of marking attendance in educational institutes present various challenges, including inefficiencies, errors, and lack of real-time monitoring. The manual attendance marking processes are time-consuming and prone to inaccuracies. Moreover, the absence of digital tracking mechanisms limits transparency and compromises the integrity of attendance records. which can make attendance records less reliable. To address the shortcomings of manual attendance systems, this project proposes an innovative AI-driven Smart Attendance System integrating geolocation and biometric authentication technologies. The system comprises a mobile application, central database and web portal interconnected to optimize attendance management processes. By transforming manual process into a digital solution, the system enhances efficiency, accuracy, and transparency in attendance tracking. The mobile application facilitates registration for students and teachers by using university-issued credentials. Teachers enable attendance sessions by specifying parameters such as department, subject, date, batch, and class section. Students verify their presence using biometric identifiers (fingerprint or face ID) within a predefined time frame and validated classroom geolocation. Attendance data are securely stored in the central database, empowering teachers to review, edit, and adjust records as necessary. Administrators have access to the web portal for managing user roles, adding or removing individuals, and monitoring system activities.

Sustainable Development Goals

1. Quality Education (SDG 4): The Smart Attendance System contributes to SDG 4 by enhancing the efficiency and effectiveness of educational processes. By streamlining attendance tracking, the system promotes transparency and inclusivity in educational institutions.

2. Industry, Innovation, and Infrastructure (SDG 9): By using advanced technology like AI, geolocation, and biometrics, this project boosts innovation in educational infrastructure.

System Workflow Diagram



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Sehat Yaab

(Healthcare Access App for Underserved Communities)

Abstract

Access to healthcare is a fundamental right, but unfortunately, many individuals lack adequate access to quality medical services. This situation is particularly pronounced in countries like Pakistan, where a significant portion of the population does not have access to quality medical facilities. That's the reason why people visit major cities to get medical facilities, incurring both time and financial costs.

The purpose of our application is to address these healthcare disparities by providing services tailored to the needs of underprivileged populations and reducing the burden of long hospital queues. Our app facilitates online appointment bookings and consultations, eliminating the need for extensive travel. Through location-based services, users can easily locate nearby hospitals and doctors, while a review feature assists them in finding the most suitable healthcare providers. Furthermore, through our open-source community users can get free health advice and stay informed about emerging health issues and trends.

The app features user registration and customizable profiles, allowing individuals to share essential medical information, preferred languages, and communication preferences. By leveraging DevOps practices, such as continuous integration and delivery, infrastructure as code, automated testing, and robust security measures, we ensure the app's reliability and scalability. Additionally, through collaboration with local organizations and NGOs, we aim to reach underserved communities and bridge the gap between doctors and patients.

In conclusion, our application will be developed according to the aforementioned specifications, utilizing DevOps approaches and tools to streamline our development, testing, and production processes. By doing so, we aim to contribute to the improvement of healthcare access and outcomes for the people of Pakistan, ultimately minimizing development time and addressing critical development issues effectively.

Sustainable Development Goals

In this thesis we will construct the application that will fulfill the following SDG's:

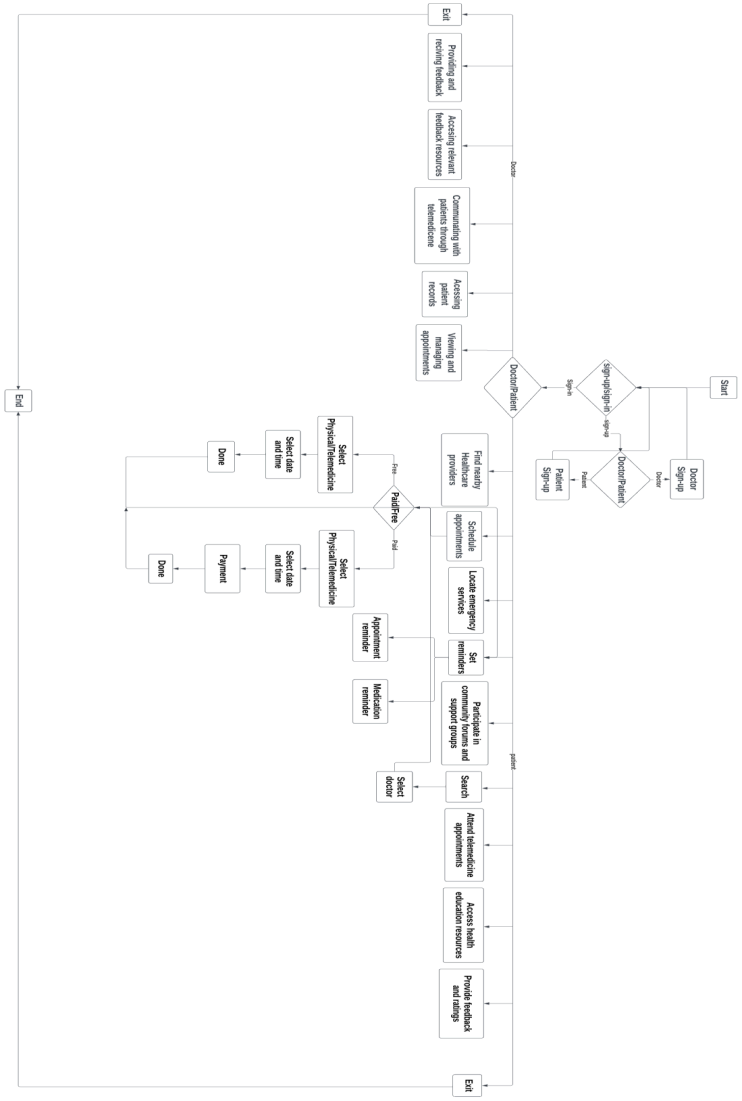
1) Goal 3 (good health and wellbeing):

we achieve this goal by providing quality health and telemedicine facilities to the people that people can access by using our application and website and consulting with the doctor by sitting at home.

2) Goal 4 (reduce inequalities):

we achieve this goal by providing quality health facilities to underserved communities by giving them free consultations or even the paid consultation will be at a low cost.

System Workflow Diagram



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FurryFriend - Animal Care and Rescue App

Abstract

In an era where animal welfare issues are on the rise, there's a growing need for an end-to-end solution that unites animal lovers and animal rescuers. This game-changing application, built on the Flutter platform, aims to fill that need and make an impact on animal lives.

The goal of this project is to address the many issues that come with caring for and rescuing animals. The project provides an easy way to create profiles, build relationships between pet owners and adopters, and make it easier to find lost pets. There is also a section for listing animals that need new homes.

But this project isn't just about convenience, it's also a great educational tool. You'll find articles, videos, and guides on how to keep your pet healthy and responsible. It's all about community, with forums where you can share your knowledge, experiences, and stories.

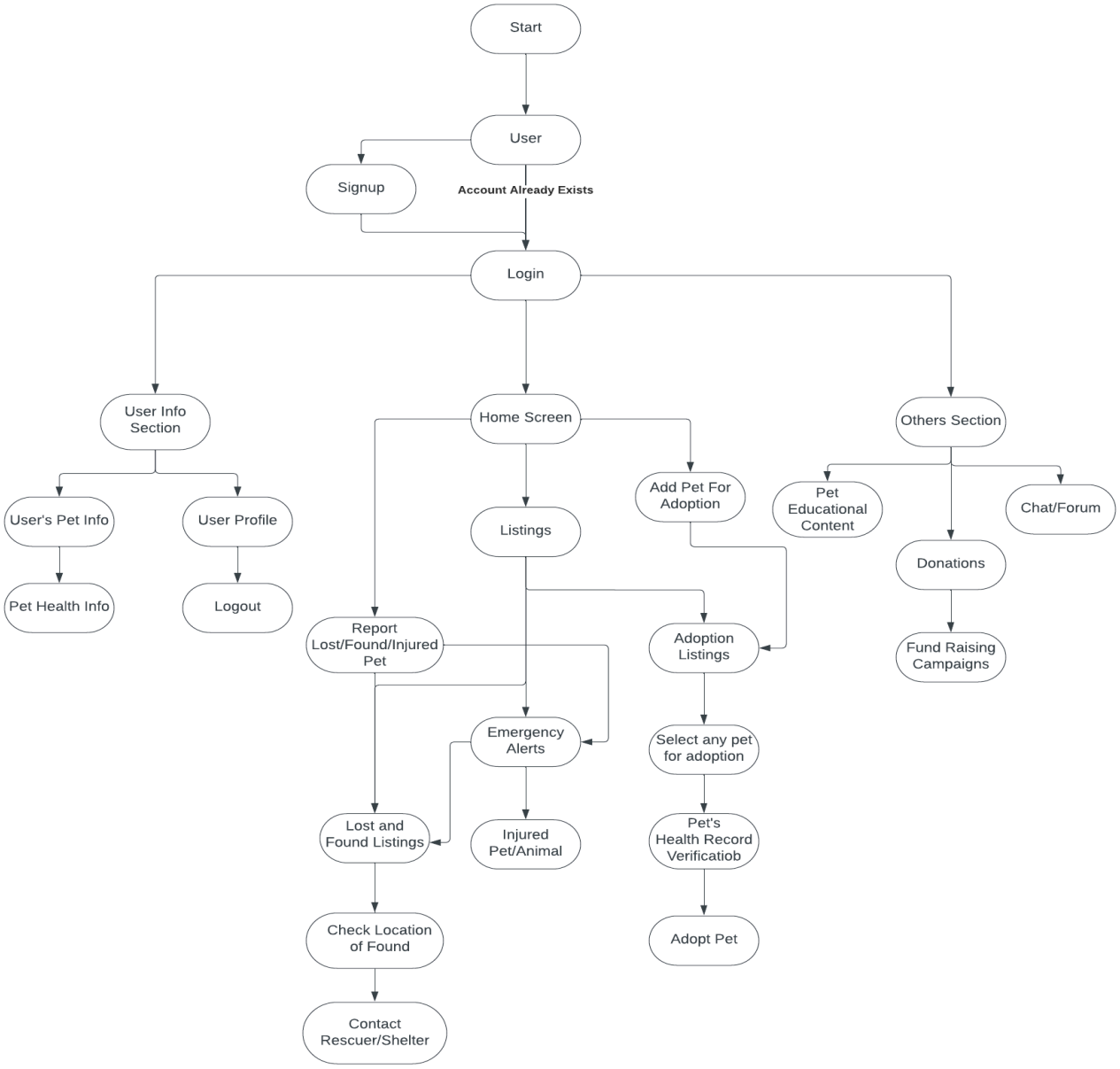
The application uses push notifications and reminders to ensure that pet health is well cared for, ensuring timely vaccination and veterinary care. In addition, it introduces a donation system enabling users to make direct contributions to rescue organizations and shelters.

The innovative mobile application is a powerful solution to this problem. It unites caregivers, advocates, and animal lovers under a common digital roof, facilitating the rescue and well-being of animal pets. Beyond convenience, it fosters a community committed to responsible pet ownership and animal health. This application promises to have a lasting impact on animal welfare, ensuring a brighter future for animals and their human friends, by prioritizing security, inclusion, and accessibility.

Sustainable Development Goals

SDG 15: Life on Land: By addressing animal welfare issues and facilitating the adoption of homeless animals, the app contributes to the preservation of wildlife and ecosystems, promoting the well-being of animals on land

System Workflow Diagram



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ReelMood: A Mood-Driven Content Recommendation System Recognizing Facial Expression integrated in Flutter app

Abstract

ReelMood represents a groundbreaking effort to revolutionize content recommendation on social media platforms. This project combines real-time facial expression recognition with Flutter, offering users an enriched experience based on their current emotional state. Utilizing machine learning models trained on facial expression datasets, ReelMood dynamically detects and classifies emotions using the mobile device's camera. This model seamlessly integrates into a Flutter application, featuring an interactive interface that captures real-time facial expressions.

The Flutter app, an integral component of ReelMood, not only provides a visually appealing experience but also leverages the detected emotions to curate personalized content recommendations, focusing on reels or short-form videos. Ethical considerations, such as privacy and potential biases in emotion detection technology, are meticulously addressed to ensure user data is handled responsibly. By prioritizing user privacy and utilizing Flutter's capabilities, ReelMood aims to contribute to the evolving landscape of mood-driven content recommendation systems, raising awareness of the ethical considerations associated with emotion detection technology.

Technologies Employed:

- Machine Learning Frameworks: TensorFlow, PyTorch
- Application Development: Flutter
- Emotion Classification Algorithms
- Computer Vision: OpenCV (for image and video processing, facial expression recognition)
- Convolutional Neural Networks (CNNs) (for training the emotion detection model)

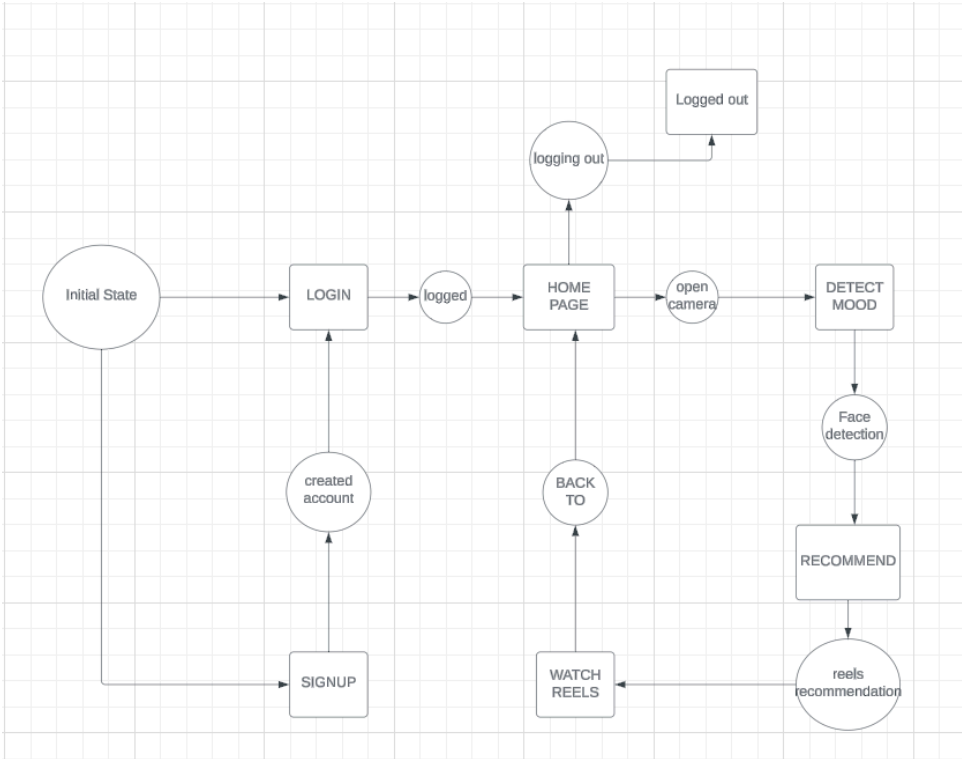
Sustainable Development Goals

ReelMood aligns with several Sustainable Development Goals (SDGs):

SDG 3 (Good Health and Well-being): Promoting emotional well-being in terms of customization and better user experience.

SDG 9 (Industry, Innovation, and Infrastructure): Integrating innovative technologies for efficient recommendation system just like we add emotion recognition from facial expressions.

System Workflow Diagram



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FAKE PRODUCT IDENTIFICATION SYSTEM

Abstract

The advanced block chain project idea is a fake product identification system. nowadays every brand has a fake copy of them out there. Every popular brand has fake manufacturers selling the same item at cheaper rates by compromising on the actual quality. Even the experts of the original company may not be able to distinguish between fake products and their real products. it can store the product details and generate a QR code of that product as blocks in the database. people would be able to scan the QR code using their smartphones and their smartphones will tell them whether the product is fake or not. It will compare the scanned QR code against entries in the Block chain database. If the code matches, it will give a notification to the customer that the product is original, otherwise it will give the notification that the product is fake. A mobile application in Java involves using a framework like Android for Android applications or Java X for cross-platform mobile applications.

A Frontend Framework: If you prefer a simpler solution, you can use plain HTML, CSS, and JavaScript and have also discussed the importance of the Web.js library in building any block chain application.

Sustainable Development Goals

The Sustainable Development Goals (SDGs) that align with the proposed fake product identification system project include:

Goal 9: Industry, Innovation, and Infrastructure - By implementing a blockchain-based system for product authentication, the project contributes to advancing innovation in industry and improving infrastructure for sustainable development.

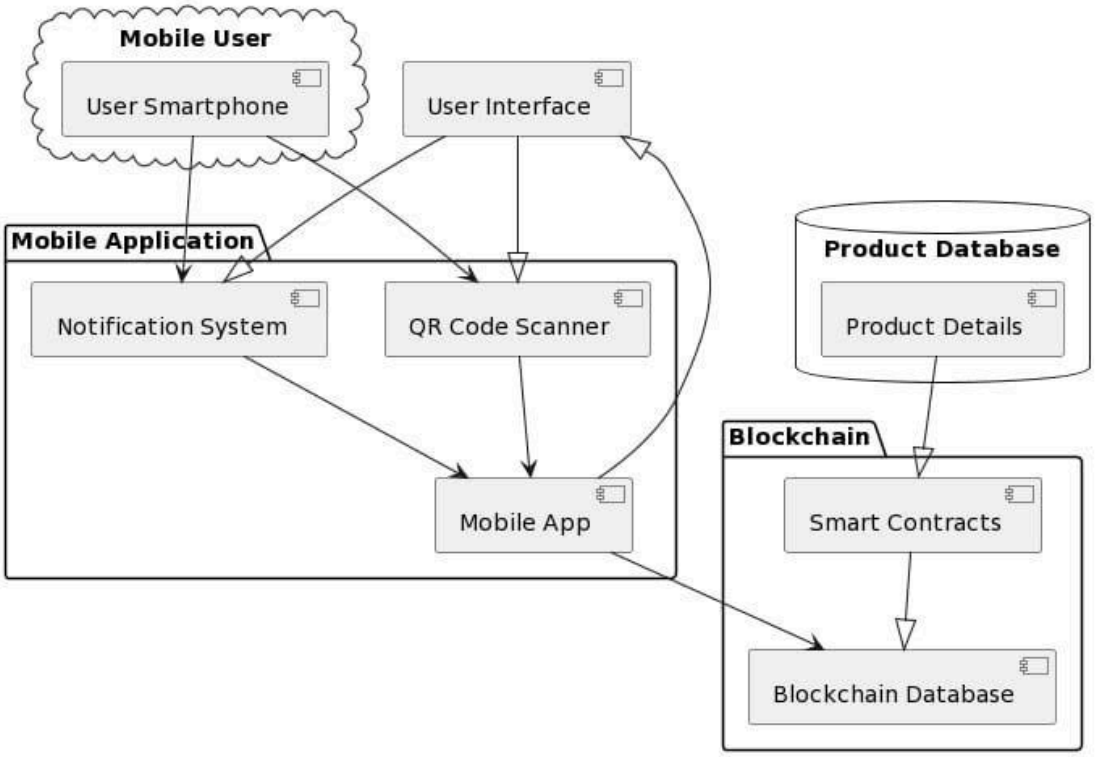
Goal 12: Responsible Consumption and Production - The project promotes responsible consumption by helping consumers make informed choices about the authenticity of products, thus reducing the demand for counterfeit goods and minimizing resource waste.

Goal 16: Peace, Justice, and Strong Institutions - By tackling the issue of counterfeit products, the project supports efforts to promote peace and justice by combating illicit trade and protecting intellectual property rights.

Goal 17: Partnerships for the Goals - Collaboration between governments, businesses, and civil society organizations is essential for the success of the fake product identification system. Establishing partnerships to implement and scale the system can contribute to achieving the SDGs more effectively.

These SDGs highlight the project's potential to address key global challenges related to economic development, sustainable consumption, legal frameworks, and collaborative partnerships..

System Workflow Diagram



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Apartment rental management and security system

Abstract

Property maintenance, tenant happiness, and security are just a few of the many aspects that must be seamlessly coordinated in the complex business of managing rental apartments. In order to increase safety, optimize operations, and enhance the overall tenant experience, this abstract investigates the incorporation of cutting-edge security systems into apartment rental management methods.

Technological developments in the last few years have completely changed the security system industry, providing property managers with a wide range of advanced options that are customized to meet their unique requirements. These technologies enable property managers to efficiently secure their properties and swiftly address any security concerns. Examples of these technologies include smart surveillance cameras, keyless access systems, and remote monitoring capabilities.

Improving tenant safety and peace of mind is one of the main advantages of incorporating cutting-edge security equipment into apartment rental management. Tenants can feel safe and secure inside their rented area thanks to features like access control, motion detection, and real-time monitoring. Furthermore, the visibility of security measures serves as a deterrent to possible intruders, which lowers the probability of criminal behavior and security breaches.

Moreover, the incorporation of security systems into rental management procedures provides property managers with enhanced operational efficiency. Without the need for actual keys, automated access control solutions lower the possibility of unwanted access and make tenant turnover management easier. Additionally, managers can supervise property security from a distance thanks to remote monitoring features.

Furthermore, modern security systems can improve rental properties' overall appeal, which will increase their marketability and tenant retention. Modern security systems increase the likelihood that a property will attract discerning tenants who value convenience and safety in an increasingly competitive rental market.

In conclusion, there are a lot of advantages for both property managers and tenants when cutting-edge security technologies are incorporated into apartment rental management procedures. In today's ever-changing real estate market, property managers can efficiently navigate the intricacies of rental management by utilizing technology to boost security, expedite operations, and improve tenant satisfaction.

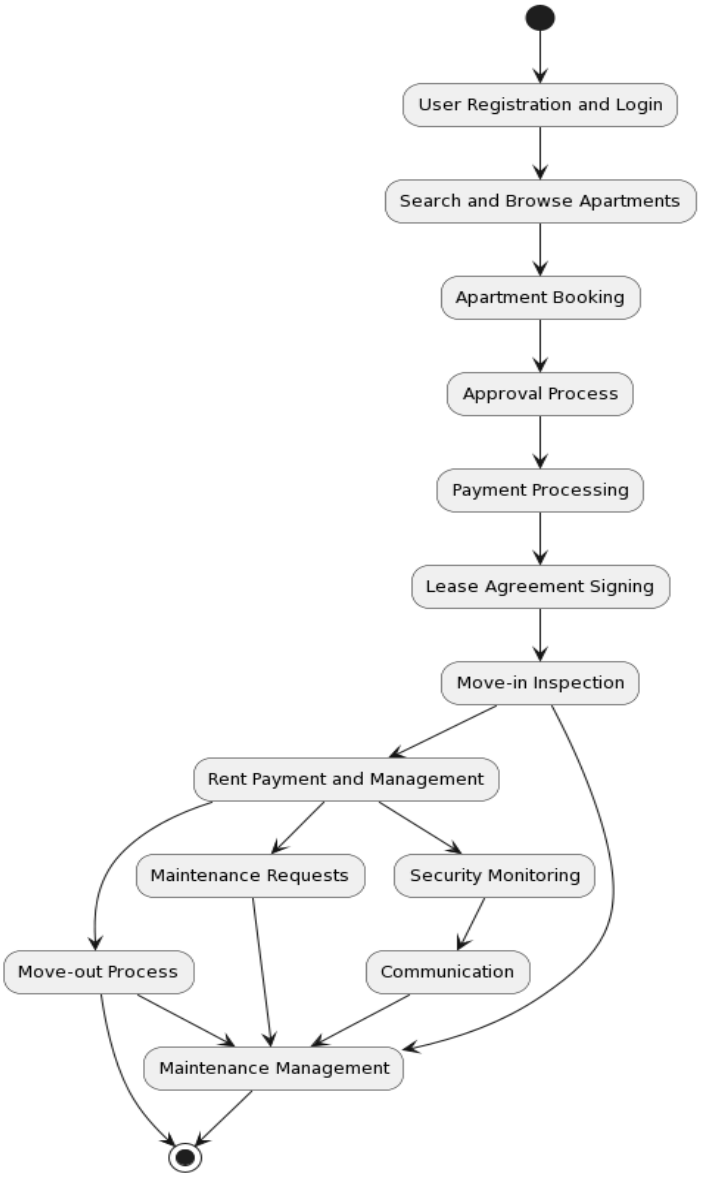
Sustainable Development Goals

Regarding security systems and apartment rental management, there are two Sustainable Development Goals (SDGs) that are pertinent:

Objective 11: Ecological Towns and Cities Making cities and human settlements inclusive, secure, resilient, and sustainable is the main objective of this goal. By guaranteeing inhabitants' safety and security in urban settings, apartment rental management and security systems help achieve this aim. Apartment buildings can help achieve Goal 11 by putting advanced security measures like access control systems and surveillance cameras into place. This will make communities safer and more resilient.

Objective 9: Infrastructure, Industry, and Innovation - This objective highlights how crucial it is to provide resilient infrastructure, support equitable and sustainable industry, and encourage innovation. Cutting-edge security solutions that increase productivity, save resources, and enhance sustainability might be advantageous for apartment rental management.

System Workflow Diagram



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Dental Caries Detection Application

Abstract

Dental caries, commonly known as tooth decay, is a prevalent oral health issue that affects people of all ages worldwide. Research indicates that just 21% of individuals undergo dental check-ups, and this rate could be considerably lower in low- and middle-income nations due to the high cost and lack of insurance coverage for dental examinations, So in order to overcome this issue ,We are going to develop an Application - The DentalScan Pro App with Flutter.

Key Features:

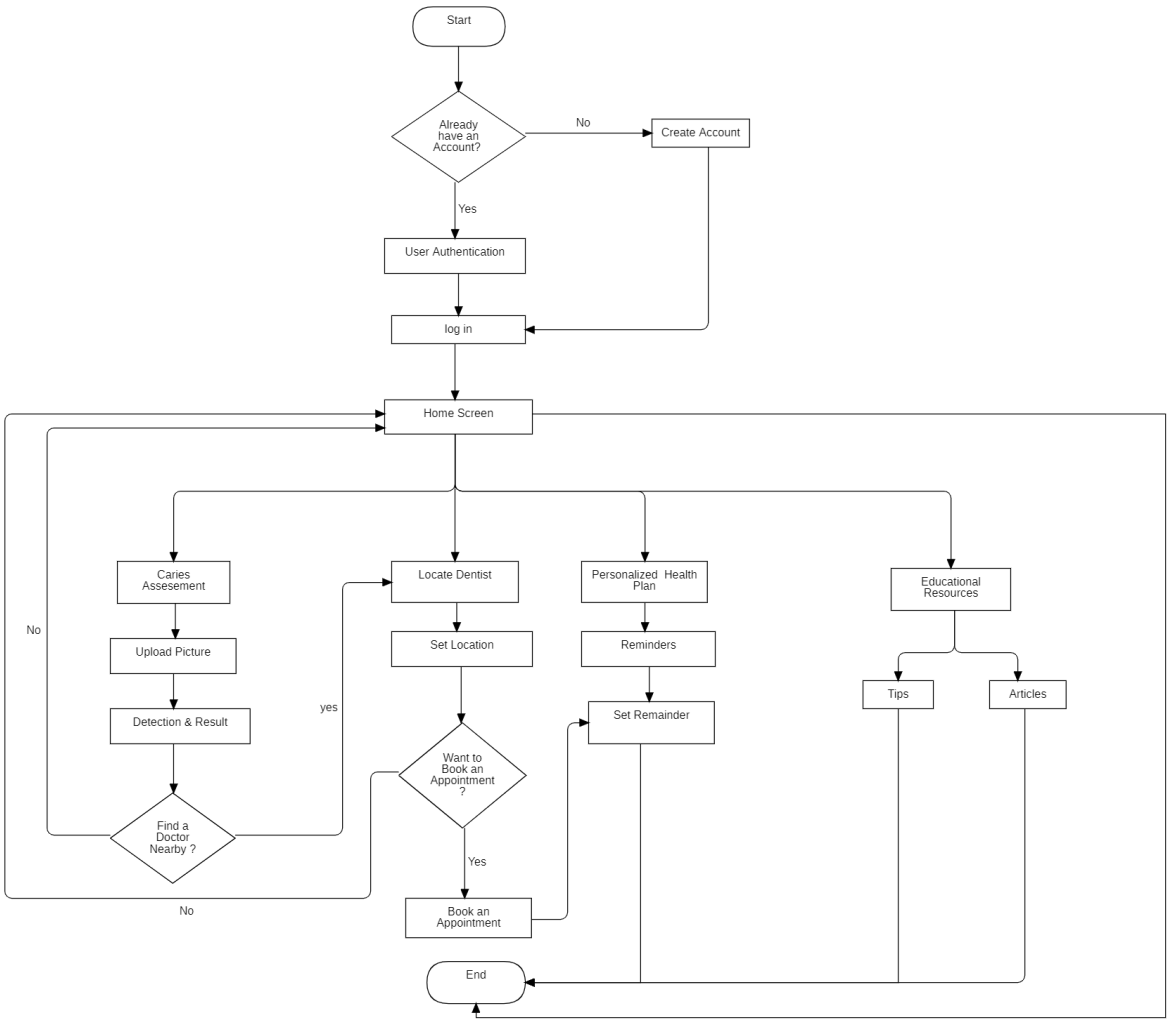
- **Real-Time Cavity Detection:** DentalScan Pro uses advanced image recognition technology to instantly identify and highlight cavities in your teeth as you scan your smile with your smartphone's camera.
- **Appointment Scheduling:** DentalScan Pro integrates with local dental clinics, making it easy to schedule appointments with certified professionals for further evaluation and treatment. The app also provides an option for virtual consultations for non-emergency cases**.**
- **Oral Care Reminders:** Set personalized reminders for daily oral care routines, including brushing, flossing, and rinsing. DentalScan Pro offers tailored advice based on your cavity history and dental health goals.
- **Secure Health Profile**: Create a secure and confidential health profile to store your dental history, X-rays, and cavity detection records. You can share this information with your dentist during in-person visits.
- **Educational Resources:** Access a library of informative articles, videos, and tips on maintaining optimal dental health. Learn about cavity prevention, oral hygiene best practices, and more.
- **Community Support:** Connect with a community of users who share their experiences and advice on maintaining good oral health. Share your success stories and learn from others.

Sustainable Development Goals

- **SDG -3 (Good health & Wellbeing):** Utilizing advanced technology, the app assesses dental caries and provides free treatment guides, promoting affordable healthcare.
- **SDG-8 (Decent Work & Economic growth):** Connects users with local dental professionals, supporting economic growth in the healthcare sector.

- **SDG-9 (Industry, Innovation, and Infrastructure):** This Application exemplifies the use of digital innovation to improve healthcare access and outcomes by enabling early detection of dental caries, promoting preventive care, and facilitating timely treatment.
- **SDG-12 (Responsible consumption):** Encourages responsible & sustainable consumption of healthcare resources by offering tailored treatment plans, dental knowledge, and cost-effective tips.

System Workflow Diagram



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PowerPlan Pakistan: Reclaim Your Time from Load Shedding

Abstract

PowerPlan Pakistan is a data-driven solution addressing the challenges posed by frequent electricity load shedding in Pakistan. The app empowers users with real-time information on load-shedding schedules, allowing them to regain control of their time and navigate disruptions seamlessly. The key features include personalized schedules, customized alerts, live load shedding updates, location-based notifications, task prioritization, community insights, and energy-saving tips.

By offering accurate and up-to-the-minute information, PowerPlan Pakistan enables users to plan their activities effectively, creating personalized schedules aligned with load-shedding times. Location-based alerts ensure users are always informed about impending power cuts, allowing them to prepare for downtime or save their work.

The feature of task prioritization allows users to organize their to-do lists based on electricity availability, optimizing productivity during power-on hours. The community forum fosters connection among users facing similar challenges, enabling the sharing of tips and strategies for managing power cuts. Additionally, energy-saving tips and recommendations are available to maximize productivity and comfort during load shedding.

User reports indicate significant reductions in the negative impact of load shedding, with improvements in planning, increased productivity, and enhanced overall satisfaction. Businesses also benefit from increased employee productivity and reduced downtime, contributing to improved economic productivity. PowerPlan Pakistan ultimately provides a comprehensive solution for users to take charge of their day, optimize daily routines, and experience a more organized, efficient, and productive lifestyle.

Download the app now to regain control over your schedule.

Sustainable Development Goals

SDG 9: Industry, Innovation, and Infrastructure:

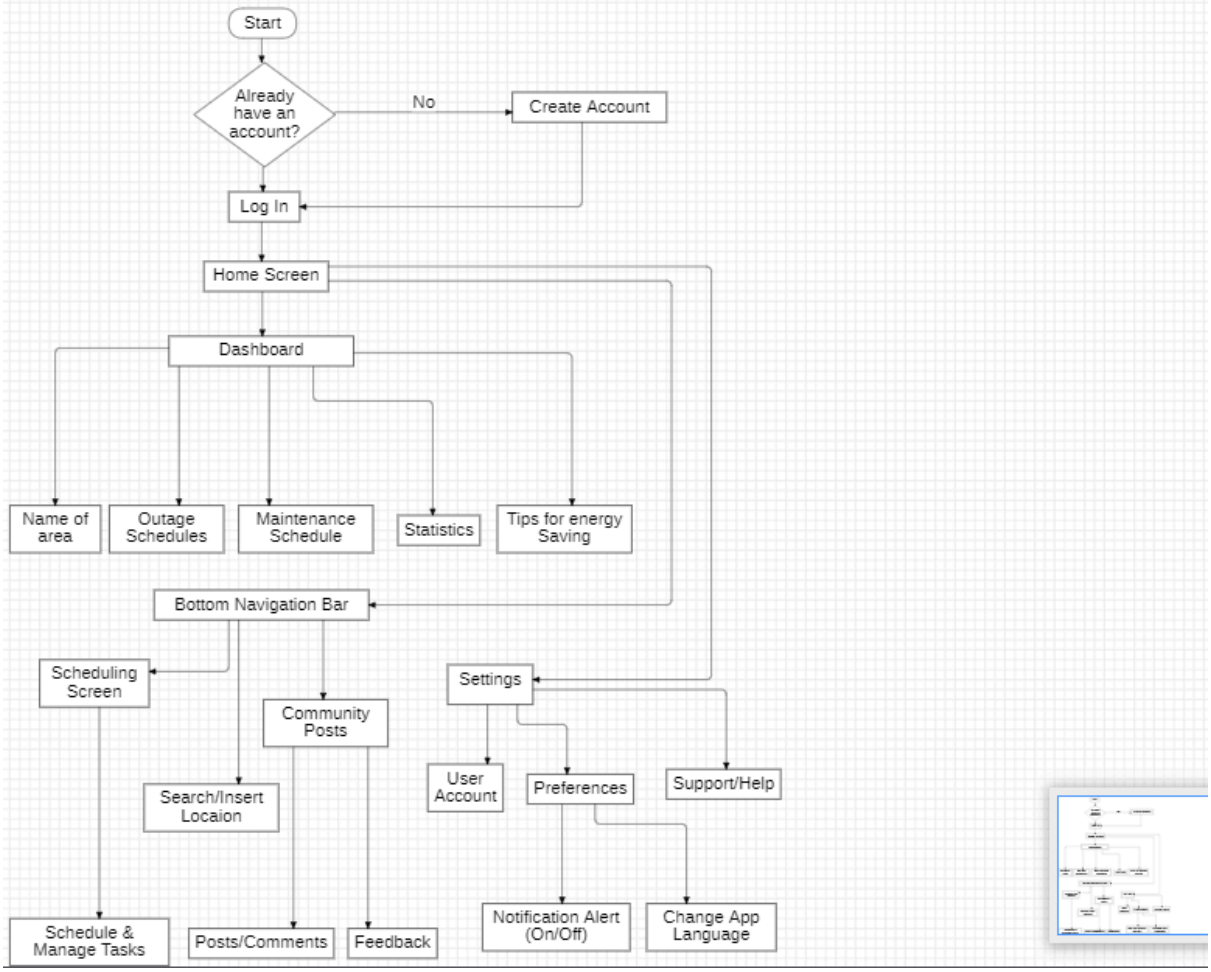
The app innovatively provides real-time information on power outages, helping users plan effectively and enhancing productivity.

SDG 11: Sustainable Cities and Communities:

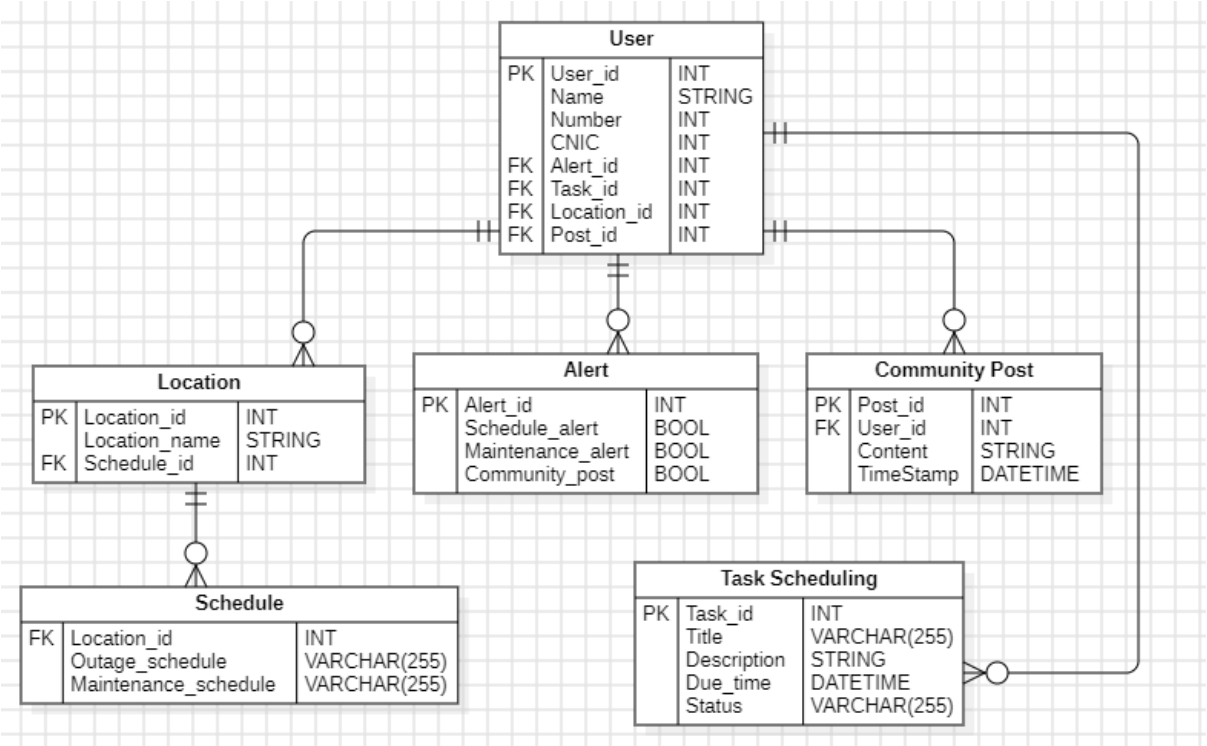
The app empowers individuals and businesses to manage electricity disruptions, promoting transparency with real-time information. Features like community engagement and personalized planning.

System Workflow Diagram

Flow Chart



ER Diagram



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Revolutionizing Brand Promotion

Abstract

Introducing an innovative brand promotion platform that seamlessly merges predictive analysis, intuitive e-commerce functionalities, and a robust payment gateway. This platform empowers local businesses with actionable insights derived from predictive analytics, enabling strategic decision-making regarding product offerings and marketing strategies while ensuring customers enjoy a frictionless shopping experience through a dedicated app and user-friendly website. Featuring an intuitive design, powerful search capabilities, and seamless navigation, the platform simplifies product discovery and comparison, fostering enduring brand loyalty with an integrated payment gateway ensuring both security and convenience, thereby significantly reducing cart abandonment rates. Essential features include effortless user registration, empowering businesses with effective product showcasing and facilitating effortless discovery of local brands, along with offering enticing discounts, timely notifications, feedback mechanisms, and social sharing support. Additional functionality comprises a comprehensive help center, secure payment gateway, and predictive analysis of future trends, while integrated features enable direct communication through a video call feature between seller and buyer. In summary, this platform revolutionizes brand engagement and retail operations in the digital age, catering to the dynamic needs of businesses and consumers alike.

Sustainable Development Goals

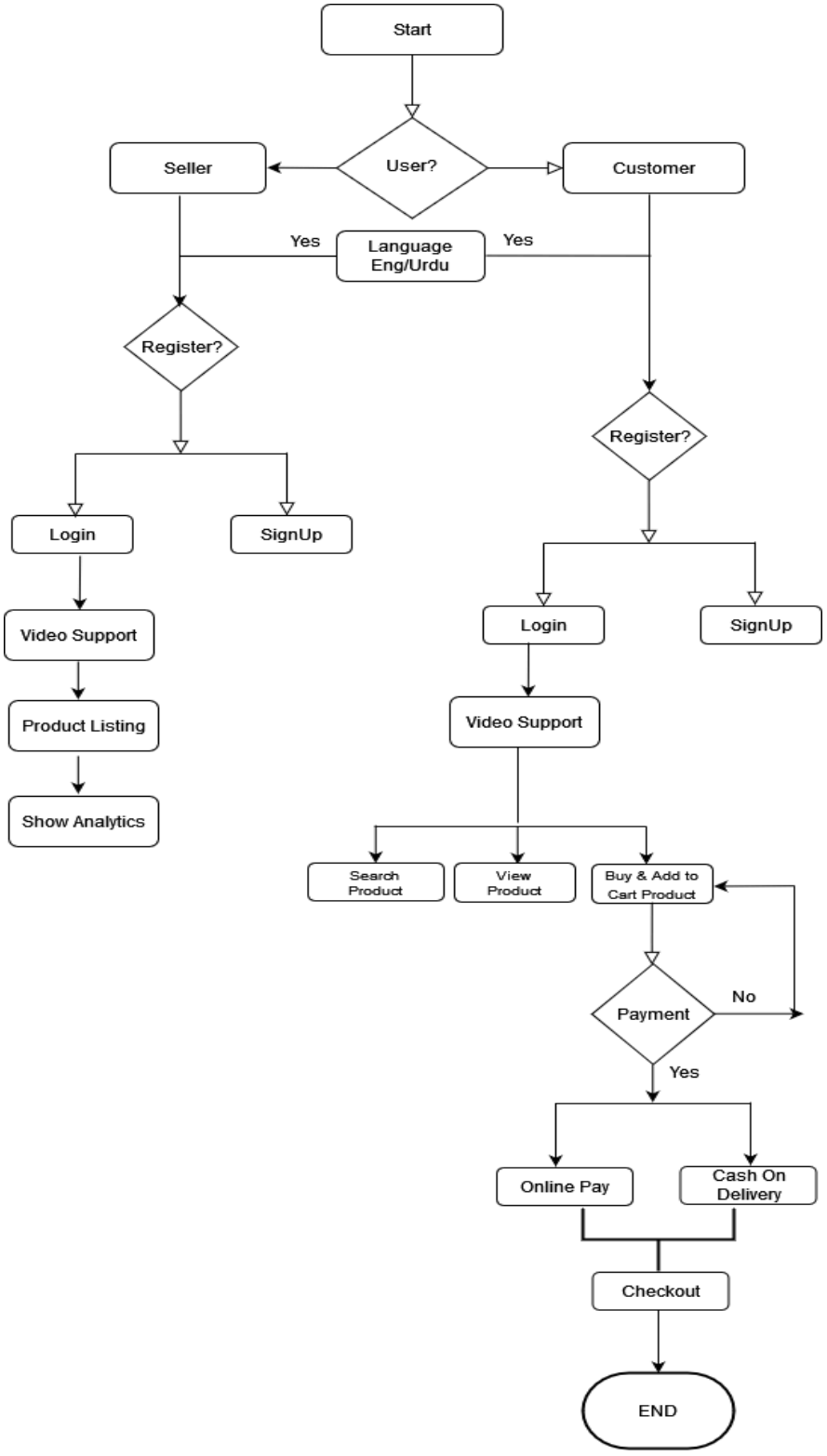
The project described focuses on enhancing brand promotion and facilitating e-commerce transactions, it can contribute to several SDGs:

1. Goal 8: Decent Work and Economic Growth: By empowering local businesses and providing them with tools to improve their visibility and competitiveness, the project contributes to creating sustainable economic growth and employment opportunities.

2.SDG 9: Industry, Innovation, and Infrastructure: The platform introduces innovative solutions that merge predictive analysis and e-commerce functionalities, contributing to fostering innovation within industries and enhancing infrastructure for digital commerce

3. Goal 10: Reduced Inequalities: By facilitating the promotion of local brands and providing them with a platform to compete with larger enterprises, the project helps reduce inequalities within the business sector.

System Workflow Diagram



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Snap Shop: Ecommerce App With Visual Search

Abstract

Snap Shop is a platform that address the problem of inefficient searches in online product discovery. text searches often interfere with user satisfaction. Snap Shop combat this issue with an innovative visual search system powered by Convolutional Neural Network (CNN) AI Model. Users capture and upload images, without need of keyword limitations, to receive similar and recommended of similar products. The CNN analyzes uploaded images, extracting key features like color context and utilizing efficient processing methods. These features are then stored in a Firebase database for rapid retrieval during searches. To ensure user-friendliness, Snap Shop utilizes a Flutter-developed mobile app for intuitive navigation and interaction. A system uses reliable Python Flask server hosting the CNN model and ensures high performance operation. Snap Shop significantly reduces search times and offers a more engaging and user friendly shopping experience compared to traditional text search based methods. By using AI and image data, this platform represents a major advancement in online retail. It highlights the potential of these technologies for impactful solutions and makes way for a future where personalized shopping experiences are facilitated by Search based engines to located to near looking similar products

Sustainable Development Goals

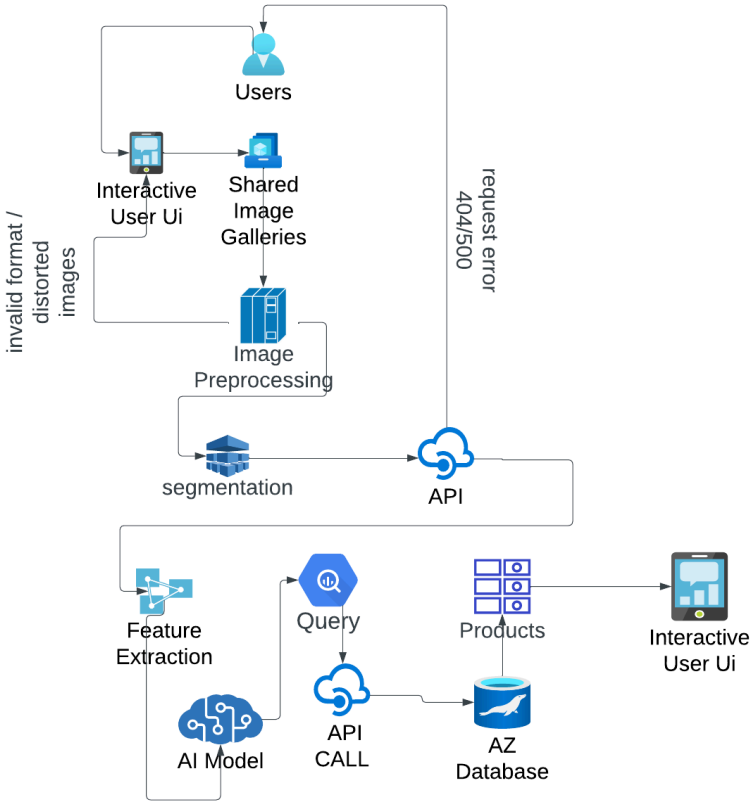
Goal 9: Industry, Innovation, and Infrastructure - Using (CNN model, visual search system) to improve product search in Online Store.

Goal 12: Responsible Consumption and Production - Facilitating efficient product discovery reduces wasteful consumption.

Goal 13: Climate Action - By reducing search timing through efficient image search, project contributes to climate by minimizing the energy consumption.

Goal 17: Partnerships for the Goals - Collaboration between technology developers, e-commerce platforms.

System Workflow Diagram



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Crime Reporting and Prevention System

Abstract

The amount of time required to alert emergency contacts or officials are one of the primary constraints in emergency circumstances.

Some crimes, including overpricing of items and Electric theft, are so widespread that they will never be reported.

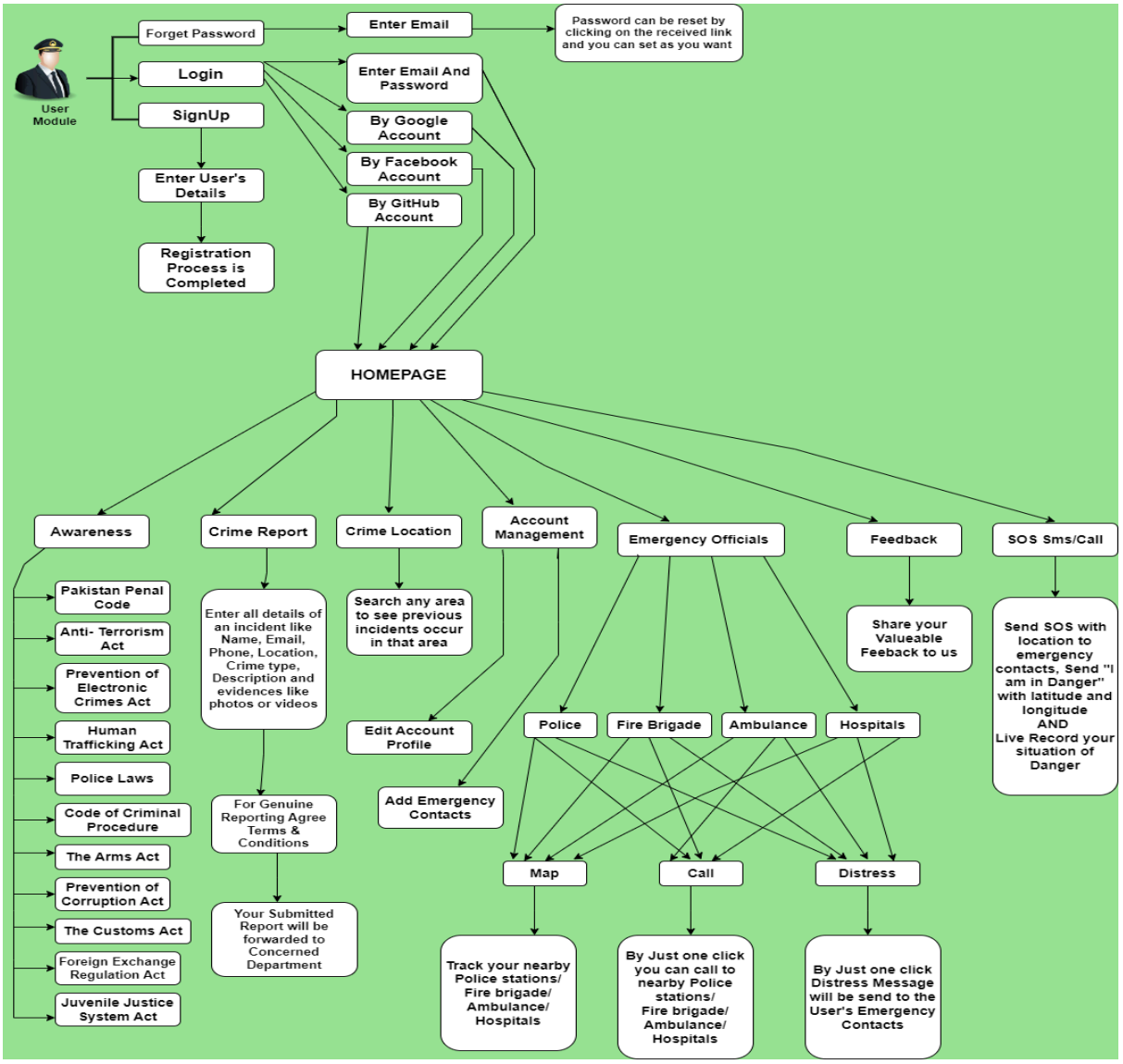
Encouraging Pakistani citizens to report about two pressing issues overpricing of items and electric theft crimes are the recommended course of action. Our innovative application will contribute to the promotion of accountability, transparency, and criminal deterrence by providing an easy-to-use platform for reporting incidences of these crimes. Besides Reporting, this application will provide awareness to users about Pakistan's Crimes Act so that they can be aware about their legal right.

Sustainable Development Goals

Goal 4: Quality Education: Our Application will enhance the quality of education by providing legal awareness of Pakistani Acts to citizens so that they will be aware about their legal ambit.

Goal 16: Peace, Justice, and Strong Institution: By this app users can report about incidents so that we can provide justice to those who are law abiding citizens and penalize those who violate law. With the help of this app users will easily access to executive institutions.

System Workflow Diagram



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PrepEasy

Abstract

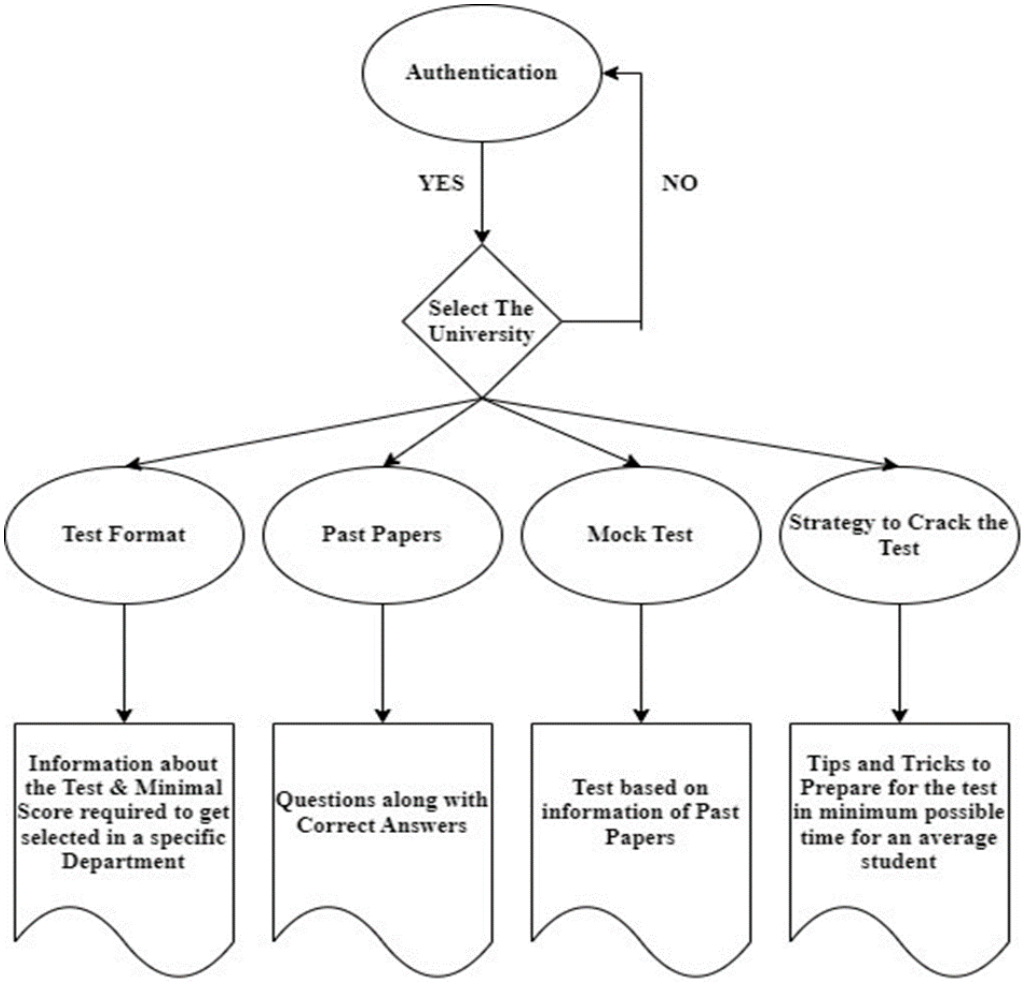
Pakistani students have to go through a very complicated process of preparing for university entry tests which includes significant challenges for them, including the vastness of syllabus, unpredictable test patterns, limited access to study materials, and time constraints. Addressing these challenges, Our Application EasyPrep emerges as an optimal solution, offering an innovative approach to streamline and enhance the preparation process. EasyPrep is a mobile application designed to empower students preparing for entry tests of various Pakistani universities. It provides users with four distinct menus intend to optimize their preparation experience: About_Test, Past_Papers, Mock_Test, and Cracking Strategy.

The About_Test menu provides students with essential information regarding test formats, allotted time for the test, and threshold marks required for securing the admission in a particular department of the specified university, based on recent trends. Past_Papers offer a comprehensive repository of questions that have appeared in the entrance tests of targeted universities over the past 5-6 years, complete with correct options and detailed solutions. Meanwhile, the Mock_Test feature presents a series of practice exams crafted from past papers, ensuring comprehensive coverage of each chapter and facilitating effective self-assessment. The greatly designed portion of EasyPrep lies in its Cracking Strategy menu, which equips students with tips, tricks, short cuts to solve a multiple choice question and efficient other study techniques. This feature, available in both textual and video formats, enables students to expedite their learning process without compromising comprehension, thereby minimizing the time required to cover the syllabus comprehensively.

Sustainable Development Goals

EasyPrep contributes to promoting inclusive and equitable quality education by using technology to overcome barriers to learning. By providing a user-friendly platform that enhances accessibility to educational resources, EasyPrep empowers students from diverse socio-economic backgrounds to prepare effectively for university entry tests, thereby providing equal opportunities for higher education attainment.

System Workflow Diagram



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CraftyCanvas: An Online Portfolio Builder

Abstract

Crafty Canvas is an innovative web-based platform designed to empower individuals in creating and showcasing their professional portfolios with ease. In the evolving landscape of employment and entrepreneurship, a compelling and well-curated portfolio is crucial for making a lasting impression. introduces Crafty Canvas as a solution to simplify the portfolio-building process for users across diverse fields.

Crafty Canvas leverages user-friendly interfaces and customizable templates to enable users to effortlessly compile and present their achievements, skills, and projects. The platform integrates cutting-edge design principles and responsive technologies to ensure an engaging and visually appealing portfolio that adapts seamlessly to various devices.

Skills Required: -

Building a portfolio builder project like Crafty Canvas involves a variety of skills across different domains. Here is a list of skills that would be beneficial for such a project:

1. **Programming Languages:**
    - Proficiency in web development languages such as HTML, CSS, JavaScript.
    - Knowledge of backend programming languages like Python, Node.js, or Ruby.
2. **Web Development Frameworks:**
    - Experience with frontend frameworks like React, Angular, or Vue.js.
    - Familiarity with backend frameworks such as Django, Flask, Express, or Ruby on Rails.
3. **Database Management:**
    - Understanding of database systems like MySQL, PostgreSQL, or MongoDB.
    - Ability to design and manage databases efficiently.
4. **User Interface (UI) and User Experience (UX) Design:**
    - UI/UX design skills for creating an intuitive and visually appealing user interface.

- Proficiency in design tools like Sketch, Figma, or Adobe XD.

5. **Responsive Design:**
    - Knowledge of responsive design principles to ensure a seamless user experience across various devices and screen sizes.
6. **Version Control:**
    - Experience with version control systems such as Git for collaborative development and code management.
7. **Security:**
    - Understanding of web security principles and best practices.
    - Implementation of security measures to protect user data and ensure the privacy of portfolios.
8. **API Integration:**
    - Ability to integrate external APIs for features like multimedia upload, analytics, etc.
9. **Testing and Debugging:**

- Proficiency in testing methodologies and debugging tools to ensure a bug-free application.

Sustainable Development Goals

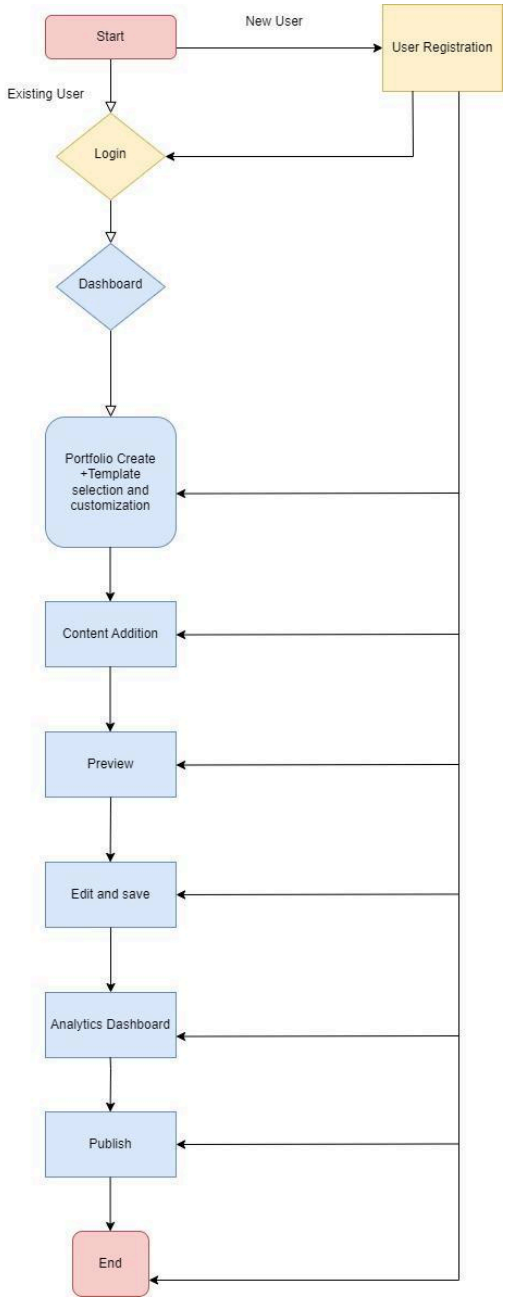
SDG 4: Quality Education

This goal aims to ensure inclusive and equitable quality education for all. Your online portfolio builder can contribute to this goal by providing a platform for individuals to showcase their skills and educational achievements, thereby facilitating access to opportunities and professional growth.

SDG 9: Industry, Innovation, and Infrastructure

This goal focuses on building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation. Your project can align with SDG 9 by promoting innovation through the development of an online tool that aids in building professional portfolios, contributing to the growth of digital infrastructure.

System Workflow Diagram



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Wander and Wander Blog Platform

Abstract

Our proposed system, the "Wander and Wander Blog Platform," is designed to facilitate the creation of blog posts and interaction within blogging communities. The core features of the system include user registration and authentication, enabling users to sign up or log in with their accounts to access data and features. Additionally, users can create, edit, and update their profiles with brief bios. The system provides user-friendly interfaces for creating blog posts, and organizes posts using categories and tags.

Other features of the system include search and filtering options to help users find specific blogs by date and category. Social sharing functionality allows users to share posts on platforms such as Facebook, Twitter, and LinkedIn to reach a wider audience. The homepage includes a section highlighting featured posts or blogs.

User interaction analytics allow users to track their blogs' performance by monitoring the number of views, comments, and likes. The system ensures a seamless experience on mobile screens, enabling users to enjoy blogging on mobile devices. SEO optimization is implemented through best practices such as meta tags, sitemaps, and clean URLs. Content moderation features prevent users from creating spam or inappropriate content.

Different privilege levels are assigned to users, including regular users, moderators, and administrators, each with varying levels of access. Backup and restore functionality is implemented to provide users with the ability to export and import blog data as needed.

Live blogging is a method of updating a blog post or webpage in real-time with new information, updates, or commentary as events unfold. It provides readers with a continuous stream of updates on a specific topic or event, allowing them to stay informed and engaged without having to refresh the page constantly.

Technologies

Wordpress

Sustainable Development Goals

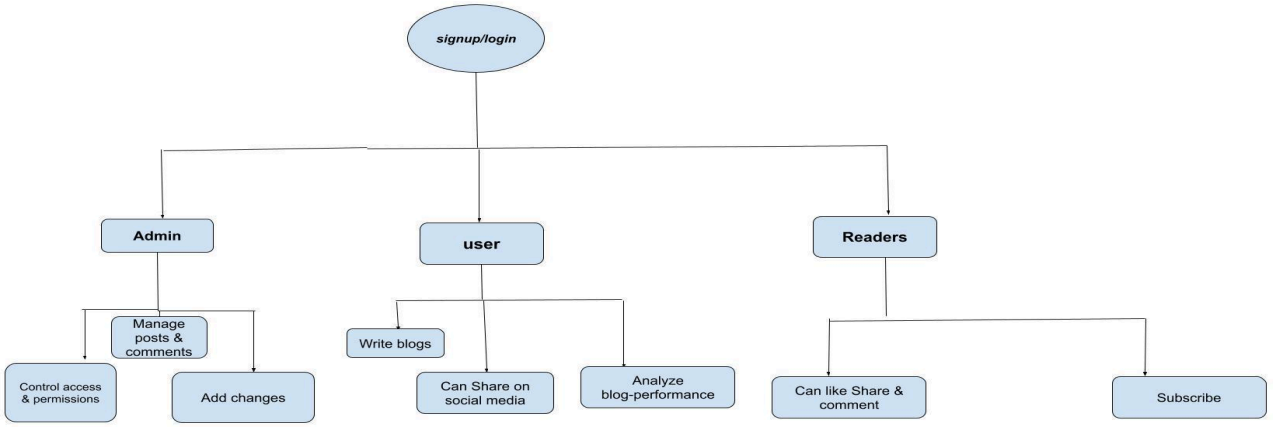
SDG 4: Quality Education:

The platform supports learning and knowledge sharing through blog posts, fostering education and information dissemination.

SDG 5: Gender Equality:

Features like user profiles and blog creation provide an inclusive space, promoting gender equality in content creation and representation.

System Workflow Diagram



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Interactive smart mirror using raspberry pi

Abstract

In an era defined by the extensive availability of information on several devices, this project transforms user interaction by instituting an luxurious and innovative smart mirror that focus on improving Customer experiences. This project addresses the challenges of clarifying and enhancing the user experience with certain information, combining real time email notifications, audio music controls and personalized data via facial recognition into one visually appealing mirrored interface. Unlike other smart devices, Smart Mirror aims to provide users with a unique, simple, and centralized hub for personalized information. In other words, instead of controlling numerous devices individually, users can easily access important information through the smart mirror, creating a more integrated and User-friendly experience. This project, incorporates innovative ways, that include the utilization of Open-CV library for accurate face recognition, Raspberry Pi 4B for efficient responses and machine learning algorithms to improve the functions of the smart mirror. Open-CV integration ensures accurate and reliable face recognition, which makes it possible for the creation of mirror and interactive communication functions. The results include the seamless integration of these technologies to provide individuals with a fascinating user experience and access to information. The project aims to optimize user interaction and increase engagement beyond the current technical capacity. The project guarantees a revolution in user interaction by creating an advanced smart mirror and integrating into modern living spaces.

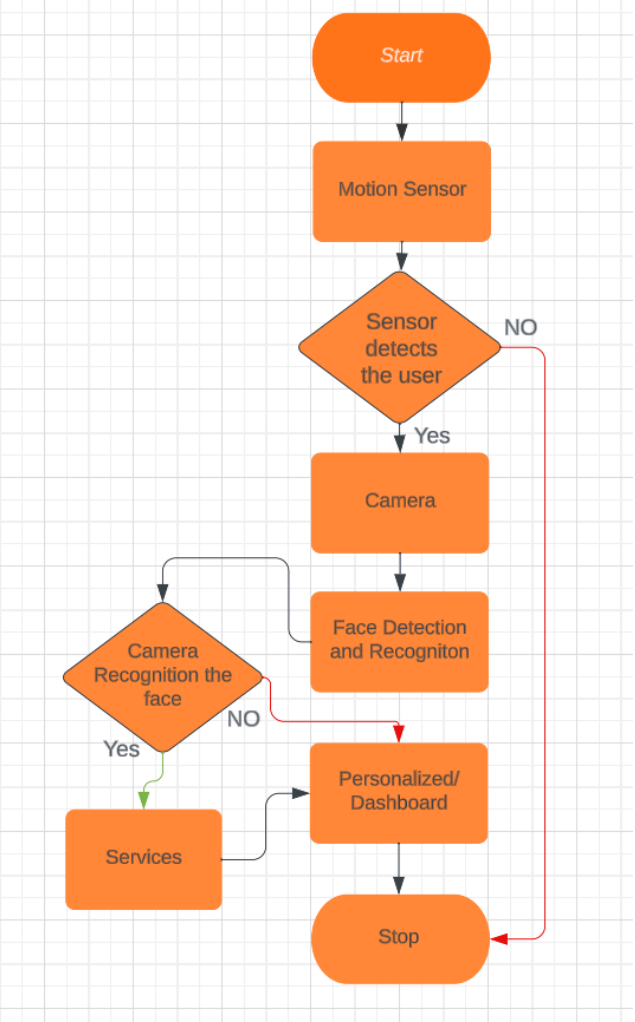
Sustainable Development Goals

SDG 3 - Good Health and Well-being: Magic Mirrors can display health-related information, such as fitness data, nutrition tips, and reminders for medical check-ups, contributing to good health and well-being.

SDG 7 - Affordable and Clean Energy: Magic Mirrors can provide energy consumption data and tips on energy-efficient practices to promote clean and affordable energy usage.

SDG 13 - Climate Action: The mirror raises awareness about climate action through climate-related updates, weather forecasts, and eco-friendly lifestyle recommendations, empowering users to take climate-friendly actions.

System Workflow Diagram



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CODE_SWIFT

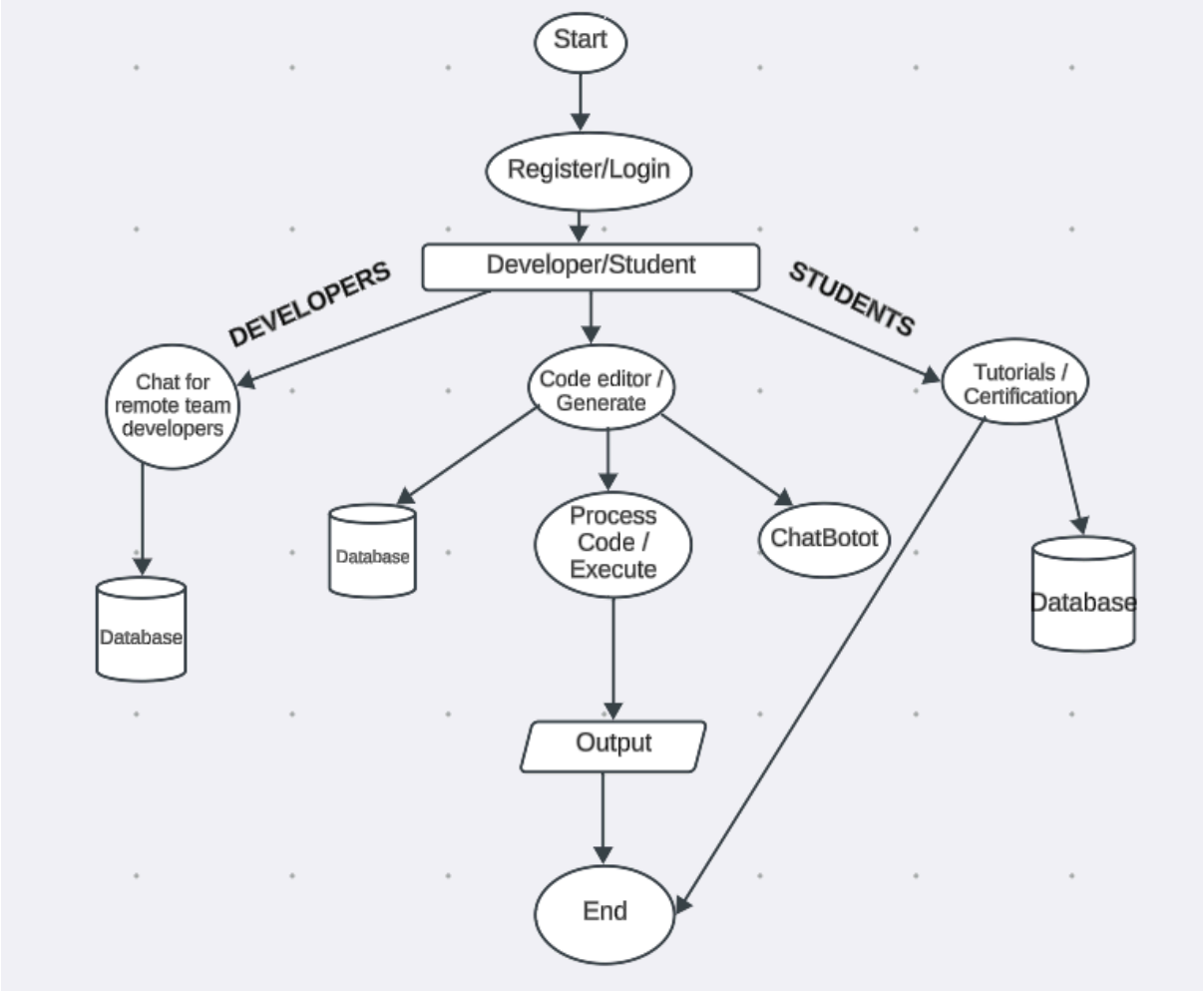
Abstract

CODE_SWIFT is an innovative web-based collaborative code editor tailored for developers and IT students. Offering real-time code editing capabilities, it facilitates efficient teamwork among remote developers on the same codebase. The platform goes beyond traditional collaboration tools by featuring live tracking of changes through cursor movement and a chat option, promoting effective communication during coding sessions. Real-time audio calling adds a dynamic layer to teamwork, while a code conflict resolution feature ensures smooth collaboration. Addressing the complex needs of users, CODE_SWIFT provides a wealth of educational resources, including self-guided coding tutorials, blogs, and certifications in various languages. Supporting multiple programming languages commonly used at the university level, the platform offers cloud-based service that provides both accessibility and security for storing code. Users can easily store their code. Organized folder structures enhance data management, and a chat bot facilitates real-time query resolution. In essence, CODE_SWIFT is a comprehensive solution for collaborative coding, particularly in educational and professional settings, offering a dynamic environment for remote collaboration and learning.

Sustainable Development Goals

CODE_SWIFT addresses two vital Sustainable Development Goals (SDGs): **Education** and **Industry, Innovation, and Infrastructure.** It fosters remote learning, teamwork, and skill development for IT students while enabling collaborative software development within the industry. By promoting lifelong learning and innovation, CODE_SWIFT contributes significantly to advancing sustainable development goals

System Workflow Diagram



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EAdmin Scribe

Abstract

In the rapidly evolving landscape of digital transformation, the "EAdmin Scribe" thesis introduces a cutting-edge web-based system aimed at redefining administrative workflows within educational institutions. This innovative solution addresses the challenges inherent in traditional paperwork by establishing a secure and intuitive online platform.

Key to the system is its emphasis on the digitalization of document workflows, effectively streamlining processes that have traditionally been time-consuming. The initial point of interaction is a role-specific login page, ensuring tailored access privileges for users, ranging from high-ranking officials such as chairmen and vice-chancellors to deans and teachers. Notably, user registration is eliminated, placing the exclusive management of user access in the hands of administrators.

The core functionality of "EAdmin Scribe" revolves around the creation, tracking, and approval of digital documents. A systematic and efficient workflow is maintained as each document progresses through predefined nodes and paths, guaranteeing a seamless process. The system boasts a sophisticated tracking mechanism, capturing both inward and outward movements of documents at every stage. Users can choose from existing templates or create custom templates, enhancing document collaboration through attachments and reviews.

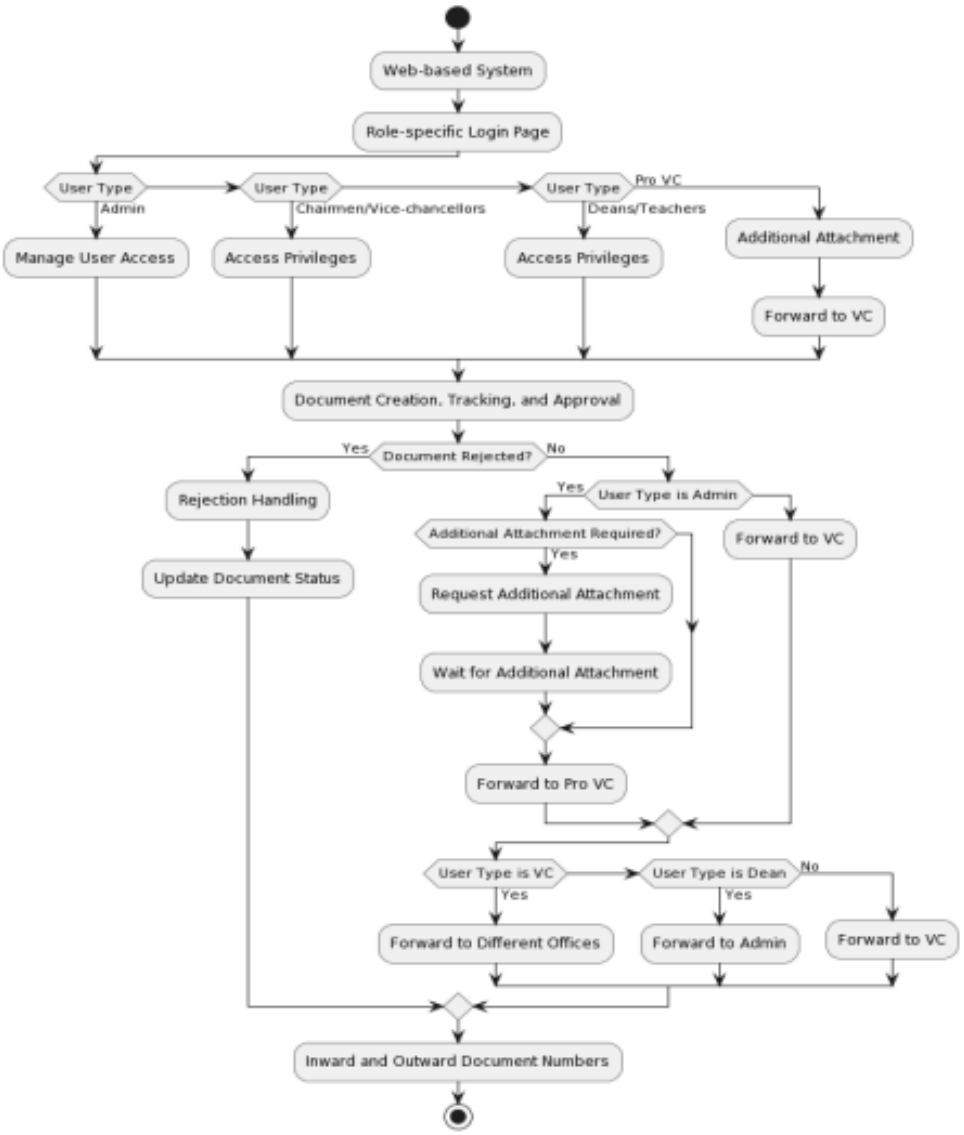
A standout feature of the system is its automated digital signature functionality. As documents are forwarded, the system automatically attaches a digital signature, ensuring the authenticity of transactions. Real-time tracking of document movements is facilitated through inward and outward counters, providing transparent visibility into the document's status. Users have the flexibility to print documents or forward them, with the tracking mechanism offering insight into the document's current position in the workflow.

"EAdmin Scribe" emerges as a holistic solution to the challenges associated with manual document handling in educational institutions. By seamlessly integrating role-specific access, automated tracking, and digital signatures, the system not only addresses these challenges but also contributes to the ongoing discourse on the digital evolution of administrative workflows. It stands as a testament to efficiency, transparency, and security in educational administrative processes.

Sustainable Development Goals

- **SDG 4: Quality Education**
  The "EAdmin Scribe" system revolutionizes administrative processes in educational institutions, ensuring efficient resource allocation and enhancing accessibility to quality education.
- **SDG 9: Industry, Innovation, and Infrastructure**
  The system uses new technology to change how universities do paperwork, making things faster and better. This helps universities become more modern and find new ways to do things.
- **SDG 16: Peace, Justice, and Strong Institutions**
  By making universities paperwork clearer and easier, the system helps universities work better and helps everyone understand what's happening. This makes universities stronger and more fair.
- **SDG 17: Partnerships for the Goals**
  The system helps different people in universities, like teachers, deans, faculty members, pro VC and VC, work together better. This teamwork helps universities reach their goals and make things better for everyone.

System Workflow Diagram



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PakAlert - Disaster Response, Relief, and Analytics System

Abstract

According to the National Disaster Management Authority, every year, average 50 million people are affected, from which 2000 people die in Pakistan due to natural disasters. In 2022 year, 2,273 deaths were recorded, and 52 million people were affected with floods and earthquakes (Dengue and other disasters are not included in these facts). A mobile app is introduced in Khyber Pakhtunkhwa but is not available on national level to alert the users before any disaster happening, also there is not any smart inventory management and supply chain system for resource allocation on government side. Hence, we are developing a software solution to take precautions with the help of modern technologies such as Machine Learning, Mobile Application and Web Application.

Our solution comprises a Mobile Application for civilians, a Web Application for government administration, and a mobile application for resource management. The government can access AI-powered disaster predictions, manage a smart supply chain, and send alerts and responses effectively. Citizens can request emergency assistance, receive official alerts, and communicate with authorities. Resource managers can update inventory, receive government alerts, and interact with civilians.

Using MERN Stack for Web Application, Flutter for Mobile App, and Python for Machine Learning, our solution aims to improve disaster preparedness and response nationwide. By providing timely alerts, efficient resource allocation, and seamless communication channels, our project aims to reduce the impact of disasters, save lives, and mitigate economic losses.

Sustainable Development Goals

SDG 1: No Poverty, by reducing economic losses from disasters.

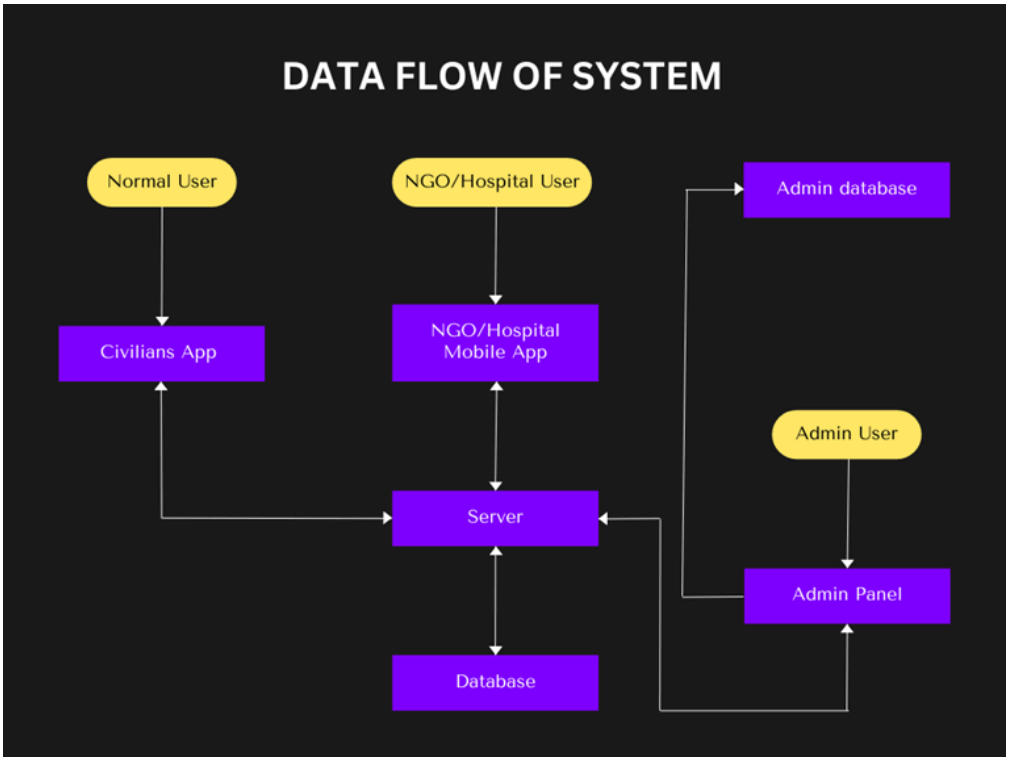
SDG 3: Good Health and Well-being, by providing timely medical assistance.

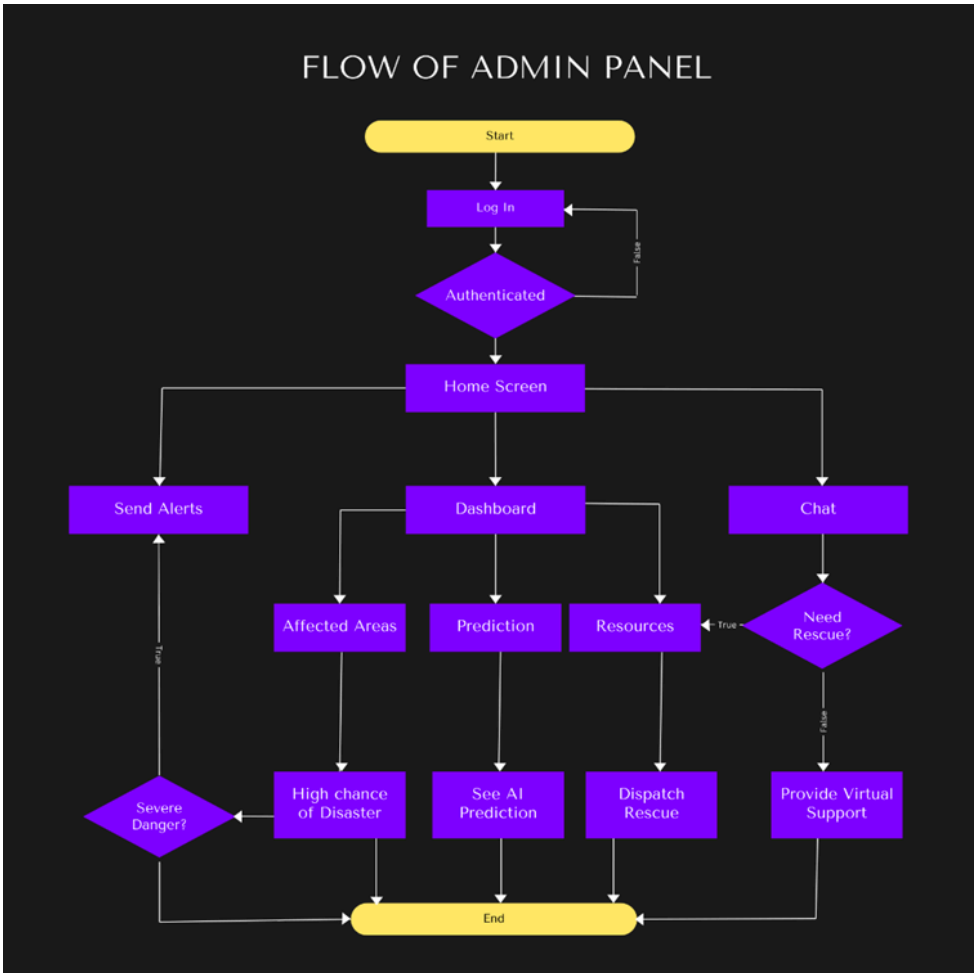
SDG 9: Industry, Innovation, and Infrastructure, by developing innovative technology solutions.

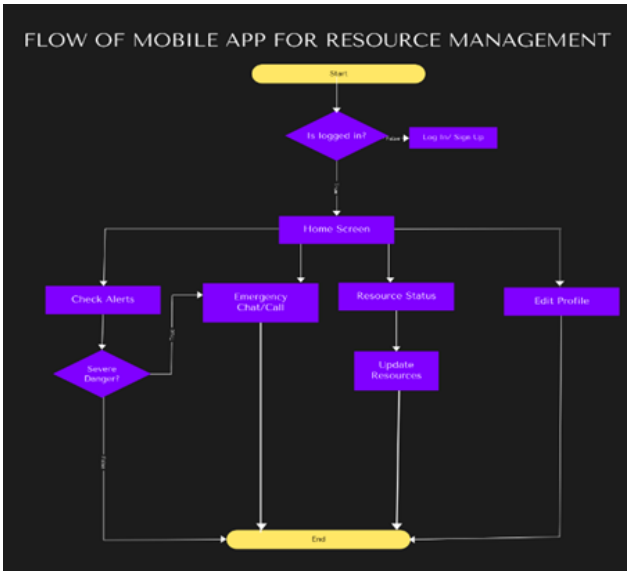
SDG 11: Sustainable Cities and Communities, by enhancing urban resilience.

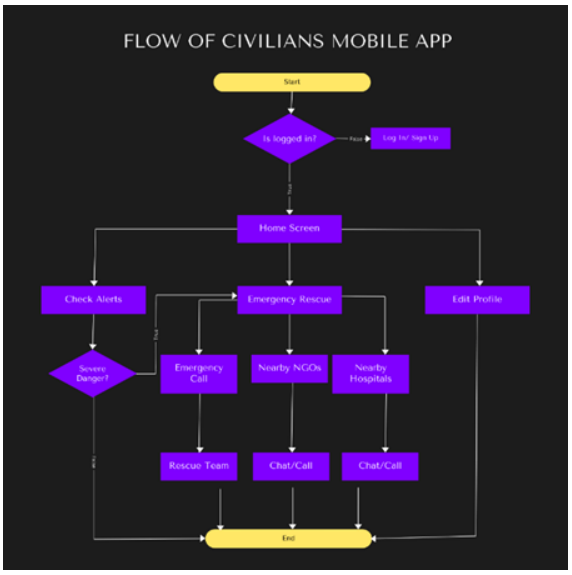
SDG 13: Climate Action, by addressing the impacts of climate-related disasters.

System Workflow Diagram









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"Sign Speak: Enhancing Communication Accessibility for the Deaf Community"

Abstract

Our research focuses on improving communication for the Deaf or Hard-of-Hearing community by leveraging advanced technologies, including Convolutional Neural Networks (CNN) and Natural Language Processing (NLP). Specifically, our concentration lies in seamlessly translating sign language gestures into written English sentences, setting the stage for subsequent translations into languages like Urdu. This multi-step process aims to enhance cross-language communication, promoting accessibility for diverse linguistic communities.

Exploring the natural evolution and global variations of sign languages, our study transcends the limitations of a singular focus, delving into the broader picture of sign languages worldwide. Recognizing the communication gap between the hearing and sign language users, our research proposes a solution. Employing CNN, we recognize and understand sign language gestures in images, combining this with NLP to transform gestures into coherent sentences. This approach bridges the communication divide between visual gestures and written language, fostering inclusivity and accessibility.

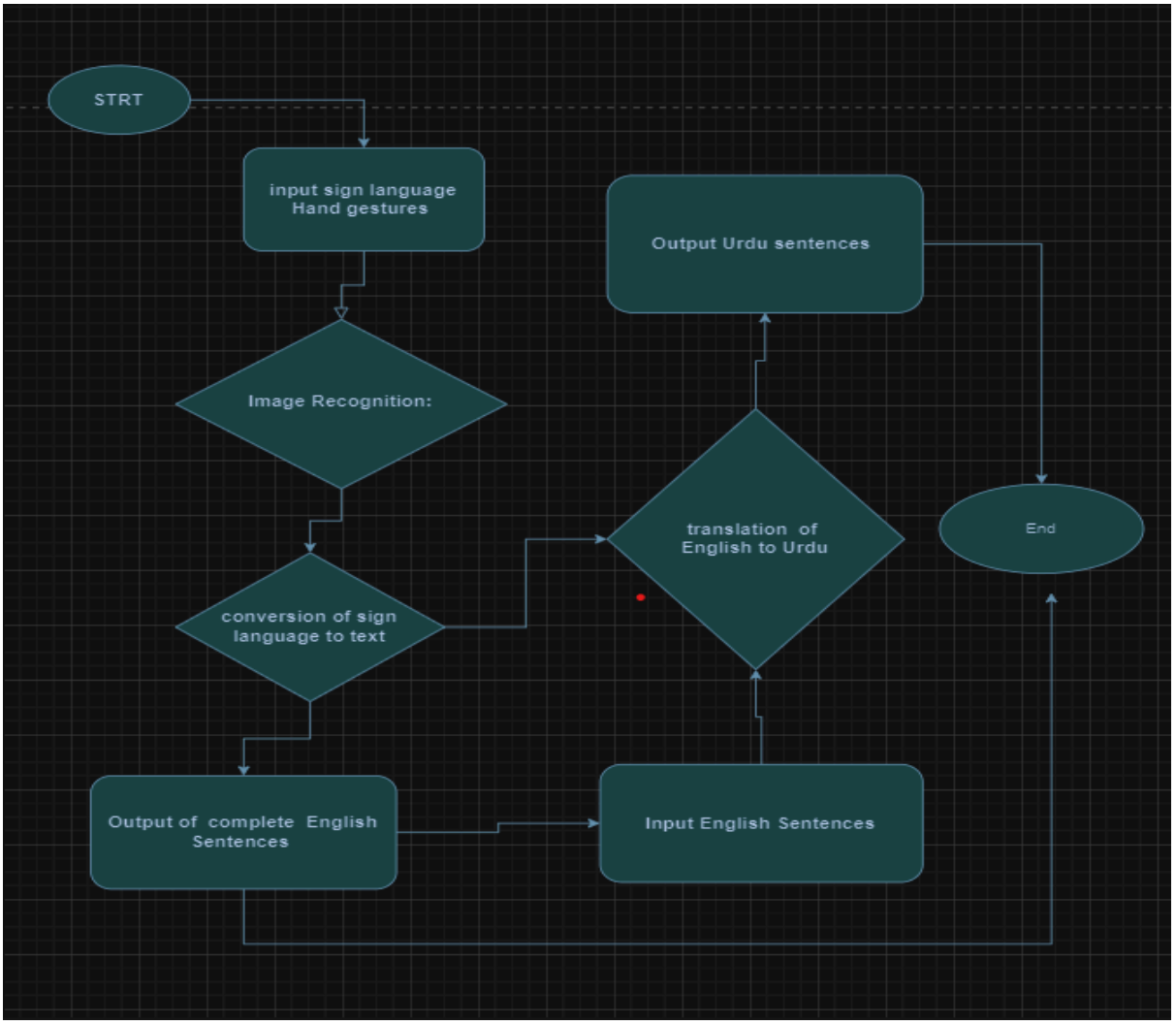
Our research extends its scope to highlight how sign language can benefit individuals with various disabilities, emphasizing the unique features of diverse sign languages globally. The overarching goal of our project is to develop a system that seamlessly converts sign language gestures into written text. Utilizing CNN for image recognition and NLP techniques, our system aims to enhance communication between sign language users and those reliant on written or spoken language. This project holds the potential to contribute to a more inclusive society by improving understanding and accessibility in diverse communication methods.

In conclusion, our study underscores the significance of integrating different technologies to elevate communication, making language more accessible to everyone.

Sustainable Development Goals

The proposed project primarily addresses Sustainable Development Goal (SDG) 10: Reduced Inequalities. By utilizing advanced technologies like Convolutional Neural Networks (CNN) and Natural Language Processing (NLP) to enhance sign language recognition, the project aims to reduce inequalities faced by the Deaf and Hard-of-Hearing community. The focus on fostering inclusivity and understanding diverse sign languages aligns with the broader SDG agenda, contributing to creating a more accessible and equitable society.

System Workflow Diagram



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Design and development of a speech therapist mobile app for children with speech impediments.

Abstract

Effective communication is a fundamental skill that every child deserves to develop, including those with special needs who are on a journey to learn how to talk. In this context, we present a groundbreaking Speech Therapist App for Special Children, Designed to help kids who find it hard to talk learn and improve their language skills. These kids need extra help, and this app is made to be a useful tool for the people who take care of them. This innovative app offers voiceovers for a variety of pictures, enabling children to associate words with images, and enhancing their vocabulary and language skills. The app supports multiple languages, including English, Urdu, and Sindhi, allowing users to switch between them effortlessly through the settings. The app's standout feature is its advanced word accuracy assessment, enabled by state-of-the-art speech recognition technology. It evaluates a child's word pronunciation the app offers a dynamic progress-tracking system, notifying parents or guardians when practice sessions are missed, ensuring that language development remains consistent and effective. Additionally, the app includes a writing pad feature that allows children to practice their spelling and written communication. This written text can instantly be converted into speech, reinforcing written and spoken language skills. The Speech Therapist App for Children is a powerful tool for parents, caregivers, and educators, providing a fun and interactive way for children to improve their language abilities while ensuring they stay engaged and motivated throughout their learning journey.

Sustainable Development Goals

Quality Education (SDG 4):

By improving linguistic abilities, the software hopes to support kids' general educational growth, including that of kids with special needs.

Good Health and Well-being (SDG 3):

The app's design caters to the speech and language demands of kids with special needs, which is important for their general wellbeing.

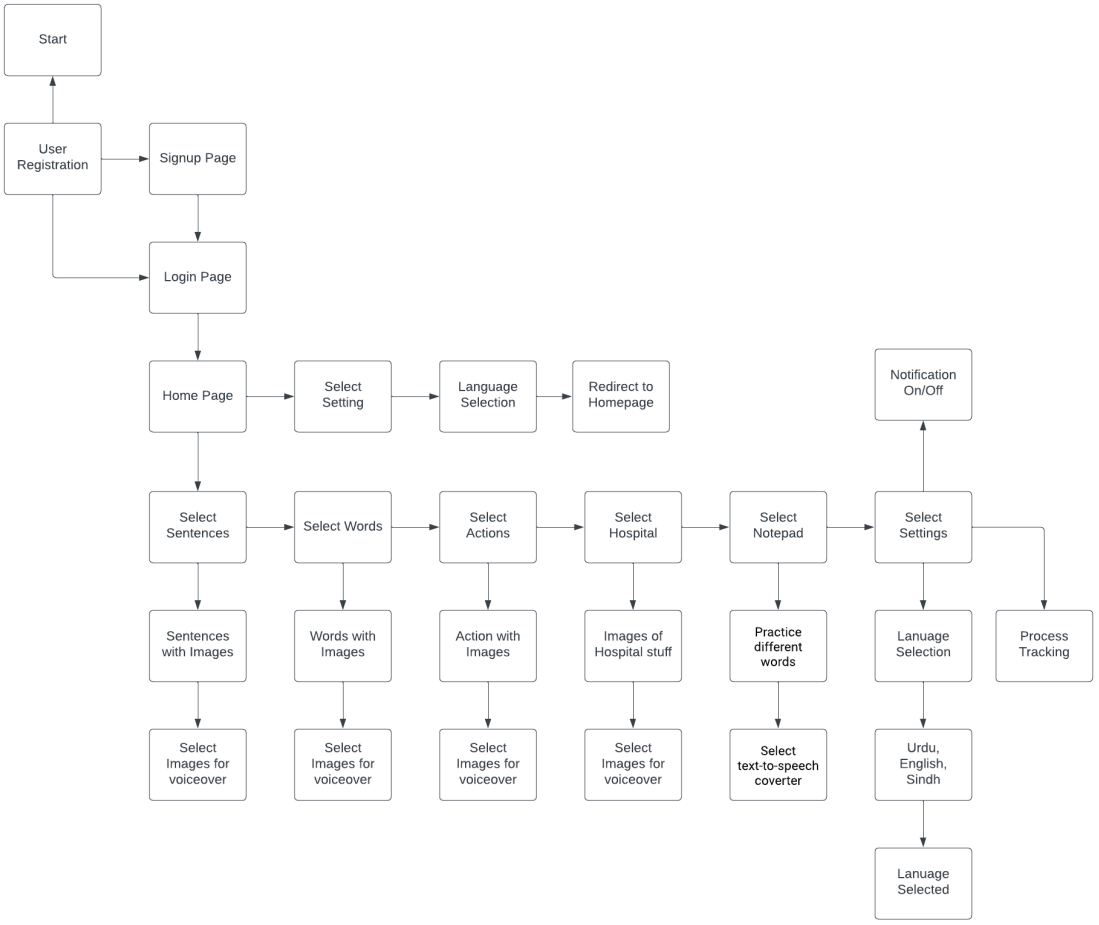
Reduced Inequality (SDG 10):

The app fosters inclusivity and reduces the access gap for children with special needs to educational materials.

Partnerships for the Goals (SDG 17):

Features such as progress monitoring and notifications encourage collaboration among parents, guardians, carers, and educators to support children's development.

System Workflow Diagram



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STELLAR SCAPE

Your Cosmic Gateway to Infinite Exploration

Abstract

Discover the wonders of the cosmos with StellarScape, the ultimate cosmos explorer app. Our inspiration stems from a lifelong fascination with the universe and a belief that everyone should have the opportunity to explore its mysteries.

StellarScape offers a rich and immersive experience, providing users with access to fascinating space facts, breathtaking images, and the latest updates from Astronomy News. Whether you're a seasoned enthusiast or just starting your cosmic journey, StellarScape is designed to educate and inspire.

Our team's goal was to create an app that is both informative and enjoyable to use. Leveraging the power of Flutter, we've developed a sleek and intuitive interface that makes navigating through the cosmos a breeze. Our dedication to accessibility means that StellarScape is available on both iOS and Android devices, ensuring that everyone can join in the exploration.

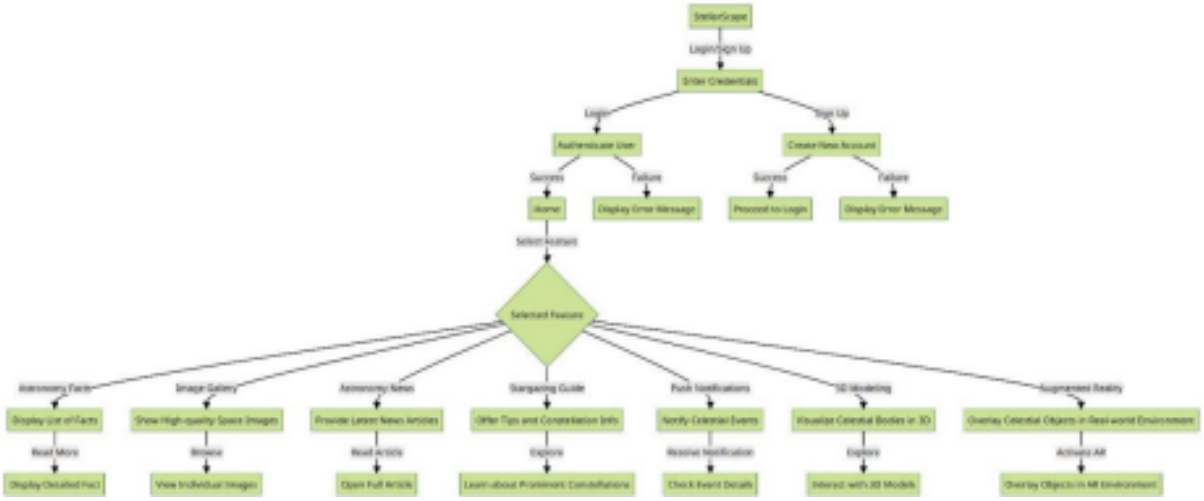
In addition to providing a wealth of information, StellarScape also features innovative augmented reality (AR) and 3D modeling capabilities. With AR overlays, users can bring the stars and planets into their own surroundings, while interactive 3D models allow for a deeper exploration of celestial bodies.

Our hope is that StellarScape will not only spark curiosity about the universe but also foster a sense of wonder and connection with the cosmos. Join us on this cosmic adventure – download StellarScape today and let your imagination soar among the stars

Sustainable Development Goals

The "Cosmic Explorer" app aligns with SDGs by promoting quality education in astronomy **(SDG 4)**, contributing to technological innovation (SDG 9), reducing inequalities in digital access **(SDG 10)**, and encouraging responsible digital consumption **(SDG 12).**

System Workflow Diagram



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Fund Ripple

Abstract

Crowdfunding platform “Fund Ripple” serves as a virtual network for individuals and organizations chasing financial support for different personal, charitable, and medical causes.

Our goal is to transform the fundraising landscape by providing a flexible and intuitive platform to empower individuals and organizations to create and share impactful campaigns across a variety of causes. Fund Ripple harnesses the power of technology, strives to democratize fundraising, and make it accessible to anyone with an internet connection, and it’s a noble advocacy. This user-centered approach creates a supportive online community that connects needy and potential donors.

Fund Ripple lies a comprehensive set of features designed to maximize the potential fundraising potential of users. From customizable campaign tools templates to integrated social sharing tools. Our platform furnishes fundraisers with needed resources to boost the cause and attract the wider audience. Additionally, our transparent payment processing system ensures that every donation finds its way to the targeted donee, fostering trust and confidence among our valued donors.

Fund Ripple goes beyond being just a fundraising platform, it promotes a vibrant online community where individuals with various backgrounds and experiences come together to support one another. Through our collaborative campaigns and the sharing of inspiring stories. Fund Ripple cultivates a culture of compassion and solidarity, this culture fosters ripple effects of positive change across communities, touching hearts and transforming lives along the way.

This streamlined platform streamlines the campaign creation and donation process, creating an online community of supporters that will come together to turn dreams into reality.

Sustainable Development Goals

Our platform fulfills following Sustainable Development Goals (SDGs):

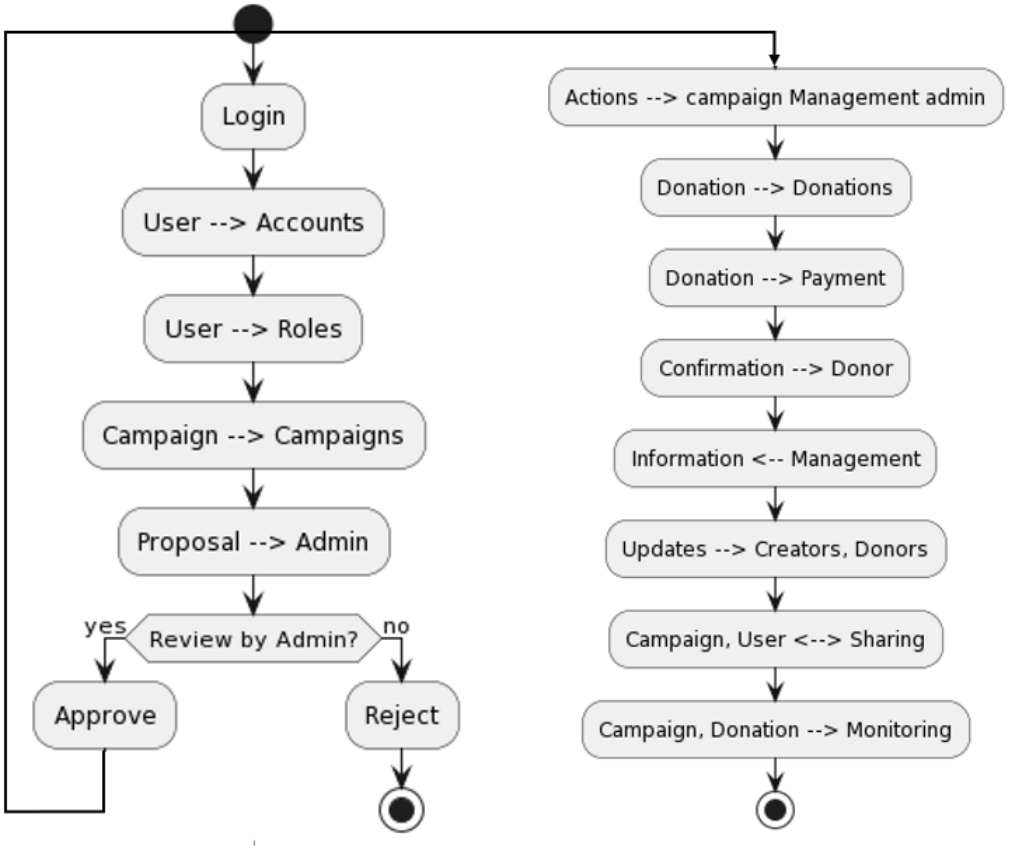
Goal 1 (No poverty):

Fund Ripple helps tackle poverty by providing a crowdfunding platform where individuals and organizations can raise funds for various causes, providing economic empowerment and support for those in need.

Goal 3 (Reduced inequalities):

Fund Ripple plays a vital role in promoting Goal 10 by providing a platform that reduces financial inequalities and ensures equitable access to resources. By enabling individuals and organizations from diverse backgrounds to raise funds for various causes, Fund Ripple empowers underserved.

System Workflow Diagram



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