Covid Based Society Monitoring System

BE PROJECT, PICT

Project Duration: September 2022 - April 2023

Objective:

The primary objective of the Society Monitoring System was to leverage the integration of IoT and AI/ML technologies to develop a comprehensive solution that enables real-time monitoring of society members' entry and exit, with an emphasis on enforcing COVID-19 protocols, such as face mask detection and temperature measurement. Additionally, the project aimed to enforce restrictions on society member outgoings to ensure adherence to pandemic safety guidelines.

Features:

- Real-Time Society Entry and Exit Monitoring: Developed an IoT-based system utilizing Python and AWS services for real-time monitoring of society members' entry and exit, ensuring accurate and timely tracking of their movements.
- AI-Enabled Face Mask Detection: Implemented AI/ML algorithms to detect the presence of face masks among the society members, enabling automatic identification and alerting authorities in cases of non-compliance with COVID-19 safety protocols.
- Temperature Measurement System: Integrated IoT devices for temperature measurement, allowing for quick and non-intrusive monitoring of body temperatures during entry, ensuring that individuals with abnormal temperatures can be promptly identified and managed.
- Outgoing Restrictions Management: Incorporated a feature within the system to restrict the number of outgoing trips for each society member, allowing only five outgoings per member to control the potential spread of the virus and ensure the safety of the community.
- AWS Cloud Infrastructure and Services: Leveraged various AWS services for the backend, ensuring scalability, security, and reliability for the web application, including AWS IoT Core for managing IoT devices and AWS Lambda for serverless computing.
- HTML and CSS Frontend Development: Developed an intuitive and user-friendly frontend interface using HTML and CSS, facilitating seamless interaction and data visualization for society members and administrators accessing the system.
- MySQL Database Integration: Utilized MySQL for efficient and secure data management, storing critical information related to society members, their movements, temperature records, and adherence to COVID-19 protocols.

Research Paper Publication:

The project findings and insights were documented and published in the *International Research Journal of Modernization in Engineering Technology and Science (IRJMETS)*, showcasing the innovative approach and contributions to the fields of IoT, AI/ML, and public health management during the COVID-19 pandemic. The successful implementation of the Society Monitoring System highlighted the critical role of technology in ensuring public safety and promoting adherence to health guidelines during unprecedented challenges, contributing to the ongoing efforts to mitigate the spread of infectious diseases within communities.
