

TRAFFIC MANAGEMENT SYSTEM

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INTRODUCTION: The traditional methods of managing urban mobility in this day and age are showing their limitations. Additionally, the demand for an effective traffic control system is rising. Thus, we are controlling the traffic system with IOT technology.

PROJECT SCOPE

FEATURES:

Real-time Traffic Monitoring: Continuous monitoring of traffic conditions, including vehicle counts, speeds, and congestion levels, through various sensors and cameras.

Traffic Data Analytics: Advanced data analytics to process and analyze real-time data, identifying traffic patterns, congestion hotspots, and historical trends.

Parking Availability Apps: Apps that inform drivers about available parking spaces in real-time, reducing the time spent searching for parking and minimizing traffic congestion caused by circling vehicles.

Emergency Assistance through IoT: A traffic monitoring system using IoT technology enables emergency responders to speed up the care mechanism in case of accidents late at night or in isolated locations. The sensors on the road detect any accident, and the problem is immediately reported to the traffic management system. This request is passed on to relevant authorities to take corrective action. Emergency response personnel would include medical technicians, police officers, and fire departments for enhanced responsiveness and timely intervention.

Commute Assistance: With every vehicle acting as an IoT sensor, a dedicated app can make suggestions, determine optimal routes & provide advance notice of accidents or traffic jams. Further, it can even suggest the best time to leave. It is all because of a robust algorithm that helps reduce driving time with intelligent traffic lights.

Technologies used:

User applications that allow citizens to receive instant notifications in case of traffic jams and congested routes. Desktop user apps for control rooms send commands to actuators for altering traffic signals. It helps to relieve congestion and optimize routes.

Cross-solution integrations with traffic lights or streetlight management systems. Control apps apply ML models or predefined rules to prompt appropriate output action if the air quality is poor.

Data analytics for analyzing the data from streetlight sensors on a centralized dashboard to adjust the intensity of lights

ML algorithms to analyze traffic patterns & trends from historical data – stored in the data warehouse. The identified trends are then used to build predictive models for control apps. These apps modify the average vehicle speed to avoid congestion

Real-time Data Integration:

Real-time restroom data is integrated via Firebase Realtime Database API, ensuring instant updates. Data synchronization between web and mobile platforms is achieved through Firebase's real-time syncing mechanism, guaranteeing consistency. Robust error handling protocols are implemented, with data consistency measures in place, guaranteeing users accurate and reliable restroom availability and cleanliness information at all times.

Online Stimulation:

This project integrates Wowki, an IoT platform, for online stimulation purposes. Wowki facilitates seamless connectivity and interaction between IoT devices, enabling efficient communication, data exchange, and remote control. Leveraging Wowki, the project enhances IoT experiences, ensuring real-time stimulation and monitoring capabilities for various applications in the Internet of Things ecosystem.

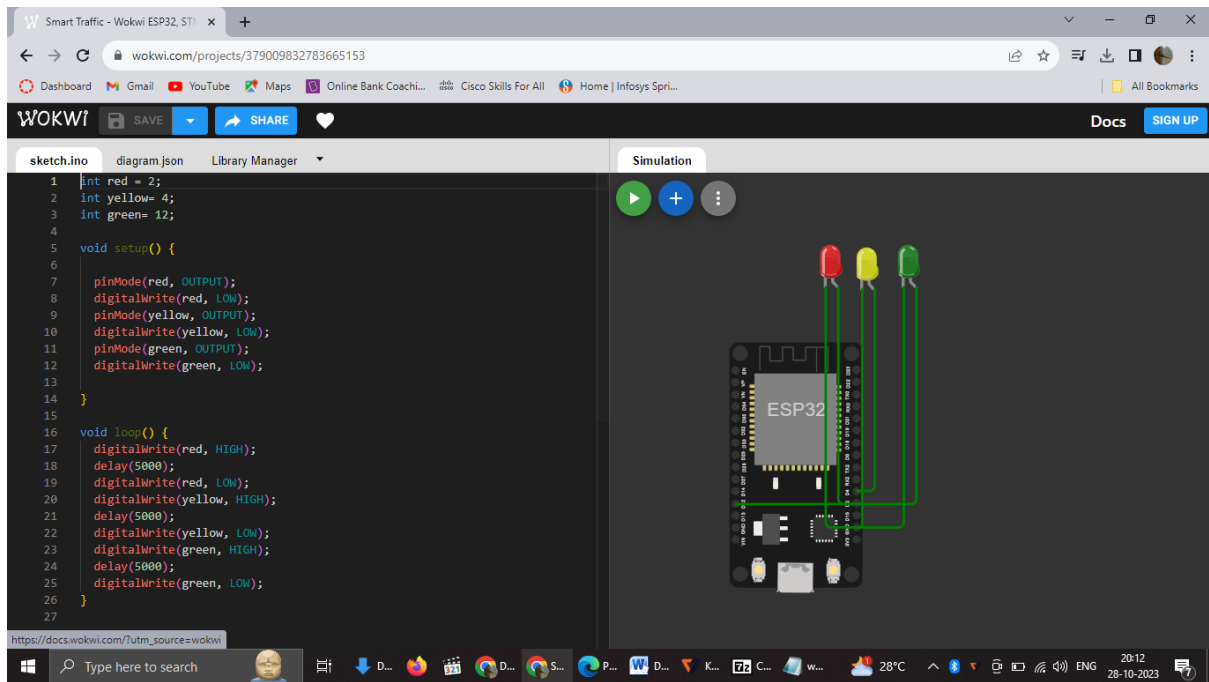


Fig Running the code for traffic management system



Fig Sample Page of app interface