

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

TRAFFIC MANAGEMENT

TEAM NAME:

Proj_224783_Team_6

TEAM MEMBERS:

MANCHU PALLAVI(113321104055)

MANNEM HEMA SRI(113321104056)

MEESALA PRAVALLIKA(113321104057)

MEGHAA V(113321104058)

INNOVATION

Smart Traffic Lights: Adaptive traffic signals that adjust in real-time based on traffic conditions can reduce congestion and improve traffic flow.

AI-Powered Traffic Prediction: Advanced algorithms and machine learning can predict traffic patterns and suggest alternate routes to drivers, reducing congestion.

Connected Vehicles: Vehicles equipped with V2X (Vehicle-to-Everything) technology can communicate with each other and infrastructure, helping to prevent accidents and optimize traffic flow.

Micro-Mobility Solutions: Integration of e-scooters and e-bikes into transportation networks can reduce congestion and provide sustainable alternatives for short trips.

Automated Traffic Enforcement: Automated systems for enforcing traffic laws can free up police resources and improve safety.

Traffic App Integration: Integrating traffic data into navigation apps to provide real-time updates and suggest optimal routes to drivers.

Pedestrian and Cyclist Safety Measures: Implementing better infrastructure and technologies to protect vulnerable road users

PROJECT OBJECTIVES

Safety Enhancement: Implement measures to reduce accidents and improve overall road safety.

Real-time Monitoring: Develop a system that can monitor traffic conditions in real-time and provide updates to commuters.

Data Collection: Gather and analyze traffic data to make informed decisions for infrastructure improvements and traffic planning.

Environmental Impact: Reduce the environmental impact of traffic by minimizing emissions and fuel consumption.

Public Awareness: Increase public awareness and education on traffic rules and safe driving practices.

Emergency Response: Facilitate quick emergency response by providing priority routes for emergency vehicles during traffic jams.

Reduction in Commute Times: Aim to reduce the time people spend commuting to work and other destinations.

PROJECT REQUIREMENTS

Traffic Signaling: Adaptive traffic signal control system to optimize signal timings based on real-time traffic data.

Incident Detection: Incident detection systems to identify accidents, breakdowns, and other issues quickly.

Traffic Prediction: Traffic prediction algorithms to anticipate congestion and provide alternative routes.

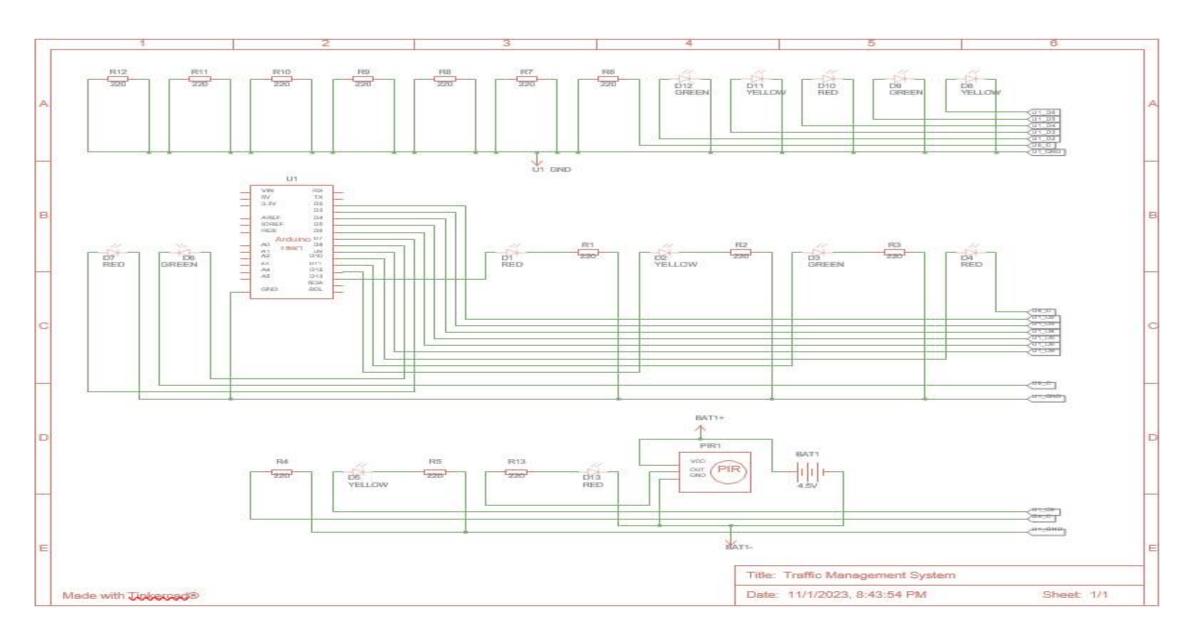
Emergency Vehicle Priority: Systems to prioritize emergency vehicles, such as traffic signal preemption.

Surveillance and Enforcement: Surveillance cameras and license plate recognition for law enforcement and security.

Data Analytics: Data analytics tools for analyzing historical and real-time traffic data to make informed decisions.

Smart Traffic Lights: Implementation of smart traffic lights that adapt to traffic flow.

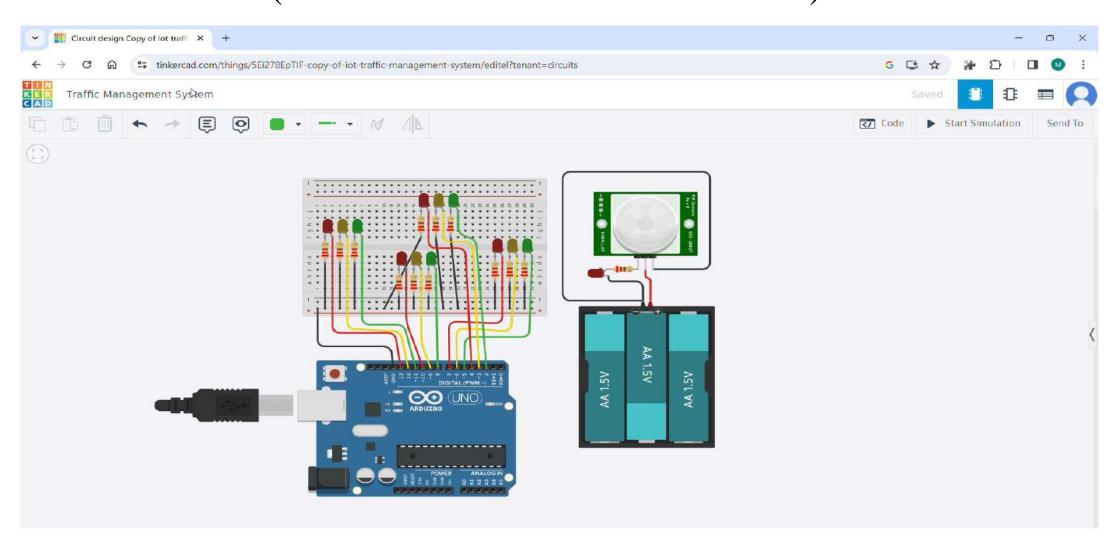
ARDUINO INTEGRATION



MOBILE APP DEVELOPMENT

- Define your goals
- Integration
- Security and Privacy
- Testing
- User Feedback and Iteration
- Quality Assurance
- Deployment
- Mapping and GPS Integration
- Monitoring and Analytics
- Cost Management

IMPLEMENTATION AND SIMULATION (Watch the simulation video below)



REAL-TIME WEBSITE

Traffic Management Pause Time left: 14 seconds Automatic Traffic Lights

OBJECTIVE:

- 1. Alleviating Congestion: One of the foremost goals is to alleviate traffic congestion within urban areas. This may entail the implementation of strategies like intelligent traffic signal control, effective lane management, and the introduction of congestion pricing.
- 2. Improving Safety: Prioritizing road safety is of paramount importance. Projects strive to reduce accidents and fatalities through initiatives like enhanced road design, improved signage, and the deployment of raffic-calming measures.
- 3. Enhancing Traffic Efficiency: The project may also focus on optimizing traffic flow by utilizing real-time data and adaptive traffic signal systems. This optimization can lead to reduced travel times and decreased fuel consumption.
- 4. Promoting Sustainable Transportation: Encouraging the utilization of sustainable modes of transportation such as public transit, cycling, and walking is essential. This not only reduces the number of vehicles on the road but also minimizes the environmental impact.
- 5. Mitigating Emissions: Implementing measures to curtail vehicle emissions is a significant aspect of the project. This can involve the promotion of electric vehicles, fostering carpooling, and optimizing traffic management to diminish idle times.

DESIGN:

1. We commence by pinpointing critical locations within the traffic network where sensors will be strategically deployed. Our considerations encompass high-traffic zones, crucial intersections, entry and exit

Click here to view code on Github

Click here to check my website

THANK YOU