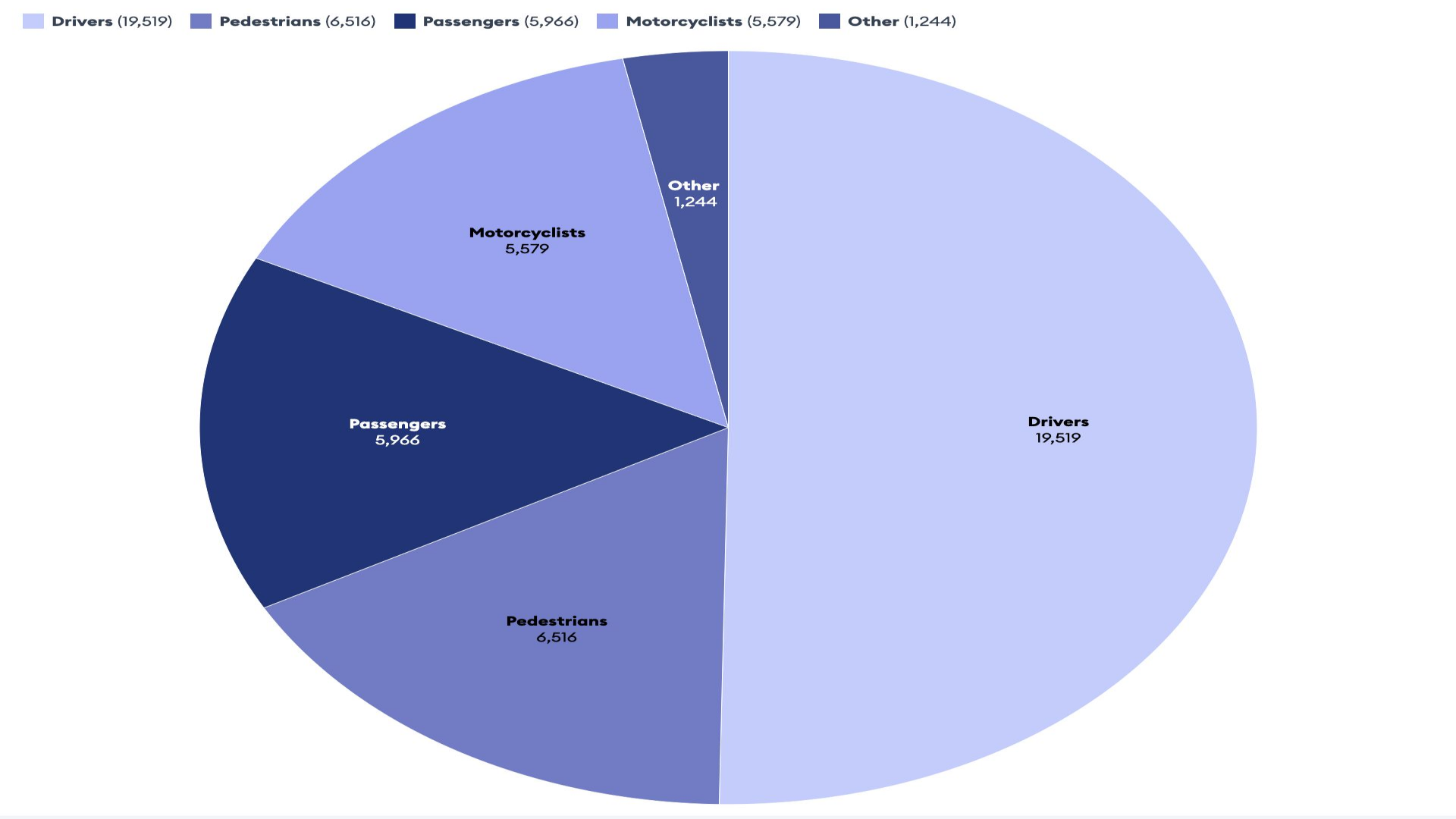

CitySync :
“AI Traffic Wizard App”

PROBLEM STATEMENT :

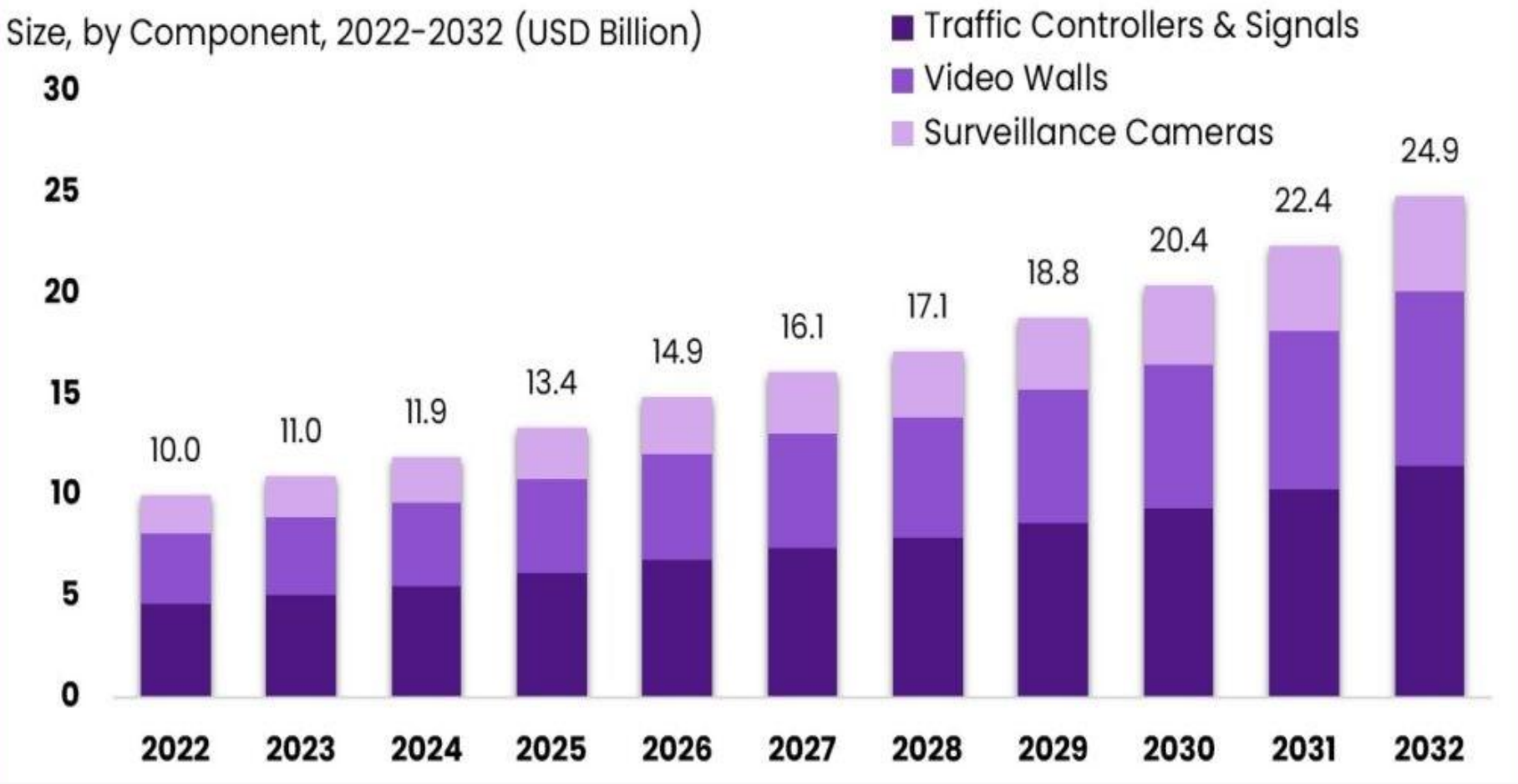
- Develop a smart traffic management system for Indian cities, using IoT and AI.
- Prioritize pedestrian safety at crossings by analyzing behavior and traffic patterns.
- Optimize signals and intersections to reduce accidents, especially during peak traffic.
- Improve Public transportation and its efficiency.


Drivers (19,519)
Pedestrians (6,516)
Passengers (5,966)
Motorcyclists (5,579)
Other (1,244)
Other
1,244
Motorcyclists
5,579
Passengers
5,966
Drivers
19,519
Pedestrians
6,516

Benefits of Smart Traffic Management System

1. Improved Public Transit
2. Cost-Effective
3. Real-Time Data Analysis
4. Reduced Air Pollution
5. Better Route Planning
6. Improved Safety

Global Intelligent Traffic Management System Market



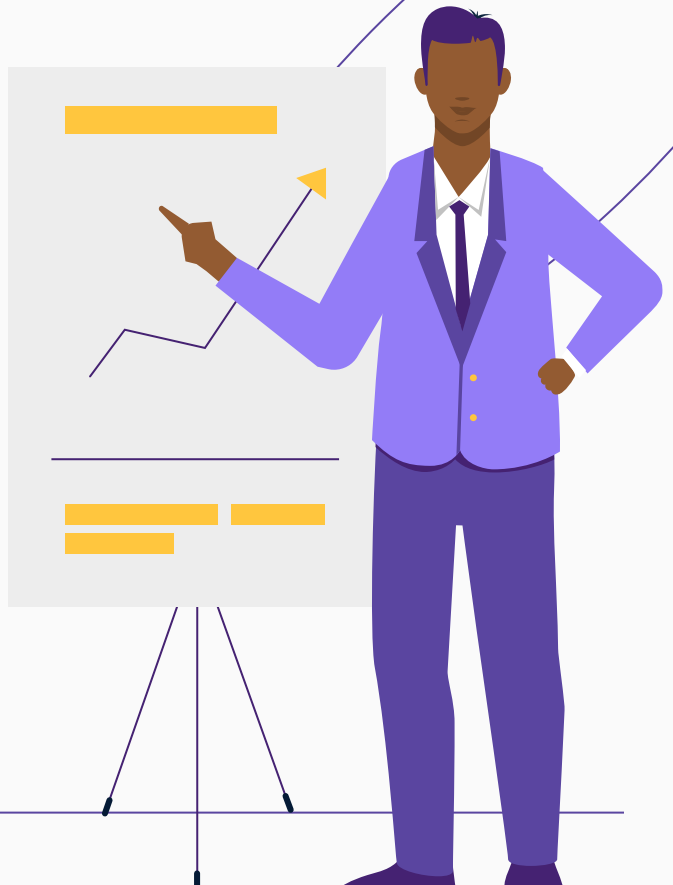
Two aspects

Pedestrian Safety

Using Machine learning and AI system we integrate the camera sensors and IoT software to tell pedestrians in real time about the traffic situation and how they can choose a safe route to their destination through the app.

Improved Traffic efficiency

With an efficient traffic system we can manage huge traffic jams during peak rush hours. We can provide fastest and safest route for Emergency services like ambulance and fire trucks and inform by giving them real time information.



Technologies used

Hardware IoT sensors and cameras

Deploy solar panel sensors for data collection at intersections and pedestrian crossings. Use cameras for video analysis of traffic and pedestrian behavior.

Machine learning algorithms and A.I

By using A.I & Machine learning algorithms for traffic signal optimization, route planning, and safety analysis for pedestrians.

Cloud based mobile application

Creating a cloud based user-friendly apps for drivers and passengers and pedestrians, which feeds in real time traffic data to users. We will work on app development in Flutter and host the server on AWS and it will be used for data analysis.

Technologies used

IoT software systems

Tinkercad, Arduino were used design the IoT systems

Machine learning algorithms and A.I

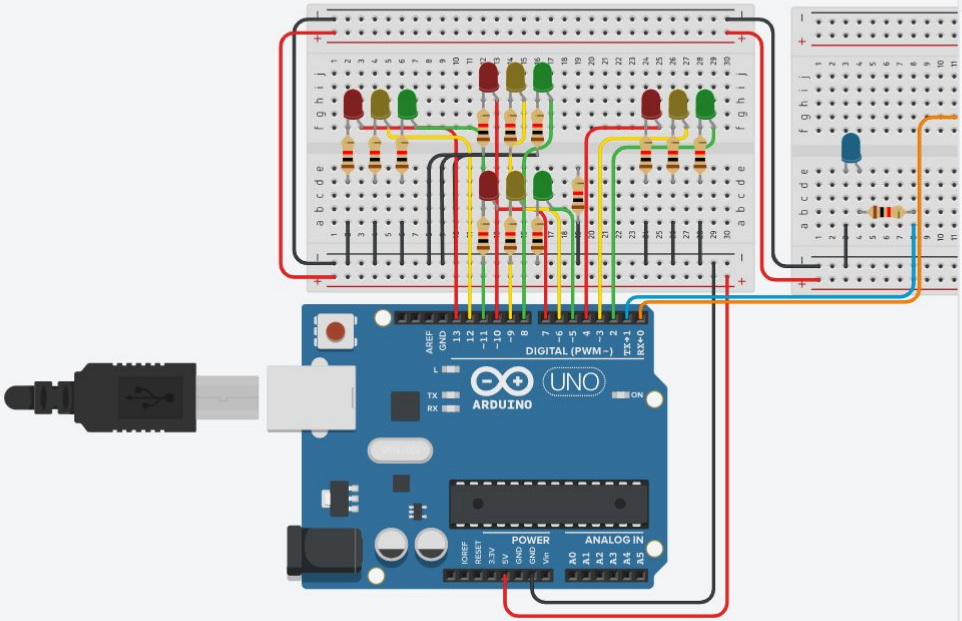
Libraries in python like OpenCV, time etc.
Yolo is used for real time tracking of vehicles and

Code snippets

Shiny Wolt-Vihelmo

All changes saved

Code | Start Simulation | Send To

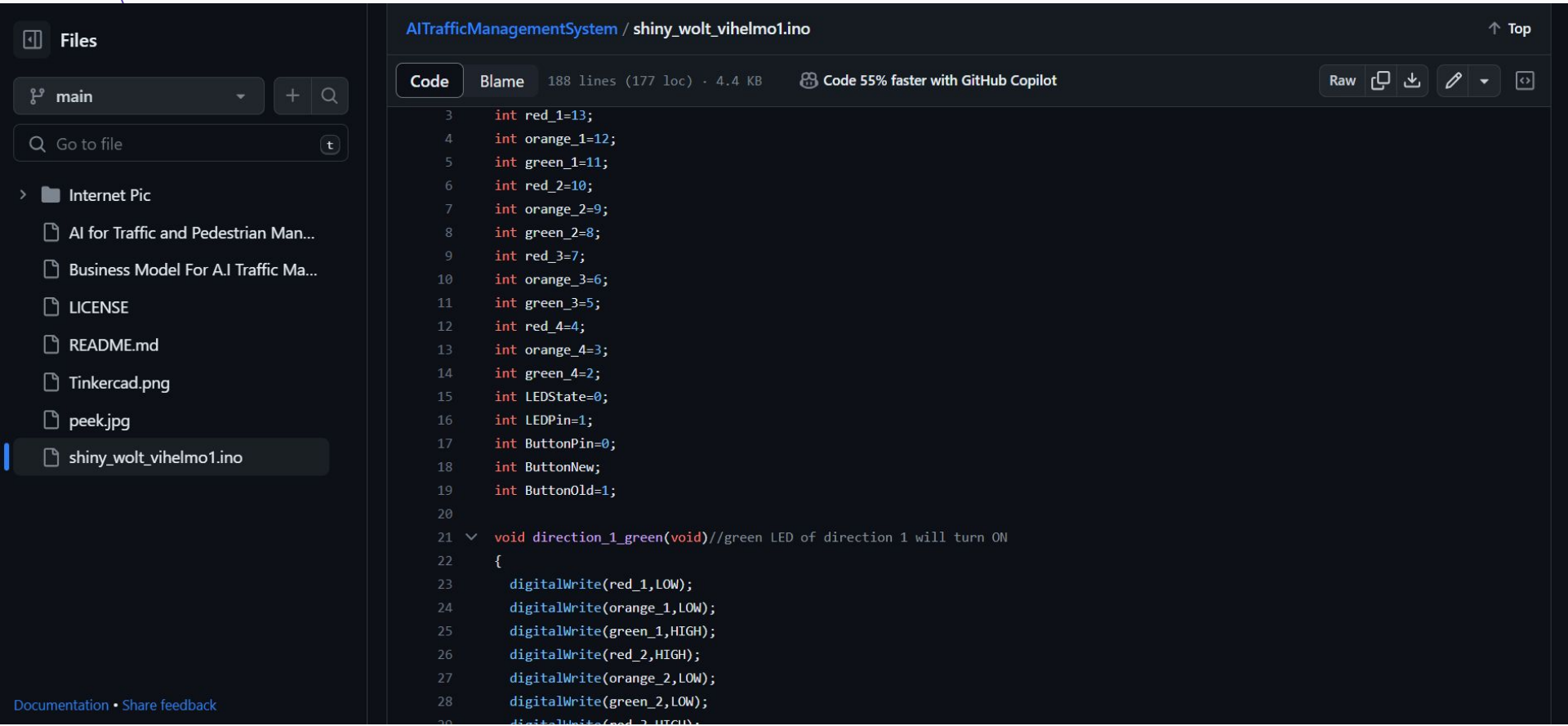


Text | 1 (Arduino Uno R3)

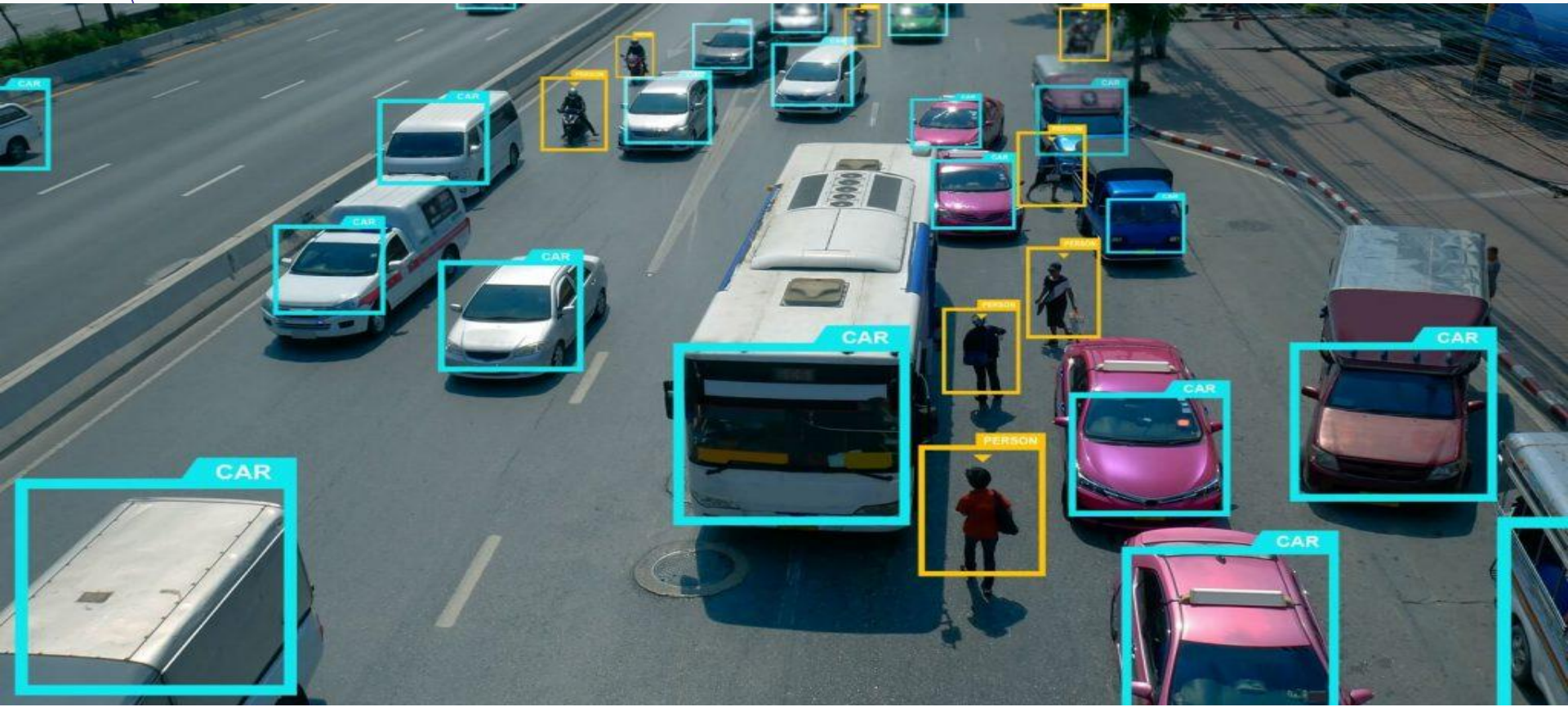
```
1  //First of all, we define the pins where we have
2  //connected the LEDs.
3  int red_1=13;
4  int orange_1=12;
5  int green_1=11;
6  int red_2=10;
7  int orange_2=9;
8  int green_2=8;
9  int red_3=7;
10 int orange_3=6;
11 int green_3=5;
12 int red_4=4;
13 int orange_4=3;
14 int green_4=2;
15 int LEDState=0;
16 int LEDPin=1;
17 int ButtonPin=0;
18 int ButtonNew;
19 int ButtonOld=1;
20
21 void direction_1_green(void)//green LED of direction 1 will turn
22 {
23   digitalWrite(red_1,LOW);
24   digitalWrite(orange_1,LOW);
25   digitalWrite(green_1,HIGH);
26   digitalWrite(red_2,HIGH);
27   digitalWrite(orange_2,LOW);
```

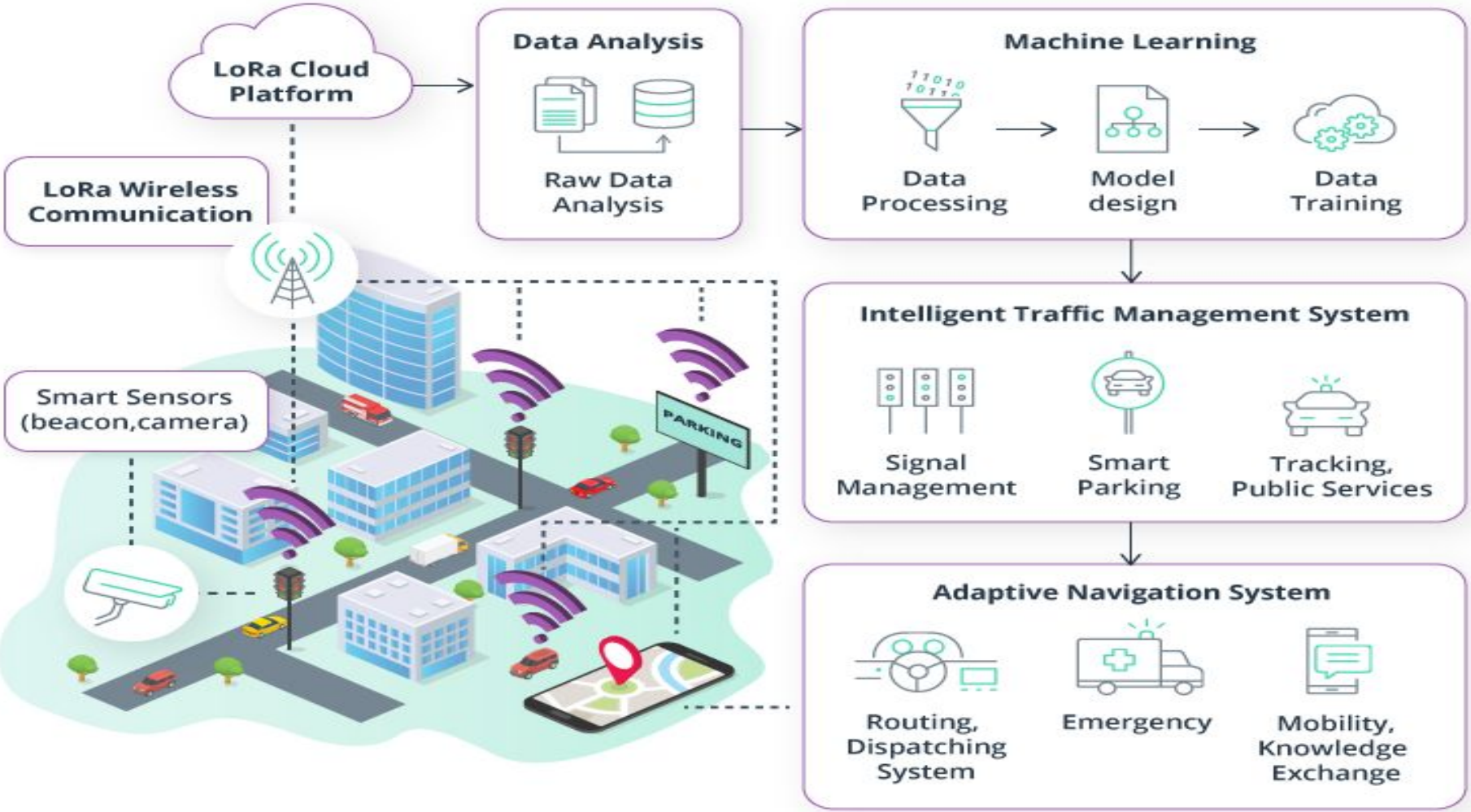
Serial Monitor

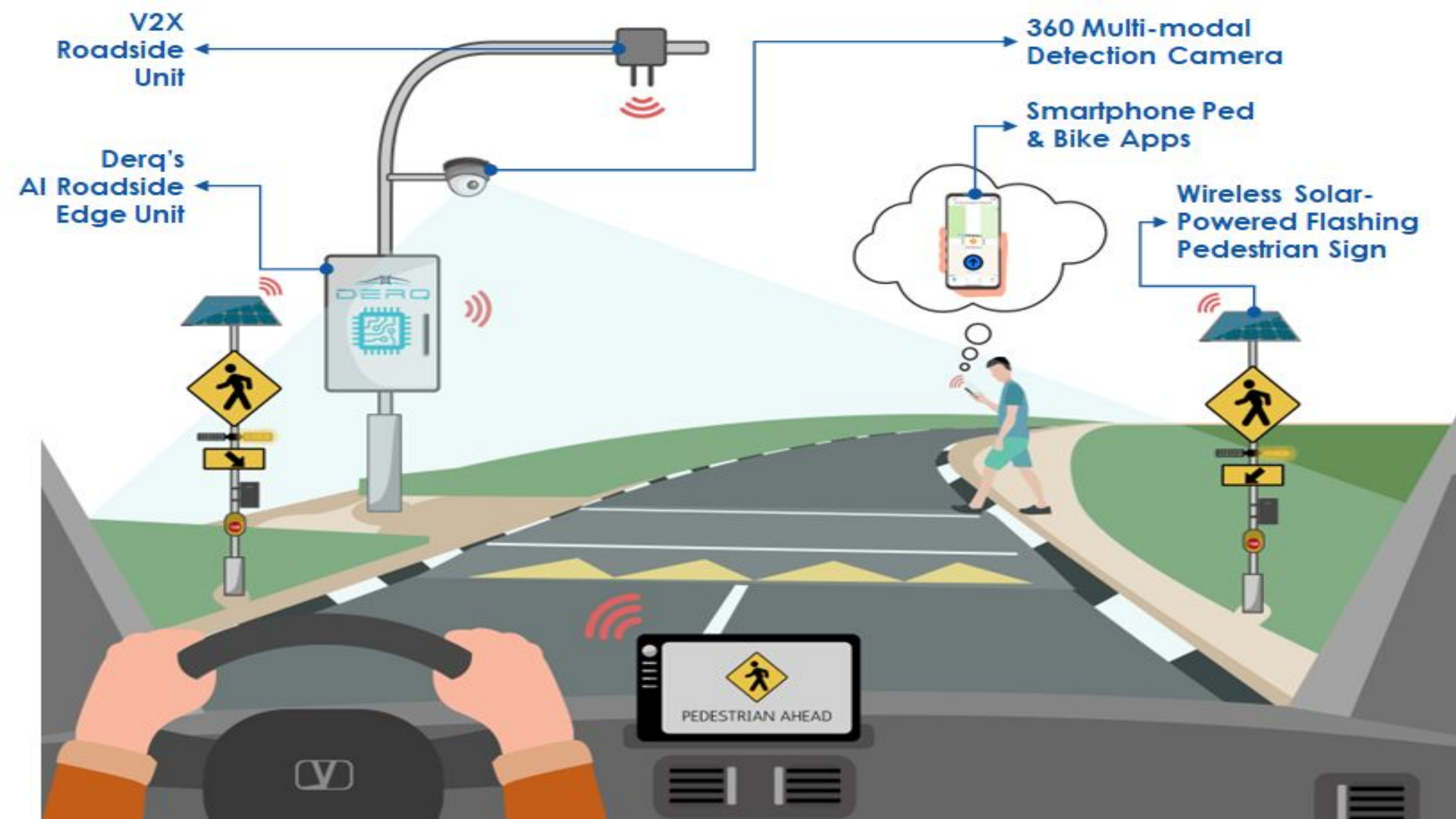
Code snippets

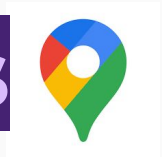


Code snippets




LoRa Cloud Platform
Data Analysis
Raw Data Analysis
Machine Learning
Data Processing
Model design
Data Training
LoRa Wireless Communication
Smart Sensors (beacon,camera)
PARKING
Intelligent Traffic Management System
Signal Management
Smart Parking
Tracking, Public Services
Adaptive Navigation System
Routing, Dispatching System
Emergency
Mobility, Knowledge Exchange


V2X
Roadside
Unit
360 Multi-modal
Detection Camera
Smartphone Ped
& Bike Apps
Derq's
AI Roadside
Edge Unit
Wireless Solar-
Powered Flashing
Pedestrian Sign
DERQ
PEDESTRIAN AHEAD

How are we better than Google maps 

- Google Maps is a navigation service app in which it is a major player with a vast user base.
- Google Maps collects data from Android phones, Waze, and users for traffic insights. Which could be highly inaccurate if a user/ organization needs real time 100% accurate data.
- We have limited competitors in India. The competitors we have are Huizhi Engineering Science, OPMS Consulting, Smith & Burgess, Phenix Conseils.

Revenue streams

Subscription model

We will charge municipalities and public transportation departments for access to the traffic management system. In Turn making public transportation very efficient.

This app will be provided to Taxi drivers and Bus drivers for a small fee and they will have access to real time information on traffic and road accidents.

Offer premium features to businesses and logistics companies. Who need the best route for the transportation of their goods and services.

Data Insights

Provide data analytics and insights on traffic patterns, carbon emissions, and route optimization to government agencies and private companies.

Charge a fee for access to real-time traffic data. We will be covering sensitive information like number plates of cars before sending data.

Provide valuable traffic insights to businesses and city planners and urban developers in which they will inturn plan a more green and clean traffic efficient systems in urban places with a lot of traffic like Bangalore, Mumbai etc.

Revenue streams

Partnerships

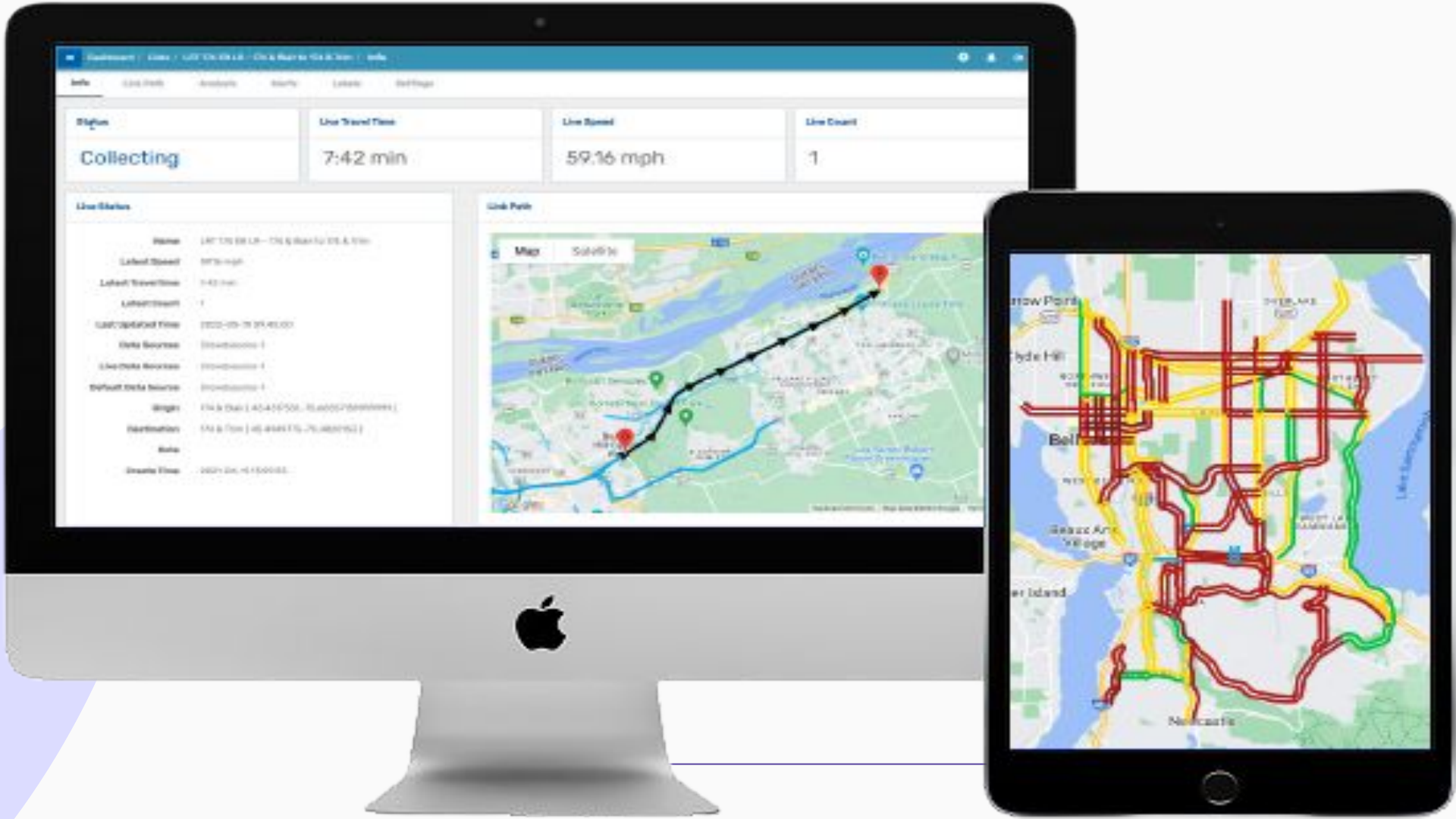
Collaborate with ride-sharing companies like Uber and Ola to offer safer and faster routes for passengers.

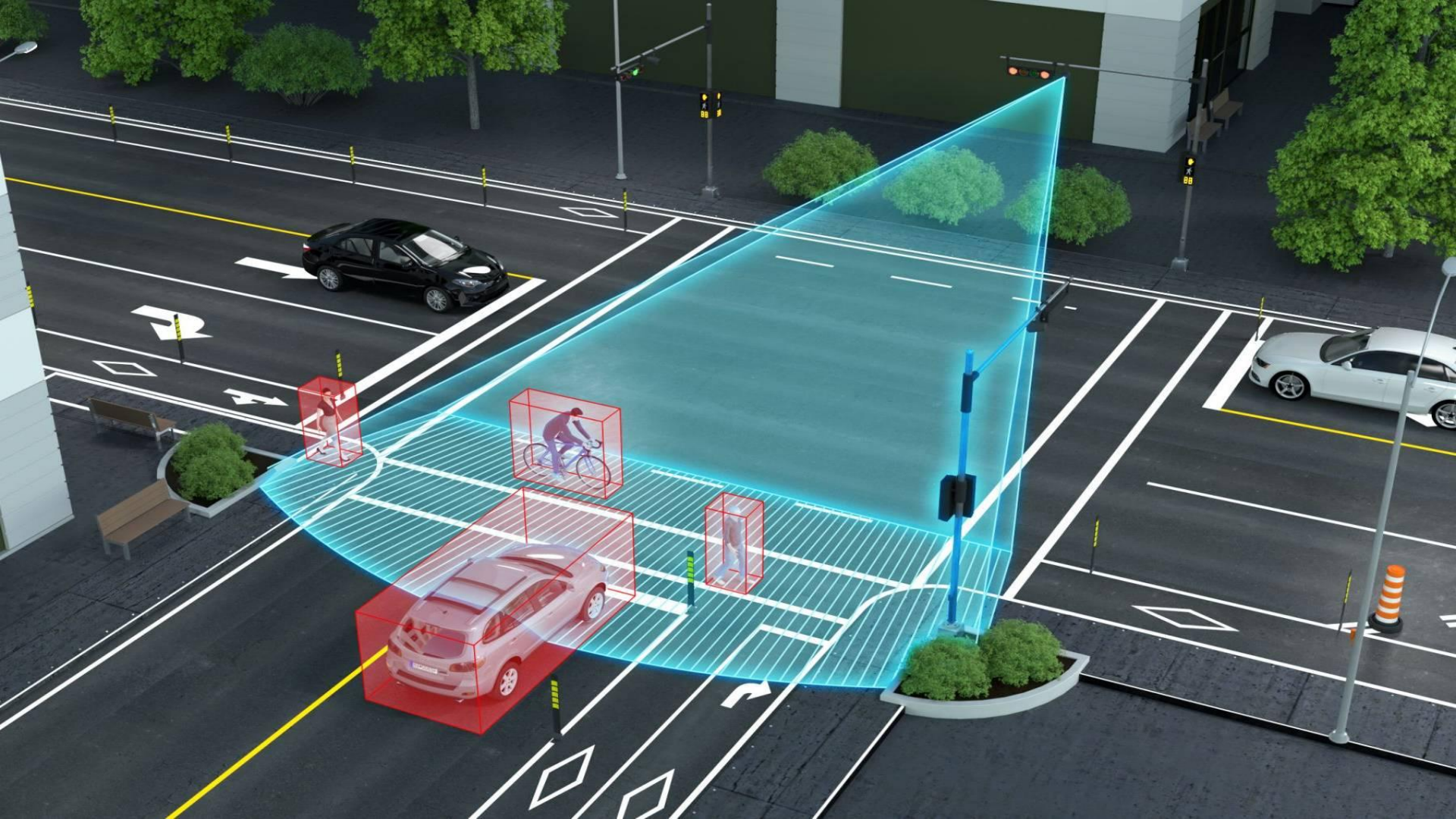
Apps like Uber eats and Zomato can use an eco friendly fast route and we will share revenue based on usage of the system.

Advertisements

Monetizing the app through advertisements.

Adding safety signs and banners and earning revenue through collaborating with companies dealing with logistics and transportation.


Collecting
7:42 min
59.16 mph
1
Map
Satellite



Future prospects

Collaboration with Autonomous Car manufacturers

We will partner with autonomous vehicle manufacturers and operators for route optimization and safety enhancements for these driverless bot to be more safe and predict eco-friendly routes more accurately.

Collaborating with governments for green initiatives

Using data provided by the M.L we will give an estimate of the air quality of an area and how to improve urban planning and traffic of an area.

We will collaborate with government to reduce unnecessary traffic wait times and in turn decreasing carbon footprint of vehicles.

Future prospects

Predictive Maintenance

We will extend services with construction companies to predict maintenance needs for traffic infrastructure.

Any road maintenance required like fixing potholes and street lights can be done by alerting concerning authorities.

Reporting Issues

We will use the data provided by the M.L to give a to report road accidents, Huge traffic obstacles to the driver.

International Expansion

Expanding to countries and providing services to governments and organization abroad.

Future prospects

Safety Features

We will enhance your driving experience with features like speed limit warnings, traffic camera alerts, and real-time accident updates.

And during a fog day we will alert the drivers about the pedestrian or vehicle in front of them

To stay safe and avoid fines with timely information on speed cameras and accidents, ensuring a smoother journey.

Customization

Our advanced navigation system empowers users to customize their routes based on their preferences. Whether you want to avoid tolls for a budget-friendly trip or prefer scenic routes to enjoy the view, our system provides you with the flexibility to tailor your journey to your liking.

Enjoy a personalized and enjoyable driving experience with route customization options.

435 hours

How many hours will passengers be able save yearly from traffics.

1,20,000 Deaths

This is the number of avoidable deaths we could have saved!

800 km

Worth distance will be saved by a motorist.

Thank you

Team name :
Team Hacktivist

Team Members :

Aaron Sequeira
Shashank Saraswat
Hiten Gehlot
Vedant Gupta