TRAFFIC MANAGEMENT SYSTEM

Project definition

- Internet of Things(IOT) enabled intelligent traffic management system can solve pertinent issues by leveraging technologies like wireless connectivity and intelligent sensors.
- With increase in the number of cars queues at toll booths on highways have become common place and while automatic tools using RFID(radio frequency identification) tags have reduced waiting times further improvements are possible using IOT technology.

APPLICATION OF IOT IN TRAFFIC CONTROL

- IOT devices such as sensors and cameras are deployed across cities to collect real time data on traffic patterns.
- Connected sensors cameras and GPS devices provide real-time data on traffic conditions, parking availability ,and public transportation.
- This data empowers city authorities to implement efficient traffic management strategies, reduce congestion, and improve public transportation services.
- Goal is to help cars reduce the amount of time spent idle.

- IOT sensors and devices can be placed on roads and highways to monitor, analyze and share data to improve certain functions this result in less traffic.

- Large volume of data collected by IOT sensors is processed and analyzed using advanced analytics techniques.
- The system utilizes RFID tags and reader to track the vehicles in order to control traffic for emergency vehicles.
- For this emergency vehicles must be installed with RFID tags so that RFID readers by reading the signal can track the location of such vehicles.

- Traffic security cameras are an essential element in road safety. They enable traffic management officers to stay in touch with the speed drivers travel.
- Without IOT traffic officers can only monitor surveillance feed within a control room. By implementing IOT traffic cameras they can store surveillance data in the cloud allowing them to access this data at any time from anywhere
- One of the essential aspects of road accident prevention is by implementing IOT connected road signage and devices with instant updates based on weather condition obstructions and other potential hazards on the road.

DESIGN THINKING

1.Project Objective

- Estimation of traffic bulkiness performed using real time video feed.
- Vehicle recognition in order to differentiate between emergency and non emergency vehicles.
- It explore the role of IOT in traffic management ,the challenges it can solve and essential technologies to develop an intelligent system and it also explain the how a city government can implement it to offer a good citizen experience.

CONGESTION DETECTION

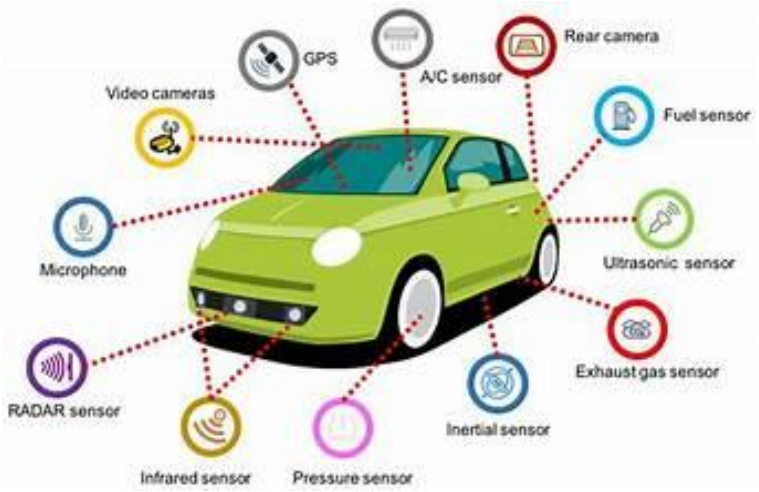
- Traffic congestion monitoring solution takes place cameras at key locations in roadways to observe and track congestion.
- Using machine learning technology to count car volume and measure capacity these platform are able to identity instances of congestion, track when they are most likely to occur and identity environmental factors like weather or accident to occur.
- To control traffic congestion, provide secure data transmission also detecting accidents

COMMUTING EXPERIENCE

. 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.

2.IOT SENSOR DESIGN

- IOT sensors can also monitor variations in traffic patterns and provide real time data to drivers enabling them to choose routes that avoid traffic congestion.
- Vehicles connected with IOT which makes it easy to detect the vehicle from a distance.



3.REAL-TIME TRANSIT INFORMATION PLATFORM

- Rapid urbanization is a challenge for organizations that manage the city's infrastructure and number of cars is growing traffic is becoming more intense so congestion and traffic accidents are common.
- Traditional traffic control have insufficient coverage to control all city traffic and cannot scale properly.
- The integration of IOT into our daily lives is inevitable, it's already happening

- All the important vehicle must be attached to the RFID tag .
- These entire ID was stored in a traffic control database.
- There is one reader will be placed that RFID reader will be placed that RFID reader was used to receive that the ID number.

INTEGRATION APPROACH TOLL AND TICKETING

- With increase in the number of cars queues at toll booths on highways have become commonplace and while automatic tools using RFID tags have reduced waiting times further improvements are only possible using IOT technology
- Now it's possible to connect a modern car to the internet of things which will make it possible to detect it at a distance of up to a kilometer from the point of payment automatically remove the charge and raise the barrier.
- Alternatively payments can be debited from a digital wallet connected to the phone.

WEBSITE PLATFORM TO MONITOR REAL-TIME TRAFFIC INFORMATION