VELAMMAL
INSTITUTE OF TECHNOLOGY

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROJECT NAME: PUBLIC TRANSPORT OPTIMIZATION

TEAM NAME: Proj_224782_Team_2

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PROJECT DEFINITION

- The Public Transport Optimization Using IoT project aims to enhance the efficiency, safety, and sustainability of public transportation systems in urban areas by leveraging Internet of Things (IoT) technologies. This project will involve the development and implementation of a comprehensive IoT solution to address key challenges faced by public transport systems.

- This includes real-time tracking of vehicles, optimizing routes based on passenger demand, reducing waiting times, and enhancing overall passenger experience. The goal is to create a more sustainable and convenient public transportation system.

- The aim is to use this data to optimize route planning, reduce congestion, minimize waiting times, and enhance the overall passenger experience. By integrating IoT into public transport, we can create a more efficient, reliable, and sustainable transportation system.

OBJECTIVES

- **REAL TIME TRACKING** :
  Implement a system for real time tracking of transport vehicles,including buses,trams,and trains using GPS and other sensor technologies.

- **TRAFFIC MANAGEMENT :**
  Utilize IOT data to optimize traffic flow,reduce congestion,and improve the Overall reliability of public transportation.

- **PASSENGER INFORMATION :**
  Provide passengers with accurate and up_to date information on vehicle arrival times,delay,and route changes through mobile apps, digital displays,and other communication channels.

- **ENERGY EFFICIENCY :**

  Optimize energy consumption by monitoring and controlling vehicle systems,such as lighting,heating,and air conditioning,based on real time occupancy and environmental conditions

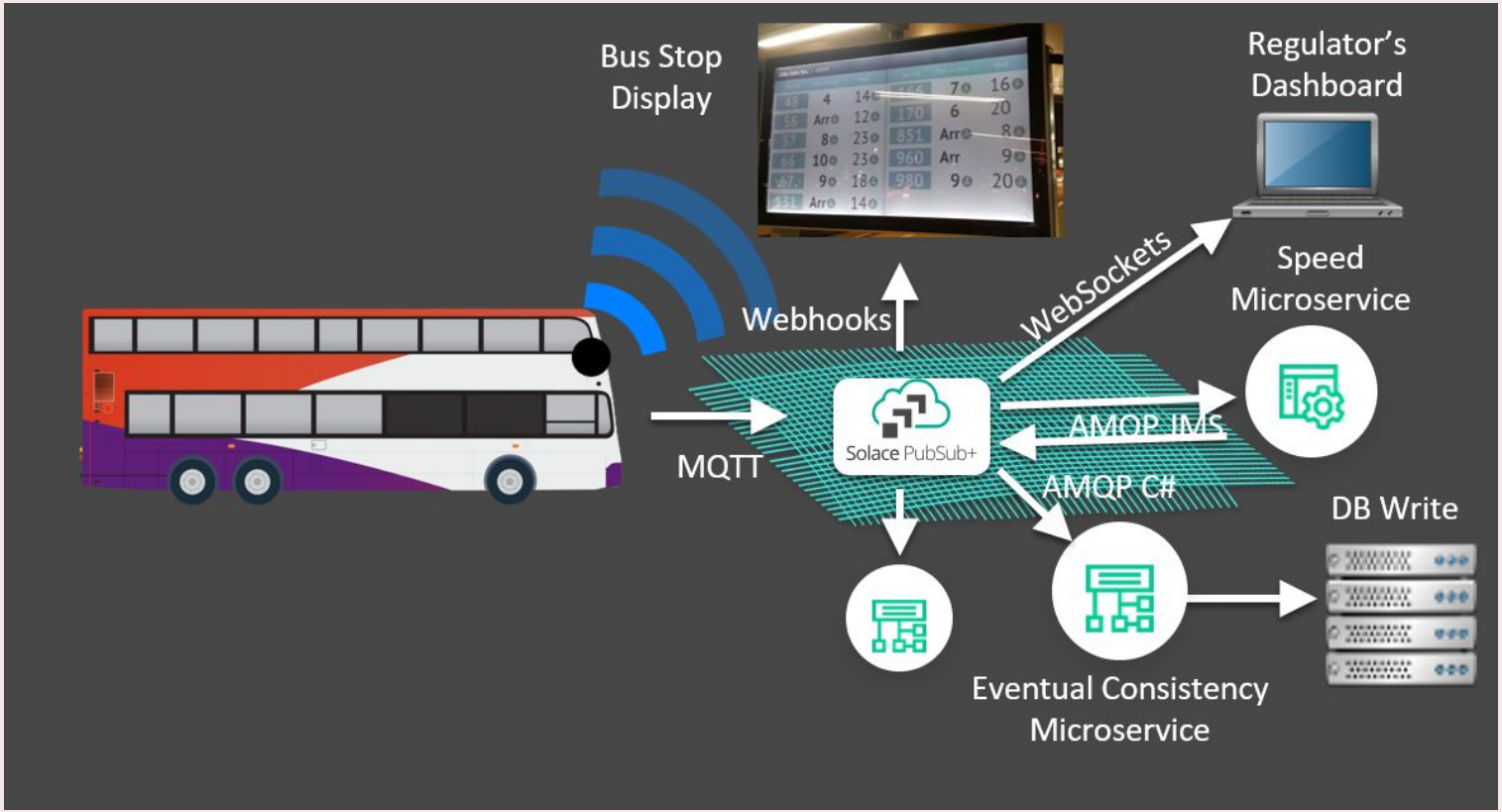
- **SECURITY AND SAFETY :**

  Enhance passenger safety by implementing surveillance systems and alert mechanisms for emergency or security incidents.

- **PREDICTIVE MAINTENANCE :**

  Implement predictive maintenance solution to reduce downtime by monitoring the health of vehicles and infrastructure components.

IOT SENSOR DESIGN



IOT SENSORS DESIGN

There are several IOT sensors and components that are used in public transport optimization using IOT.some of them are as follows :

- GPS SENSORS
- ENVIRONMENTAL SENSORS
- VIBRATION SENSORS
- PROXIMITY SENSORS
- DATA ENCRYPTION SENSORS

REAL TIME TRANSIT INFORMATION PLATFORM

Creating a real-time information platform for a Public Transport Optimization is crucial for providing passengers with up-to-date information and enabling efficient operations. Here's a high-level design for such a platform:

- DATA PROCESSING AND ANALYSIS
- DATA AGGREGATION LAYER
- REAL TIME DATABASE
- COMMUNICATION GATEWAY
- USER INTERFACE
- ROUTING AND TRAFFIC MANAGEMENT ALGORITHMS

INTEGRATION APPROACH

Integrating IoT technology into a public transport optimization involves connecting various components and systems to work together seamlessly. Here's an integration approach for such a project:

- ❑ DEFINE INTEGRATION GOALS
- ❑ SELECT INTEGRATION TECHNOLOGIES
- ❑ IOT DEVICE INTEGRATION
- ❑ USER INTERFACES
- ❑ LEGACY SYSTEM INTEGRATION
- ❑ SECURITY AND DATA PRIVACY

THANK YOU