<center>**Public transport optimization.**</center>

Introduction:

Optimizing public transport involves a systematic approach to enhance the efficiency, accessibility, and overall quality of transportation services within a city or region. This process requires careful planning, data analysis, technology integration, and collaboration between various stakeholders, including transportation authorities, service providers, and the community.

Problem statements :

The current state of public transport within [City/Region] exhibits several critical issues, including unreliable schedules, inefficiencies in route planning, limited accessibility for diverse populations, environmental concerns related to emissions, and inadequate passenger experiences. These challenges collectively impede the growth and sustainability of the public transport system, leading to decreased ridership and increased traffic congestion. To ensure the availability of a reliable, sustainable, and accessible public transport system that meets the needs of our community and promotes a more environment, it is imperative to optimize various aspects of the existing public transport infrastructure, operations, and services.

Design & thinking:

We are going to solve the problem based on sensor, analysis, time management and etc…. They are various sensor used such as GPS , fare collection sensor , APC sensor, environmental sensor and etc … and it implements into three states high, middle, low.

Hardware & software are mainly used in this system. which make the passenger travel to comfortable. RFID (radio frequency identification) are used. Which is used for monitoring the physical environment.

IOT technology used the Global Position System (GPS) and micro controller with a build in wi fi module.

To develop smart public transport system. Such as Geographical information system (GIS), Automatic vehicle location system (AVLS)& traveler information system (TIS).

Main application :

GPS

ESP 32

The proposed system includes an ESP32 with a Wi-Fi built-in module, a GPS module, and an Android app connected to the server.

After receiving the data, the tracking data can be transmitted using wireless communications systems. In this system, the ESP32 is a microcontroller with a Wi-Fi module.

An ESP32 has a dual-core structure and internal modules such as Wi-Fi, Bluetooth, and many Peripheral Interfaces such as IR, SPI, CAN, Ethernet, and temperature sensors

Conclusion:

This system will help them to reduce the waiting time at the bus station because it provides passengers with necessary information about buses, like the current location of buses, the speed of the bus, arrival time, and the distance.

The mobile application will be developed by adding additional features, using an IR sensor to count the number of passengers on the bus, and using RFID tags to implement an electronic ticketing system.