Public Transport Optimization

Phase 1: Project Definition and Design Thinking

Project Definition:

The project involves integrating IoT sensors into public transportation vehicle to monitor ridership,track location,and predict arrival times.The goal is to provide real-time transit information to the public through a public platform,enhancing the efficiency and quality of public transporation services.This project includes defining IoT sensor system,developing the real-time transit information platform,and integrating them using IoT technology and python.

Design Thinking:

1) Define:

a) real-time transit:

This is a two-way method of communicating where in the passenger can send a text message to an agency,usually with a code for the stop they want information about.The agency then automatically sends a responce with the next bus's arrival times

b) arrival time prediction:

An Expected Time of Arrival Predictor is a tool that estimates the time it will take for a person or object to arrive at a particular destination.it uses data such as current location,traffic conditions, and historical travel patterns to make this prediction.

c) ridership monitoring:

Generally,Wi-Fi and BT sensing devices can be installed in transit vehicles for monitoring passengers ridership flow or at transit stastions for monitoring passengers waiting time and estimating the number of waiting passengers at stations.

d) enhanced public transportation services:

To improve bus frequency,First and foremost,riders want buses to arrive more frequently.Improve bus ticketing system.Increase passenger comfort and safety.Reduce bus emission and GHGs.

2) IoT Sensor Design:

IoT technology enhances GPS devices to transmit data remotely and connect to other system and sensors.Modern-day tracking devices can collect and transmit comprehensive vehicle data,including the fuel monitoring,remote temperature monitoring and driver identification.The entry of each passengers is read through sensors and displayed on dash board hence there is no need of manpower.its human tendency to forget and get confused during the count,so the accuracy on

the count is maintained.

3) Real-Time Transit information Platform:

RTPI system provides you with a countdown of live predictions of when the bus is
expected to arrive.it is shown in the format of "XX mins" and provides a countdown displaying "DUE" when the bus is arrivin
-g at the stop,allowing you to plan your journey with confidence.

4) Integration approach:

In a nutshell,IoT works like this:Devices have hardware,like sensors,that collect data.The data
collected by the sensors is then shared via the cloud and integrated with software.The software then analyzes and transmits
the data to users via an app or website.