

PHASE II PROJRCT

PROJECT TITLE: PUBLIC TRANSPORT OPTIMIZATION

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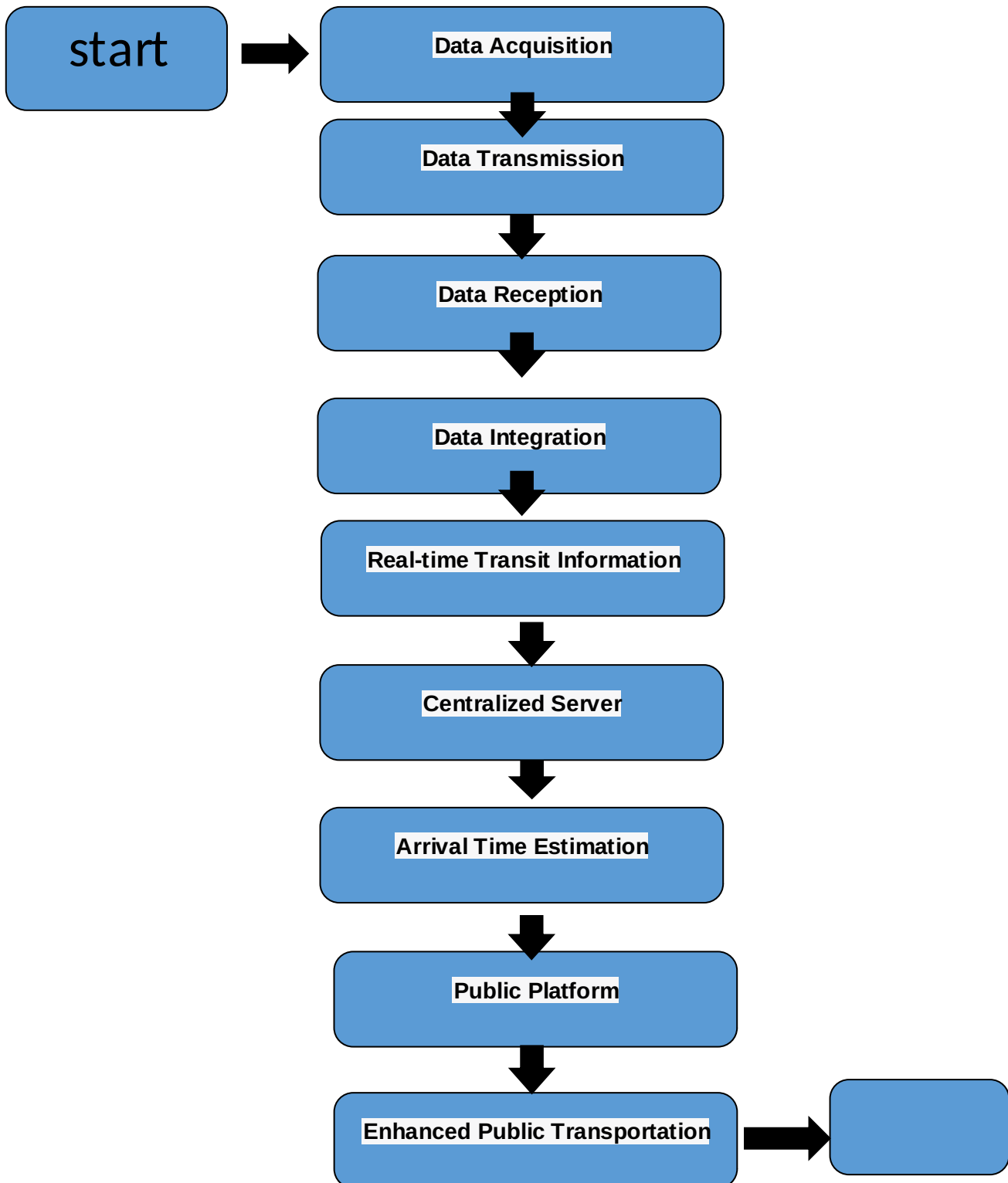
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PROBLEM SOLUTION:

In this fast life, everyone is in hurry to reach their destinations. In this case waiting for the buses is not reliable. People who rely on the public transport their major concern is to know the real time location of the bus for which they are waiting for and the time it will take to reach their bus stop. This information helps people in making better travelling decisions. This paper gives the major challenges in the public transport system and discuss various approaches to intelligently manage it. Current position of the bus is acquired by integrating GPS device on the bus and coordinates of the bus are sent by either GPRS service provided by GSM networks or SMS or RFID. GPS device is enabled on the tracking device and this information is sent to centralized control unit or directly at the bus stops using RF receivers. People can track information using LEDs at bus stops, SMS, web application or Android application. GPS coordinates of the bus when sent to the centralized server where various arrival time estimation algorithms are applied using historical speed patterns. The project involves integrating IoT sensors into public transportation vehicles to monitor ridership, track locations, 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 transportation services.

METHODOLGY :



PROBLEM ANALYSIS :

- We don't have system which could inform Passenger about their Bus Timing. Schedule etc.
- We only do have record of bus Timings on which bus should start on a route which is also sometimes not followed by drivers.
- There is no information provided to passenger about buses.

INNOVATION :

- The problem of bus timing and other problem could be solved by Schedule Monitoring of Buses.
- Real time Information should be provided to user about their bus this could be done

by using GPS in buses.

PROCEDURE :

By using modern, GPS-enabled software systems combined with hardware like a tracking device installed within buses as well as apps installed on phones of users (e.g. drivers), a “real-time” bus tracking system can monitor the movement of buses on a map. Data such as the speed of the bus, the distance covered, the remaining distance to its destination, the number of scheduled stops (etc.) is received by Fleet managers in real-time. This helps them in taking any corrective action should there be any deviation or delays. An important part of bus-tracking is the school-bus segment since it is greatly beneficial for parents and school authorities to be able to monitor the safe transit.

As the name indicates, a “real-time bus tracking system” tracks the movement and locations of buses traveling along various routes at different times and provides live data in “real-time” to a central control room. This helps Fleet Managers in the central location to monitor the progress of the buses i.e. whether they are traveling on pre-assigned routes, maintaining projected times, adhering to safety protocol while driving, making the prescribed number of stops (etc.).

Unfortunately, deviation from the planned routes and timelines are often necessitated due to issues like sudden traffic jams and inclement weather – these often cause delays and need buses to be re-routed. When such deviations occur – e.g. when a bus either breaches the route prescribed, or its geofencing parameters or is taking longer than expected – the system alerts the Fleet Managers, who can take the required corrective actions in a prompt manner.

The GPS tracker present in the bus will be relaying information about its real-time location. The telematics device installed on the bus collects and transmits critical vehicle and driver data in real-time. The data is sent to central servers via cellular networks and GPS Satellite networks which will perform all computations and store each bus position in the database. This information stored on the cloud will then be retrieved by users through fleet management software or Android applications. These software and apps will display the real-time location of buses based on the user's destination graphically on the map.

COMPONENTS :

S.NO.	COMPONENTS NAME	QUANTITY
1.	Arduino UNO Board	1
2.	16x2 LCD Display	1
3.	SIM800/900 GSM Module	1
4.	Neo-6M GPS Module	1
5.	Potentiometer 10K	1
6.	Connecting Jumper Wires	10
7.	Breadboard	1

SOFTWARE :

▪ ARDUINO

Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online.