



# IMPLEMENTATION OF BUS TRACKING, SERVER REPORTING WITH BUS QUERYING SYSTEM TO MINIMISE WAITING TIME

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## ABSTRACT

Now days the advancement of the urban area is quickly expanding. This outcomes major transport issue school, work places, office etc. Public transport is major issue in cities to reach their workplaces/destinations. People are experiencing few issues in their daily life like heavy traffic, bus arrival delay and timing. The surrounding information of the bus travellers are collected and used to calculate the bus travelling routes at arrival time at various bus stops. In this GPS is the main framework fixed in the buses which coordinates bus location and client location via latitude and longitude values. The evaluation suggested that android application is created to the user's querying system for tracking the corresponding buses. User will be giving starting and destination place via android mobile to the server, where it transmit its longitude and latitude location values to the centralized server via GPRS,

**Keywords:** GPRS, bus tracking, querying system, arrival time, harassment, graphical method, delay.

## 1. INTRODUCTION

A passenger in Chennai regularly confronts the choice of whether it is snappier to sit tight for the following transport or to walk or to procure a taxi/rickshaw to reach his/her destination. Numerous passenger are regularly late to work, understudies are late for classes since they choose to sit tight for the transport rather than just basically utilizing substitute transportation.

- a) 75% of the population declared that they had been late to their destination since they choose to sit tight for a transport as opposed to changing to other arrangement.
- b) 96% of the populace avowed that knowing the position of the transports on time would be advantageous in choosing whether to change plan or sit tight for the transport.

If passengers had an easy way to see which bus is near to their location and approximate time it would take to reach the stop, in real time, they could make a more accurate, decision of whether or not to wait at a stop.

Information system is a standalone system that displays the real-time location(s) of the buses in mobile or web. The Real Time Bus Monitoring and Passenger Information system is a standalone system that does not display the real-time location(s) of the buses in Chennai.

Selection of tracking algorithm can be done on basis of object representation, feature, object detection technique and object tracking algorithm, shortest path algorithm and difference of co-ordinates. Most common approaches of representation are points; primitive geometric shapes object articulated shape models, selection models. Common visible features are color, textures, optical flow and edge. Several object detection methods are point detectors, segmentation, background subtraction supervised learning.

In this paper we are going to present android user authentication, bus monitoring server, bus query system, nearest bus detection system, embedded system.

## 2. DRAWBACKS OF EXISTING SYSTEM

The main drawback of the existing system is arrival time, estimated time to reach destination, live tracking of vehicle, time complexity

## 3. PROPOSED SYSTEM

In the proposed framework the live tracking of the vehicle is followed by the GPS furthermore the accompanying procedures will be executed.

- Live bus Tracking Dashboard
- View Bus details (endpoint, stops) details
- Alerts on nearest bus details
- Fixing different time, source and destinations
- Travelling duration, stop point time, waiting time at bus stop
- Harassment to passengers in bus (alert to nearest police station).

## 4. ARCHITECTURE DIAGRAM

- **Figure-1:** architecture of GPS based vehicle monitoring.

### Major Parts:

- Geo Information system(GIS)
- Global Positioning System(GPS)
- Data base (server)
- Android mobile



Over view of diagram 1.0

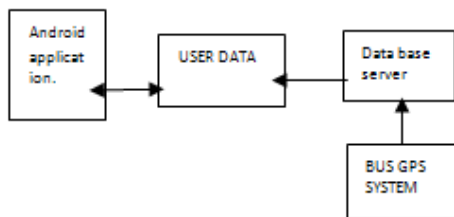


Figure-1. Connections.

#### 4.1 Related works

Amid the on-line handling stage, we utilize the cellular telephones or gprs tracker of the transport area to record the and transmit the information to the backend server. As the cellular telephone ought to brilliantly identify travel transport or not and gather the information just when the cell telephone is on a transport. A few works concentrate on the issue of movement acknowledgment and connection mindfulness utilizing different sensors. Such methodologies, in any case, can't be utilized to recognize diverse transport modes (e.g., open travel transports and non-open transports). In this segment, we investigate GPRS GPS beacon to recognize the transport environment.

IC cards are normally utilized for paying travel expenses as a part of numerous zones. On an open transport in Singapore, a few card peruses are sent for gathering the expenses.

#### 4.2 Accelerometer detection

For the sound recognition system, there might be false encouraging points in our everyday lives. Some comparable beep sign might exist in different situations when clients are tapping different sorts of cards like money card as well as representative's card. Some uproarious situations, the foundation sound or music might bring about false positives.

This accelerometer location can be identified when the transport begins from the root and when the transport stops at the destination.

#### 4.3 IC card detection

This framework is created in Singapore and Malaysia, when the travellers enter the transport and swipe

their IC cards to pay cash for the transportation. Whenever cash is charged from the card these is transport area gadget send to the back end server and after that it passes the sign to front end with respect to landing of time and estimation of time entry.

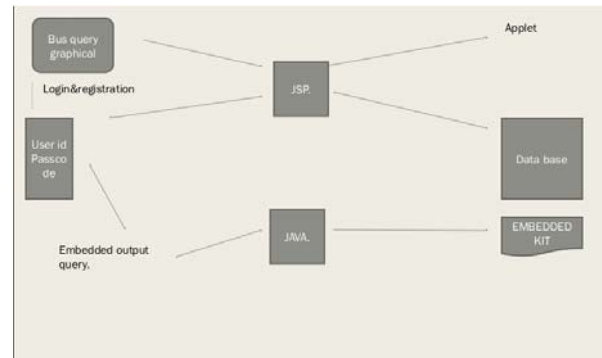


Figure-2. Architecture diagram.

### 5. USER APPLICATION

The customer uses the application and track the location in view of the module executed and it views the no: of buses and bus data and travel details. The route is identified taking into account the GPS utilizing the Latitude and longitude.

#### 5.1 Android

Confirmation is required to work this application through social site or versatile number validation so we can give private access to the general population required.

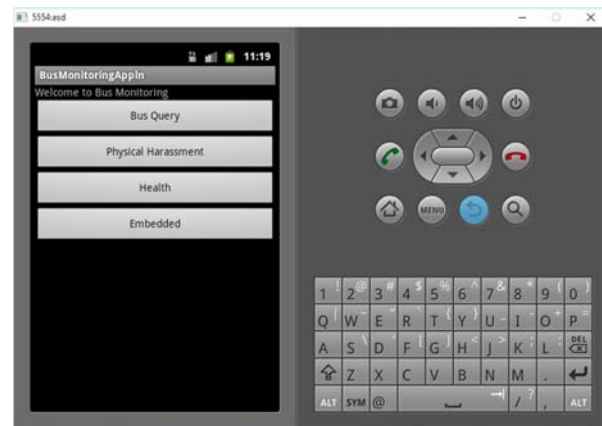


Figure-3. Android app.

### 6. BUS MONITORING SYSTEM

In this framework cellular telephone or GPRS GPS beacon is utilized to distinguish the transport bus by scopes and longitudes where this information is sent to backend server to store the transport bus location.

So that transport bus is sent to the android clients to recognize the transport area precisely with entry time and evaluated time of arrival. This procedure is finished by distinction of client co-ordinates and transport area.



Figure-4. Bus application process.

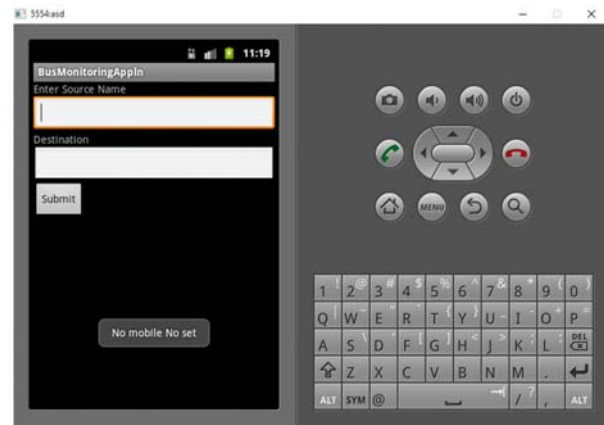


Figure-5. Inputs to locate bus.

### 6.1 Bus Query System

Transport routes and areas can be shown in bus query framework the client can choose required both source and destination.

By selecting both root and destination they can know the exact bus location and arrival time of the transport bus including evaluated time to achieve their destination.

### 6.2 Harassment

There are lot of passengers who are facing problem with harassment. So this is helpful to overcome harassment problem in public transport buses.

In this when passengers get harassed while travelling in bus then they can access a particular module which is enabled in the client application so that the information is sent to nearest police station that passengers in specific bus are facing problem with harassment issue.

### 6.3 Health

There are lot of senior citizen passengers travelling in bus daily. So this is helpful to save them if they are suddenly get any health issue while travelling.

In this module when passengers get problem with any health issue in bus then they can access this operation so that the information is sent to nearest health station that passenger in specific bus is facing with health issue.

### 6.4 Embedded System

Embedded system is the backend part of the system. Through embedded system only we can access all the information about the bus.

Embedded system work as a medium between client and server. It is helpful for transferring and accessing the data from server to client and client to server.

The main part of embedded system is GPS tracker which is a main part of the system that will be helpful to track the location of bus using latitudes and longitudes.

## 7. GLOBAL POSITIONING SYSTEM

GPS is frequently utilized by regular folks as a route framework. On the ground, any GPS collector contains a PC that "triangulates" its own particular position by getting course from no less than three satellites.

The outcome is given as a geographic position - longitude and latitude - to, for most collectors, inside of a precision of 10 to 100 meters. Programming applications can then utilize those directions to give driving or strolling guidelines.



Figure-6. Example of real time bus tracking.

## 8. GEO INFORMATION SYSTEM

In a general sense, the term describes any data framework that incorporates stores, alters, examines, shares, and shows geographic data. GIS applications are devices that permit clients to make intelligent questions (client made searches), break down spatial data, alter information in maps, and present the outputs of every one of these operations

In this system we have invoked the details of shortest path algorithm, to know the arrival time and estimated time to reach the required destination.



## 9. CONCLUSIONS

In this paper, we are going to present bus arrival time querying system. Initially relying GPRS tracker and application in mobile, the system provides less cost solutions to this proposed problem. We evaluated this proposed system through an Android application. The assess results shows that our system can exactly predict the bus arrival time and harassment and health issue to the public in the bus. In a particular city, to implement our system we install a backend server and a GPRS device depends on bus system.

At the primary stage, we can speak with some specific passengers (like the bus captain) to install the proposed mobile application.

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