

# Bus Monitoring System using Android Application

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**Abstract** - In this Modern and Competitive world where everyone is worried to achieve their targets on time where people value each and every seconds to optimize their Goal. As though time is an illusion in this cosmic but it plays an ultimate role in this Money Controlled World. Being step into this highly advance Nano technology world where everything on this Planet appears to be in our Hand, where everything is been control by just one click, so why we should waste our time waiting for the travelling means. Where we can Track our Traveling means through GPS i.e. for Buses we can have the Bus Monitoring System using Android Application. In this Competitive world where Time is Money and if we waste our Money just because of traffic and waiting for the Transport means that will be very unfair for our Goals. Being lived in the Developing Country where everything is Under-construction where we are building new roads and new Projects just to make best of our time, we can't afford to lose the opportunities while waiting for our Transport Means. The main objective of our Project is to achieve our Goal on time and to Utilize each and every seconds of our life Span without wasting them at least on our Transport Means. In this article we are sharing our project ideas which can be implemented for our Public Transport which is most preferable and convenient mean of transport i.e. BUS.

## 1. INTRODUCTION

Android is the system which is been used by almost all the people in this Advance Hi tech World. Whereas it is also the platform to this Fast Running World where it makes our life easy & convenient. Logistic Plays a Very Important role to cope up with this fast running world. Hyper efficient Transport System makes a productive movements which leads to the overall welfare of the Society in term of Social and Financial Growth. Being in the Developing country like ours with the Increasing Population and Infrastructure the Vehicles add a Lifestyle Status to the People mindset. Just to flaunt their lifestyle the amount of Vehicles on roads are increasing day by day which leads to the terrible traffic that is the reason for increase in pollution and its effect to the Global Warming. The Optimal Solution to save Our Planet Earth is to avail Public Transport. Unfortunately Public transport are not reliable in our Country, lot of time is been wasted just waiting for the Buses to arrive. The solution to this problem is "Bus Monitoring System by using Android Application". If an Android application help us to track our

Buses with respective to the Bus Number, its arrival & departure schedule, it requires Stoppage and indeed details of the Bus by monitoring its live tracking through its route on real time basis. This paper is organized to save the waiting time of the People by monitoring the live tracking of their Buses.

### 1.1 Registration

**User** - This feature will allow the user to create an Account and get register to the Application. It will be the user Friendly Application with basic details of the User i.e. DOB, Gender, Name.

**Driver** - for the registration of Driver the Application will provide unique Driver ID and Password to the Driver. Without Registration User/ Driver they cannot access the Application.

### 1.2 Login & Map

This feature illustrate the process of selection of Bus Number and show the current location of the bus. The registered User can only access this feature. After Login the user have to enter the details of their journey i.e. Source & Destination address. After adding the appropriate details the map will be display which will show the Real Time Location of the Bus. Google Map will pay the key role for the Navigation Part. It offer Satellite Imagery, Street Map, 360 Degree Panoramic View of the Street, Real Time Traffics Update, Route Planner. Google Map has a feature which allow users to find their available directions through different means of Transport.

## 2. SYSTEM ANALYSIS

### 2.1 EXISTING SYSTEM

The existing system has some of the disadvantages like

- Exact positions of the vehicles cannot be retrieved.
- Those applications are mainly used only by owners and administrators.
- Bus location cannot be retrieved from anywhere.
- Movement of the bus is also not visible in the Google-Map.

## 2.2 PROPOSED SYSTEM

The proposed system provide the user to find exact location of the bus from wherever they are. Bus stops are displayed in the user interface so the user can select the bus stop which & where they want to travel. The positions of the bus is displayed in the Google-Map. Distance between the bus and user is also shown so this application helps the users to be aware of where the bus is exactly. Depending on the routes like distance and positions displayed in the Google-Map the user can plan and start accordingly.

The proposed system provides following advantages like:

- The details of the buses can be seen by users at anytime and anywhere.
- This also enhances security as the movement of the bus is always visible.

The proposed system is a composition of many pieces, tools, and interfaces:

### i. The standard desktop web interface

The standard desktop web interface is design to loosely mimic the interface of the main Google-Maps website that many users are already familiar. The primary view is a Google-Map view, with a search field at the top and a search results panel on it. Users can go through the map directly to see stops at a particular location, Additionally, users can search by routes to display the map of that routes and stops along the route.

### ii. The Android app

The Android app provide a location-aware application for quick accessing real-time arrival information for nearby public transit stops. Unlike the interface described thus far, the Android has built-in localization capabilities, using sensor data from GPS, WiFi, and cell-tower localization to quickly get a locations fix on a users phones. This location information can significantly reduce the time it takes to access real-time arrival information for a nearby stops. Beyond the key addition of the location-aware capabilities, the Android app has a lot of the same features available in the other interface: a map views, recent stop views, and search for stops by routes, and stop numbers.

## 3. The API

The Android app is powered on the backend by web-based API's, a standard techniques for providing dynamic data to mobile app. When I created the API for the Android app, I decided to make the API's freely available to the developers so that they might create app of their own.

## 3. Implementation

The initiated system highlights on the GPS location for users about current location of state transport vehicle. Location Based services is one of the key functions that is use in Smart phone Applications. It is sync with the Google Maps to give user the exact location.

### 3.1 Modules Description

#### 3.1.1 Module at Driver end

**Driver Login:** In this module at front end user enters the bus details like bus number, bus source & destination. This credentials are stored at back end in database. These credentials include the schedule of bus, and route of Bus. The server fetches these details by having link between Application and database console.

**Fetching Bus Location:** In this module, Bus Locator Application will fetch the coordinates from Google Map at background so that it should not affect any other activities of device.

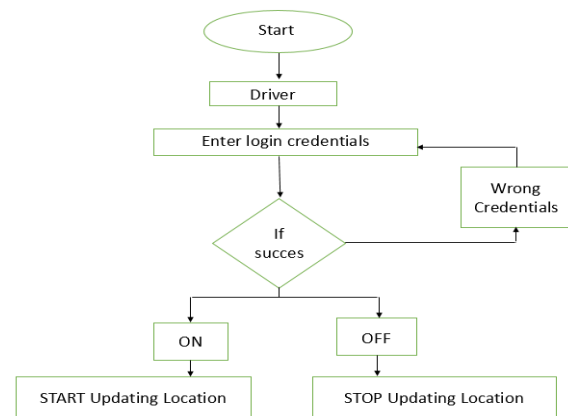


Figure -1: Driver end flowchart

#### 3.1.2. Modules at User

##### User Login:

In this module the user have to sign up and login themselves. After login the user have to fill detail which is required for search the bus location i.e. source and destination, user will provide the source from where user want to travel i.e. source bus stop name and destination where user want to reach i.e. destination bus stop name. This module is to have interaction between User and Database console.

##### Graphical-map:

This module displays graphical maps and shows where the buses are on map and provide passenger the updated information at different time by using RTC (Real Time

Clock).when the application is running at driver side it will fetch co-ordinates of device; further driver application will send these co-ordinates to server. Then application locates these co-ordinates in graphical Map by having markers on it.

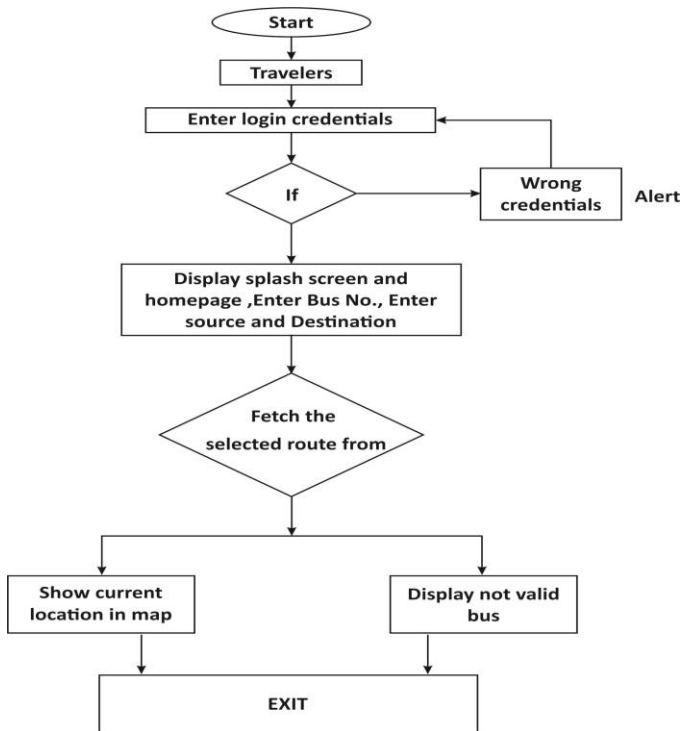


Figure -2: User end flowchart

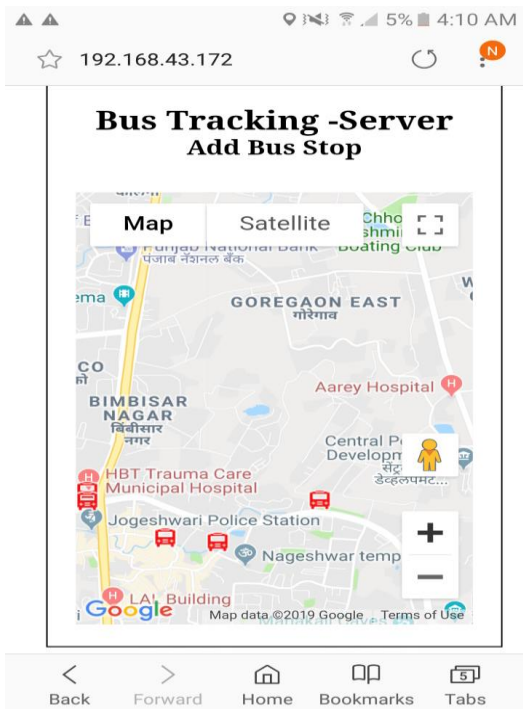


Image -1: Current locations of bus

**CONCLUSION:**

The conclusions of this study suggest that knowledge of specific domain improves the results. This Project has been implemented on Android platform. Also, different attributes have been added to the project which will prove to be advantageous to the system. The requirements and specifications have been listed above. This project is implemented using Android and the SQL domain. Using the GPS system, the application will automatically display the maps and routes to the different locations and also track the bus location using client-server technology and forward it to the client device. It uses basic measurements of distance between two locations and provides necessary details of each and every route for people to easily pick up buses or any other conveyance possible on the specified route. Specific location details are provided to the user along with bus no. so that the person can identify the bus correctly. It uses remote server as its database. Due to this the records can be easily manipulated on the device itself and the server burden gets reduced.

**FUTURE ENHANCEMENT**

The future enhancement for our project is to make the application online for finding the current location of the bus. We are also planning to fix a GPS devices on every bus so that it is not essential for the driver to have an Android phone. Due to availability of android phone and GPS device it is going to stay for long in the future use.

1. This project will be put up on the cloud platform, so that it will be accessible by every Android users.
2. Reservation Facility will be provided.
3. An alert message can be send to the control room if any accidental incident occurs
4. Improved and optimized service

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