

# Check the Status of Bus Online using Android devices and Application

Devendra Patil<sup>1</sup>, Kalyani Baviskar<sup>2</sup>, Jayashri Purkar<sup>3</sup>, Vinay Bendale<sup>4</sup>

<sup>1,2,3,4</sup>Department of Computer Engineering, SND College of Engineering & RC, Yeola, India

**Abstract-** Urban transportation in many countries is used as a means of transport for travelling and people get public transportation service to be scheduled properly, and the frequency be increased for commuters to make good use of it. But now a days in many countries at the bus stop display system shows expected time of arrival and delay therefore commuters are dependent on that bus stop's display system to know the bus arrival time and delay time. The transportation have been proposed which enables commuters towards tracking of bus, bus status and expected arrival time. The proposed system validated using Android, GPS. In this research which allows commuters to know bus status. Also depot manager get location update of each bus. Transportation system employ numerous resources like buses, drivers, routes to keep them functional and efficiently serving the public's needs due to this method of message passing is ideal for arrange scheduling of buses. The proposed system is user friendly with accuracy. Also it works online using Android mobile device.

**Keywords-** Android, GPS.

## I. INTRODUCTION

People use public transportation in many countries as a means of transport for travelling and accordingly people would favor this public transportation to be scheduled on time and the frequency to be increased for commuters to make good use of it but some time commuter is waiting for bus at bus stop for long time and it is just wastage of time. To avoid this and get necessary update of bus status by using bus tracking system. User track the bus and get bus status like bus location, expected arrival time, delay, these all details are provided to user. This information is update on server side also which is handled by depot manager.

In the proposed system we develop the android application which is used by public user and public transportation system like Municipal Bus Corporation. Due to this application the emergency help can be provided to the failed bus on their current location as well as user get update about the bus failure if user tracks this bus. If emergency is occurred then message is passing to depot manager through the mobile device which is placed in the bus. And help is provided by Bus depot as soon as possible.

Using the GPS (Global Positioning System) inside the bus to track its location.

If there is problem with any bus then the acknowledgement sent to the depot manager and the manager provide appropriate help to bus passenger as well as bus also. Due to the proposed system passenger's time is saved and inconvenience is reduced up to some extent.

In daily routine of public transportation there are many problems is occurred like major traffic, delay in arrival time, random in passenger demand and irregular dispatching time of bus due to this problems many users are late for their offices, colleges because they are depend on bus transportation system.

To make this system is more user friendly we developed the Android application. The real time bus tracking for better transportation management. It is possible because of GPS and Mobile cellular network.

We can mount this technology in public transportation or in municipal bus corporation which are unable to adhere to predefined time table due to reasons like traffic jam, breakdowns etc. Now a day's passenger do not find public transportation neat and alternative so proposed system is design to make it convenient and user friendly.

## II. LITERATURE SURVEY

First paper we have referred for literature survey, "**Mobile Enabled Bus Tracking and Ticketing System**" (Suresh Sankaranarayanan, Paul Hamilton.) In this paper, the advance of mobile technology, it would make more sense for user to know the current location of bus and expected time of arrival and also delay if any before coming to bus stop or while standing at bus stop without having to depend on display system and this has been the huge contribution of research. In detail on how expected time of arrival is calculated by Bus transportation based on data received from RFID and GPS. [1]

Secondly we have studied the paper, "**Analysis of Bus Tracking System Using GPS on Smart Phones**" (Mr. Pradip Suresh Mane, Prof. Vaishali Khairnar) in this paper concentration on the tools it provides for real-time arrival information, which is obtainable through a variety of interfaces for mobile devices. This information is important for new and frequent riders.

Commuters could access information by navigate through a list of stops for a particular transit route. For the full Web interface, commuters could see stop and route information displayed on a map but still had to search for stops by stop number, route, or address. By this kindness, of this paper a location aware native Smartphone application for BEST Bus leverages the localization technology in smart phone mobile devices to suddenly provide commuters with information for close by stops and improved context-sensitive reply to their searches.[2]

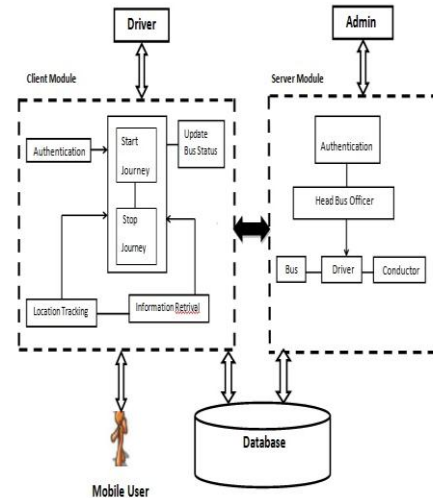
Third paper we have studied, “**Android Based Mobile Smart Tracking System**” (Mr. Kshirsagar Suraj Shashikant, Mr. Gaikwad Amit Bajrang, Mr. Londhe Namdev Baban, Mr. Jagtap Mahesh Suresh ) In this paper we are going to use GPS for locating the location of vehicle. We will also find the rapidity of the vehicle in real time. We can track vehicles throughout android application using GPS to find out here a bus is using a web application which requires login of administrator for Vehicle Details and commuters. We use the Vehicle details From Vehicle Registration Form i.e. (Vehicle No. Driver Name, Route.).This is the Organizational Action. From that detail we can track the location of Vehicle, only registered vehicles location can track. [3]

And beyond this, the paper, “**GPS Based Bus Tracking System**” (Leeza Singla, Dr. Parteek Bhatia) in 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. [4]

### III. PROPOSED SYSTEM

#### *Problem Statement*

The proposed system will help to identify the location of a bus, so in case of a letdown of a bus, the help could be provided in least amount time And This proposed system will also provide you with the end-user requisite to view the schedule, route and track the current GPS position of the bus in real time through a user-friendly App (Android App) which is easy, clear and has good graphical interface.



**Fig. 3.1 System Architecture**

#### *3.1 Architecture and modeling*

*Working:*

*Client Modules:*

In the authentication procedure Driver can login into app by clicking Login button. After login he can able to start journey. After login driver can start journey by clicking START JOURNEY. Previous to starting of actual journey he has to fill details for e.g.: Bus Number (e.g. MH-15 BC 2061) Bus Rout Number (e.g. 65) Starting bus Stop (e.g. Panchavati) target bus Stop (e.g. jail Road) It will constantly bring up to date status of bus to server (After every 1 min). Later than start journey he can capable to do following things. If any trouble occurred he can report to Head Stop by (INFORM HEAD OFFICE). Also his information get notify to other Bus drivers on that route (NOTIFY OTHERS). He can stop journey by clicking STOP JOURNEY.

*Authentication:* It is login process of driver. Driver can login using his credentials and then start for travelling.

*Start Journey:* After driver login journey will be start. Driver will enter the starting point of journey and also enter start time of bus.

*Update Bus Status:* Driver will start journey. Update the information automatically of bus using mobile which is placed in bus. By this mobile device tracking of bus is very easy and get current updates about bus.

*Stop Journey:* Journey will start from starting point and ended at stop point. It is destination point where the journey will be stop.

*Public User Modules:*

In the public user module a human being or user who have android proposal can easily track the buses by user friendly android application he login in the app and can track the bus's current location, bus arrival time and delay time, routes, static timetable etc.

*Location Tracking:* Public user use android mobile for track the location of bus using GPS, Android application.

*Information Retrieval:* User can track the location of bus as well as get the updates of bus like start time, arrival time, delay time, timetables etc. User can retrieve the information.

*Server Module:*

Admin can login to server by given that his identification. Head Stop officer can login into server by providing credentials. After Login, ADMIN will be capable to add officers for HEAD BUS DEPOT, to confirm list of officers, check list of buses related to depot, check bus status (Location or running status), check route of bus. After login, HEAD BUS DEPO OFFICER will be able to add bus drivers, add bus, add conductors also. The depot manger can track each bus related to depot. He can send the acknowledgment to bus driver for help in case of bus failure.

#### IV. ALGORITHM

*Implementation Steps:*

1. Take input Source and Destination.
2.  $R = \{R1, R2, R3, \dots, Rn\}$   
 $R1 = \{\text{Source, node1, node2, } \dots, \text{ node}n\}$
3.  $\text{Source} = \text{Distance} [\text{Source}] + \text{nodes}$
4.  $S = \text{DistanceBetween} [\text{Source, node}i]$
5.  $i = 1$   
 $D = \{D1, D2, D3, \dots, Dn\}$   
 $[R = \text{Routes}, D = \text{Distance}]$
6. Track the location
7.  $\text{Min. Time} = \text{Min} (D1, D2, D3, \dots, Dn)$
8. Display Min. Time and Location

In this proposed system we have sources as driver details rout detail, bus details, destination details are updated to server side which is handled by depot manager. Where driver login from his bus device.

**Rout** is denoted by  $R = \{R1, R2, R3, \dots, Rn\}$ . Where R1, R2, R3 are rout numbers. Where in each rout we have details of sources and nodes where nodes are number of stops in specified rout. Where **Source = Distance [Source] + Nodes**.

**S = Distance between [source, node i]** It is the distance between source and each node of specified rout. Source is starting point of journey.

Each node having numbers as  $i=1$ .  $D = \{D1, D2, D3, \dots, Dn\}$  **D is a distance of each node numbered D1, D2, D3** as per above. By using above details user can track exact location of desired bus also user can track expected arrival time. **MinTime = Min (D1, D2, D3, ..., Dn)**. User gets a display of Minimum Time and Location of bus on his android mobile.

#### V. CONCLUSION

We have concluded that, it would make more good judgment for user to know the current spot of bus and expected time of arrival and also delay if any before coming to bus stop or while standing at bus stop without having to depend on display system and this has been the main role of our research. Bus tracking improves safety and security, And time saving. So in the coming year, it is going to play a major role in our day-to-day living. This system has many advantages such as large capability, wide areas range, low operation costs, effectual, Strong expandability and simple to use in bus traffic administration. Improvement this system is very simple which makes it open to future are requirement which also makes it more efficient.

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