

# REAL TIME BUS TRACKING SYSTEM

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## ABSTRACT

*The Real Time Bus Tracking System project is developed to make the current bus transportation system paperless and more digital. This will make the business easier due to the user friendly and easy to use system. Using this system will increase productivity. The main purpose behind this is to provide transportation services to the consignor and consignment. Due to computerized billing, short payment, report preparation etc. Will be stored permanently and will be readily available when needed in the future. As a result, it will reduce the workload in the office which will lead to more productive work. Security and business potential also increase. The implementation of this digital system allows proper management and analysis with the help of the data collected and generated.*

**Keyword :** - Transportation, Paperless, Billing etc....

## 1. INTRODUCTION

The movement of college buses is affected by various uncertainties such as daytime traffic jams, unexpected delays, and randomness in passenger demand, irregular vehicle-sending times and many other incidents. Many students and staff are often late for college because they have decided to wait for the bus instead of using alternative transportation. To reduce this confusion and inconvenience, a message will be displayed on the web providing real time information indicating the arrival time of the bus which will reduce the anxiety of the passengers waiting for the bus. The advent of GPS and the ubiquitous cellular network have made real-time bus tracking possible for better transportation management. This technology can be applied to the transport system, especially buses, capable of adhering to predefined timetables due to traffic jams, breakdowns, etc.

In this application drivers log in to the app then the drivers device's GPS is turned on automatically. The admin can include the driver and the student in this application then they both give the login ID and password. Using this application, students can see the actual location of the bus.

The main responsibility of the bus tracking system is to assist the user in locating the bus directly to save more and more valuable time of the passengers. Thus our proposed procedure reduces user effort and bus waiting time.

## 2. LITERATURE SURVEY

Sulaima Lebbe Abdul Haleem and Samsudeen Sabraz Nawaz, "Real Time Bus Tracking and Scheduling System Using Wireless Sensor and Mobile Technology" [1], The public bus transport system has a direct impact on the

economic development of the country. The main problem for any public transport sector is scheduling, tracking and monitoring public bus transport. Currently, there are several vehicle tracking systems available using Global Positioning System (GPS) technology. But there is no implementation in all buses in the centralized schedule. Tracking of the bus in the manual system indicates that there is an error in the time keeping process by the time keepers and this manual log is also not centralized for sharing with the concerned authorities and passengers. The project aims to design a wireless sensor network that will automatically identify and provide visual information for the real-time movement of public transport buses. All of these bus stops and passenger shelters will be based on microcontrollers designed using Arduino and RFID receivers. The bus will have front and back tags. The detected RFID information will be sent via Arduino and GSM / GPRS shields which will be placed in the central schedule at the bus-stop, it will process the sensed raw data and upload the generated index to Google Maps using Google Fusion Tables. Administration and passengers can check real-time movements through the web interface.

A. Deebika Shree; J. Anusuya; S. Malathy, “Real Time Bus Tracking and Location Updation System”[2], The public transport system plays an important role in every aspect of life. It is having a huge impact on the economic development of the country. Tracking, monitoring, scheduling, vigilance services are the major challenges facing this system. Currently the major services of this system are operated manually which are approximate and easy access is denied to people. The aim of the project is to automate the services of public transport buses providing real-time tracking experience. These buses will have RFID tags and RFID readers will be placed at each bus stand. Arduino acts as the central controller for this system. The GSM module will be used to send tracking messages to authorized persons for continuous monitoring. GPS is used to locate buses. Users will get the details of bus tracking as a notification in their mobile through IoT. Information from RFID readers for data processing is constantly updated on Arduino. Processed data is sent to the cloud which acts as an interface between the user and the system.

Mohammad Nazmul Hasan; Md. Sharif Hossen, “Development of An Android Based Real Time Bus Tracking System”[3], In this dynamic life, everyone is in a hurry to reach their destination. In this case, it is not possible to wait for the bus. People who rely on public transportation should know the location of the bus they are looking for. With the advancement of technology, Android smartphones have become global and affordable for all. Smartphones have ample potential to provide a rich user experience with interactive features. In this paper, we propose a real-time bus tracking system for students using Android smartphones used for tracking and seating of buses using the Global Positioning System (GPS). This Android based real time application enables students to find the exact location of the bus so as not to be late or arrive at the bus stop early. It provides the exact location of the student bus that can be viewed on Google Maps. In addition, this application provides bus details, driver details, contact numbers, routes etc. Also provides similar information. Therefore, our developed application saves students time waiting for the bus as they can know the location of the updated bus at any moment. As latitude and longitude on Google Maps.

ManiniKumbhar, MeghanaSurvase, Pratibha MAVdhutSalunk, “Real Time Web Based Bus Tracking System” [4], The proposed system reduces bus waiting time for remote users. The system is used to track a bus anywhere at any time. All current information is stored on a server and retrieved to remote users through a web-based application. This system is a web based system but nowadays people use Android apps because they are more portable and smart phones are used more in today's world. There is also the disadvantage of a web-based system for regular use while waiting for a bus at a bus stop.

M. A. Hannan, A. M. Mustapha, A. Hussain and H. Basri, “Intelligent Bus Monitoring and Management System” [5], The proposed system uses artificial intelligence with the help of RFID module which is used to reduce the manual work done in bus-management and monitoring system. It uses RFID to track the bus while crossing the bus stop. Therefore the exact location of the bus is not shown, only the approximate location based on the bus stations is shown. Accuracy is very important in today's world and that is why this project had its limitations.

Süleyman Eken, Ahmet Sayar, “A smart Bus Tracking System based on location- aware service and QR code” [6], In this paper, in the bus tracking system, any passenger with a smartphone can scan the approximate bus location at the bus station, the QR code placed at the bus station to see the current location of the bus. The error in this project is that the user had to be physically present at the bus stop to scan the QR code.

R. Maruthi, C. Jayakumari, “SMS based Bus Tracking System using Open Source Technologies” [7], This paper proposes a bus tracker application to track a bus using a GPS transceiver. The purpose of this work is to develop a

system for managing and controlling traffic using tracking device to know the current location of the scheduled vehicle and vehicle via SMS using GPS tracking device.

### 3. PROBLEM STATEMENT

Currently the management of public transport buses is the main problem. There is no system based on the current system that provides information on buses and their expected arrival time, expected waiting time and current location of the bus.

### 4. ARCHITECTURE

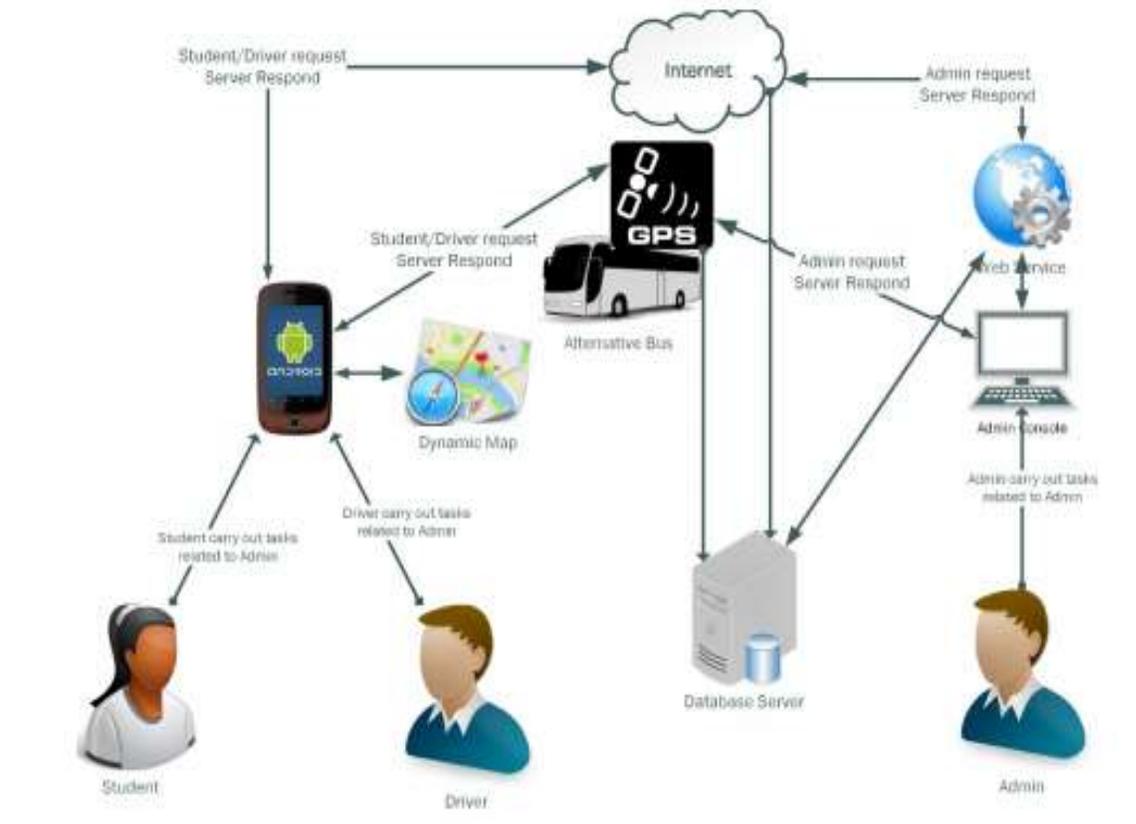


Fig -1: Architecture of Real Time Bus Tracking System

### 5. MODULE DESCRIPTION

#### 1. Student Module:

Students can login to the system with the username and password provided by the administrator, students can see the route in real time and when the driver clicks can find the location of the drivers on the map, the student will be able to find the driver the route and speed will also be shown.

#### 2. Admin Module:

The administrator logs into the system with the username and password, the admin can add and delete students, add drivers, delete, and first add the paths stored in the administrator database. When administrator specifies the path to students, user data is stored in a database of users. The administration can add routes to the system by clicking on the routes that will be found on the screen and adding information about the route by adding the departure and arrival numbers and telling the route and its name and bus number; The way a student goes to university is to come back from university and the way back from university. Finally, the administration can also delete a student's name by tapping on the map to select the administrator location via the Routes tab, tapping the start of the route and the last point A, then

selecting location B. Student information can be viewed by long-clicking on the name of the student whose menu credentials appear. The administration can add and delete drivers' names. The administration can also prepare reports for decision making.

### 3. Driver Module:

The driver logs into the system by entering the username and password, the driver can start the route by clicking the start route on its main page, the route starts when the driver starts the route and real time tracking starts on the driver and student mobile. , Where the student locations are shown, the route driver can see. If an accident occurs or the bus service is not available, the driver can choose to report the situation and it will appear immediately on the administration's homepage to make a final solution to the problem.

## 6. REFERENCES

- [1]. Sulaima Lebbe Abdul Haleem and Samsudeen Sabraz Nawaz, "Real Time Bus Tracking and Scheduling System Using Wireless Sensor and Mobile Technology", Journal of Information Systems & Information Technology (JISIT) Vol. 1 No. 1 2016 ISSN: 2478-0677 18- 23
- [2]. A. Deebika Shree; J. Anusuya; S. Malathy, "Real Time Bus Tracking and Location Updation System", 5th International Conference on Advanced Computing & Communication Systems (ICACCS) 10.1109/ICACCS.2019.8728353
- [3]. Mohammad Nazmul Hasan; Md. Sharif Hossen, "Development of An Android Based Real Time Bus Tracking System", 1st International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT) 10.1109/ICASERT.2019.8934621

