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Travel Management Application

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Abstract - *Unusual and unexpected conditions on the roads affect the trouble-free operation of the bus system and the movement in delay of vehicles. Also, daily problems such as traffic congestion, unexpected delays, randomness in passenger demand, irregular vehicle dispatching times take place and as a result of which the schedule of the passengers is affected and they inevitably have to wait for the arrival of their respective bus. This passenger inconvenience can be avoided by introducing a application for a smartphone which provides real- time bus location information and estimated time of arrival of the buses. This project focuses on the implementation of a Real-Time vehicle Tracking System (RTBTS), by installing GPS (Global Positioning System)-module devices on college buses or using Drivers Smartphone which will transmit the current location on the GPS Receiver. Now the Global Positioning System Receiver will be interacting with a cloud server and an interface driver will auto save data in a dot text file of latitude and longitude information which will continue to do so until the GPS module is connected to a bus and internet. From here the application server will retrieve data and store it in web server or cloud platform from where the system will display real-time information of the bus. The real-time bus tracking system is a standalone application designed to display the real-time locations of the buses to the users.*

1. INTRODUCTION

Mumbai city faces severe problems of road congestion and associated issues of commuters, which include delays in the arrival of buses at bus-stops, lack of information about different bus routes and bus-stops and time. College and School students/staffs will miss their bus by a fraction of second. This will lead to many problems like being late for the school, classes and sometimes late for the examinations also.

To overcome this we have made a Travel Management Application. This system is used to track the BEST or or other BRT and City buses. The proposed system uses a Smartphone application working with Android and iOS. Buses carry Global Positioning System (GPS) devices to track their positions or uses the driver's smartphone to track location and Google Maps API is used to display the vehicle on the map in the Smartphone application. It shows where exactly the bus is there on the google map and provides updated information to the user in real-time. This also displays the estimated arrival time of the bus, which helps the user to know when exactly the bus is going to reach his/her stop. The proposed system is very user friendly and ensures safety and surveillance at low maintenance cost.

1.1 Motivation

In today's hustle bustle life the technologies main goal is to make the things more clear, accurate, less time consuming and easy to understand. As we know that buses play very important role in citizens life of each country. They help to travel in any corner of the city quickly but the main problem is that many school, college student and people who travel by bus for their work face issue related to delay in buses. So we have made a Android app that will help to track the live position of the buses to reduce their daily hustle.

1.2 PROBLEM STATEMENT

The main limitations of traveling with bus is the inconsistent arrival time which may due to unforeseen circumstances. Even when we know the bus time-table well, there are number of reasons that bus as may not arrive at expected time. It is particularly annoying when a person has urgent appointment, or reach to the destination urgently but we are late due to the time-consuming of bus trip. Students also cannot check on the updated bus schedule if there is delay in arrival time of bus. For example, student can choose to walk to the building or he/she want to go instead of waiting for a delayed bus. If there is a real-time platform for students to know about the bus status.

1. They Don't Display Real-time tracking.
2. Not integrated with google Maps API.
3. Only provide arrival time (with no Accuracy) with the static Time-Table.

1.3 AIM and Objective

The real-time tracking of bus can be done and this information is then given to user who wants to know the real time location of the bus. Our application provides the relevant information regarding

- Real time location
- Route details
- Average waiting time and expected time to reach
- Real time traffic to diverse route in case of heavy congestion
- Finding Nearest bus stops
- Tourism Guide
- Emergency module feature

1.4 SCOPE

This project will be put up on the cloud Server, so that it will be accessible by each and every smartphone user.

The application will prove beneficial for each and every bus traveller, or even tourists. Not just buses, but this app will be useful for each and every person travelling by any means of transport.

The GPS Tracker will give the exact location of the bus which will make it easy for the passengers to travel.

We will implement more feature like nearby places to visit.

2. Flow Chart

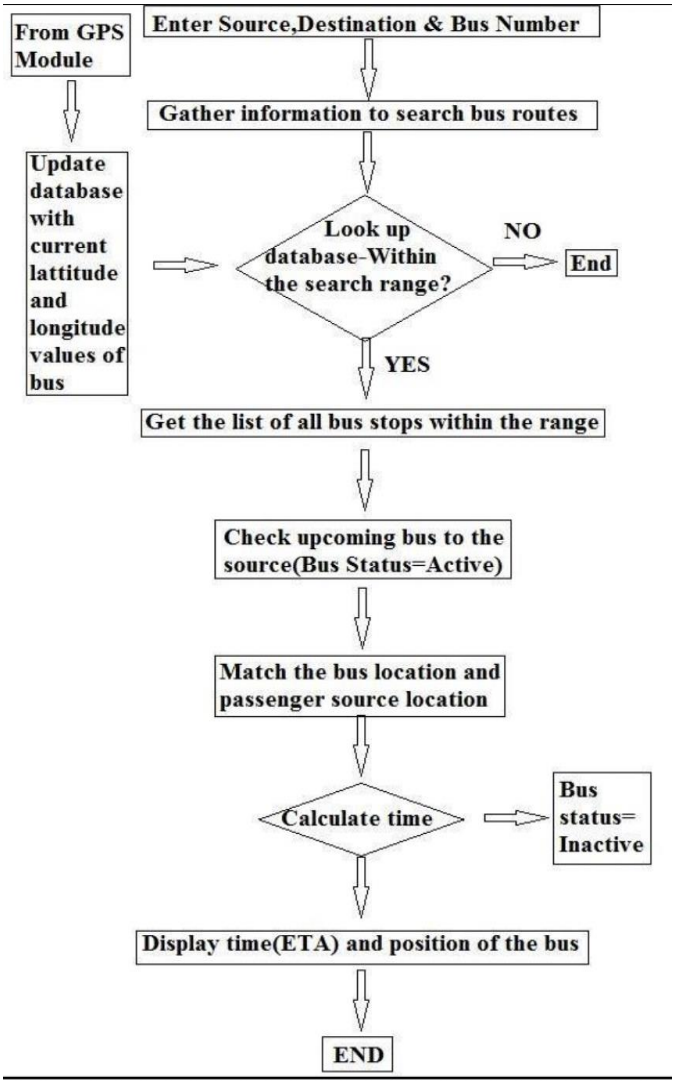

Fig: 2 A

3. Methodology:

In the bus tracking process, there would be many miscalculation or unexpected results occur and this will act on the accuracy of estimated bus arrival time for users. In Users view point, the accuracy of estimated arrival time will determine the success of the system. Therefore, approach is suitable to test on acceptation of final system from users. According to this approach, if user rejected a prototype, a new prototype is developed based on new requirements from user feedback and test on user again. Once the approach is accepted by user, it would be the model for final system. With high user involvement in prototyping stage, the quality of final system will be increased.

3. 1 Architecture of proposed system

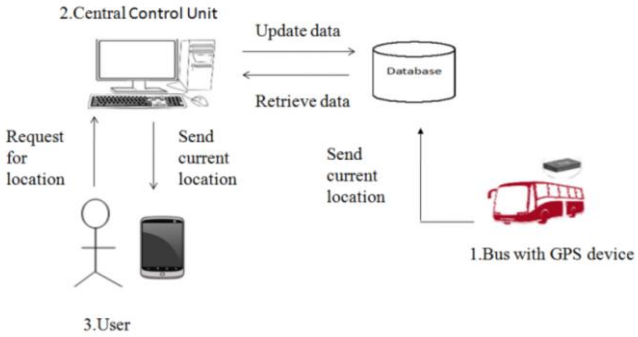

Fig -1.1 Block Diagram

4. Results and Discussion

Fig: 4.1 A

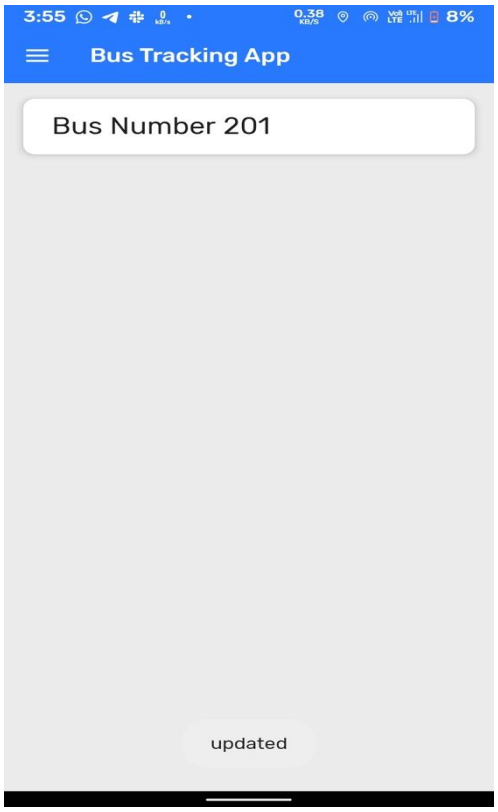

Fig: 4.1 B

4.1 Explanation :

As shown in the above picture 4.1A and 4.1B, we created a very user-friendly user-interface. Using this application, users will search for bus-number for travelling using a search bar. Users can search using bus numbers as well as enter the name of the destination.

We will create another section for tourism where users can search for nearby tourist spots and how to go there. As well as the application will be able to show the real tracking system for buses.

5. CONCLUSION

The conclusions of this study encourage that knowledge of specific domain improves the results. This Project has been implemented on Android Devices. Also, different features have been added to the project which will prove to be advantageous to the system. This project is implemented using Java, React-Native Android SDK and the SQL domain. Using the Global Positioning system, the application will automatically display the maps and routes to the different locations and also track the real -time bus location using client-server and google maps API technology and forward it to the client device. It uses basic measurements of distance between source and destination and provides necessary details of each and every route for people to easily get a nearby bus-stop or any other conveyance possible on the specified route. Real-time location details are provided to the user along with bus no. so that the users can identify the bus correctly. It uses cloud server as its database. Due to this the records can be easily calculated on the device itself and the server burden gets reduced.

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