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College Bus Tracking System using Android

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Abstract: This paper proposes an Android mobile phone application that gives information about buses, bus numbers as well as bus routes and timings. Reason for Android platform is it requires an open source development which is probably the most feasible and a present user friendly approach. This paper focuses on the transportation field where a college bus can be tracks the location of the bus by using Global Positioning System. Everyday problems such as traffic congestion, unexpected delays, irregular vehicle dispatching times take place and as a result of which the schedule of the students are affected and they unavoidably have to wait for the arrival of their respective bus. Existing live tracking system tracks the bus location and gives only the ETA, which is not more comfortable for the students. In the proposed system to verify that the students has boarded the bus students boarding report will be sent by Short Message Service (SMS) to their registered mobile number. Due to lack of time some parents are not aware of the SMS. The system consists of database which includes college bus number, routes and timing details. It reduces the workload of college transport officer. Also it displays the required maps with the help of map API using GPS.

Keywords: GPS, Map API, SMS.

I. INTRODUCTION

The mobile phone industry is one of the fastest and most active business sectors today. The need to communicate efficiently and instantly is always an undying necessity. Having a mobile phone for us makes life stress-free. Communication is always a part of day-to-day life, and we cannot avoid it. The invention of mobile phone has gone incredible leaps in innovation and new applications. Originally, it was anticipated to be a telephone that can be carried wireless at greater distances. Bus tracking is an application which is used to track the location of particular bus using GPS. This system is especially designed for college buses. Students can track the location of the bus and there is no waiting time. So that they can board the bus at the right time. The bus fees details can also be done through this system. The proposed system provides very convenient transport facility.

II. EXISTING SYSTEM

There are few existing systems. Among them RF-ID based credential for students among college premises is one of those systems. RFID is a technology similar to bar codes. The RF reader reads the RF id tag, if the information in the RF id tag gets matched with the information in the database, the text message is being sent to their parents mobile. The next system is an android application for tracking college bus using Google map. In this system, it only gives the exact bus location and it provides the distance between the user and bus. But it doesn't give the estimated time of arrival (ETA) and it doesn't send SMS to parents about their ward. The last one is IOT based bus transport system in Bangalore. This system is based on IOT. Internet of things deals with having physical objects we see around us in a network in one form or the other. It mainly deals with RFID, infrared sensors, GPS and scanners. This system is too expensive because of the sensors used.

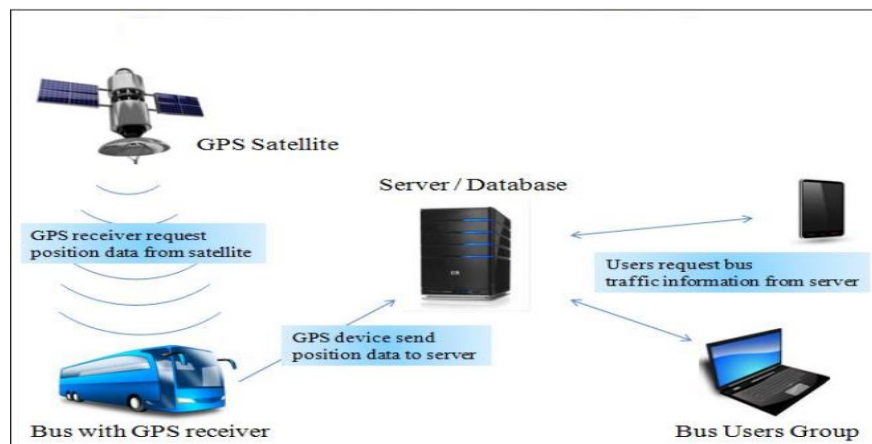


Fig 1: Bus tracking system architecture

III. PROPOSED SYSTEM

The proposed system aims to provide a proper intimation to the students travelling in the college bus. This system is based on GPRS modem and is a web application integrated with mobile device to transfer the data and the students can view the report through the view web and mobile application. The GPRS receiver modem will retrieve the longitude and latitude from the sender, this information will be retrieved and stored in the database. With the help of this information, our application will interact with Map API and will trace the exact location of the college bus. The location details will be found through the Map API and it will be stored on the student's table based on the bus number. In our application we also store the bus position based on the time and date.

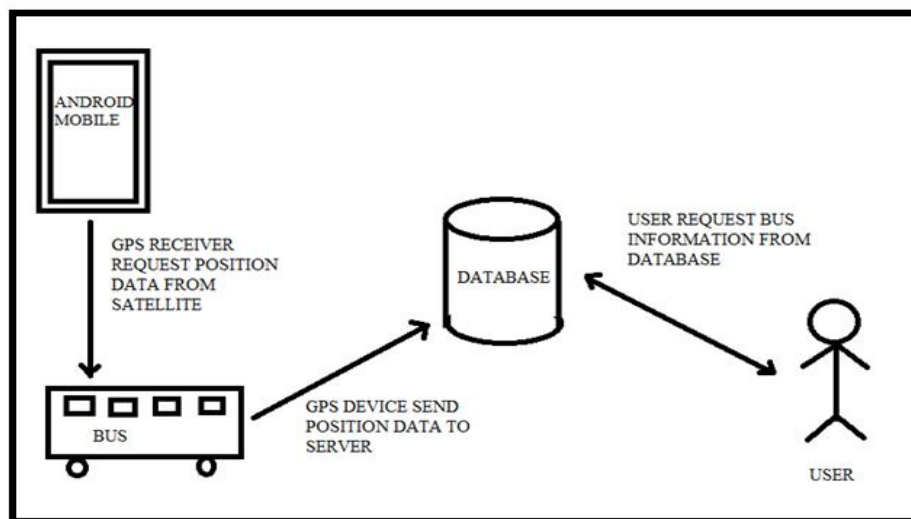


Fig 2: College bus tracking system architecture

IV. WORKING OF PROPOSED SYSTEM

The android mobile tracks the location of the bus using GPS and give the exact location of the bus. The GPRS receiver modem will retrieve the latitude and longitude from sender. All these location details and other details such a bus number and its route are stored in the database. When the user request details from the database, it provides the required details.

This application contains the three modules

A. Admin

The Administrator is the main module in this application the admin can create new users and can add the bus details they have subscribed for. The Admin will generate a user name and password for the user. The user can further change the password on their first login. The user can login to the application to view the dynamic status of their bus. The admin can generate various reports. The users come under admin, but they could not generate any reports. They can only view the bus details.

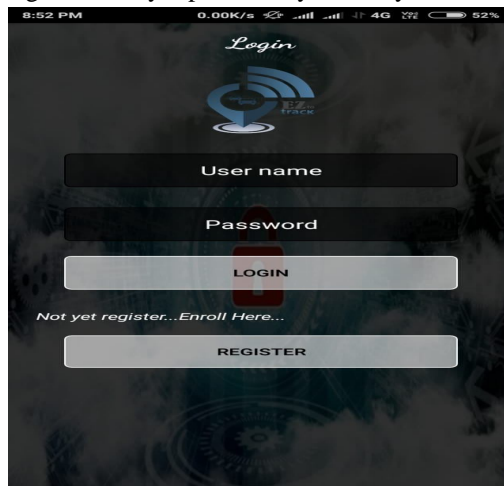


Fig 3: Login and registration page

B. Mapping

This module is used to generate a dynamic view of the bus position by integrating the details received from the GPRS modem with map application interface. (MAP API). Longitude and latitude is provided as the input to the MAP API, this data is retrieved from the receiver GPRS modem, and based on these data. The physical location is traced with help of the API. And this location is shown to the user dynamically.

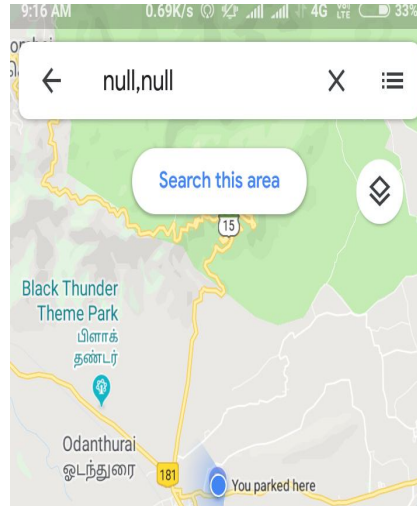


Fig 4: Mapping page

C. Reports

This module includes the updated bus information regarding the bus. The updating includes change in drivers, bus route changes, bus breakdown, Estimated Time of Arrival. In case of bus repair, the driver will contact the admin directly and then the admin will generate reports regarding this.

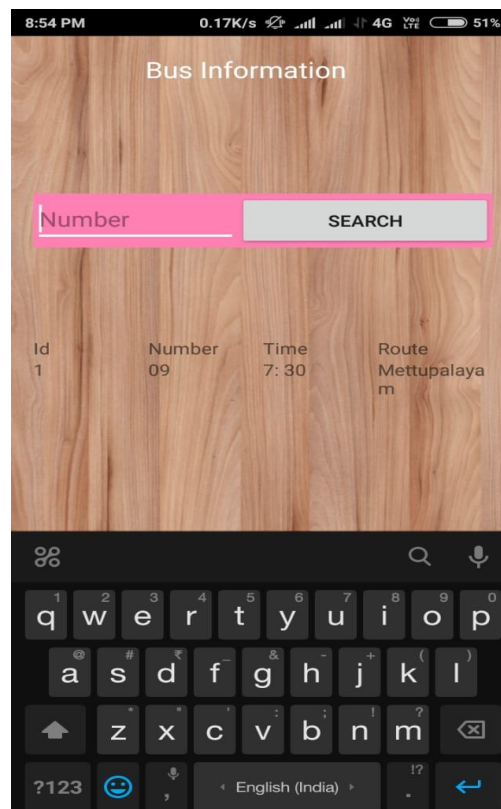


Fig 5: Report page

V. FUTURE ENHANCEMENT

The future enhancement for this paper is to make the application online for finding the live location of the bus. We are also design to fix a GPS device on all bus so that it is not essential for the driver to have an Android phone. Due to accessibility of android phones and GPS devices it is going to stay for long in the future. This project is an android application which has a wide scope. It can be further modified using cloud. This can be also designed using a biometric sensor which includes finger prints, facial images, voice recognition and iris.

VI. CONCLUSION

Thus our proposed GPS based protection system provides an efficient bus tracking mechanism. It also alerts the students who are all in the need of bus. It uses less memory space. The proposed system aims to provide a proper intimation to the students travelling in the college bus. This system is based on GPRS modem and is a web application integrated with mobile device to transfer the data and the students can view the report through the view web and mobile application. The GPRS receiver modem will retrieve the longitude and latitude from the sender, this information will be retrieved and stored in the database. With the help of this information, our application will interact with Map API and will trace the exact location of the college bus. The location details will be found through the Map API and it will be stored on the student's table based on the bus number. In our application we also store the bus position based on the time and date.

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