GPS Based Bus Tracking Android Application

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ABSTRACT

Though vehicle tracking using GPS (Global Position System) has been around for a while, it is only now that certain systems are becoming available to the general public. GPS vehicle tracking is the ultimate fleet management tool. Urban living environment is becoming more and more complex due to manmade chaos. In the rush of modern times when we do not have time to stand and stare, To minimize this chaos and improve modern infrastructural facilities in public transport this Bus Tracking system has been developed. This system gives the facilities required for the administrator to keep the watch over his system and the user who wants to travel through the public transport. In this system Administrator maintained database information of Buses, Driver and the system user. The Server provides the information of Bus to the User which is transferred via internet to Android Application. GPS tracks the Bus by fetching its coordinates and displays its position on a digital map. Our system will act as bridge between user and service provider to facilitate easy and time saving public transport.

Keyword:- Android Phone, GPS, Eclipse, Java  SDK, Internet.

II. METHODOLOGY

Architecture

GPS based Bus tracking consists of a client side and a server side. An overview of its architecture is represented in Figure:
1. The client side consists of android application.
2. The server side consists of the web application server, Bus is consists of android admin application with GPS enabled, and a database.

I. INTRODUCTION

There are different modern technologies available for track the vehicle location such as GPS but other types of automatic vehicle location technology can also be used. GPS based Bus Tracking Android Application system includes mounting of mobile device in a Bus, with purpose designed web application to enable organization to track the location of Bus. Bus to be tracked equipped with a GPS receiver and relays the obtained coordinates via cellular networks to Home Station. Bus information can be viewed on electronic map via the internet or specialized software. In case of software application, We are using an android phone as a device in Bus and this Bus will be watched by administrator using a web application. Android application user can also view information of Bus.
Working:
Sever Side Working:
For server side application, we are developing the web application, which is basically developed for the organization to handle the overall organizational activity. The web application provides information about bus like location of bus, which is obtained by fetching the co-ordinates through android GPS. These fetched co-ordinates are send to the server side web application, which plot them on Google map. Web application provides that fetched location to the android application user, who wants to know the location of particular bus. Organizational person can also see all the android application users. All information related to the bus is provided for the android users. The user, driver and bus database is stored and maintained.

Client Side Working:
At the client side, an android application is developed for the passengers. So by using this application passengers can also see the bus location on Google map and notifications of the bus location are also displayed on notification bar. Time table of buses from different stops are displayed and specification of one way and return way is given. Reminder is also provided for the specific bus stop.

III. PRIOR APPROACH

Time Scheduling: You can not set the time of your watch by the arrival of bus. You are lucky if Bus arrives and departs on time. You can see hoards of people waiting endlessly for their destination bus.

Frequency of Buses: It is impossible to predict whether there are any buses on the particular route.

Passanger Problems:- Passangers cannot predict the timing of the bus and may miss the bus they need.

Environment: As many of the passangers use their private transport than public transport, there is frequent increase in the temperature of the environment.

It is this never improving nature of Transport Systems every second family own a private vehicle.

IV. OUR APPROACH

Bus Route Mapping:
We will be pre-defining the route of each bus through web based application. Each bus and the android device will be mapped using an IMEI number of phone. 1 IMEI corresponds to Bus that is being tracked.

Bus Tracking:
We can track the location of Bus using Android Phone’s GPS device. The Bus and the phone is mapped using IMEI number.

Bus Speed Monitoring:
We can also find the speed of the vehicle and if driver breaks the speed rule then we can find them accordingly. Admin will get the notification if the driver does rash driving.

Get Vehicle Next Halt:
When a stop comes we can intimate the administrator and the people sitting in bus to come in front for their stop. User can get the vehicle next halt detail. For getting this detail the driver has to update each time as soon as his vehicle halts. So on basis of that his next halt details can be displayed.

Get And Set Reminder Notification For Bus:
If user wants to set remainder for required Bus before one or more days, application provide such facility to set remainder and gives alarm to given specified time.

Vehicle Real Time Location On Web Application:
Admin also can view the real-time vehicle location on web application.

Accidental Notification:
It gives the notification to the admin about the accident of the bus.

Functionalities of the System:-
Administrator:
1. Logging into system with proper authorization using username & Password.
2. View/edit all the information stored in server database.
3. Allow the user to install application of client side.
5. Bus Tracking.
6. Graphically show the location of bus.
8. Notification to Admin if driver breaks rules.
12. Accidental Notification for user at client side application.

Application User:
1. Download application.
2. Install application
3. Provide authentication
4. IMEI number
5. Requested Bus Timetable.
7. Information about the Selected Bus.
8. Route info
9. Source location
10. Destination location
13. Get and Set reminder notification of bus stop for user.

CONCLUSION

For the purpose of bus tracking, a organization must have a database with all the information about bus stopsand routes. We propose a system GPS based bus tracking that enables the collection of bus stops location
and fetching co-ordinates of bus through GPS device. System consists of a Mobile Application to collect the bus stops, routes and location. A server that receives the information collected, fetch GPS data. And a database to save the information collected and a Monitoring Application to visualize and edit all the information. The Data from the server is transformed to the user application on android phone. The user views the whole information.

REFERENCES


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