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Android Based Application for School Bus Tracking System Using GPS

Monica patil[1],Sheetal Shinde[2],Snehal Kadam[3],Shailesh Patil[4],

Prof.Imran Y. Inamdar[5]

[1,2,3 , 4]Final Year students of Department of CSE,

Nanasaheb Mahadik College of Engineering, Maharashtra,(India)

[5]Head of Department ,CSE,

Nanasaheb Mahadik College of Engineering ,Maharashtra,(India)

ABSTRACT

Theoretical This paper proposes an android based application for the school transport following structure and it gives a notices while voyaging .This system enables parents to find out the location of the bus using GPS from the starting point and also notify to parents when bus reaches to the nearest location, So parents won't get late or arrive too early at stop. As it is real time system we can get every time updated information of bus location in the form of latitude and longitude. This system contains three module Administrator, Driver and Parents. It gives live area of transport on Google Maps and furthermore give subtle elements of Bus, Drivers and Route . As per the changing location of bus the database will get updated frequently. The system uses client-server architecture.

Keywords: GPS (Global Positioning System), Google Maps

I.INTRODUCTION

Android is an Open Source versatile Operating System so it is exceptionally well known around the world. In now days, Android applications are used to following the vehicle. It gives continuous information on development of vehicle. Android telephones acts both transmitter and in addition recipient since they have GPS gadgets appended with it. A Previous vehicle following system consolidates the utilization programmed vehicle area in singular vehicle with programming that gathers the quick information for unavoidable pictures of vehicle areas. Current vehicle following system comprehensively utilizes GPS for finding the vehicle, however other kind of innovation can be likewise utilized. Because of activity clog and street works, a large portion of the transports are postponed. Individuals need to sit tight for their transport for quite a while without knowing when the transport will arrive. The principle focal point of the task is to spare the holding up time of guardians and give them the detail of transport. It will likewise be support for those not having GPS offices as they will have the capacity to know the refreshed transport plan without utilizing Internet.

1.1 Android and Technologies utilized

Android is an open source and Linux based working system which is created by Google [5]and later the OHA(Open Handset Alliances).It is principally utilized for advanced cells, tablet PCs and android wearable

gadgets like watches. The fundamental focal point of android venture is to make a gainful true item that improves the portable experience for clients.

The vital highlights [5] of android are given underneath:

- Open Source
- Infrared Transmission that enabling you to utilize your telephones or tablet as a remote control
- Gives numerous alluring highlights like climate points of interest, opening screen, bolsters and so forth.
- Custom Home Screen and Widgets
- Security and Password
- Offers help for capacity (SQLite), informing services (SMS and MMS), availability (GSM, CDMA, Blue Tooth, Wi-Fi and so forth.), Web Browser, handset design, media and so on.

II.LITERATURE SURVEY

Past following system is a GPS based and manual system [1]designed to show the constant area of buses. This system requires web association and could conceivably be GPS tracker. Real time Bus Monitoring System utilizing GPS[3]display the present area of transport .The system comprised of a transmitter introduced on the transports and collector loads up introduced on the transport stops. It gives the pertinent transport courses and other data their customers.

Constant Web Based Bus Tracking System [4] gives the significant data in regards to all the transport going from user's source to goal. The system is worked by GPS which is joined with each transport. It utilizes outside equipment set-up for its execution.

III.PROPOSED SYSTEM

The proposed system provides the exact location of the bus to the parent from their location and gives one more facility that is "Alarm Facility". In this facility parent can add one or more mark-up point that is previous location from the parents bus stop location when in the bus goes from the mark-up points then automatically alarm is ringing on parents mobile.

- Along with this,it also provides the following features: Authentication for Admin, Driver and Parents.
- Admin has the facility to send SMS to intended driver and students in case of emergency.
- Details like Bus Number, Driver's Contact Number, Bus Route, Stops, address etc.

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IV.SYSTEM DESCRIPTION

4.1. System Architecture

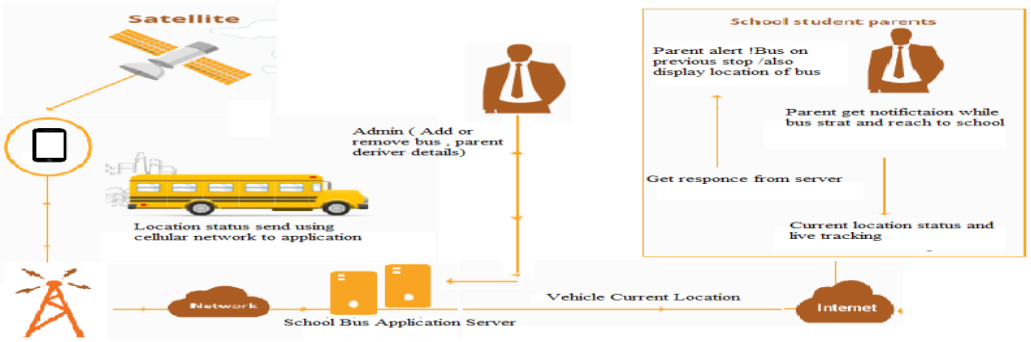

Figure 1: System Architecture

Our system contains two android applications one is the versatile application for administrator and driver, another is portable application for client. System permits administrator to include another driver where driver username and secret word is created and put away into the system. The driver will have the android application introduced in his android telephone, when the driver will login to the application, his GPS area will be sent and put away into database. When driver sign in, GPS area of the driver will be followed naturally by the application and stores the GPS co-ordinates into database after at regular intervals. At the point when driver logs out from the application, again GPS area will be put away. The part of the administrator is to enlist another parent (understudy) by entering his own points of interest; administrator gives client name and secret key to parent, with the goal that parent can get to the web interface to track transport. Administrator can see transport subtle elements, parent points of interest, driver subtle elements and furthermore can alter and refresh the points of interest.

At the point when the school transport voyages begin from the school all parent those enlisted with that transport gets a one warning i.e. "School Bus Travels Start From The School" and furthermore school transport 1`reaches back to this school parent get another notice "School Bus Reaches To The School".

Our task gives one office that is "Alert Facility". In this office parent can include at least one increase point that is past area from the guardians transport stop area when in the transport goes from the increase focuses then naturally caution is ringing on guardians versatile.

4.2.Module Description

This System contains three modules which are following:

1. Administrator Module
2. Driver Module
3. Parent Module

1. Administrator Module

Administrator can login to the administrator account after verification and approval. He can enter new course points of interest and furthermore he can choose the course from the rundown of courses and after that the

comparing stops are shown. He has the choices to include or expel a course. He additionally has the alternative to adjust or expel a prevent from the course. In the event that administrator need to state any data to the driver then he can send the message to the driver's versatile through the program. He can likewise enter new understudy subtle elements and can see the rundown of understudies. He has the alternatives to include or expel an understudy subtle elements.

The below figure shows the flow of this module:

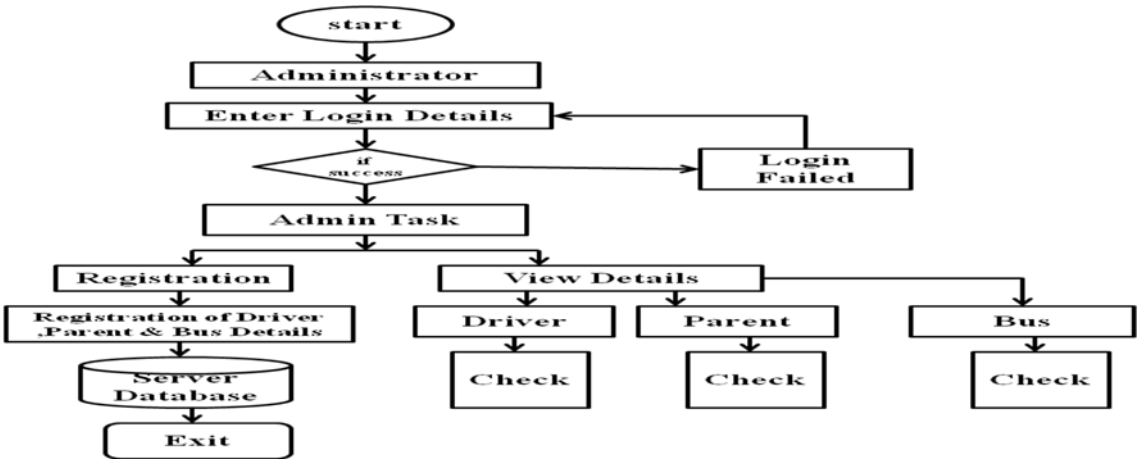

Figure 2: Flow Diagram of Admin Module

2. Driver Module

Driver has to enter the bus number, route id, and mobile number to login the application. Driver works is only start and stop the bus. When the application is launched, the home Activity fetches the routes from the server and binds it to the spinner for the driver to select it. If the driver selects “Start”, the location of the bus will be uploaded to the server. If the driver selects “Stop” then the uploading of location of the bus is stopped. Below figure shows flow of this module.

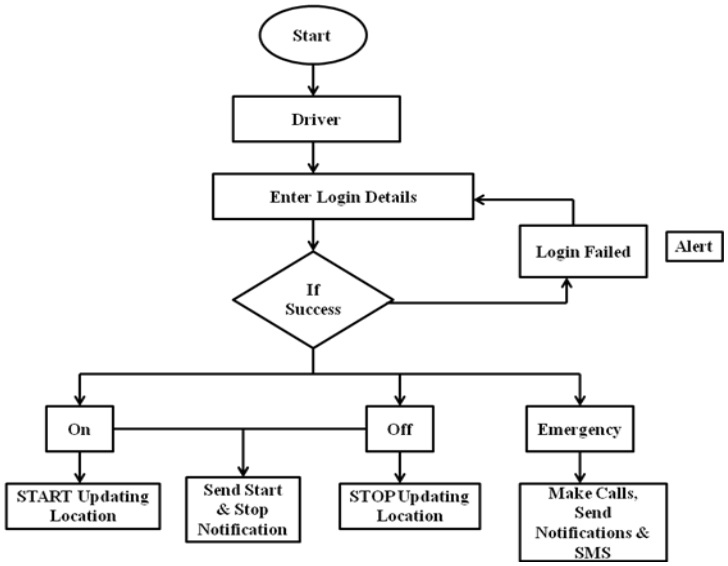

Figure 3: Flow Diagram of Driver Module

3. Parent Module

Client has to enter the register number and mobile number to login the application. To search for a bus, client has to enter the bus number in the search bar. Then map is displayed which shows the current location of the bus. He can also receive an alert notification when the bus came to the nearest stop.

When the application is launched, the home Activity fetches the routes from the server and binds it to the spinner for the client to select it. When the client selects a route, corresponding stops are fetched from the server and binded to the spinner for the client to select. If the client selects "Get Location" then the location details of the bus for that route is fetched. If the client selects "Show Map" then the location of the bus on the map will be displayed. The below figure 5 shows the client login page.

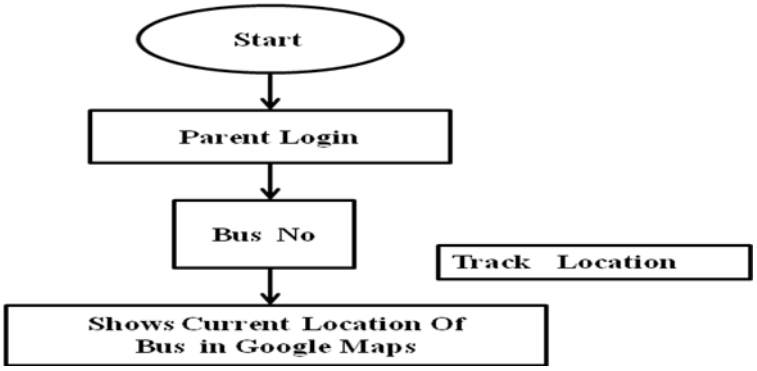

Figure 4:Flow Diagram of Parent Module

V.FUTURE ENHANCEMENT

The accompanying highlights can be included as future improvements:

- The proposed system can additionally be upgraded by influencing utilization of it in BMTC to transport following systems and furthermore to report mischance's and help in rush hour gridlock observing.

VI.CONCLUSION

We developed an Android Application to track the school buses and provide relevant information to their users. Our system is composed of a server and smart phones. The system is able to demonstrate its performance to track school bus from any area. Furthermore, our system is low-cost as it doesn't require any external hardware for location tracking.

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