

BUS TRACKING APPLICATION FOR AHMEDABAD MUNICIPAL TRANSPORT SERVICE (AMTS)

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Abstract: In recent existences earth is moving towards digitization. In today's era, most of the population having the Smartphone. In today's world if you have the Smartphone, then you can get at least all the information by any field. In the era of smart phone there are applications are available for every use of the user. Through application's user can get the desired information according to their need. In this paper the main concept is Ahmadabad Municipal Transport Service (AMTS) bus tracking System. Using the proposed system the users can easily get to know the details of the AMTS bus location. Through this application detail the user can easily note the stops on the bus and at which time bus will arrive at the stop. There are benefits of the proposed system like if any bus is late from the schedule the user can get to know that in advance and user can chose the alternate option to reach the destination it may be the different route bus or it can be the other transportation services.

Index Terms– Android application, AMTS, GPS, Bus Tracking

I. INTRODUCTION

Today's era is moving towards digitization. The main thought of digitization is to conquer the capital easily to accessible to the every person and to maintain the capital in order to use it in a clever way [1]. The government is emphasizing more on digitizing the documents and everything. Cause today all the things are easy to access by digitizing the data. The Government is supporting the all small retail shops and all big IT companies to go through digitizing all their data.

The contamination is increasing more and more due to vehicular emission. The government is promoting the public transport for travelling in the cities itself. But people are not using the public transport because the public transports are not that much accurate to their timings due to heavy traffic issue in the city. The second problem is that the people can't track the live location of the bus or at any small bus stops it is not possible to get the inquiry through any trusted person.

The proposed system can useful to the travelers who want to travel through public transport and they don't know the exact location of the bus stop and route number of the bus. Then the traveler can easily reach to the nearest bus stop and track the live location of bus through proposed system which is an Android application for smart phones.

II. ANDROID

Android is an open source which is based on open operating system Linux for smart phones, tablet computers and android wearable devices like Google glasses, smart watch [2]. It is created by Google and later the Open Handset Alliance (OHA). The purpose to make an android application is to give the most of the access to the user in its Smartphone. The main features of an android system are:

1. It is Open source which is easy to customize the Androids Platform.
2. It is user friendly.
3. The user has the different choices for the one type of domain.
4. It gives many appealing features like weather detail, also allows the user to update the online content in a assimilate, computer-readable form.

III. GPS

GPS means the Global Positioning System [3]. Basically GPS is a tracking system through which anyone can find the location of him and can find the live location of any vehicle or any smartphone. GPS is based on satellite tracking system. GPS require maximum 4 number of satellites for perfect tracking. For getting track through the GPS it will require minimum 3 satellites. When there are 4 satellites are used in the system it gives us the 3-Dimensional view.

GPS having two units:

A. GPS Tracking Unit

A GPS tracking unit is a device which is the receiver unit [5]. It is normally carried by a moving vehicle or person that uses the GS to find and track its accurate location. The tracked data are transmitted to an internet connected computer or on any specific web address or it can be transmitted through the cellular network (GPRS or SMS). Or the tracked data is stored in the device itself.

In GPS the satellites are used so the visualizing the tracked data over the map is easy. It should be real time or live tracking system or it may be the stored location. There is some data tracking software is available for Smartphone's with GPS capability. Here the use of this type of software is used to track the bus location on the android application.

B. Mobile Phones with GPS Capability

There are some standards for the mobile tracking they are using the GPS receiver in the smart phone itself, in which there are different coverage area and the different user accessibility is available. In today's era, most of the smart phones are using GPS receiver maybe it should internal or external. There are some Java supported phones also support the GPS tracking which is using Bluetooth for the tracking.

Some mobile devices are using assisted GPS function when the device is out of range of their carrier's cell towers. Other mobile devices using GPS signals for portable GPS receiver which is accessible through the world wide. Still, some are using the hybrid positioning system that can use other signals rather than cellular signals and GPS signals, when GPS signals are not proper.

IV. PROPOSED SYSTEM

The proposed system for the AMTS tracking system is shown in Fig.1. In the proposed system, there are client and driver and admin are the main key for the system.

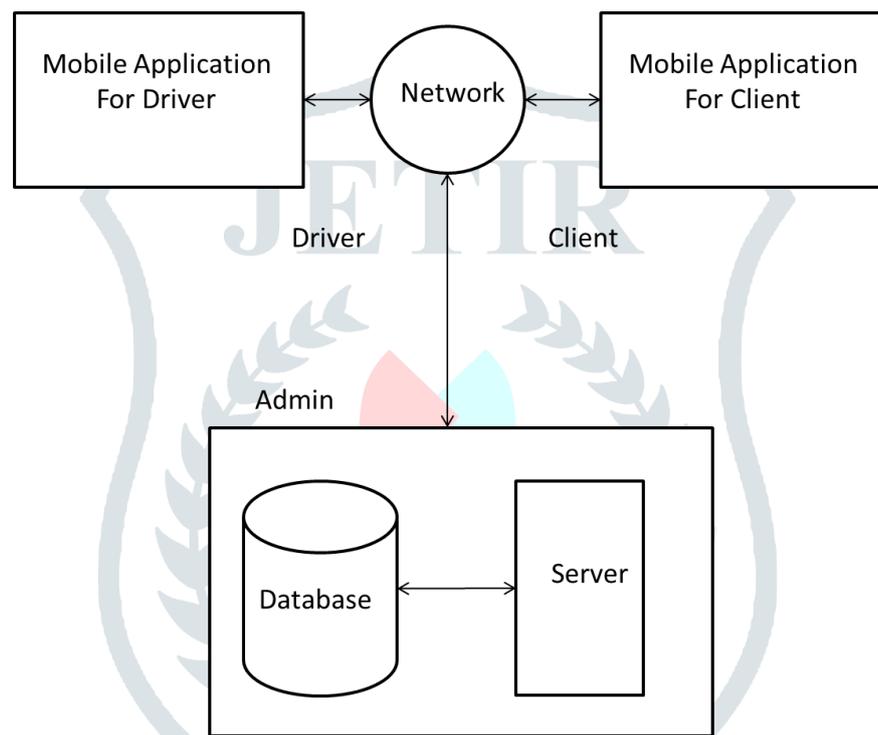


Figure 1 System Block Diagram

For getting information on the bus route and the live location of the bus client need to sign in to the application [3]. As the client sign in to the application the live location and the route number details are accessible to the client. A client can't change the data which is pre-defined in the application. Client only can view the necessary data.

When the client enters the bus route in the search bar the details of that particular route and the live location of the bus is opened in a map view. The Client is notified when any bus is arriving to its nearest bus stop. The client can choose the bus route for getting notified. 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 bound to the spinner for the client to select. If the client selects "Track Bus" 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.

Here are the flow charts for the client side as well as server side [2]. Flow chart represents the basic logic for creating the main application. From the flow chart the system can be easily classified, and the idea behind the designed system is easily going to understand. The flow chart on the client side is shown in Fig.2 and the flowchart of the server side is shown in Fig.3.

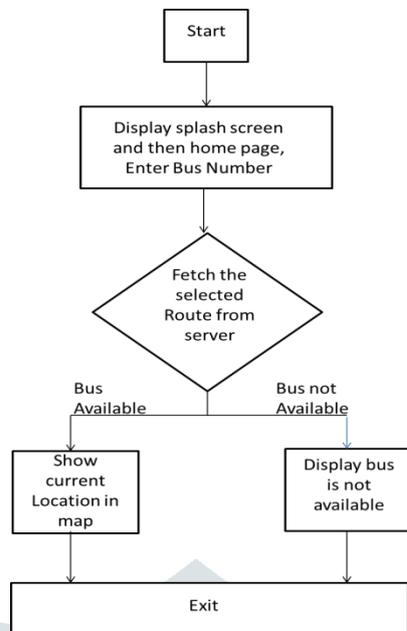


Figure 2 Client Side Flow Chart

To search for the bus client has to first enter in the application. Client has to first enter in the application, Then he has to enter bus number in search bar. When he enters bus number, map will be displayed which will show current location where exactly bus is at present. An alert notification will be given when bus reach at the nearest bus stop. When client opens application to see available route, activity fetches the routes from server. After client selects a “TRACK BUS” the location & details of bus will be fetch. If client select “SHOW MAP” then the location of the bus on the map will be displayed.

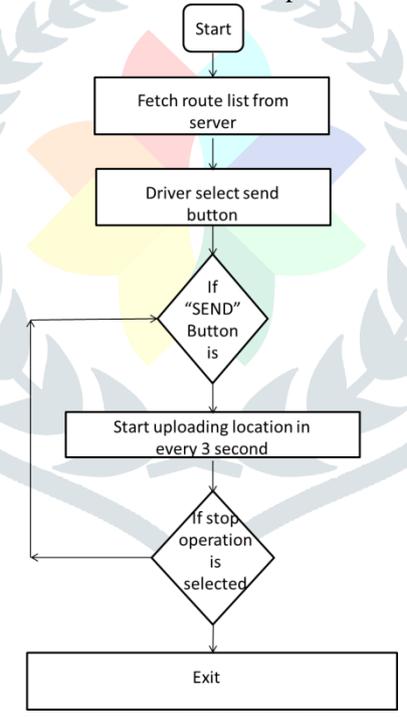


Figure 3 Server Side Flow Chart

V. IMPLEMENTATION

The key procedure of tracking is functioning similar to the server should be auto initiate on the system. After that it can discover present latitude and longitude assessment with earlier latitude and longitude assessment of the bus, and accumulate it into the server database. Database executive utilizes to handle the database of the application, after that the user will ensure for the bus and acquires data from the database for that exacting position, after that the application will perform concede to user interface application will basically permit the user to attach, delete, and modernize the database. Here are some of the screen shots of the application.



Figure 4 Splash Screen

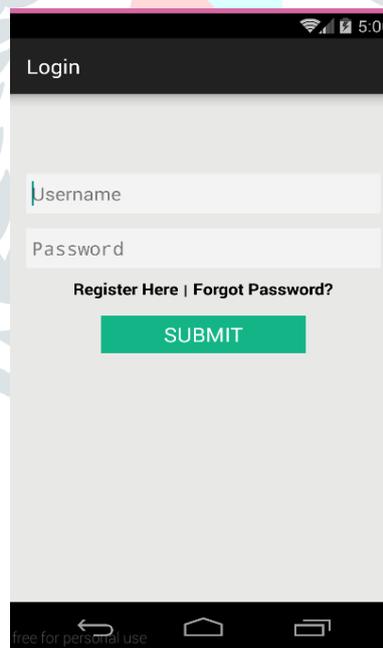


Figure 5 Login screen

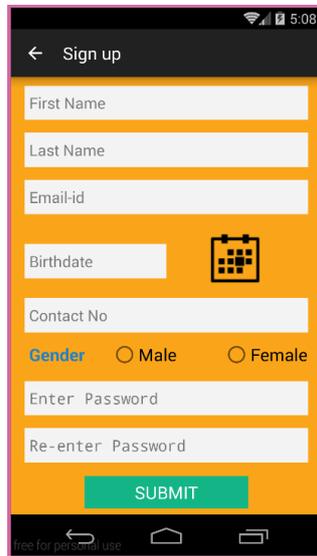


Figure 6 Sign up Screen



Figure 7 Forgot Password Screen

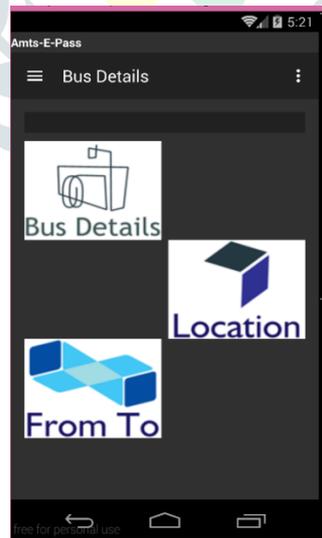


Figure 8 Bus Details



Figure 9 Bus Details by Numbers

Using this practice traveler can [1]:

- 1) How long will it take to arrive at their bus stop, client just have to enter bus direction and their stop in inventory.
- 2) They can also obtain current position of bus from google map also.
- 3) The inventory of bus directions and their consequent stops can be handled utilizing the website which offers the admin a superior grip on the application.

VI. CONCLUSION

This system has been implemented on Android stage, using GPS method. It will be easy to locate bus route location by using client sever technology and it will be forwarded to client device, distance between 2 location are being measured through this and this will provide detail of each & every route for people to pick up buses on specified route. Client will get specific location with bus number, so it would be easy for person to identify bus correctly. Remote server is used for its database. Due to this server load gets reduced and records can be easily manipulate.

REFERENCES

- [1] Sridharan, Swetha, R. Venkatesh Prasad, and S. Srinarayan. "Designing a smart transport system application for South Indian traffic scenarios—A modern approach towards digitalizing the transport systems." *Communication and Electronics Systems (ICCES), 2017 2nd International Conference on. IEEE, 2017.*
- [2] Sinha, Supriya, Pooja Sahu, Monika Zade, and Roshni Jambhulkar, Prof Shrikant V. Sonekar. "Real Time College Bus Tracking Application for Android Smartphone." *International Journal of Engineering and Computer Science* 6.2 (2017).
- [3] Lin, Wei-Hua, and Jian Zeng. "Experimental study of real-time bus arrival time prediction with GPS data." *Transportation Research Record: Journal of the Transportation Research Board* 1666 (1999): 101-109.
- [4] Sun, Dihua, et al. "Predicting bus arrival time on the basis of global positioning system data." *Transportation Research Record: Journal of the Transportation Research Board* 2034 (2007): 62-72.
- [5] Joseph, Christeena, et al. "GPS/GSM Based Bus Tracking System (BTS)." *International Journal of Scientific & Engineering Research* 4.12 (2013): 176.
- [6] S. Priya, B. Prabhavathi, P. Shanmuga Priya, B. Shanthini, "An Android Application for Tracking College Bus Using Google Map", *International Journal of Computer Science and Engineering Communications*, Vol.3(3) , pp.1057-1061, 2015.