

Bus Location Track Using Mobile Phone Participatory Sensing

Vasanti A. Bhosale¹, Anuja A. Sonawane², Prajakta R. Mahale³, Pooja P. Mahajan⁴.

*Department of computer Engineering,
Late G.N Sapkal College of Engineering, Anjaneri,
Nasik, Maharashtra 422213*

¹kiran11392@gmail.com

²sanuja131@gmail.com

³prj555mahale@gmail.com

⁴poojamahajan002@gmail.com

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Abstract— We are developing predicting bus arrival time with mobile phone based participatory sensing for bus transport system. Our aim is to provide the user friendly bus transport system to passenger. In that we propose an Android mobile phone application that gives information about buses, bus numbers as well as bus routes and also include passenger participatory sensing. There are various buses available for passengers traveling distances, but not many passengers have complete information about these buses. We provide this complete and correct information to passenger using this system. This paper also deals with Location Based Services, those are used to track the current location of the bus as well as give an estimate remaining time for the tracked bus to reach its destination using the Client-Server technology. Also, it displays the required maps with the help of GPS.

Keywords— GPS, Client-Server technology, Participatory sensing.

I. INTRODUCTION

We are developing predicting bus arrival time with mobile phone based participatory sensing for bus transport system. Our aim is to provide the user friendly bus transport system to passenger. In that we propose an android mobile phone application that gives information about buses, bus numbers as well as bus routes and also include passenger participatory sensing. Various buses available for passengers traveling distances, but not many passengers have complete information about these buses. We provide this complete and correct information to passenger using this system. This paper also deals with location based services, which are used to track the current location of the bus as well as give an estimate remaining time for the tracked bus to reach its destination using the client-server technology. Also, it displays the required maps with the help of GPS.[1]

II. HISTORY

It is really a challenging job to detect bus. Most of the bus companies provide free bus time table but which is not comfortable to passenger because they only provide bus time table which is not timely updated. There are various problems in location tracking and does not provide traffic update. In previous application does not specify the bus no, they only provide the bus reservation, bus time table, route information.

The main goal of the proposed work is to improve the Bus system by adding the necessary additional features into the application, like accurate bus timings, correct bus numbers and moreover adding a GPS tracker into it. This study accepts input in the form of selection of the source and

destination and selection of the bus travelling the distance to display the entire details about the routes and also track the

location of the respective bus and give the map for the same.[2]

III. EXISTING SYSTEM

A large number of application was developed in such research but which is not worked properly they give inaccurate or incomplete information such application is-

1. In all over India “Redbus” application was developed but in this application reservation, route information is available. But drawback of this application is that they not provide the exact location track, traffic updates. It only use full for reservation purpose.

2. An application has been implemented in pune the name of that application is “Pune Bus Guide”. This application gives the correct destination, but this system has number of drawbacks. This system does not show passenger current location even it is not connected to the GPS. This system does not display bus numbers, so for passenger very difficult to know the bus number and arrival time of respective bus. To use this application is very difficult to user.[3]

3. In that way various tracking system is developed such as “M-indicator”, “Delhi Bus Navigator”, “Bangalore BMTc info” but these all system have various drawback. So, overcome this drawback we developed a proposed system.[4] [5]

These examples are clearly shows that bus application have faced very serious problems which are not fixed. Our propose system overcome all this problem and make software bug-free and user friendly application. Each and every end user can handle this application easily.

Need of System

Our system take the basic information about the source and destination, selection and display the route information, generates maps as soon as the bus number is selected and most importantly track the location of the bus with the help of GPS. With the help of this sends the location and time required for the bus to arrive the bus stop.

Basic need of passenger is Traffic updates, exact location of bus; reservation and alternate route information are included. This information overcomes the problem of previous application.

IV. PROPOSED SYSTEM

Android are the latest and a rapid growing technology available for all the users or customers in today's market. An enormous increase in the end user acceptance has been experienced in the past few years. In an proposed system we use the android based platform because android operating system has come up on a very large scale in the world and is owned by almost every second person. And android is very user friendly platform, there by each and every user can access it very easily.

This paper proposes an Android mobile phone application that gives information about buses, bus numbers as well as bus route. Reason for Android platform - Android requires an open source development which is probably the most feasible and a present user friendly approach. This paper also deals with Location Based Services, which are used to track the current location of the bus as well as give an estimate remaining time for the tracked bus to reach its destination using the Client-Server technology. Also, it displays the required maps with the help of GPS.[6]

Idea behind this project is to guide the passenger with bus routes, all the stops that come on their way to the destination and also display maps and track the bus location and show the remaining time required to reach at the destination.

The aim of project is to overcome all the drawbacks of previous application and generate fast and accurate result. We present bus arrival time prediction system based on crowd participatory. In that bus passenger can also add the bus related information to the server. So that bus information is continuously updated. And passenger can access or upload this information. System provides the reservation, traffic updates, bus number, and related routes according to stops.

Most of the passenger want to track the instantly arrival time of the next buses and they also want the bus location information. This problem motivates us to design this application in that crowd participate services plays very important role. To achieve such a goal, bus passenger themselves cooperatively sense the bus route information using mobile phone.

Functionality of system

- Route information
- Bus information
- Stop information
- Map generation
- Location tracking
- Traffic updates
- Crowd participatory

V. SYSTEM ARCHITECTURE

Our bus arrival time system are divided into three major component-

- User
- Server
- Database

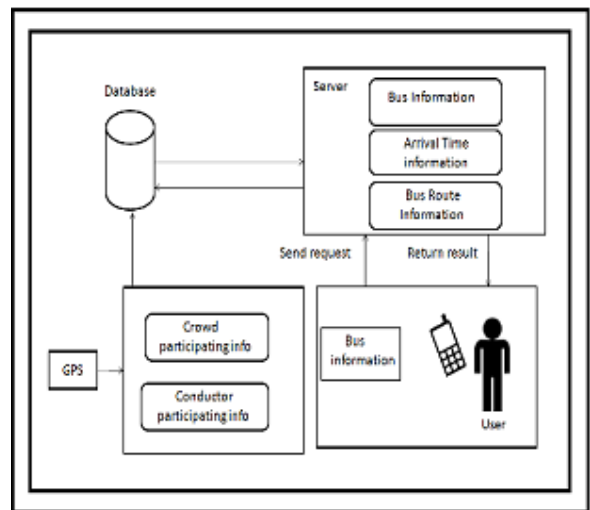


Fig1 System Architecture..

The system architecture is based on client server technology. Architecture user enters the source and destination name in the android mobile application. Application forwards the request to the server with user's requirement. Server collects the information through crowd participating, and conductor updates using GPS tracker. And this updates stored on database then server find out the users requirement such as bus information, arrival time, route information, and this searched information passed to the user's phone.[7]

Using this architecture user can easily know the information about buses and this application save the time of user to wait a long for bus.

VI. METHODOLOGY

Basically we will discuss the flow of main system based on two modules:

- Routes and Maps.
- Location tracker.

In first module gives information about all route from source to destination and map also.

Second module gives information about all buses along with bus number with selected stop. Then we also track the selected bus and send the bus information to the user this is done using client server technology.

Now below we will discuss the flowchart of route and maps, stops location trackers.

A Routes and Maps

The first module depicts the process of selection of routes from source to destination and presents the respective map. Every direct and indirect route would have a map for itself.

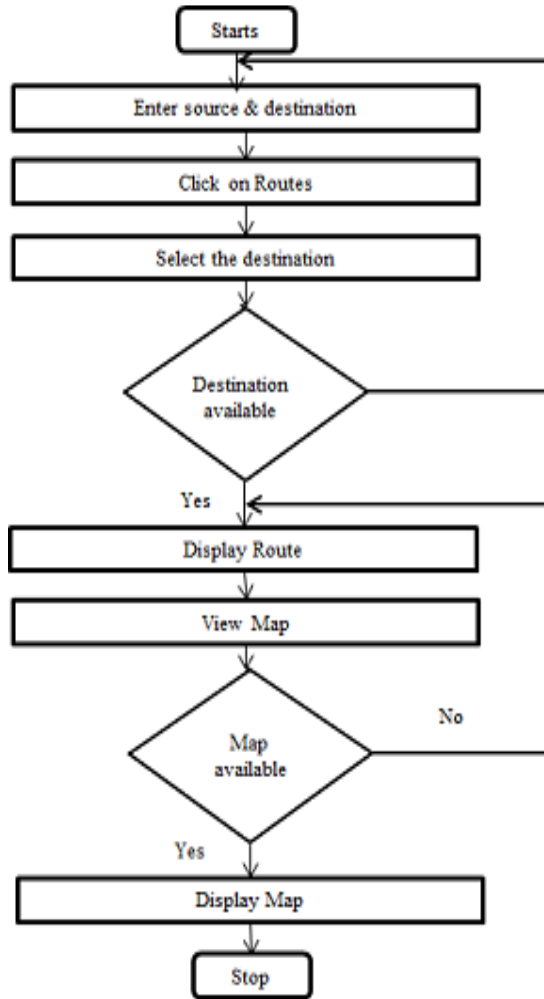


Fig2. Flowchart for Routes and Maps

B Location Tracker

The second module shows the process of selection of the stops where the passenger wants to travel. In that Location tracker detect the current location of the bus and send the location back to the passenger’s device. We use client server technology for this kind of system.

For the reason of location tracking this module is very important. Without this module we cannot define our system.

In that use the Location Based Services for mobile data services which has led to the rapid development in wireless communication as well as location positioning technologies. The travellers having the location-aware mobile phones can find out about the respective bus stops at any place. [2]

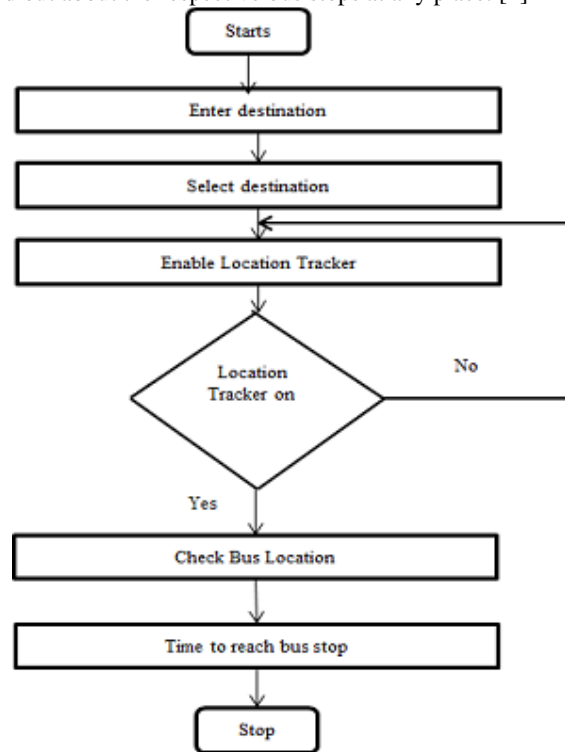


Fig3. Flowchart for Location Tracker

VII. CONCLUSION

Thus we are developing predicting bus arrival time with mobile phone based participatory sensing. The application will automatically display the maps and routes to the different locations and also track the bus location using client-server technology and forward it to the client device. This project will be put up on the cloud platform, so that it will be accessible by every Android user. The application will prove beneficial for every bus traveller, or even tourists. Not just buses, but this application will be useful for every person traveling by any means of transport. The Location Tracker will give the exact location of the bus which will make it easy for the passengers to travel.

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