

Automatic Bus Enquiry System using Android

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Abstract: - Now people are not interested to carry systems along with them so we introduced mobile application "ABES" (Automatic bus enquiry system). Previously if we want to know any information about bus we should make a call to the enquiry system or by searching through internet. But now we can get all information about bus through this "ABES" app. In this application we are providing the all services related to the bus stand. We also provide the information about the bus time table and possible paths the all buses can travel. In this application user wants to find out the bus time from one place to another place. User needs to give the details of source and destination. Accordingly it will display the details of the bus going in that route .It is a time saving application to user. We are also providing the information about the source in which user are aware about the all the things related to that place.

Number of time what happened passengers are going to the bus stand at that time bus may be late or passengers are late so that they are miss that bus they going to wait for next bus and time is also wasted , so to saving the time we will make this application. Most important benefit of this application is that, this application is not location restricted. User can use this application at any place. Because of that user can access all information related to bus at any time anywhere. This is an android based application.

1. Introduction

Alternate the current scenario is that passengers have to keep waiting for the bus to arrive at the bus stop. The waiting time varies a lot depending upon various parameters. According to the current system the passenger does not have any information about the bus, its expected arrival time, the expected waiting time and what exactly is the current position of the bus. The waiting time of every passenger keeps on increasing every now and then. Thus there is a strong need to build such a system which will work in favor of the user and especially reduce his waiting time at the bus stop. Our main focus is to provide the user with such a system which will for sure reduce his waiting time and will provide him with all necessary details regarding the arrival time of the bus and expected waiting time. Thus we have proposed a system which will work for the

same. It provides personal mobility and freedom for people from every walk of life

Actual working is very easy to understand. Firstly we open this application after that select the tab and click on it, firstly create the user name and password.

In the second tab then it will shows the information about the buses and then it will ask for enter the destination it directly ask destination because source is the fixed one. When we are going to enter the destination it will display the list of possible destinations.

Choose the destination into that list and click into search button then they will display the all possible buses and paths from current time to last time of the today's bus. Then user can easily understand the actual time .This is all about the user need the application is

also used to the bus control system, because if some changes are occurs into the bus timing then they are update timing into this application. Then user can easily understand the bus may be late or early. This is the time saving application.

Third tab is only additional information about the buses. In that user simply searching for tomorrow available buses. About the fourth tab it is related to the information about that city for ex. Hotels, temples, police station, malls etc. In our project we also provide the location tracking system.

2. Literature Review:

There are no of bus enquiry systems are available but they are only display the information with the help of the bus number. If the user is not aware about the bus no then this system will fail to provide the services. So to overcome this type of problems bus controller demand by us to make such type of system in that user can easily get information related to the buses and their paths and timing without providing the bus number. So that on demands we are developing this project .This is very useful application for locals as well as new visitors.

In the literature review we are also study the following application they are having some drawbacks they are as follows

DELHI Bus Guide In this application they are providing only possible buses with their bus no. In that application we cannot have any information about the paths. Also it cannot display the arrival timing of buses.

G.S.R.T.C application In that application they will simply providing a timetable of the bus stand. This application does not provide any kind of information about possible Path from source to destination.

Bus Enquiry

This application is only for enquiry purpose. Means it shows only availability of buses. It not clearly give the idea to user about time of buses. So it not that much beneficial. This all drawbacks we are trying to overcome in ABES application

3. System Architecture

Now days there are no. of application are available to the bus stand enquiry, but they are going to fail to provide the information about the buses at current timing. To overcome this problem we are making the automatic bus enquiry system so that they will find out the all possible buses and paths related to that bus.

Automatic Bus Enquiry System (ABES).

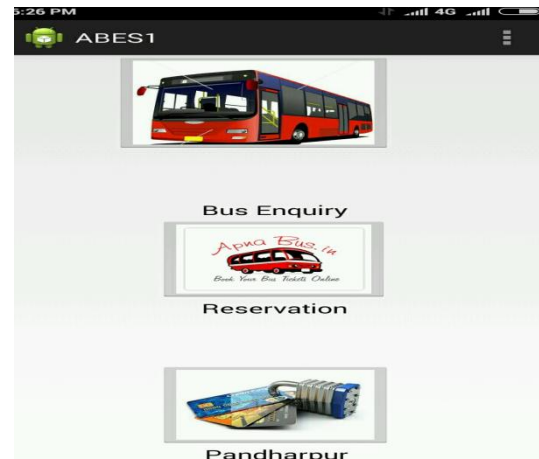


Fig 1. First Page of ABS

In this application we provide the following modules:

1. To provide information about buses arrival and departure
2. To display the entire route from source to destination
3. To display entire time based information efficiently.
4. To provide the information about the city.

Proposed work:

In this application we are providing the four modules.

- **First module** is reservation module.



Fig 2. Registration Module

In that module user must register their name then after user can use the all facilities which we are providing in this application. Without login user can't use this application.

The second module is searching module. In this module users can search the information about the buses. For that user has to enter the destination or user can select the destination available in the list. That is there will get provided the possible destinations.

After entering the destination user has to click on search button. It will display the following things.

1. All possible buses which reach to selected destination.
2. Timing of arrival of buses from current time to last bus time of that day.
3. Also it will show the all possible paths the bus can be travel.



Fig 3. Bus Enquiry

➤ **Third module** is information module.

This module provides the information about the city. Means the famous locations of that city. Also other information about the city i.e. hotels, temples, hospitals, medical stores tec. This can be helpful for new visitors of the city. Also it helpful in medical emergency.

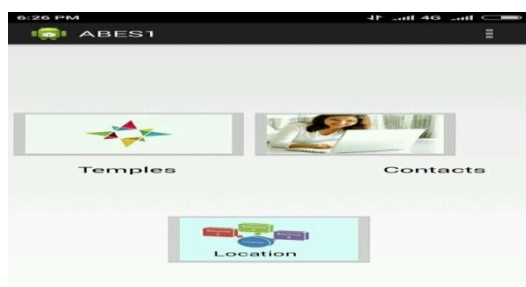


Fig 4. Information Module

4. Location Tracking

User can track the current location of bus. Also user can find the distance between bus and themselves

In this module we are apply the two technology

1. GPS – Global Positioning System.
2. Client – Server Technology.

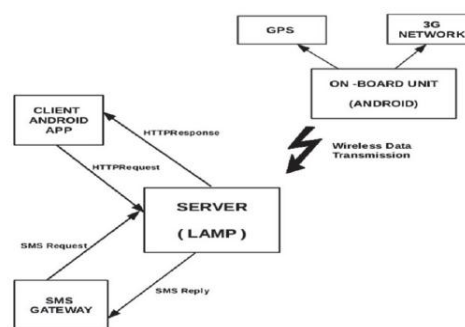


Fig 5. Block Diagram showing the high level views of the system

We propose a simple Android and IOT based approach which can provide dynamic bus tracking information to the bus-stops as well as the commuters in an efficient manner. We propose an architecture which is basically divided into three parts. The On Board module which consists of an Android Smart phone equipped on the bus, basically used to track the position of the bus using the inbuilt GPS of the phone. The collected location information is then sent to a server using 3G network of the phone. The backend consists of a server module which receives continuous data from the On Board Unit. The received data is used to extract meaningful information which is then used to service various queries. The client module consists of an Android application as well as a SMS based system which can be used by commuters to track the location of the bus in real-time as well as plan their journeys in advance.

5. Implementation Using Android

A. On Board Unit

Combining separate GSM/GPRS modules together to form an integrated unit is a tedious task. We can take advantage of the fact that these components are already inbuilt in our Smart Phones. Given the fact that most people nowadays use Smart Phones and that they are available at a reasonable price, make this approach viable. We propose an application based on Android OS utilizing the inbuilt GPS to track the location of the bus continuously and push it to a server on a frequent basis. Once, the application is started for the first time, an Interactive activity pops up asking for the detailed description of the particular bus route. The fields include Bus Id which is a unique identification being given to each and every bus plying on a particular route , Source Station , Destination Station and the name of each and every bus stop on the route. This is a onetime Activity for the duration of the entire application. Once all the Fields are filled the information is stored permanently. Next time when the application is started it opens up another Activity which

simulates the events in case the bus actually starts moving on the roads.

B. Server Module

The Web Server module forms the core of this proposed System. It serves as the back-end tool. The server contains all

The information about the routes of all the buses as well as the intermediate bus stops on the route. The server also processes request from a client regarding the estimated arrival time of a bus at a particular bus stop. The server maintains a database of information to the buses, routes and stops in the form of tables. The server database can be organized in many ways, to reduce memory requirement, improve access speed. We have used XAMPMP server in our implementation.

The Android application installed on the bus sends information to the server in JSON [14] encoded format which is stored in the tables created on the server using MYSQL. As soon as the information reaches the server a PHP script is invoked which is responsible for updating the information.

id	source	dest	s1	s2	s3
500	Kothrud Depo	Hadapsar	Anandnagar	SwarGate	Magarpatta
501	Kothrud Depo	Katraj	AnandNagar	SwarGate	ShivajiNagar
503	Hadapsar	Pimpri Chinchwad	Magarpatta	Khadki	Alandi
505	ShivajiNagar	Mahabaleshwar	Dehu	Mahad	Alankara
506	Hadapsar	SwarGate	Magarpatta	Kawade	SarasBaug

Fig 6. Proposed Database design using XAMPP server

As the bus is traveling on its desired route the server constantly updates the Left from Station and Next Station Columns in the tables so that if a user queries about the Availability of a bus at a required bus stop, using the data in the Tables appropriate response can be generated and provided to the inquiring user. The server is multi-threaded in nature and hence can process multiple simultaneous client requests at a time. As soon as a client request comes in, the server creates a thread to serve that client. The thread is then responsible for handling all communication with that particular client. After the communication is over the thread goes back to the pool.

C. Client Module

Our implementation is aimed towards bridging this gap. We propose to develop an application on the client side which can be used to dynamically track the location of the bus and availability at a particular bus stop along with the ETA. As a result commuters can plan their journey in advance. Also the uncertainty and long waiting hours at the bus stop is completely avoided by this approach.

6. Conclusion

This paper presented an efficient framework of Intelligent Public Transport Management System that dynamically tracks the location of all the buses and estimates the arrival time of the next bus on the bus terminus. The estimates are updated at regular intervals, every time the bus sends an update to the server.

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