

# Wifi Based Bus Tracking System

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**Abstract-** Bus tracking is one of the major problems in the society. The passengers will not get to know the arrival of buses at different stages. This paper helps to overcome the problem of exact arrival and departure time of the bus at particular stage. This tracking system tracks the bus location by automating the data to the controller as well to the registered user. In this paper an user android application is provided to know the details of busses such as bus number, route contains source and destination, location of the bus as well as the arrival time. To do this AURDINO is used in the ETM machine of the bus.

**Index Terms—** AURDINO, GPS, Wifi.

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## I. INTRODUCTION

Bus tracking is associate application that tracks a bus and gathers the space to every station on its route. Tracking System involves the installation of associate device in an exceedingly vehicle, with associate put in Android App on any sensible phone to modify the Administrator/User to trace the vehicle's location. There are two applications one for server and the other for the client. Buses carry ETM devices to track their positions. One for server and the other for the client. Buses carry ETM devices to track their positions. By this positions to server are periodically updated. Client application displays map showing the position of bus. It shows where buses are on a map and provide users the updated information at different time interval. The server will monitor location and will store its data in the database. It is a period of time system as this technique mechanically sends the data on the ETM system to a central pc or system/SMART phone. Since this is often associate degree mechanical man application we have a tendency to use WAMP server info for the backend. The users will get flexibility of coming up with travel mistreatment the app, to make a decision on that bus to require or once to catch the bus. The waiting time of the user may be reduced. Easy mode of communication is that the key feature of the Bus following system. This application may be simply extended for central following system to stay track of all the general public vehicles. The various queries and economical route management may be simply done through central server system. Wi-Fi may be a technology for wireless native space networking with devices supported the IEEE 802.11 standards Wi-Fi may be a trademark of the Wi-Fi Alliance, that restricts the utilization of the term Wi-Fi certified to merchandise that with success complete ability certification testing. Devices that may use Wi-Fi technology embody personal computers, video-game consoles, good phones and tablets, digital

Cameras, smart TVs, digital audio players and trendy printers. Wi-Fi compatible devices will connect with the net via a local area network and a wireless access purpose. Such associate access purpose (or hotspot) features a vary of concerning twenty meters (66 feet) inside and a larger vary outdoors. Hotspot coverage is often as tiny as one space with walls that block radio waves, or as giant as several sq. kilometers achieved by victimisation multiple overlapping access points. A vehicle pursuit system combines the employment of automatic vehicle location in individual vehicles with software package that collects these fleet information for a comprehensive image of auto locations. Fashionable vehicle pursuit systems normally use GPS or WI-FI technology for locating the vehicle, however alternative sorts of automatic vehicle location technology also can be used.

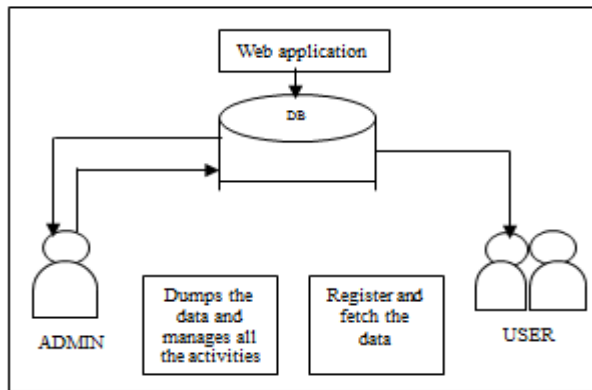
## II. LITERATURE SURVEY

Dr D Durga Bhavani and S C V S L S Ravi Kiran[1] described system reduces the waiting time of remote users for bus. With the mobile application we can track the location of bus at any point of time. All the current information is stored to the cloud and it is retrieved to remote users via mobile application. This system is more user friendly for users to get information visually shown on Google Map. User will freely get this mobile application for real time following of bus which offer interactive interface setting. Ahmed Ahmed and Elshaimaa Nada[2] they intends to resolve the problem with long waiting times students of the Taibah University are facing for buses. It's primarily important to upgrade the existing manual Bus Tracking and Monitoring system to improve transportation services. Yasha Sardey and Pranoti Deshmukh[3] they using Android and the SQL domain. Using the GPS system, 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. so that it will be accessible by every Android user. But this application will be useful for every person travelling 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. Dhananjaya S Shet and Arun Jain [4] users can get flexibility of planning travel using the app, to decide on which bus to take or when to catch the bus. The waiting time of the user can be reduced. Simple mode of communication is the key feature of the Bus Tracking system. This application may be simply extended for central trailing system to stay track of all the general public vehicles. The various queries and economical route management may be simply done through central server system.

**III. METHODOLOGY**

In this architecture we have web application and database where application is accessed by both admin and user. In this user register himself and login and fetches the data through database. Where admin dumps the data and manages all the activities.



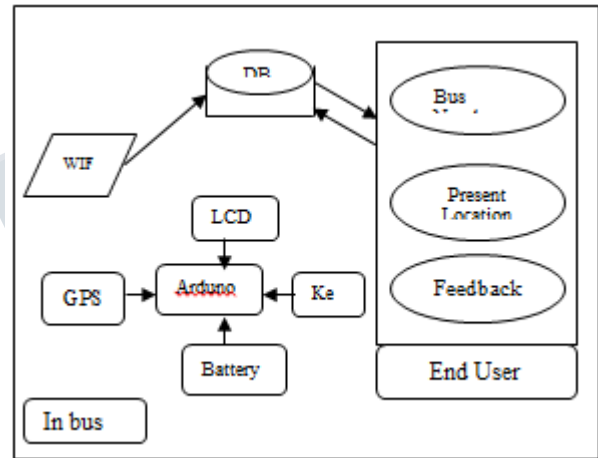
**Fig3.1: Architecture Diagram**

In this Block diagram we are using some software and hardware modules, modules are

1. GPS MODULE
2. WIFI MODULE
3. ANDROID APPLICATION MODULE

In the above architecture we are using GPS module for tracking the location of the bus where exactly bus is located. In GPS module we are using ARDUINO; it acts as a intermediate between GPS and KEYPAD. KEYPAD is used for providing input to the GPS. Battery is a part of an ARDUINO, from ARDUINO the data is sent to WIFI model. WIFI model gets data from ARDUINO and send and stores data in the cloud. We are using THINGS SPEAK SERVER for storing the data of the bus. The data of the ETM ticket machine is stored in the server. The data is sent

to end user when requested. Data is stored when send from ETM machine. ANDROID APP is designed for END USER, in END USER we are including BUS TRACKING NUMBER, BUS PRESENT LOCATION, and FEEDBACK. Bus tracking system includes bus numbers, Present location fetched by GPS, Feedback consist of ratings.



**Fig3.2: Block Diagram**

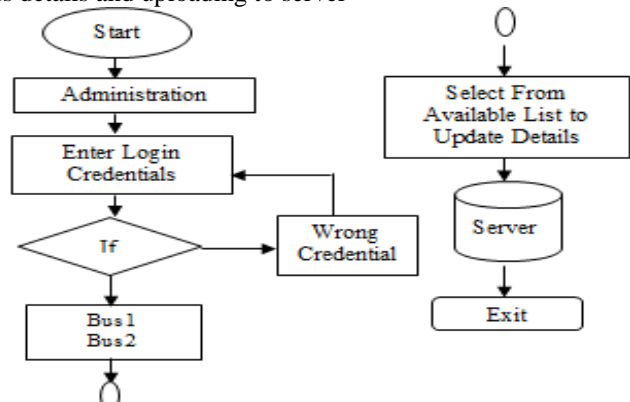
**IV. MATH**

This paper is divided into four modules they are

- Admin login
- User login
- GPS
- WIFI

**3.1 ADMIN LOGIN**

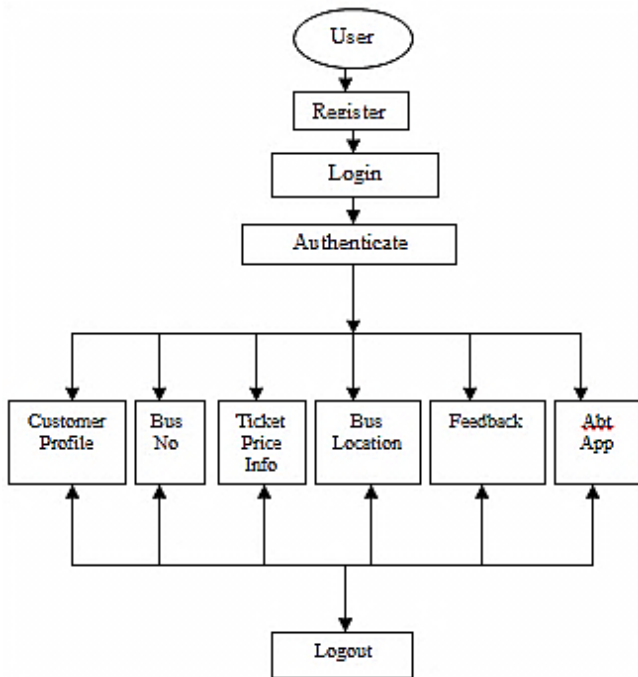
Once the process starts the admin has to login with login credentials which consist of ID and PASSWORD if the ID and PASSWORD are correct admin is authorised person and allowed for further process that is selecting bus, updating bus details and uploading to server



**Fig 3.3: Flow chart for Admin login.**

**3.2 USER LOGIN:**

This is the most important module and is the whole and soul of the system. The users of this module need to log in with their unique ID provided by the college management. They can get access to the details of all the buses of college through their phones. Here they will get all bus and driver related information offline too. Students can track the location of their bus from any location. Student and staff must make sure that their location service is active. The can also get the estimated time of arrival of bus at their respective stops. This will help them to manage their time and arrive at their stop at the proper time, neither too early nor late. The following figure shows the flow of this module.



**Fig 3.4: Flow Chart for User**

**3.3 GPS**



**Fig 3.5: GPS**

GPS is to track the bus location where exactly the bus is located. Here is the code how GPS works.

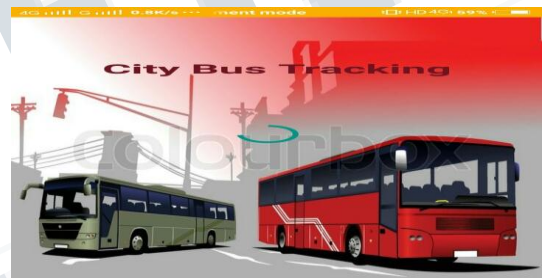
**3.3. WIFI**



**Fig3.6: Wi-Fi**

It used to for GPS connection and data transformation from ETM machine to the controller. Here is the some code how WIFI works

**IV. RESULTS**

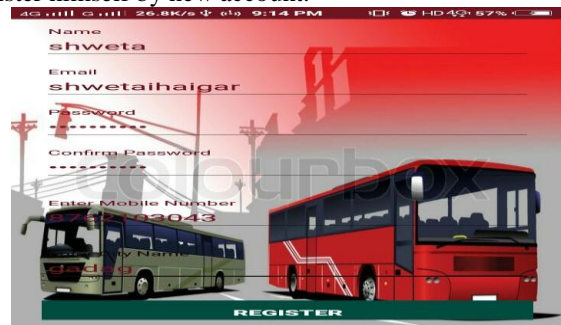


It is a flash page. Once the user opens the app then the above flash page will be displayed.



**Fig 4.2: User login page**

It's a user login page which contains a valid user name and password if the user is not registered then user needs to register himself by new account.



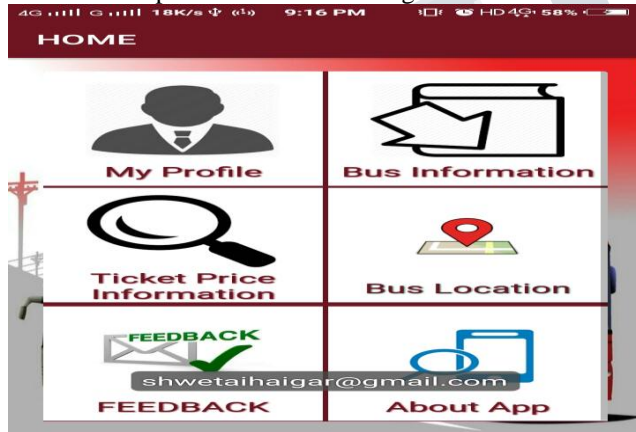
**Fig4.3: User register page**

It is a user registration page user needs to register by valid needed information and click the register button so that you can login to the app.



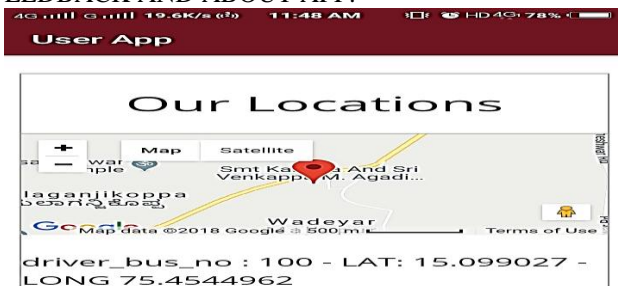
**Fig4.3: User valid login page**

Once the registration is done then you need to enter username and password in order to login.



**Fig 4.4: Home page**

It is a user home page which consists of USER PROFILE, available BUS INFORMATION, required BUS TICKET PRICE INFORMATION, BUS LOCATION, and FEEDBACK AND ABOUT APP.



The above fig shows the current location of the available bus with a latitude and longitude of the bus and it is measured in terms of degree and this app does not provides a navigation but it shows the exact location.

**V. CONCLUSION**

In this project we are tracking the arrival and departure time of the bus in each bus stand and we are providing submission of this record to the bus station by automation to controller and user which results in reduction of waiting time in order to know time value. Automation of data transfer from ETM ticket machine is done through Wi-Fi. In earlier project it had a drawback of non data transformation. In our project we have automated data transfer through WIFI connection. We have user friendly application for user for tracking the bus location. User just needs to download our bus tracking app register then login he can select the route from his location to destination.

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