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Literature Review on Internet Based Tracking System

Ankush Rathod[1], Shaina Sheikh[2], Sanketi Musholkar[3], Prof. Mrunali L. Vaidya[4]
[1, 2, 3]*Student,* [4]*Professor, Dept. of Computer Science & Engg., Agnihotri College of Engg., Nagthana, Wardha, India*

Abstract: ***This analysis is based on the bus tracking system. The main intention of this work is to create an Internet-Based Tracking web application that would be able to track Nagpur buses more precisely and efficiently than present bus-tracking systems. We got the motivation for our research paper by observing how much precious time the public living in Nagpur wastes by just waiting for the bus on their particular route.***
There is also a lack of information for the buses that are traveling on their particular route for the public who have already missed their particular bus.
The current generation is very technology-oriented and requires time-to-time updates via the internet. So, they can know the exact location of buses. This system will help to know the location of a bus without using GPS, bus schedules (i.e., according to timing), and also give information on routes and bus status. This technology will be very helpful for outsiders, college students, the local people of the city, and employees.

I. INTRODUCTION

Among all the public transportation services, the bus service is the most commonly used by the public. Especially in a busy town or city, the bus is the easiest, most convenient, and cheapest form of transportation. Bus users do not know the exact arrival time of a bus, but only the scheduled arrival time. Compared to train or flight transportation systems, bus transportation services do not have a proper system to track all buses' positions and their actual arrival times at every bus stop. The current generation is very technology-oriented and requires time-to-time updates via the internet, so they can know the exact location of buses. This system will help to know the location of a bus without using GPS, bus schedules (i.e. according to timing), and also give information on routes and bus status. This technology will be very helpful for outsiders, college students, and the local people of the city and employees.

II. LITERATURE SURVEY

1) Noppadol Chadil, Apirak Russameesawang, and Keeratiwintakorn, "Real-Time Tracking Management System Using GPS, GPRS, and Google Earth," IEEE 5th International Conference on Electrical Engineering/Electronics, Vol. 1, pp. 393–396, 2008. Here, author Noppadol Chadil Apirak Russameesawang, Phongsak Keeratiwintakorn discussed the GPS The global positioning system is a tracking system that consists of a network of various satellites that repeatedly send radio signals of short pulses to GPS receivers. When a GPS receiver receives the signal from the combination of various satellites, it uses a triangular technique [1] to compute latitude, longitude, and altitude position.

2) El Gouhary, Amany, Richard Wells–Richard and Anthony Thatcher, GPS Track System, 2006. Web servers are used to receive and interpret the data received from the GPS devices, and it is further stored in a mySQL database [2]. This will serve a dynamic web page which will take input from the database for the current position and previous position and will place them on top of an estimated current position and previous position on a suitable map from an online database.

3) Mohammad Zahaby, Pravesh Gaonjur, and Sahar Farajian, "Location Tracking in GPS using Kalman Filter through SMS", IEEE EUROCON, pp. 1707-1711, 2009. The area suitable for traveling by bus is depicted by the 1‘ pixel and the remaining is represented by the 0’ pixel [4]. Once the output of the measurement (naturally set with some amount of error, accepting other noises) is perceived, these estimated observations are revised using a weighted average, with more weight being given to estimates with higher accuracy [4].

4) Authors M. A. Hannan, A. M. Musapha, A. Hussain, and H. Basri have implemented the system for Intelligent Bus Monitoring and Management System. The projected system uses artificial intelligence with the help of an RFID module, which is used in organizing to reduce the amount of manual work required in the bus management and monitoring system. RFID is used to track a bus when it cross the bus stop. Hence, the accurate location of the bus is not revealed; only an estimated location is revealed based on the bus stops. In today's world, correctness is very important, and hence this was the restriction on this project.

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5) Süleyman Eken, Ahmet Sayar, "A Smart Bus Tracking System based on location-alert service and QR code" [6],In this paper, in the bus tracking system, any passenger with a Smartphone can check the estimated bus position at.At the bus station, the QR code is placed at the bus station to see the current location of the bus. The errors in this project.The user had to actually be present at the bus stop to check the QR code

6) A. Deebika Shree, J. Anusuya, and S. Malathy, "Real Time Bus Track and Location Update System" [2], The public transportation system plays a main role in every phase of life. It is exerting a vast force on the economic development of the country. Tracking, monitoring, scheduling, and vigilance services are the most important challenges facing this system. Currently, the major services of this system are operated physically, which means their estimates are denied to people. The purpose of the project is to automate the services of public transport buses by providing them with real-time track experience. These buses will have RFID tags, and RFID readers will be located at each bus stand. Ardino acts as the central regulator for this system. The GSM module will be used to send track mail to authorized persons for continuous monitoring. GPS is used to find buses. Users will get information on bus trackers through the IoT. Information from RFID readers for data processing is regularly simplified on Arduino. Process data is sent to the cloud, which acts as an interface between the user and the system.

III. PROBLEM DEFINITION

Possessing your own transportation has become more common nowadays. The number of vehicles on the road keeps on increasing, and most of us are eager to own a personal vehicle so we can go anywhere without limitation. The existence of buses has reduced road traffic, and taking a bus is a good way to start to inculcate the carpooling value. Besides, it provides low-cost transportation which means to the low-income family for travel to another destination. The main drawback of traveling by bus is the inconsistent arrival time, which may be due to unforeseen circumstances. Even when we know the bus schedule well, there are a number of reasons why that bus may not arrive as expected.

A. Traffic congestions
B. Heavy downpour
C. Bus breakdowns

There is a dangerous situation when students wait at the bus stop. Due to delay or missed bus, student needs to wait a long time in the bus stop. At the same time, the student might become robbery targets. The expected arrival time is calculated based on the average travel period between two bus stops.

IV. PROPOSED SYSTEM

The proposed bus tracking system will be able to provide bus users with a real-time platform to check on updated bus information, for example, bus arrival or departure time. This system can update the current location of the bus with the help of a bus conductor or bus driver by just clicking on their current bus stop without using GPS. Besides this, our system is also able to decrease the workload for the bus management team and supply an instant platform to update the latest and perfect bus traffic information to bus users. This system also includes the number of police officers for women's safety and gives feedback about the bus management system.

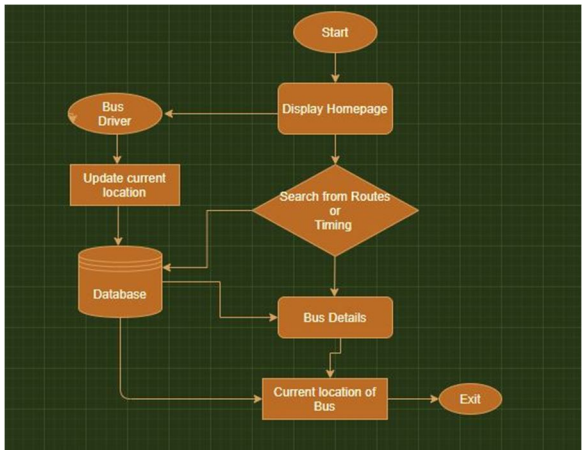


Fig 1.1: System Flowchart

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V. OBJECTIVES

Implementing this system primarily provides information about bus transportation in the cities. It keeps information like bus routes and stops.This system uses the BEST bus route finder, so the user can find the exact bus number from one point to another as well as stops for that particular bus. It also provides a timetable of the bus services as per their timings. This system provides a platform that allows the bus management team to update the bus schedule through the Internet instead of posting paper copies of the bus timetable on the notice board. It reduces the workload of bus management team, and they can utilize the time on other matters in order to enhance the quality of bus service. The main goal of the proposed work is to improve the bus system by adding the necessary additional features to the application, like accurate bus timings, correct bus numbers. Emergency situations can also be informed to the Bus Management.

VI. SYSTEM ARCHITECTURE

This chapter describes features, fragments, classes, architecture, and the application itself by providing necessary information about major components. First, overall information is given along with the project's components and classes. Subsequently, the architectural facts of the application are discussed. The bus-guided application is mostly used by local people to avoid problems such as traffic in major cities.

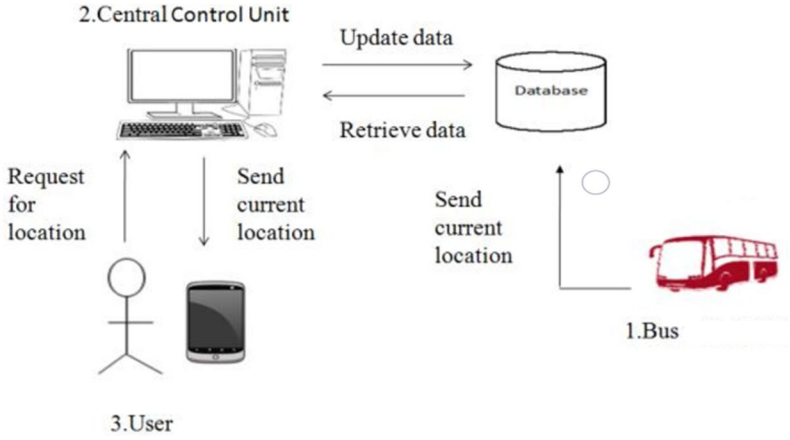


Fig 1.2: - System Architecture

Modules

1) *User:* This system is a fully mobile responsive webpage which can help users get details of the bus as per their needs. In this system, users can get the bus details in two ways: they can view them according to the routes of the bus and the bus timing, which perfectly guides users to choosing the right bus, and also helps interchange the bus to go to a particular destination.
2) *Driver:* In this module, the driver can update the current location of the bus with the help of a bus conductor or bus driver by just clicking on their current bus stop in the interface.
3) *Admin:* It is a static login ID and password. The admin can be able to add buses and their details like timing, driver name, contact number of the driver, bus number, etc. Admin can edit the bus driver's name, change the bus driver, view the bus driver's details, and change the routes of the bus. Admin can add bus driver information and allow bus drivers to update their location. This system is also able to reduce the workload for the bus management team and provide an immediate platform to update the latest and most accurate bus traffic information to bus users.

VII. METHODOLOGY

The system allows a user to track their bus from the Web app. With the help of tracking, users can see how far the bus is from their location. This allows users to plan their routes and travel accordingly. This system will also give the approximate time and show the fare. This will reduce the wait time, increase willingness to pay, and improve customer satisfaction. The driver/conductor will send its coordinates continuously to our server, where the data will be stored. When the user selects that exact bus ID, its location will be retrieved from the server and revealed on the map. The location information is fetched from the online database, which receives the data concerning the location from a separate application used by drivers and conductors on the bus. This helps in maintaining the uniqueness of the bus while displaying it on the user interface.

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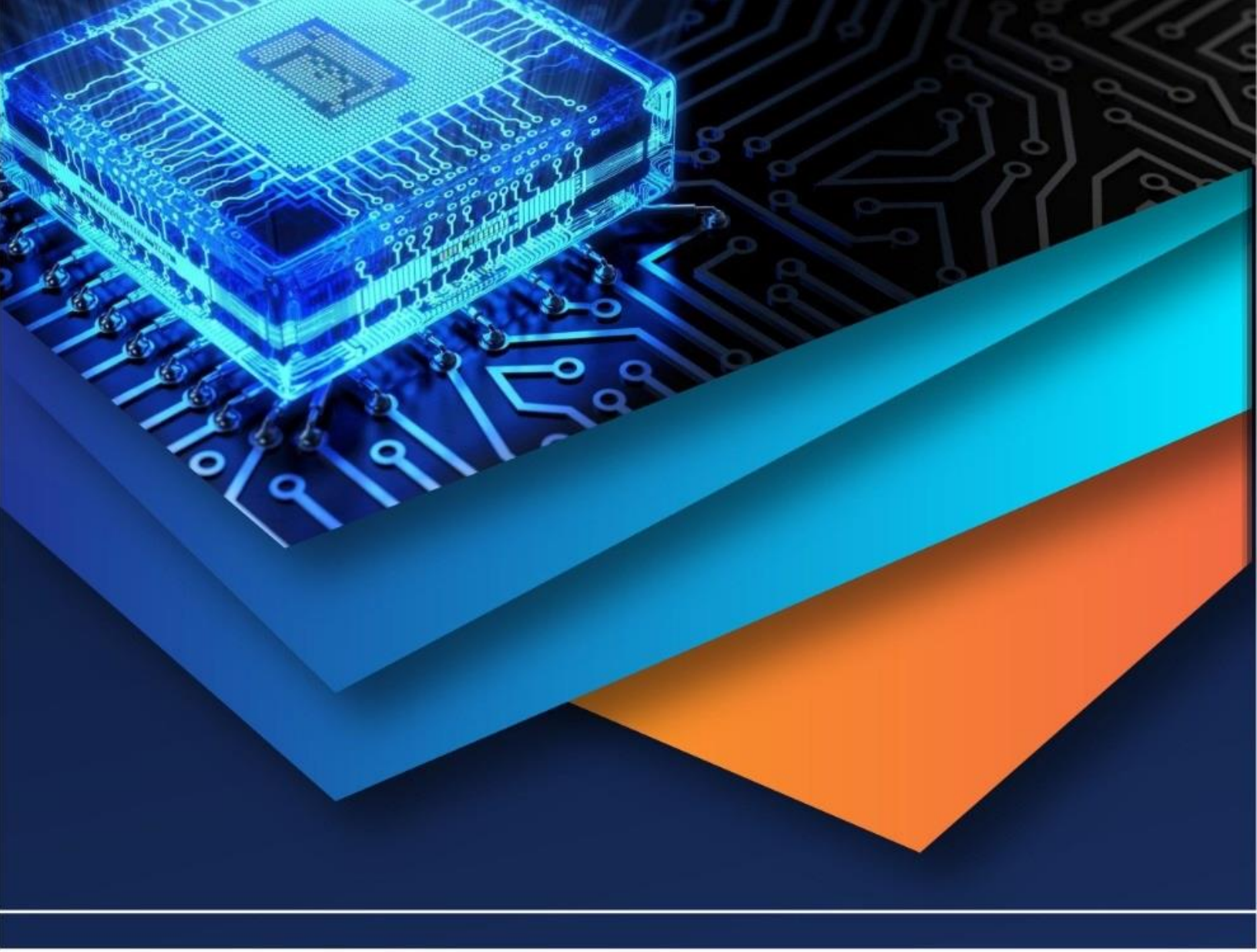
VIII. CONCLUSION AND FUTURE SCOPE

While waiting for the bus, many people, like regular travelers or tourists, get impatient and anxious if they don't know when the bus will arrive. For the bus management side, it becomes very difficult to provide an accurate schedule for bus users due to some uncertainties that may happen on the road, such as traffic jams or bus breakdowns. When a bus is delayed, the bus management side could not inform the public as they don't have a platform to inform bus users in real-time. In order to overcome this drawback, our bus application will come in hand providing a platform for bus users to check on the bus status, arrival time, bus routes, and information of different bus timing with their bus stop in anytime and anywhere. Sustainable urban mobility is a key factor for a citizen's quality of life, as an increasingly large percentage of the population lives in urban areas. It also provides a platform for a bus service provider to update the latest information to you sir and monitor bus status.

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