WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Bus Route Management with Live Tracking

[1]S. Veerraju, [2]MD Ishtiaq Ahmed Samdani, [3]Dr. S. Rama Sree, [4]M. Sai Praneeth

[1]*CSE, Aditya Engineering College, Surampalem*
[2]*CSE, Aditya Engineering College, Surampalem*
[3]Professor in CSE, *CSE, Aditya Engineering College, Surampalem*
[4]*CSE, Aditya Engineering College, Surampalem*

ABSTRACT—

When the college bus route changes, students get frustrated and panic because they don't know which bus will go on their route.

Bus Route management with live tracking is a complete dynamic web application which is mostly useful for college bus admins to manage the route schedules for college buses and the students can easily find the desired bus which goes in their route and the application is fully dynamic where if admin changes route that completely reflects to all users.

Keywords— *GPS, Full Stack Web Application*

1. Introduction

Bus Route management with live tracking is a dynamic web application developed using React as Frontend framework and backend as Firebase services which provides more dynamic nature which is useful to manage the college buses route and the students should be able to search and filter the desired bus which goes in their route and bus admins can easily track the live location of the bus through GPS Live tracking through IOT.

1.1 Introduction of Project area/Domain

So to solve this from we have built a Full stack web application that shows the bus number, driver photo, and driver number to desired bus route, we can search with the desired location and it will display the desired buses, we can track the live location of the bus.

For solving the above problem, this project is a complete dynamic web application which shows available bus details in user dashboard and the students can search the buses and also they can see the route in which bus goes and also they can find the driver name and contact details. Coming to admin dashboard the bus admins can update or delete the existing bus details and through GPS Live tracking they can get the live location of the bus.

1.2 Existing System

-Intelligent Bus Monitoring and Management System

The project uses RFID tags for the live location of the vehicle which is not accurate, it only shows that village crossed but through this project we cannot get the live location of the bus.

-A smart Bus Tracking System based on location- aware service and QR code.

In this project the passengers scans the QR code which is in the bus so that we can get the location of bus as it is not an effective location of the bus. QR based location tracking of a vehicle is oldest method of tracking.

-Location Tracking using Blynk App

This project uses third party app like blynk app which is used to manage the location of bus as it is not open source so users may face difficulties for using this and we could not integrate in any web application.

Disadvantages:

We could not get the correct live location of vehicle

We can get the location of bus by bus stops only.

Scanning the QR code in bus is not an effective approach.

1.3 Proposed System

We are proposing a Full stack web application that solves the problems of students to find their buses.

The project also helps parents to track their children by just knowing their bus number.

Features:

1. Home page

This dashboard can be accessed by parents and students to search the buses with the location.

This page contains a search bar when a user enters location, our application displays a list of bus details with

2. Admin page:

Admin is accessed by AO

Admin can change or delete buses from the list

3. Login Page:

On the login page, Admin can sign up/sign in using a phone number and password.

Password can be easily changed by Admin

4. Location tracking Page:

When we click on the track button of a bus then it directs us to this page.

This page displays the map and live location of that particular bus.

1.4 Objectives of the Project

Bus Route management with live tracking is a dynamic web application developed using React as Frontend framework and backend as Firebase services which provides more dynamic nature which is useful to manage the college buses route and the students should be able to search and filter the desired bus which goes in their route and bus admins can easily track the live location of the bus through GPS Live tracking through IOT.

The main objective of the project is to make the work easier for the admin staff of the college bus and as well as students can easily search and filter the buses which makes college more digital.

1.5 Organization of Project

For effective development of project we used several tools to make the project successful and the development undergo several phases to release the final product.

To develop the project together by team members, we used various tools to make the work productive , faster and effective. The tools that we used are listed below

- Trello (project management)
- Github (source code management)
- Figma (designing)

Bus Route Mangement with live tracking combines two modules the are FrontEnd User Application and for tracking IOT based location tracking project.

For FrontEnd User Application we used the React and Nextjs which are javascript frameworks which provide additional features than regular javascript and it makes website more dynamic.

Coming to the database we used Firebase which is google’s backend as a service. It is more faster and we can retrieve the data in database faster to display in our application.

II. Literature survey

[Intelligent Bus Monitoring and Management System

M. A. Hannan, A. M.Mustapha,A.Hussain and H. Basri

The project uses RFID tags for the live location of the vehicle which is not accurate, it only shows that village crossed but through this project we cannot get the live location of the bus.

A smart Bus Tracking System based on location- aware service and QR code.

Süleyman Eken, Ahmet Sayar

In this project the passengers scans the QR code which is in the bus so that we can get the location of bus as it is not an effective location of the bus. QR based location tracking of a vehicle is oldest method of tracking.

RFID bus ticketing system

Yusuf Abdullahi Badamasi

This project uses third party app like blynk app which is used to manage the location of bus as it is not open source so users may face difficulties for using this and we could not integrate in any web application.

III. RELATED WORK

MODULES

User Module :

This dashboard can be accessed by parents and students to search the buses with the location.

This page contains a search bar when a user enters location, our application displays a list of bus details with

- Bus number
- Driver name
- Destination
- Button to track live location.

Admin Module :

Admin is accessed by AO

Admin can change or delete buses from the list

Details of buses like :

- Bus number
- Driver details(Mobile number, Name, photo)
- Bus Route.

CRUD (create , read , update , delete) operations performed by admin

IOT Module:

IOT Module contains two main components which are GPS Module and GSM Module. GSM Module is responsible for getting and sending SMS and GPS Module is responsible for getting the live location of bus and this all works under the IOT Controller Arduino UNO.

Four main components in this IOT module:

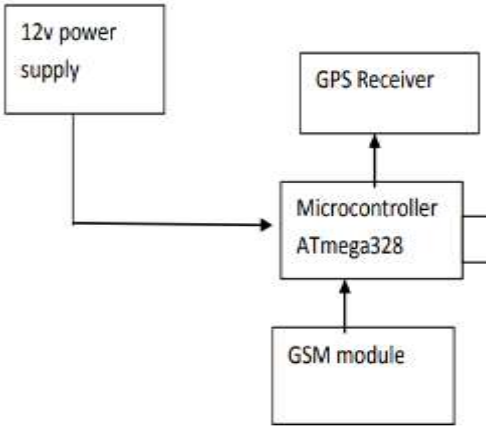
POWER SUPPLY

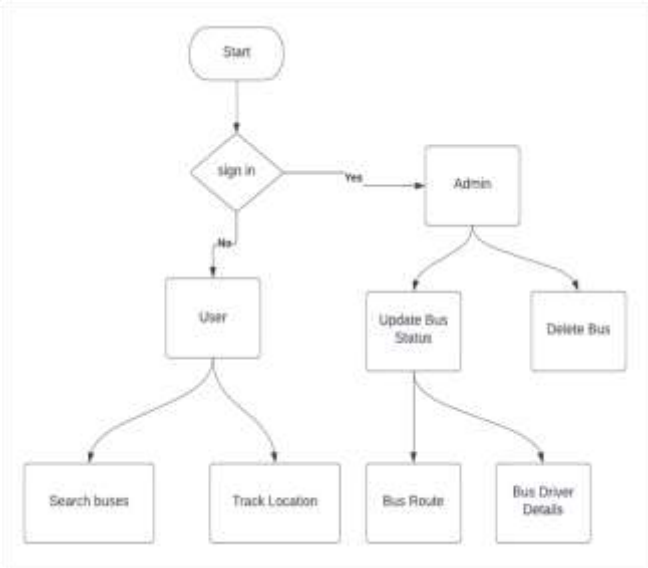
MICROCONTROLLER

GSM MODEM

GPS RECEIVER

DESIGN ARCHITECTURE AND ITS EXPLANATION

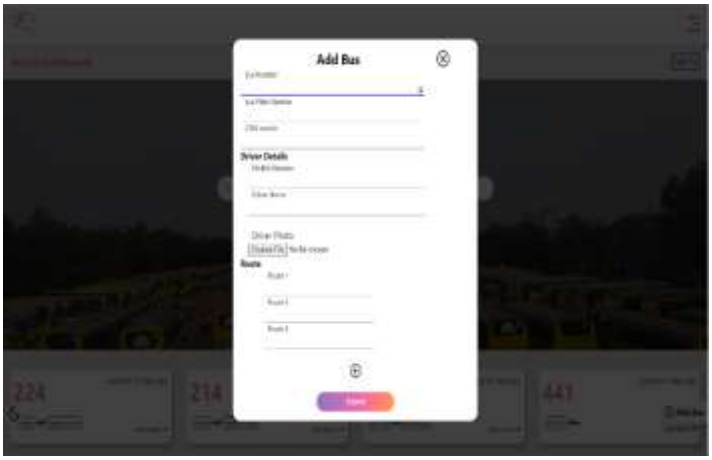




IV.TEST CASES REPORTS

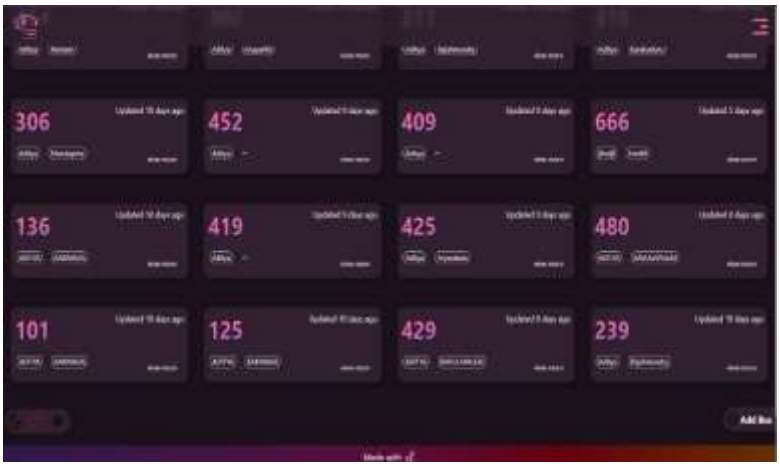
S. No	Test case Passed	Expected Output	Actual Output	Result
1.	Student uses app for searching bus	Bus Found	Bus Found	Pass
2.	Admin logins to change the bus Route	Route is changed	Route is changed	Pass
3.	Admin tracks location of the bus	Location Tracked	Location Tracked	Pass

V. RESULT SCREENS



Output:

This application display the desired buses to the students which they go on their route.



VI. CONCLUSION & FUTURE SCOPE

The project "Bus Route Management with Live Tracking" is a complete dynamic web application which shows available bus details in user dashboard and the students can search the buses and also they can see the route in which bus goes and also they can find the driver name and contact details. Coming to admin dashboard the bus admins can update or delete the existing bus details and through GPS Live tracking they can get the live location of the bus and also helpful for the parents to check the location of bus which provides more security of their children.

References

[1] Chen, H., Chiang, Y. Chang, F., H. Wang, H. (2010). Toward Real-Time Precise Point Positioning: Differential GPS Based on IGS Ultra Rapid Product, SICE Annual Conference, The Grand Hotel, Taipei, Taiwan August 18-21.

[2] AsaadM.J. Al-Hindawi, Ibraheem Talib, "Experimentally Evaluation of GPS/GSM Based System Design", Journal of Electronic Systems Volume 2 Number 2 June 2012

[3] Chen Peijiang, Jiang Xuehua, "Design and Implementation of Remote monitoring system based on GSM," vol.42, pp.167-175. 2008.

[4] V.Ramya, B. Palaniappan, K. Karthick, "Embedded Controller for Vehicle In-Front Obstacle Detection and Cabin Safety Alert System", International Journal of Computer Science & Information Technology (IJCSIT) Vol 4, No 2, April 2012.