

Automated Bus Management System and Location Tracing using GPS And Python

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Abstract— Technology currently provides several methods for the systematic operation of mankind. Technology advancements aided in the development of new inventions, the improvement of corporate procedures, and the achievement of new milestones. Humans find it easy to do tasks that are supposed to be impossible. The latest advanced technologies are GPS and QR code scanning. The inescapable ANDROID, android's evolution leads to it becoming a part of human life and a favorite of humans. Our project employs GPS and QR code technology to allow college buses to keep track of bus schedules, teachers, students, drivers, and buses, receive real-time notifications, track current bus location, mark students' attendance, and check bus passes. Errors made by humans can be reduced by this and also the effort and stress of paper works. This system was developed as a web application using android and python as the base code.

Keywords—GPS (Global Positioning System), QR- Quick Response Code, Android.

I. INTRODUCTION

In the present era, Students take transport services manually using paper and pen, which is very time-consuming and takes much effort. Now the number of students is increasing and therefore it is very difficult for the management to record the details of the students, it is facing a little bit of problem in maintaining the records of students and other details. So we want to design a new project called "AUTOMATED BUS MANAGEMENT SYSTEM AND LOCATION TRACING USING GPS AND PYTHON" to make it easy to use the system and make it speed up.

This web-related application permits us to the entire knowledge regarding the college transport management, employees, faculties, students, etc. Its main objective is to automatically deliver the transport service provided by the college to the student and faculties in a convenient manner. This system is developed using android which provides a simple interface for the user. Python is used as the basic code. The user details will not be able to be

visible to another user, only the authorized admin will be able to modify and view the details. This system manages the new registration as well as the details of existing drivers and students. This is done automatically so that the human errors can be reduced and also the efforts of paperwork. In addition to this, the data are kept in the database and the admin can access it whenever he desires. Real-time notification will be sent to the user, that is there is any change in the schedule of the bus, and when the bus is near to the user's location the user gets notified. The user can see the current location of the bus using a GPS tracker and also the user can access the details such as timing and routes of the bus, etc. We believe that this application will positively benefit everyone.

II. RELATED WORKS

III. PROPOSED MODEL

The college bus management system is a web application system aimed at students and college administration to maintain the bus facility. The system will take student information as an input source and attempts to maintain the bus services. It allows flexibility during these processes. The technology delivers detailed bus management reports. i.e., fees paid, driver information, bus number, and bus stop. It is a cloud-based application that includes GPS and QR scanners. Students can use the scanner to mark whether or not they are available to ride the bus. The application will automatically update the student information. The bus route will be tracked using a GPS tracker.

A. GPS System

To track a vehicle in real-time, the application uses Google Global Positioning System (GPS). GPS is a real-time satellite navigation system for three-dimensional position determination. It will track the bus route.

B. QR Scanner

Well, the QR – stands for "quick response"-code is a barcode on steroids. Allow students to scan the QR code using their mobile phones to mark their attendance by higher

authorities. It will help the faculties/ higher authorities to know whether the student is present on the bus or not.

C. Modules

- Admin
- Student
- Driver

Admin

In this module, the admin can manage student Student details and routes. It can manage bus Bus details by assigning drivers and routes and Can manage the driver details.

Other functions:

- Assign bus to students
- Accept bus fee
- Send a message to students
- Update bus status
- Track bus route
- View attendance of students on each bus
- Allow bus passes to students

Driver module

In the driver module after login to the page he or she Can view the details of students like their names, Class, department, branch, and fee status.

Student module

In this module, students can log in to the app using their mobile number or email id. After Verification, they can view their assigned bus, Bus status, details of fees paid, etc. Also using GPS tracker and bus tracks is possible.

SYSTEM ARCHITECTURE

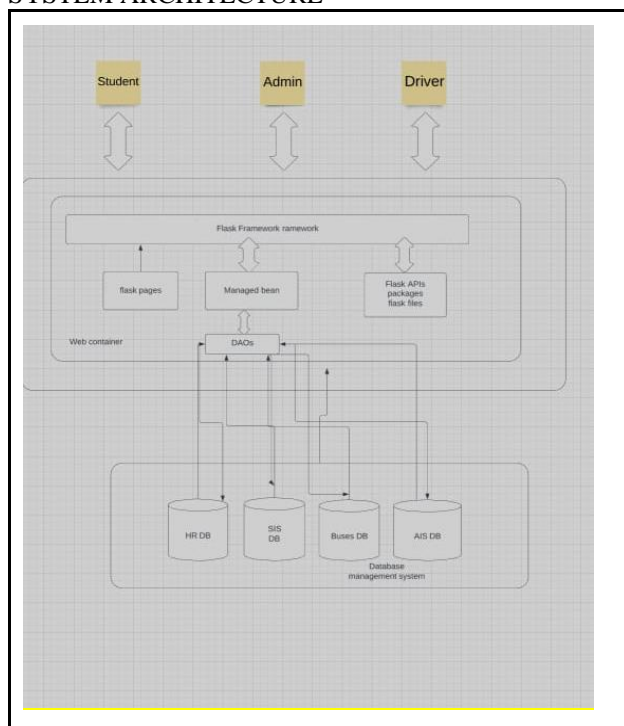


Fig.1 system architecture

RESULT AND CONCLUSION

AUTOMATED BUS MANAGEMENT SYSTEM AND LOCATION TRACING USING GPS AND PYTHON is an application that gives the entire knowledge regarding the College Transport Management System. It will maintain all the records regarding the students automatically. It will also add information about bus drivers. Therefore, students can easily find the bus details and track the bus route through the GPS.

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