



A REVIEW ON BUS TRACKING SYSTEM

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ABSTRACT :

Most colleges provide transportation for students, but keeping tracing of buses, their schedules, and driver information manually can be tedious and error-prone. This paper introduces a smart solution that uses GPS, map APIs, and biometric devices to automatically tracing buses and log attendance. The system provides real-time updates, stores data centrally, and generates reports automatically. It also alerts maintenance teams when needed. Overall, it boosts safety, accuracy, and efficiency in campus transport.

Keywords : GPS, Map API, Bus Tracing, Biometric

Introduction

Many schools and colleges run their own buses, which means keeping daily records of routes, trips, drivers, and student pick-ups.

Traditionally, this is done manually, which isn't very efficient and can lead to mistakes.

Plus, students, staff, and parents don't always know where the bus is, leading to delays and confusion.

To solve this, the proposed system uses GPS and maps for live tracing, and biometric devices for accurate attendance. All information is collected in one place, so reports can be created automatically, and maintenance reminders sent out. This makes transport safer and more transparent.

Literature Survey

After looking at various sources, we identified key issues in existing bus tracing systems.

Traditional System

In older systems, parents and students don't get real-time updates. They guess the bus arrival time and wait.

Problems:

- Wastes time
- No live updates
- Low safety

Basic GPS System

Some schools use GPS on buses, but they lack apps to show live updates to parents and students.

Problems:

- Hard to access
- No alerts or notifications

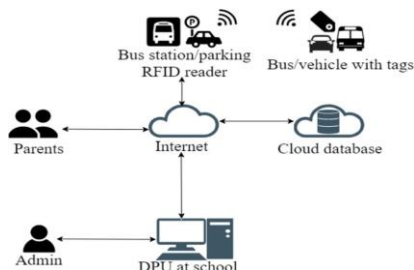


Fig.1 Flow Diagram of Existing system

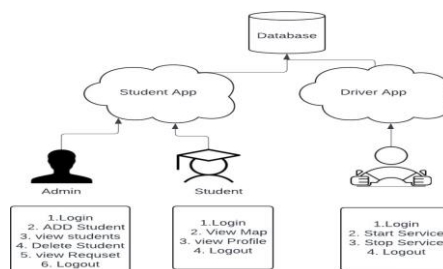


Fig 2: Architecture Diagram

Research Methodology

The system is built as a mobile app with two main user types:

- Admins/Drivers
- Parents/Students

Admins register buses and update trip status. Parents or students create accounts to tracing their bus in real-time and get notifications about arrival times, delays, or route changes.

Roles:

Bus Driver/Admin:

- Register buses and routes
- Update trip status (start, delay, stop)
- Keep information accurate

Parents/Students:

- Sign up with email and student details
- Choose their bus route
- Tracing the bus live and get updates

User Interface Features:

Login:

Users log in with email or Google account.

Registration:

New users enter name, email, password, and student ID or route number.

Forgot Password:

Users can reset their password through email.

Bus Tracing:

Users select their route or school, then:

- See bus location on a map
- Get estimated arrival time
- Receive alerts for any changes or delays

Conclusion

This system offers a smart and efficient way to manage college transport. It cuts down manual work and improves reliability. GPS tracing and biometric attendance allow live updates and accurate records. Admins get detailed reports, while maintenance teams are alerted automatically. Parents and students stay informed and feel safer. The result is a secure, automated, and user-friendly transport experience.

Future Improvements

In the future, the app could be upgraded to:

- Send alerts when the bus is close or late
- Monitor driver behavior for added safety
- Let parents tracing multiple children
- Work offline using the last known bus location
- Allow emergency chats with drivers or school
- Support voice commands and smartwatches
- Include a feedback feature for parents

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