

ROVE - TRAVEL MADE EASY

PROJECT PROPOSAL

OF MAJOR PROJECT

**BACHELOR OF TECHNOLOGY
COMPUTER SCIENCE AND ENGINEERING**

Submitted To

MR. JEETESH SRIVASTAVA



**Dr. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY
LUCKNOW**

SUBMITTED BY

Team Leader

Kanishtha Sahu	2003420100046	kanishtha3122001@gmail.com
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Team Members

Priyanshu Kumar	2003420100062	priyanshu.vraw@gmail.com
Siddhant Kumar	2003420100088	siddhuyadav662@gmail.com
Tanishqa Sharma	2003420100092	tanishqasharma797@gmail.com



**UNITED COLLEGE OF ENGINEERING AND RESEARCH,
PRAYAGRAJ**

Abstract

Rove is a user-friendly and efficient tool designed to help students track their respective buses in real-time. It provides information on the bus's exact location and expected arrival time, enabling students to plan their schedules and manage their time effectively. Rove also offers suggestions for alternative buses on the same route, helping students reach their educational institutions on time even if they miss their bus. The application addresses the challenges students face in tracking their buses and ensures that they can reach their destination on time. Overall, this application is a useful and practical tool for students, providing them with convenience, flexibility, and peace of mind.

Index Terms- Interactive maps, smart phones, tracking and management.

Introduction

In today's fast-paced world, time management has become an integral part of everyone's life. For students, it becomes even more critical to reach their educational institutions on time, especially if they live far away. One of the significant challenges students face is tracking their buses and arriving on time for their classes. In such situations, a bus tracking application can be an invaluable tool for students.

Rove provides a simple and easy solution for students to track their respective buses in real-time. It helps them to stay informed about the exact location of their bus and its expected arrival time, which allows them to plan their schedules accordingly. Additionally, the application offers various features to help students reach their destination on time, even if they miss their bus.

The primary utility of this application is that it suggests alternative buses on the same route that students can take to reach their college on time. It helps them to plan their journey and avoid the stress of missing their classes due to delayed or canceled buses. Moreover, Rove also provides information about the bus's route, stops, and estimated time of arrival, which further helps students to manage their time effectively.

Despite the benefits, many students face problems while tracking their buses. Often, they need to wait for long hours at bus stops, unaware of the exact location of their bus. Moreover, missed or delayed buses can cause significant inconvenience and result in late arrivals.

In conclusion, Rove can be a game-changer for students, providing them with the convenience and flexibility to track their buses in real-time. By ensuring that students are aware of their bus's location and suggesting alternative routes, the application can help them reach their educational institutions on time and achieve their academic goals. Therefore, it is imperative to develop and implement such applications to help students overcome the challenges they face while commuting to the colleges.

Feasibility Studies

Our review of this area shows that there have been only few approaches that provide automated utilities for this tracking functioning but all of them are either using some sort of dedicated hardware system.

For instance, there is an application TrackMyBus that uses GPS tracking technology to locate buses in real-time and provide up-to-date information on their location and estimated time of arrival. The buses are equipped with GPS devices that transmit location data to a central server, where it is processed and made available to users via the application. Students can access the application on their mobile devices and track the location of their respective buses, set alerts and reminders, and view the bus's route and stops. The application also suggests alternative buses on the same route in case of delays or missed buses, helping students manage their schedules more effectively.

Another application has been implemented in Pune, named "Pune Bus Guide". This application gives the way to the destination correctly, it does not show the passengers current location even if he/she is connected to the GPS. Also, the application does not display the bus numbers, so the passengers find it very hard to know the number and time of arrival of the respective buses. It does not have a real time bus tracking service or does not even generate maps for the users ease. This application has never been updated ever since its development.

While there are several bus tracking applications available in the market, Rove stands out differently in several ways.

- Rove offers a personalized experience to students by allowing them to track the location of their respective buses, by this students can quickly and easily locate their buses with Rove in real- time tracking feature.
- Rove's unique feature is suggesting alternate buses to the student on the same route in case they miss their bus.
- The application offers a seamless and interactive interface that provides information about the bus's routes, stops and ETA making it easier for the students to plan their schedules.
- Students can view their bus passes and the fees status in the application itself on the personalized dashboard utility of the application.

Planning of Work

Proposed Modeling

The features that we planned to include in our application are as follows:

- The clean and interactive UI makes it easier to understand the workflow and easier for the user to use.

Tech used- Figma to create the working prototype of the project

- As Rove will be based on **Flutter** it will be a cross platform application (Both for Android & iOS)

Tech used- Flutter as framework and Dart for creating this application

- The details of all the buses and the students will be stored in the database and retrieved whenever needed.

Tech used- Google Firebase, which is an application development platform that will help in hosting and integrating the app that we will create.

- The application will provide you with the real-time tracking of the respective buses and suggest alternate buses on the same route.

Tech used- Google Maps APIs for the phase tracking that will add the functionality of creating and managing custom routes.

The proposed system is consists of mainly three modules:

- Admin module
- Student/ Traveller module
- Driver module

Admin Module:

The whole information is managed by the admin module into the server. The admin module will work as the intermediate between the database server and the other two modules.

The main the functionalities of the Admin module will be manage the whole database Including defining the bus routes , student's bus and route allotment, changes in the routes.

Student/ Traveller Module:

The student side module is basically an interactive application which serves the following functionalities. The students can track their buses with respective bus numbers, they can also track the time of arrival and get notifications on the application whenever there's any modification made by the admin in the schedule or bus routes.

Driver Module:

The driver module is the tracking module. This will help students and travelers to track their buses when the driver starts the ride on the application. In addition, the driver can also track the routes by the interactive map which will be provided on the application in the driver's login.

Conclusion

The goal of Rove is to provide a convenient and efficient solution for the students and the faculty member traveling by the bus to track the location of their respective buses in real-time, ensuring that they reach their destinations on time. The application aims to eliminate the need for students to wait at bus stops for long periods or miss their buses, by providing up-to-date information on the bus's location and estimated time of arrival. By suggesting alternative buses on the same route, the application also ensures that students can reach their destinations on time, even if their regular bus is delayed or canceled. Ultimately, Rove aims to make daily commutes for students more comfortable and easier.

Contact Us

Name	Roll No.	Phone	E-Mail
Kanishtha Sahu	2003420100046	93369 31661	kanishtha3122001@gmairl.com
Priyanshu Kumar	2003420100062	79057 96473	priyanshu.vraw@gmail.com
Siddhant Kumar	2003420100088	73498 78711	siddhuyadav662@gmail.com
Tanishqa Sharma	2003420100092	73885 43481	tanishqasharma797@gmail.com