VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

A MINI PROJECT REPORT ON

SCHOOL BUS TRACKING APP

Submitted By

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Under the Guidance of
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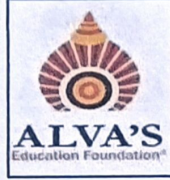**Sr. Assistant Professor**

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY
MOODBIDRI-574225, KARNATAKA
2023 – 2024

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CERTIFICATE

This is to certify that, the Mini Project entitled **"School Bus Tracking App"** for the subject **Mini Project** with subject code **21CSMP67** has been successfully completed and report submitted by **Ankitha (4AL21CS021)** during the academic year 2023–2024. It is certified that all corrections/suggestions indicated presentation session have been incorporated in the report and scored_____94_____Marks out of 100 and deposited in the departmental library.

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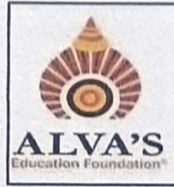
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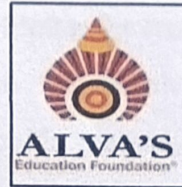
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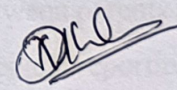## MIJAR, MOODBIDRI D.K. -574225

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This is to certify that, the Mini Project entitled **"School Bus Tracking App"** for the subject **Mini Project** with subject code **21CSMP67** has been successfully completed and report submitted by **Avinash K N (4AL21CS025)** during the academic year 2023–2024. It is certified that all corrections/suggestions indicated presentation session have been incorporated in the report and scored ____90____ Marks out of 100 and deposited in the departmental library.

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ABSTRACT

The school bus tracking application is a comprehensive and innovative solution designed to address the safety, communication, and operational challenges associated with school transportation. This app leverages advanced technologies, including Flutter for cross-platform development, Google Maps API for real-time GPS tracking, and Firebase for seamless data synchronization and secure user authentication. The primary goal is to provide parents, students, drivers, and administrators with accurate and real-time information about the school bus's location and status. The application features a user-friendly interface with dedicated screens for onboarding, login, real-time tracking, notifications, and user profile management. Upon logging in, users are presented with a dashboard tailored to their role, whether they are a parent, student, driver, or administrator. Parents and students can view the bus's current location on an interactive map, receive instant notifications about bus arrivals, delays, and other important updates, and access detailed information about the bus route and estimated arrival times. Drivers can manage their routes, start and end trips, and send real-time updates to parents and administrators. Administrators can monitor the overall system, generate reports, and manage user roles and permissions through a comprehensive dashboard.

The implementation process involves several critical steps to ensure a robust and efficient system. These steps include setting up the development environment, integrating core technologies, developing key functionalities, and conducting extensive testing to ensure reliability and performance. The app's design prioritizes security, ease of use, and scalability, ensuring it can accommodate a growing number of users and evolving requirements. Future enhancements for the application aim to expand its capabilities further. Planned features include in-app messaging between parents and drivers, route optimization algorithms to improve travel efficiency, advanced analytics and reporting tools, and integration with IoT devices for enhanced data collection and monitoring. Additionally, continuous refinement of the user interface based on user feedback will ensure an intuitive and accessible experience for all users. Overall, the school bus tracking application significantly improves the safety and efficiency of school transportation, providing peace of mind to parents, enhancing communication between stakeholders, and streamlining the operational aspects of managing school buses. This innovative solution exemplifies how modern technology can be harnessed to solve real-world problems and improve the daily lives of students, parents, and school staff.