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"Online Bus Pass Handler"

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1 . ACKNOWLEDGEMENT

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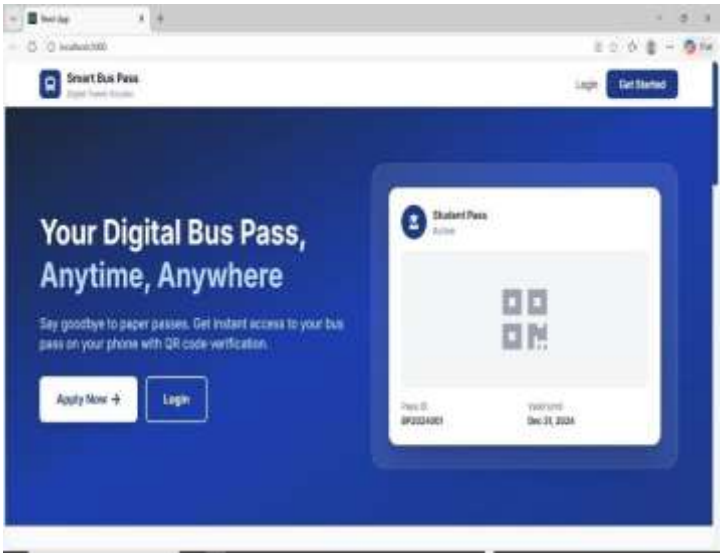
2. ABSTRACT

The Online Bus Pass Handler is an automated system designed to simplify and stream- line the process of issuing and managing bus passes. Traditional methods involve manual paperwork, verification delays, and the risk of errors. This system leverages web technologies like HTML, CSS, JavaScript and backend services like Firebase to create a secure, efficient, and user-friendly platform. Users can easily apply for bus passes online, while administrators can verify applications, approve requests, and manage records efficiently. This project aims to reduce administrative workload, save time, and improve overall user experience.

3. INTRODUCTION

Public transportation is an essential part of every ones life, but the traditional process of applying for a bus pass, renewing it, and receiving updates is extremely time-consuming. Everyone have to stand in long queues, manually fill forms, submit documents physically, wait days for approval, and repeatedly check for updates .The Online Bus Pass Handler System is designed to completely digitalize this process. dedicated dashboards to ensure smooth operation. This system eliminates paperwork, reduces human errors, speeds up approvals, improves communication, and provides a modern, automated, and user-friendly solution.

4. IMAGE



5. BODY OF PAPER

The proposed Smart Bus Pass Handler is a web- based, AI-enhanced digital platform designed to automate and simplify the complete lifecycle of bus pass management for users, conductors, and administrators. The system replaces traditional manual processes with online pass application, document submission, digital verification, online payments, QR-based authentication, real-time bus tracking, and automated notifications. Students can register, apply for passes, upload documents, make payments, and download digital passes instantly. Admins can approve/reject applications, monitor payments, manage routes and buses, and access detailed analytics for decision-making. Conductors can verify passes using QR code scanning and update live bus GPS location using a simple mobile interface. The system also integrates a GPT-powered AI Chatbot to provide instant support, answer student queries, and guide them through pass procedures. The platform aims to deliver a faster, more accurate, transparent, and user-friendly experience with automation, GPS tracking, and AI assistance.

6. CONCLUSIONS

The Online Bus Pass Handler successfully transforms the traditional, manual, and time- consuming bus pass process into a fully digital, automated, and user-friendly platform. By integrating modern technologies such as React, Node.js, MySQL, JWT authentication, QR verification, online payments, GPS-based real-time bus tracking, and an AI-powered chatbot, the system enhances efficiency, transparency, and convenience for students, ad- ministrators, and conductors alike.

The solution eliminates errors associated with paperwork, reduces administrative workload, and ensures secure and quick verification through QR codes. Real-time GPS tracking improves safety and helps students plan their commute more effectively.

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