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Ridealong: Scheduled City-To-City Carpool Management System

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Abstract

Intercity travel frequently presents challenges such as high transportation costs, limited direct connectivity, inflexible schedules, and inefficient utilization of private vehicles, where many cars travel long distances with empty seats, resulting in wasted fuel, increased traffic congestion, and higher carbon emissions. To address these issues, RideAlong is proposed as a web-based scheduled carpooling platform that intelligently connects drivers and passengers traveling between cities, enabling a more affordable, efficient, and sustainable mobility solution. Drivers can publish trip details including route, departure time, available seats, and cost per seat, while passengers can search for rides based on location, date, and preferences, and instantly book available seats through a seamless interface. The platform integrates secure OTP verification during registration and booking processes to ensure authenticated users and prevent fraudulent activities, thereby enhancing trust and safety. Additionally, a comprehensive rating and feedback system allows passengers and drivers to review each other after every trip, promoting accountability, transparency, and continuous service improvement. The cost-sharing mechanism helps drivers offset fuel and toll expenses while offering passengers a budget-friendly alternative to traditional travel options. By optimizing seat occupancy, reducing unnecessary vehicle trips, and fostering secure digital interactions, RideAlong not only improves travel convenience and affordability but also contributes to environmental sustainability by lowering emissions and encouraging shared mobility.

Index Terms

Smart Carpooling, Intercity Ride Sharing, Real-Time Booking System, OTP-Based Authentication, Dynamic Seat Allocation, Cost-Sharing Algorithm, User Rating & Feedback System, Sustainable Mobility Solution.

1. Introduction

This system is basically concerned with providing a smart, affordable, and sustainable solution for intercity travel through scheduled carpooling. The need for this system arose because passengers often face high ticket costs, limited travel options, and inflexible schedules, while many private vehicles travel long distances with empty seats, leading to wasted fuel and increased carbon emissions. Managing ride coordination manually through phone calls or informal messaging is inefficient and unreliable. By computerizing and digitalizing the carpooling process, the system makes intercity travel more organized, secure, cost-effective, and environmentally friendly.

To be more specific, our system is designed in such a way that it connects drivers and passengers traveling on similar routes. Drivers can publish trip details such as route, date, time, seat availability, and cost per seat. Passengers can search for suitable rides, compare options, and book seats instantly. Secure OTP verification is implemented during registration and booking to ensure authenticated users and prevent fraudulent activities. After each trip, users can provide ratings and feedback to maintain service quality, transparency, and trust.

2. Objectives

Promote Affordable Intercity Travel:
To reduce travel expenses by enabling cost-sharing between drivers and passengers.

Optimize Vehicle Seat Utilization:
To maximize occupancy in private vehicles and minimize empty-seat travel.

Enhance Travel Safety and Security:
To ensure secure user authentication using OTP verification and verified profiles.

Encourage Sustainable Transportation:
To reduce carbon emissions and traffic congestion through shared mobility.

Provide Convenient Ride Booking:
To offer instant seat booking and easy ride search through a user-friendly interface.

Build Trust Through Transparency:
To implement rating and feedback mechanisms for accountability and service improvement.

Develop a Reliable Digital Platform:
To create a secure, scalable, and efficient web-based carpooling system for intercity travel.

3. Methodology / System Analysis

Existing System:

In the current transportation ecosystem, several digital platforms provide online booking and ride management services for passengers. Applications such as carpooling platforms, taxi-booking systems, and bus reservation portals have significantly improved accessibility and convenience in travel. Carpooling services allow drivers to share empty seats with passengers traveling along similar routes, enabling cost

sharing and reducing travel expenses. These systems typically provide ride search, booking confirmation, in-app communication, and digital payment options. However, many existing carpooling platforms mainly focus on urban or short-distance travel and may not fully support structured scheduled intercity trips.

Proposed System:

The proposed system, RideAlong, is a web-based scheduled carpooling platform designed to address the limitations of existing transportation solutions by providing affordability, security, flexibility, and sustainability in intercity travel. The primary goal of the system is to connect drivers who have empty seats in their private vehicles with passengers traveling on the same route, enabling efficient seat utilization and shared travel expenses.

Proposed Solution:

The proposed solution focuses on building a collaborative and technology-driven carpooling ecosystem that simplifies intercity travel while addressing economic and environmental concerns. The platform is designed to maximize vehicle occupancy by connecting drivers and passengers with similar travel plans.

4. Implementation

User Registration and Authentication Module provides secure signup and login with OTP verification. Trip Publishing Module allows drivers to post travel details and manage seat availability. Ride Search and Booking Module enables passengers to find rides and book seats instantly. Cost Sharing and Payment Module manages transparent fare calculation and sharing. Rating and Feedback Module collects user reviews to improve trust and service quality. Admin Module monitors users, trips, and platform activities for smooth operation.

5. Conclusion

The Carpooling System successfully achieves its objective of providing a secure, efficient, and user-friendly ride-sharing platform. By automating ride booking, driver matching, payment processing, and real-time tracking, the system eliminates the inefficiencies associated with traditional ride coordination methods. The implementation ensures a structured and systematic flow of information between users, processes, and data storage components.

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