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Carpoling System

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Abstract: *The project shows the implementation of a car pooling system. Car Pooling is defined as the sharing of a vehicle by more than one person to reduce the cost of travel. Car sharing helps the individual in reducing various costs such as fuel cost, stress of driving in many conditions, reduction in toll taxes. Car pooling system also helps in reducing high energy demands. High traffic congestion is one of the issue which is faced by people in their day to day life. Carpooling system may help in reducing unnecessary traffic on roads. Sometime higher authorities encourages people to use carpool system during the period whenever there is a hike in the prices of petroleum products or when the pollution level of that state is going beyond the maximum limits. The main objective of this car pooling system will to enable different persons living in a area to use this system to minimize monthy expenses, no tension of hiring a car at higher cost. This system will help the person to reach their destination at accurate time.*

Keywords: carpooling, environment friendly

I. INTRODUCTION

The goal of this project is to develop a smart and efficient Carpooling Application that helps users overcome the daily hassles of commuting. The app provides a cost-effective and eco-friendly way of travel by enabling ride-sharing among individuals who are heading in the same direction. The system is designed for drivers who usually travel alone to offer seats to others, and for commuters who rely on public transport to easily find available rides. By connecting these users, the app creates a flexible and convenient transportation network. This platform allows users to access mobility resources owned by others, only when they need them. It acts as a bridge between drivers and passengers, based on timing, routes, and seat availability. Carpooling, also known as ride-sharing or lift-sharing, is a method of sharing a car journey so that more than one person travels together. This approach reduces the need for everyone to drive separately, which in turn lowers fuel consumption and traffic congestion. In most cases, the driver isn't trying to make a profit, but simply to share the travel costs — like fuel and tolls — with others making the same trip. Carpooling is especially popular in areas with high population density and frequent commuting patterns. The driver doesn't try to earn money, but to share with several people the cost of a trip he would do anyway. Carpool commuting is more popular for people who work in places with more jobs nearby, and who live in places with higher residential densities. Carpooling is significantly correlated with transport operating costs, including fuel prices and commute length. By having more people using one vehicle, carpooling reduces each person's travel costs such as: fuel costs, tolls, and the stress of driving. Carpooling is also a more environmentally friendly and sustainable way to travel as sharing journeys reduces air pollution, carbon emissions, traffic congestion on the roads, and the need for parking spaces

II. LITERATURE REVIEW

Carpooling, also referred to as ride-sharing or lift-sharing, has gained increasing attention in recent years as a solution to urban mobility issues. Various studies and applications have explored the benefits of shared transportation, particularly in reducing environmental impact, easing traffic congestc.ion, and lowering travel costs.

Barlow and Maul (2000) emphasized the importance of user experience and service encounters in shared systems, highlighting the need for intuitive, reliable platforms that encourage participation. Similarly, research by Choudhury and Kar (2020) demonstrated the positive impact of digital reservation systems on operational efficiency, cost

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reduction, and customer satisfaction in the hospitality industry—concepts that translate effectively into the transportation sector.

Existing ride-sharing platforms like BlaBlaCar, UberPool, and QuickRide have showcased the potential of technology to bridge gaps in everyday commuting. However, many of these are commercial and often exclude non-professional drivers such as two-wheeler owners, rickshaw drivers, or local travel agencies. Moreover, they tend to target metropolitan populations, leaving smaller urban and educational zones underserved.

This project aims to fill that gap by creating a platform specifically designed for a diverse user base—including car, bike, and rickshaw owners, along with travel agencies—while also focusing on academic institutions as the starting community. Unlike profit-driven models, this system promotes cost-sharing over monetization, aiming for environmental and social benefits alongside convenience.

Furthermore, integrating real-time tracking, smart route-matching, and minimal user interface complexity aligns with the evolving expectations of tech-savvy users who prioritize speed, clarity, and reliability in service design.

This review of current literature and applications underlines the necessity and relevance of a community-based carpooling system, tailored to everyday commuters in both institutional and general local settings.

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III. OBJECTIVE

Carpooling, also referred to as ride-sharing or lift-sharing, has gained increasing attention in recent years as a solution to urban mobility issues. Various studies and applications have explored the benefits of shared transportation, particularly in reducing environmental impact, easing traffic congestion, and lowering travel costs. Barlow and Maul (2000) emphasized the importance of user experience and service encounters in shared systems, highlighting the need for intuitive, reliable platforms that encourage participation. Similarly, research by Choudhury and Kar (2020) demonstrated the positive impact of digital reservation systems on operational efficiency, cost reduction, and customer satisfaction in the hospitality industry—concepts that translate effectively into the transportation sector.

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IV. PROPOSED SYSTEM

The proposed online carpooling system serves as a convenient platform connecting car owners with individuals in their vicinity seeking transportation. This innovative system effectively bridges the gap between supply and demand, offering a novel mobility solution. Through this platform, users can easily access rideshare opportunities, facilitating efficient and cost-effective travel arrangements. The fare for each ride is determined by the car owner, typically based on the distance travelled, ensuring transparency and fairness. Additionally, the system handles administrative tasks seamlessly, streamlining the entire carpooling experience for both drivers and passengers.

V. USER MODULE

- Start: Users access the carpooling system.
- Registration: New users register with necessary details.
- Login: Registered users log in using credentials.
- View Rides: Users browse available rides.
- Select Ride: Users choose based on destination and schedule.
- Pickup Point: Users select nearby stop
- Request Ride: Users send requests to selected driver.
- Driver Confirmation: Driver confirms ride request.
- View Driver Details: Users verify driver information.
- Ride Confirmation: Users receive trip details upon confirmation.
- Start Ride: Users board vehicle to start j
- Complete Ride: Users finish the ride and provide feedback
- Driver Module:
- Start: Drivers access carpooling system.
- Registration: New drivers register with vehicle details.
- Login: Registered drivers log in using credentials.
- View Requests: Drivers see ride requests.
- Review Details: Drivers check pickup and destination.
- Accept Request: Drivers accept requests based on availability.
- Set Pickup Point: Drivers choose pickup location.
- Confirm Ride: Drivers confirm ride details.
- Notify User: Users receive ride confirmation.
- Pick Up User: Drivers go to pickup point.
- Start Ride: Drivers begin journey upon user boarding.
- Complete Ride: Drivers complete the ride

VI. METHODOLOGY

The Carpooling App is designed to connect vehicle owners (bike, car, rickshaw, etc.) with passengers traveling on similar routes. It allows drivers to post available seats and passengers to search and book rides.
The system has three main components:

- Mobile App for users (drivers and riders)
- Backend Server for handling trip data, user management, and notifications
- Admin Panel for monitoring and support
- Key features include:
- User registration and profile setup
- Trip creation and search
- Booking confirmation and notification

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- The app uses Android (Java/XML), Firebase for backend and database, and Google Maps API for route tracking.

VII. ADVANTAGES AND APPLICATIONS

ADVANTAGES

- Patching
- Protected Users Group
- Blocking TCP 445/SMB Outbound
- Enforce SMB Signing

APPLICATION

- Deploying Patches: Install security updates released by Microsoft for Outlook.
- Enforcing Email Filtering: Block suspicious attachments and calendar invites at the server level.

VIII. CONCLUSION AND FUTURE SCOPE

In conclusion, the introduction of a stop-based carpooling app represents a significant leap forward in the realm of urban transportation solutions. Our comprehensive study and evaluation of this innovative model have demonstrated its potential to overcome prevalent limitations in existing carpooling systems. By strategically placing stops at key locations, we have shown that the app can ensure consistent ride availability, mitigate privacy concerns, and provide users with convenient and reliable alternative transportation options. The integration with existing public transport systems further extends the eco-friendly impact of this model, contributing to a holistic approach to shared mobility. The findings from our study underscore the positive impact of the stop-based approach on car occupancy rates, traffic reduction, and user satisfaction. This paper not only presents a viable solution to current challenges but also lays the groundwork for future developments in sustainable and efficient shared urban mobility systems. As cities globally seek innovative solutions to urban congestion and environmental concerns, the stop-based carpooling app emerges as a promising avenue for reshaping the future of urban transportation.

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