

Car Rental System

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Abstract—

The Car Rental System is a web-based application designed to automate and simplify vehicle rental operations for customers and administrators. It enables users to register, browse available vehicles, check availability, make secure bookings, and complete online payments. The system eliminates manual record-keeping and paperwork, reducing errors and saving time. Administrators can efficiently manage car listings, approve or reject bookings, and monitor payments through an integrated dashboard. The system's modular architecture enhances scalability and maintainability, making it suitable for small and medium-sized rental enterprises.

Keywords—

Car rental, web-based system, online booking, PHP, MySQL, automation, vehicle management.

I. Introduction

Car rental businesses traditionally depend on manual booking and paper-based records, which are inefficient and error-prone. The Car Rental System addresses these limitations by offering a centralized online platform that handles vehicle listings, customer data, and rental transactions. The project aims to improve user convenience, reduce administrative overhead, and ensure secure, reliable data management.

II. Existing System

In existing manual systems, customers must physically visit rental offices or contact agents to rent vehicles. Data is stored in spreadsheets or ledgers, making tracking and retrieval difficult. The lack of automation leads to booking conflicts, delayed updates, and data loss, ultimately reducing customer satisfaction.

III. Proposed System

The proposed web-based system allows users to view available cars, compare prices, and make reservations instantly. It supports secure payments through cards, UPI, or net-banking options. The admin panel enables real-time management of vehicles, customers, and transactions. The system offers scalability, responsive design, and high reliability, significantly improving operational efficiency and the user experience.

IV. Methodology

The system is built using PHP 8.2, MySQL 5.0, HTML 5, and CSS 3. The architecture follows a modular, client-server design with key modules including: User Management, Car Management, Booking & Payment, and Admin Dashboard. All data is stored in a secure relational database, ensuring integrity and availability.

V. Results and Discussion

The developed system provides a seamless user experience with automated processes, reducing manual workload by up to 80%. Users can book cars quickly, and administrators can view system-wide statistics in real-time. The implementation demonstrates improved booking accuracy, faster transaction times, and enhanced customer engagement compared to traditional methods.

VI. Limitations

Initial development and deployment costs can be high. Dependence on stable internet connectivity. Potential security risks such as data breaches without proper encryption. Requires regular maintenance and database updates.

VII. Future Scope

The project can be expanded by integrating AI-based recommendations, IoT-enabled fleet tracking, and dynamic pricing algorithms. Chatbots can enhance customer support, while peer-to-peer car sharing and predictive analytics can increase flexibility and profitability.

References

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