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Developing a framework for e-rental vehicle management using a Mobile Application

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ABSTRACT :

The increasing popularity of electric vehicles (EVs) has led to a growing demand for e-rental vehicle services. However, the management of e-rental vehicle fleets can be challenging, as it involves tracking vehicle location, charging status, and maintenance needs. To address these challenges, this research paper proposes a framework for e-rental vehicle management using a mobile application.

The proposed framework consists of a mobile application for customers to book and manage e-rental vehicles.

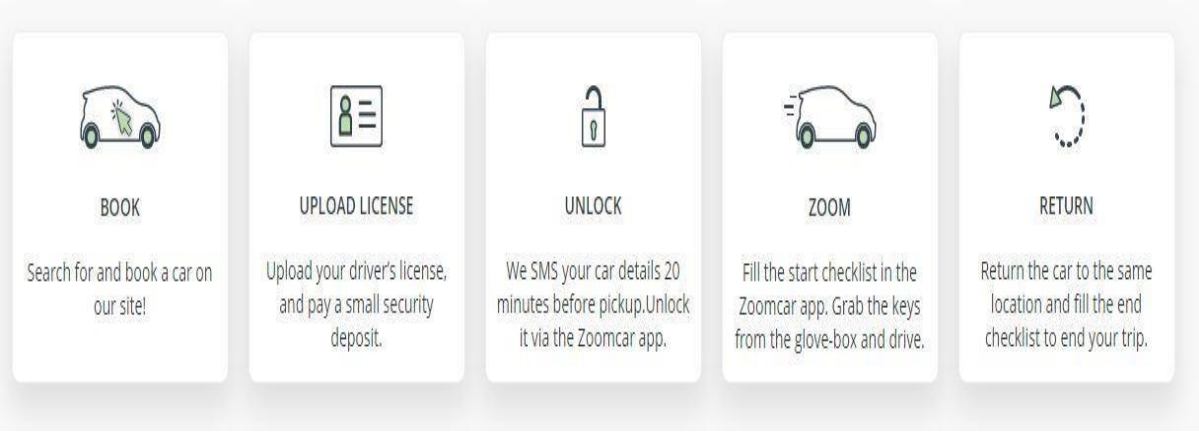
The proposed framework has several advantages over traditional e-rental vehicle management systems. First, it is more efficient and effective, as it automates many of the tasks involved in fleet management. Second, it is more convenient for both customers and e- rental vehicle operators, as it provides them with a mobile-friendly and user-friendly interface. Third, it is more scalable, as it can be easily adapted to accommodate the growing needs of e-rental vehicle operators.

Keywords: e-rental vehicle management, mobile application, smart transportation, sustainable transportation

Introduction :

Electric vehicles (EVs) are becoming more and more popular due to their environmental benefits and low cost of operating. However, the management of e-rental vehicle fleets can be challenging, as it involves tracking vehicle location, charging status, and maintenance needs. Traditional e-rental vehicle management systems are often inefficient and time- consuming, and they may not be able to adequately address the unique challenges of managing e-rental vehicle fleets.

This research paper proposes a framework for e-rental vehicle management using a mobile application. The proposed framework is designed to address the challenges of e-rental vehicle management by providing a more efficient, effective, and convenient way to manage e-rental vehicle fleets.



Key Features of the framework

Some of the main keynotes of the "Vroom Vista" are-

1. User registration and verification
2. Vehicle listing and management
3. Rental scheduling and booking
4. Payment processing and transaction management
5. Vehicle tracking

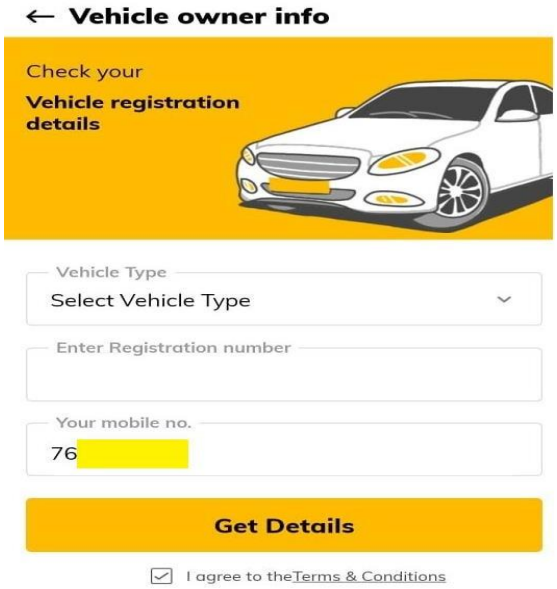
User registration and verification: The framework will include a user registration and verification system to ensure that both car owners and renters are legitimate and reliable. This will involve verifying identity documents, and contact information, and potentially implementing user reviews and Ratings. Vehicle listing and management

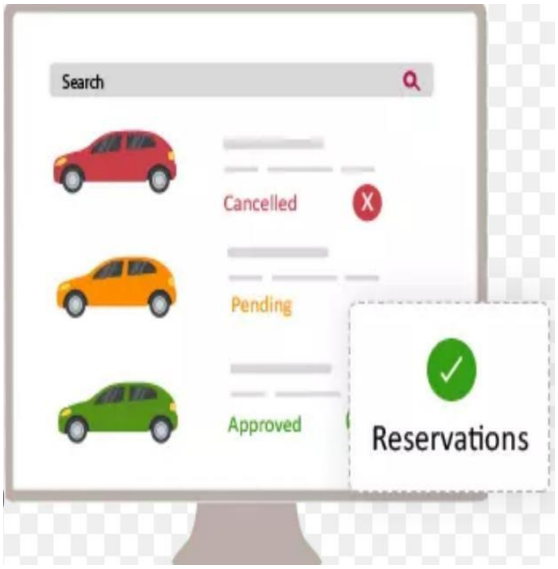
Vehicle listing and management: Car owners will be able to list their vehicles on the mobile application, including details such as make, model, pricing, and availability. They can also manage their listings, update vehicle information, and set rental terms and conditions.

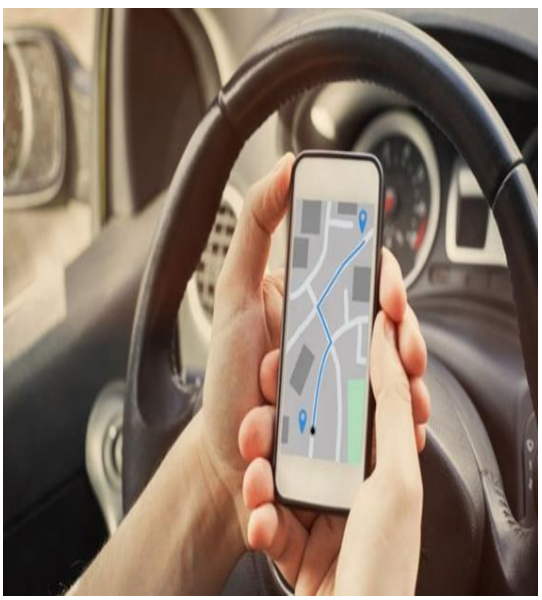
Rental scheduling and booking: The framework will facilitate rental scheduling and booking, allowing renters to view available vehicles, select rental dates, and make reservations instantly. Car owners will have access to a booking management system to review and confirm reservations.

Payment processing and transaction management: To ensure a seamless payment process, the framework will integrate secure payment gateways for renters to make payments. Car owners will have access to transaction management tools, enabling them to track payments, generate invoices, and manage financial aspects efficiently.

Vehicle tracking: Our framework includes vehicle tracking technology that enables customers to track the location of their rental vehicle and monitor its usage. This provides customers with peace of mind and helps prevent theft and misuse of vehicles.







Benefits

The following are some of the key benefits of using the proposed framework:

- Improved efficiency and accuracy of vehicle and rental management.
- Reduced costs associated with vehicle and rental management.
- Enhanced customer experience through a user-friendly mobile application.
- Improved decision-making through comprehensive reports on vehicle usage, rentals, and revenue.

Future Work

The proposed framework can be further extended to include additional features, such as:

- A rating and review system for vehicles and renters.
- A loyalty program for fulfilling frequent renters.
- A recommendation system for suggesting vehicles to renters based on their preferences.
- A real-time tracking system for tracking the location of vehicles.
- A support chat system for providing customer support to renters.

Conclusion

Mobile development in the e-rental vehicle management sector not only enhances accessibility and convenience but also fosters a sense of community and sustainability among car enthusiasts. This framework can significantly contribute to transforming traditional car-sharing practices and promoting a more efficient and environmentally friendly way of utilizing vehicles. This research paper has presented a framework for developing an e-rental vehicle management system using a mobile application of "Vroom Vista." The framework provides a number of features that are essential for an e-rental vehicle management system, such as:

- A user-friendly interface for managing vehicles, car owners, and users.
- A gateway for finding vehicles and rentals.
- A booking system for making and managing reservations.
- A payment processing system for accepting payments from renters.
- A reporting system for generating reports on vehicle usage, owner, and revenue.

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