IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

ONLINE VEHICLE RENTAL SYSTEM WITH AUTOMATED LIMIT ALERT

Pushpalatha M [1], Chandru R [2], Yogesh M S [3] ,Kaviyarasan M [4]

[1] Associate Professor, [2] B.Tech-IT Student, [3]B.Tech-IT Student, [4]B.Tech-IT Student

[1,2,3,4] Department of Information Technology,

[1,2,3,4] paavai engineering college, Namakkal, Tamilnadu, India

Abstract: The Online Vehicle Rental System is a web-based platform aimed at simplifying the process of hiring vehicles online.

Make the process of renting a car both easier and faster for both the customer and the rental company These systems are provided by service providers. This system offers an easy to use interface that users can browse ;select and rent vehicles according to their preferences, such as vehicle type, rental duration. Users can make booking quickly, check what vehicles are available and also it

make payments online, ensuring a convenient and hassle-free experience For service providers, the system offers a consolidated dashboard to manage vehicle listings ,This is accomplished by monitoring the rental rate of vehicles and keeping an inventory on availability of vehicles for hire. It is also used to systemize stores' pricing so that same information can be used at different locations .Integration of real-time data into the websites makes it possible for the customers to have exact information on the products that they intend to buy availability of vehicles, rates, and rental conditions at any given moment. Major characteristics of the system include vehicle search and filtering, user authentication, payment gateway integration, vehicle booking management. The system ensures a secure environment for transactions and guarantees user privacy through encryption protocols. This the project utilizes contemporary web technologies in building an accessible user interface enhances customer experience, reduces operational costs for rental businesses, and fosters better communication between renters and service providers. The system also

incorporates features like automated notifications, reporting tools, and inventory This is to be able to optimize the rental process more effectively in the management. Overall, it is possible for every customer to carry out all operations of hiring a vehicle online.

Index Terms **–** East-to-user interface, Vehicle Search and filtering, Online booking and payments, Automated notifications

I. INTRODUCTION

An advanced web-based platform is what the Online Vehicle Rental System is enables users to conveniently rent vehicles, including cars, motorcycles, and other forms of transportation. It can be short-term or long-term in nature. This system of modes aims to make the vehicle system more ordered/more systematic. The rental process through the integration of digital technologies further enhances user experience by providing them a borderless system and effective means of reserving vehicles over the internet. It acts as an intermediary between vehicle owners and those in search of

vehicles. rental service providers and potential customers, offering them convenience, flexibility, and a wide range of vehicles to choose from. In today's fast-paced world, the demand for convenient, cost-effective, and accessible transportation solutions has increased, especially in urban areas where Possession of a vehicle may not always come in handy or be within your budget. Looking at the other side of the coin, online vehicles are already taking over the market A rental system addresses these challenges by permitting customers to rent vehicles. on-demand, without the need for long-term commitments or the expenses associated with vehicle ownership. Customers can browse available vehicles, view pricing, check availability, make secure online payments, and have their vehicles delivered or pick them up from a location of their choice.

II.LITERATURE SURVEY

1. "Web Based Online Car Rental System : A Review " by Vikash Chaudhary ,Sugandhi Midha ,Rajesh Bahuguna. (2024):

To this present day we discover Cab Services surprisingly clean to book, pay for or drop off as they have converted their systems into useful packages much like neighborhood ones. So there's a want to extrude the association of the condominium automobile service. But the automobile condominium organization makes use of the relevant approach of renting a automobile to a consumer regardless of the whole thing due to the fact the consumer truly has to visit the center, the proprietor may be reached there as nicely and the proprietor leaves the automobile together along with his very own assisted driver (which prices more).

2. "Enhancement of Mobile-Based Application for Vehicle Rental: " by Falah Y H Ahmeed; Eizwan Bin Hazlaan; Muhammad Irsyaad Abdulla (2021):

Car rental is a method of using a vehicle that can be used lawfully with a fee for a period of time. Renting a ride helps people drive around especially though they don't have keys to a car of their own or a car of their own. The person who wants to borrow the car must first contact the car rental company. This can be achieved online. This person must have some details at this stage, such as rental dates and model of car . After these details have been collected, a valid Identity Card must be given to the person who leases the vehicle Online car rental system would make it much easier for the owner of the business to manage the company. Admin may also be expected to review the records of its customers and vendors as well as their payment system and status information along with the date and time . Customers using the system for the first time would need to create a profile if they rent a car and use the right payment form.

3. "Online Vehicle Rental System to Enhance Commutation: " by N. Jeba, N. Harish Kumar, M. Yogeshwaran (2021):

The "Online Vehicle Rental System to Enhance Commutation" proposed a technique with vehicle access communicator (VAC) which is capable of interfacing the user's portable gadget with the functionalities of the rental vehicle such as door lock to enable/disable the start of the vehicle. The VAC connects through the portable device for internet access and location services. This scheme uses limited infrastructure and has rental schemes based on Green and Non Green zones. Renting vehicles based on the start and end time . At the rental drop off, the transactions are initiated between the user and lender of the vehicle. However, there are no measures to monitor the vehicle during the rental period.

4."Two-Wheeler Rental System: " by Vishal Bhong, Mayur Nale, Mahesh Nale, Kunal Girigosavi (2023):

The paper presents the development of an online two wheeler rental system that provides users with a convenient and reliable way to rent motorcycles. The system is based on a web platform that allows users to search for available motorcycles, make reservations, and process payments online. The system is also integrated with GPS tracking technology to provide real-time information on the location of the motorcycles and ensure their safe return. A Framework for Smart two wheeler Rental System using Internet of Things. The system primarily consists of five key components, namely the Rental, Investor, Payment, Admin, and message acknowledgement parts. The online platform allows customers to access various bikes, register, view profiles, and book their preferred two wheelers, making the renting process more convenient.

5."Bike Booking Rental System: " by Neeraj V K1, Y V Praneeth2, Kiran Kumar M (2022):

We can significantly improve inventory turnover, optimize flow of goods and shorten routes within your warehouse of distribution center. Additional benefits of this software include improved cash flow, visibility; decision making. This software is user friendly and hence easy to use . We can also manage the nature of sales and purchase of the company who introduce the available products from warehouse to customers. As we know manual system are quite tedious, time consuming, and less efficient and less efficient and accurate when compared to a computational system. For any software project the primary parameter that should be taken into account are time, size and effort.

III.EXISTING SYSTEM

In the Vehicle rental system the rent is based on the hours and days. Current systems often struggle with providing adequate customer service, especially for users, leading to potential frustration during the rental experience. And it is enables users to conveniently rent vehicles, including cars, motorcycles, and other forms of transportation. It can be short-term or long-term in nature. This system of modes aims to make the vehicle system more ordered/more systematic.

Disadvantages

• Technology Dependence

The system is designed to require a stable internet connection, thus affecting operations in areas with low or lacking network coverage. Customers living in remote or rural areas may find it difficult to access or use the platform efficiently. This dependence on the internet limited the service's reach and usability. It also created an adventure fraught with possibilities of downtime during interruptions to the internet connectivity cat , thereby disrupting operations. Moreover, mobile data usage for constant connectivity might discourage users who are cost-conscious or have limited data plans. This creates a significant gap in accessibility and inclusivity. A solution like this would probably need offline support or alternative communication methods.

• Delivery Challenges.

Vehicle delivery is affected by external factors such as traffic at peak hours or bad weather. Delay in delivery reduces customer satisfaction because timely service is one of the key aspects of the rental business. Such unforeseen events are caused by factors like vehicle breakdowns or providing wrong location details for the pickup. It increases logistical complexity to manage deliveries across such wide geographical areas. Besides, even real-time tracking systems do not ensure that these delays are avoided. Customers expecting timely service may get disappointed with longer wait periods, even if logistics are streamlined and better forecasting is developed.

• Increased Costs

A sophisticated vehicle rental service would have high costs to maintain would be operational costs like upkeep of the vehicles, updates to the system, and logistics in delivery. These operational costs would add up significantly to the rental pricing making it less attractive to those who are price-sensitive customers. Besides that, smart technology brought into use also required a huge initial investment in software and hardware. Managed poorly, rising costs might also impact profitability. Customers may perceive the service as too expensive compared to traditional rental options. This could be scaled for better cost efficiency but would remain an issue with transparency in pricing along with value-added services justifying higher costs.

• Technical Issues

Technological problems such as system shock or technical failure can affect the whole process, blocking the ability to book, pay for and track vehicles. These are caused by server malfunctioning, bugs in the software or obsolete technology. It can also annoy the users leading them to leave bad comments and lose faith in the service. Continuous disconnections might affect the platform’s fame and lower customer loyalty. To avert such complications, timely updates and thorough testing are necessary. In addition, having backup servers and monitoring activity can reduce the amount of downtime. It is very important that there is no disruption in the service to ensure customer faith and satisfaction.

IV. PROPOSED SYSTEM

The proposed Online Vehicle Rental System aims to provide an efficient, user-friendly platform for customers to rent vehicles online, simplifying the traditional rental process. The system will allow users to browse a variety of vehicles available for rent, select their preferred vehicle based on factors like type, size, and cost, and complete bookings through a secure online interface. The primary objective of this system is to enhance customer convenience by offering an accessible, 24/7 service, minimizing the need for in-person interactions and paperwork. The system will include two main user interfaces: one for customers and one for administrators. Customers can search for available vehicles, view detailed information (e.g., vehicle specifications, pricing, availability), and reserve their rental with flexible pick-up and drop-off times. The platform will also feature payment integration, allowing users to make payments securely online, with options for discounts and promotions. Notifications for booking confirmations, reminders, and updates will be sent to users through email or SMS.:

Advantages

• Convenience and Ease of Use

The platform offers users the ability to reserve vehicles from any location, rooming anywhere and using the devices of their choice. With online booking, customers do not have to go to physical sites for services and save a lot of time. It guarantees great navigation, and help users locate the cars they are searching for with ease. Customers are able to be more strategic in their travel plans as they can see availability and costs with a click. This situation makes the platform to be very user-centered as it provides over the phone assistance and notifications.

• User-Friendly Interface

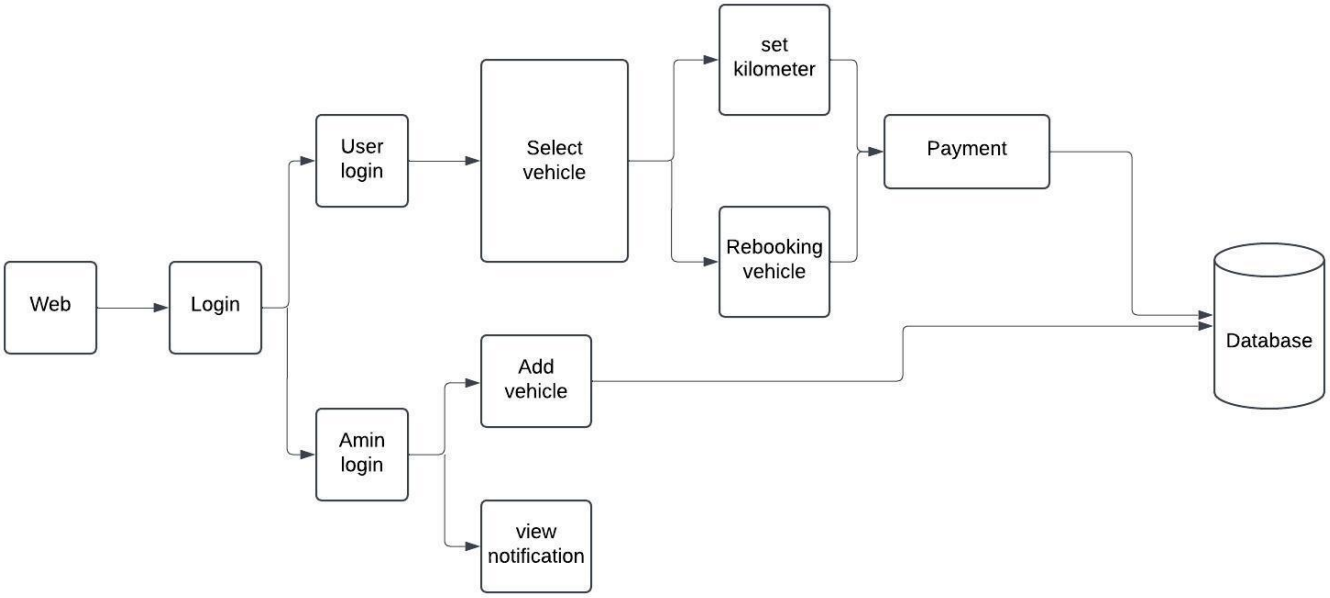
The interface is straightforward and attractive which enables all users, regardless of their technical abilities, to book with ease. Search filters, intuitive navigation, and mobile optimization can be cited as usability-enhancing features. Providing short instructions incorporated with visual elements further assists users through the process in a smooth manner. Customers on the go can access the system through their mobile devices. Updates are made to the interface regularly which maintains its relevance and ensures it is appealing to use.

• A Lot of Choice of Vehicles Available

The resource is characterized by a wide selection of vehicles, which range from sub compact to upscale sedans, this ranges with the usage with the clients. The options provided can be sorted according to type, layout, manufacturer, and even fuel consumption. The solution satisfies fundamental requirements like budget, available seats as well as additional options. There are options that are tailored to seasons or regions so that customers are able to locate appropriate ones.

• Travel Cost Optimization

If the user travels a long distance, the cost will be reduced based on a discount structure. For example:If the user travels between 50-100 km, they receive a 5% discount and user travels above 100km, they receive a 10% discount. This progressive discount system encourages users to travel longer distances while saving on costs.



V.METHODOLOGY

The study methodology focuses on Online Vehicle Rental System, system testing involves verifying its functionality, performance, usability, and security under various scenarios to deliver a reliable and efficient platform to users. The process begins with functional testing, where each feature of the system, such as vehicle search, booking, payment processing, and user management, is tested for correctness. This ensures that users can seamlessly browse available vehicles, book their preferred options, and complete transactions without any issues..

User Registration and Login

A login page is a user interface within a web application that allows users to authenticate their identity by entering their credentials, typically a username (or email/ID) and password. It serves as the entry point to restricted or personalized areas of the application, ensuring that only authorized users can access specific resources or services. The process begins with users registering on the platform (if they are new) or logging in (if they are existing users).

Browse Available Vehicles

After logging in, the user can search for available vehicles based on filters like location, vehicle type, date of rental, etc. • Actions: User can view available vehicles, including their details (type, model, rental price, availability)

Select Vehicle

The user selects a vehicle that fits their needs. The system displays vehicle details (photos, specifications, rental terms) for the user to review before selection.

Booking Process

Once the user has selected a vehicle, they proceed to book it. User selects rental dates, and booking details are displayed (pickup location, drop-off location, rental price, etc.).

Payment Processing

After confirming the booking, the user proceeds to make a payment. • Actions: The system provides options for payment methods (credit card, online wallet, etc.). User enters payment details, and the system processes the transaction.

Rebooking Vehicle

To accommodate users who may exceed their rental vehicle's kilometer limit, your system can offer a flexible renewal option. This would allow users to extend their rental period or increase their mileage limit for an additional cost.

VI.CONCLUSION

The Online Vehicle Rental System is a transformative solution for modern transportation needs, offering a seamless, efficient,

and user-friendly platform for renting vehicles. By integrating advanced technologies, this system simplifies the process of booking, managing, and tracking vehicles, making it highly accessible to users across diverse demographics. With the increasing demand for cost effective and flexible transportation, such systems bridge the gap between vehicle owners and renters, fostering a collaborative economy. This platform not only provides convenience but also enhances user experience through real-time vehicle availability, secure payment methods, and robust customer support. It empowers users by offering a wide range of vehicles to suit their specific requirements, whether for personal use, business needs, or leisure travel.

Additionally, the system incorporates features like maintenance alerts, and dynamic pricing to ensure transparency, safety, and affordability. From a business perspective, the online vehicle rental system is a sustainable model that optimizes resource utilization and reduces the environmental impact by promoting shared mobility. By leveraging user data and analytics, service providers can personalize offerings, improve operational efficiency, and enhance customer satisfaction. Furthermore, the integration of mobile apps and web platforms ensures that users can access the service anytime and anywhere, significantly boosting its adoption.

VII. ACKNOWLEDGEMENTS

We would like to extend our gratitude to Mrs. M. Pushpalatha , Professor in Information Technology, for guiding us, encouraging us, and supporting this project at every stage. She has been instrumental in providing guidance over tough challenges and deepening our knowledge in this area of research.Finally, we must thank all those who have contributed directly and indirectly towards the successful completion of this project.

IX.REFERENCES

[1] Vikash Chaudhary ,Sugandhi Midha , Rajesh Bahuguna (2024). "Web Based Online Car Rental System". IEEE 1st Karachi Section Humanitarian Technology Conference (KHI-HTC) | 979-8-3503-7304-2/24/$31.00 ©2024 IEEE | DOI: 10.1109/KHI-HTC60760.2024.10482218.

[2] Falah Y H Ahmeed ; Eizwan Bin Hazlaan; Muhammad Irsyaad Abdulla (2021). "Enhancement of Mobile Based Application for Vehicle Rental".IEEE 11th IEEE Symposium on Computer Applications & Industrial Electronics 10.1109/ISCAIE51753.2021.9431820 (ISCAIE).

[3] Jeba. N, N. Harish Kumar, M. Yogeshwaran (2021). "Online Vehicle Rental System to Enhance Commutation ". International Conference on Advancements in Electrical, Electronics, Communication, Computing and Automation (ICAECA) | 978-1-6654-2829-3/21/$31.00 ©2021 IEEE | DOI: 10.1109/ICAECA52838.2021.9675672.

[4] Vishal Bhong, Mayur Nale, Mahesh Nale , Kunal Girigosavi (2023).” Two-Wheeler Rental System”. International Research Journal of Modernization in Engineering Technology and Science (IRJETS)

[5] Neeraj V K1, Y V Praneeth2, Kiran Kumar M (2022). N3 "Bike Bookingand Rental System" Volume 2, Issue 1, August . International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)