Development of Online Rent Based Web Application

Piyush Singanjude[1], Ashutosh Swami[2], Sandesh Katgaonkar [3]

Jatin Rathore[4], Kunal Kundu[5]

Department of Information Technology, G. H. Raisoni College of Engineering and Management, Wagholi, Pune, 412207, Maharashtra, India.

Abstract - **In the current world, with the rising cost of all products, it has became painful to own products that are of no use for the long term. Instead of spending money on buying these products, it can be used on a rental basis. The proposed web application makes it simple for consumers to rent products online. The policy of the web application is "Rent what you need anytime". So, when a person puts his product for rent, all other users can have a look at it. To create a new account in the app, the user just have to create his account and sign in to it. The goal of the project is to create a shared web-based online platform that will benefit both renters and rentees by providing a mutually beneficial system. The goal of the project is to create a shared web-based online platform that will benefit both product owners and customeers by providing a mutually beneficial system. This web program is incredibly efficient and user-friendly, and it offers a number of special features for renting. The program made it easier and faster to find products while also guaranteeing that there are products for rent in the most locations by also giving the return policy. Rentees will find it quite simple to Rent a rental products because to the many intelligent features included in this specially designed online rental web application. This application aims to rent out products for duration ranging for months.**

Keywords— Rental Processing, Sharing Economy, Rental Experience, Rent Application, Price, Reviews, Contact, Filter, FeedBack, FAQ, Recommended, Privacy Policy.

I.   INTRODUCTION

These days, a lot of people move cities in search of employment or educational opportunities. As a result, a sophisticated, multi-organizational management system for goods including vehicles, house, furniture, and other accessories has been developed. The current situation portrays the rental or purchase system as extremely labor-intensive. With the rapid advancement of Internet and e-commerce technologies, online retailers, in particular online shopping portals, are benefiting greatly from the services and advantages offered by the Internet platform. The business of internet purchasing has grown more successfully, and online services are working with clients and other organizations. This study revealed the requirements and expectations of both present and future customers of the products on a temporary basis in virtual marketplaces. Our proposed system "Rent-up:The Rental Web Application" is a cutting-edge and intuitive platform created to completely transform the renting experience for consumers looking for easy access to a wide variety of goods and services. The goal of this web application is to make renting gadgets, cars, equipment, and other commodities easier by offering a smooth and user-friendly platform that is available through web browsers. The traditional ownership paradigm is under pressure in today's fast-paced society, and the idea of the "sharing economy" is gaining traction. Leveraging this trend, the web-based rent application will provide an affordable and sustainable way to temporarily access a variety of products without having to worry about ownership.

II.   PROBLEM STATEMENT

As now-a-days, owning all items and amenities for a person is a burden, especially when it is required for a shorter duration. Also, the item may not be affordable for everyone. When people live as a tenant, or they have relocated to a new city for the sake of their job, they don't need to, or want to, buy every product for longer period, instead they can simply rent it which would save their money. It is more convenient to rent, than carrying the cost of owning and maintaining the unit. There are many existing platform that gives products for rents and each system have their own methodologies.

So our proposal solution to this problem statement is to design and develop a web application that simplifies and streamlines the process of property rental management. Our proposed solution Rent-Up will provide a user- friendly platform for rental owners and customers to interact, manage rental items, and handle various aspects of the rental process effectively.

In our system we have proposed the pricing algorithm in which if product is being taken for longer duration then the price will be decreased for longer duration, also we proposed the security in the system so that renters and rentees can securely surf and to chat on our website and can easily do transactions and products can be easily delivered to the rentees.

III.   RELATED WORK

Literature survey for a project aimed at developing and enhancing a rental web application, referred to as "Rent-Up," would involve reviewing existing literature and research related to various aspects of the project. The analysis involves many significant criteria such as source for research papers, publication years.

One of the fundamental aspects of society is the problem of housing rentals. These days, it is very hard to locate acceptable housing in urban locations if one looks for it physically. However, the landowner must also pay the rent on the home. Just hanging a lease sign on a building can be challenging, and as a result, landlords lose money. In this situation, an online common platform can be really helpful. The goal of the project is to create a shared web-based online platform that will benefit both landlords and tenants by providing a mutually beneficial system.[1].

This research paper in [2] examines the car rental service industry focusing on its growth, challenges, and the need for an improved monitoring system. Car rental agencies provide short-term leasing options for customers, particularly benefiting students in campuses and universities who may not own their vehicles. The paper delves into the reasons for the increasing popularity of car rental services, highlighting factors such as affordability, limitations of university bus services, and issues with public transportation.

This research paper in [3] explores the critical role of website quality parameters in improving order conversion rates for online clothing rental companies. In today's digital age, advancements in internet technology have revolutionized the way organizations and businesses deliver products and services and build customer relationships. The ultimate goal is to provide insights and recommendations to enhance the conversion rates and subsequently improve the business's profitability.

This research endeavors to create a web-based system designed to facilitate the seamless rental transactions of PlayStation consoles without the necessity for physical meetings between owners and tenants. The study employs a combination of primary and secondary data collection methods and adopts an object-oriented system approach to support the design and implementation of a web-based information system. The primary goal of this research is to develop software that aligns with user requirements, while considering factors such as budget constraints, user-friendliness, and timeliness.[4]

This research study delves into the pivotal role that rental rates play as benchmarking and decision-making indicators within the banking and retail sectors. In particular, it places a strong emphasis on the significance of determining accurate rental rates for retail spaces in shopping malls.[5]

This research study aims to streamline vehicle rental transactions by enhancing the process of matching tenants with vehicles that best meet their specific needs, including factors such as engine capacity, number of seats, and more. The primary objective is to eliminate the need for tenants to physically visit rental locations, thereby saving valuable time and effort.[6]

The research in [7] focuses on the design and implementation of the Car Rental System, a web-based platform aimed at delivering a user-friendly interface and a seamless car rental experience. Developed using the MERN (MongoDB, Express.js, React, Node.js) stack, this system guarantees swift and responsive user interactions, as well as efficient processing of customer requests and data management. The platform incorporates a secure and swift payment gateway to facilitate seamless rental transactions, ensuring customer satisfaction and business efficiency

System Architecture
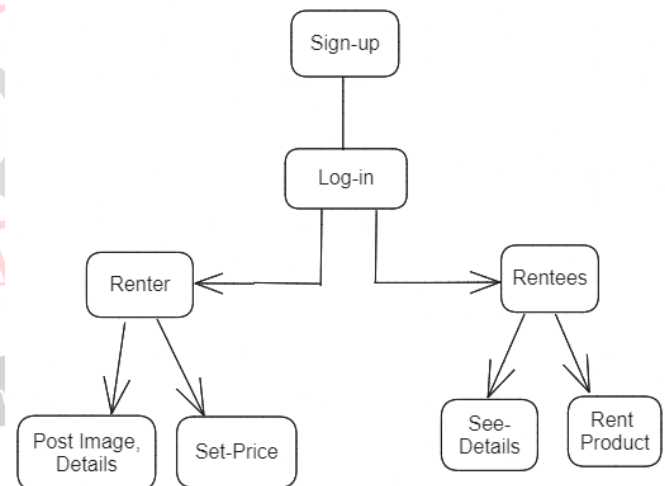
Module 1: User Authentication

Module 1 encompasses the authentication and registration processes within on website architecture. The core of the rent-up experience lies in the shared dashboard accessible to both Renters and Rentees. This dashboard provides a comprehensive view of available products and product buyers.

Renters: This are the users who will post the products image details, description, price

Rentees: This are the users who can see details and rent products.
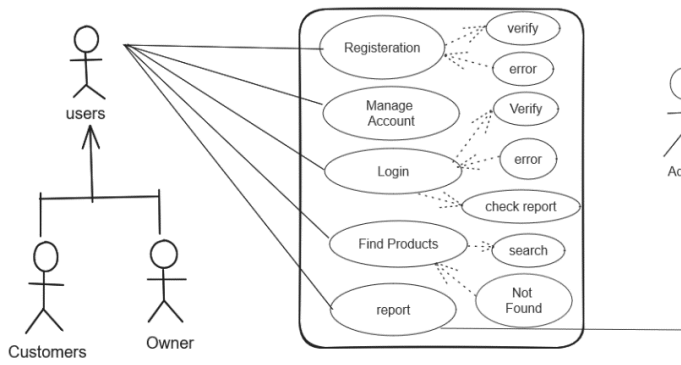
Module2: Profile Management

Module 2 expands upon user functionalities, offering users who are the customers and the owners to register and verify their account by setting up the password and then login in to the home page after successfully registering themselves.

If the details about the registration is correct then it will verify the user or else it will throw the error.

After login customers can find the products of their requirement and can easily look to the details, chat with the owner and can easily rent out the product, this all can also be managed by admin dashboard.

Module3: Relational Model

Module 3 shows the relation between the Rentees and the Renters where the User will sign-up and then if Rentees wants to rent products then he can rent it by contacting Renters, who can set the price, set description.

- User-

Attributes: Email Address (Primary Key), Phone no., Password, Name, etc.

- Rentees-

Attributes: Name (Primary Key), Phone no, Contact.

- Renter-

Attributes: Order ID (Primary Key), Set Price, Add description , Add details.

IV.   IMPLEMENTATION

The system is developed using ReactJs and Php is used in backend for website application development, with Mysql Database serving as the primary data management platform.

Additionally, to rent out products and to rent it. This system is divided into 2 modules.

Module 1: User Authentication and Dashboard

This module focuses on providing secure access tothe Rent-up platform for both renters and rentees. It includes:

User Authentication: Javascript and ReactJs are employed to manage user authentication, including functions for registration, login, and password recovery. Mysql authentication services provide s secure and reliable foundation for user management.

Registration Process: Guides new users through a registration process to create an account, providing necessary information and establishing their profile within the system.

Dashboard: Upon successful login, users were directed to their personalized dashboard. Notably, users had the ability to initiate two primary actions: "Add User" and "Rent Products".
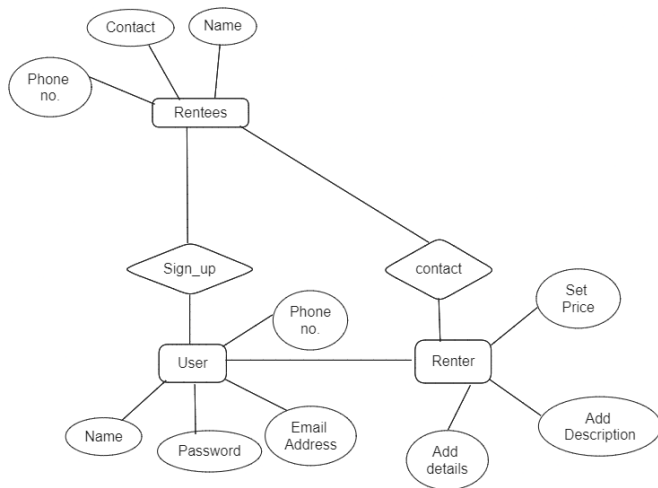
Module2: Profile Management and Product Posting.

Profile Creation and Management: Admin have the ability to create, update, and delete their profiles. They can provide detailed information about their work, and contact details.

Post Requirements: Renters can post detailed Product, specifying Description, and price constraints. This empowers them to clearly communicate their expectations from the outset.

Provide Feedback: Rentees have the option to offer feedback to workers after product delivered.This helps build a feedback loop and ensures the quality of service delivery.

View Posted Requirements: Customers can view the product posted by Owners. This allows them to look out for the best preferable item they want to rent.

V.   FEATURES

As there are lot of rentals websites present in the todays scenario and more and more people got addressed to the rent based problems, we have implemented our model in such a way that if people want to rent the product in our proposed system then it will have features like

1. As the people want the product for the longer duration then certain price of the product will be decreased according to the range of the duration the product have been given.

2. The users can also apply coupons to get the rental price at the minimal cost and discounted price.

3. The users will also get the return policy as if the customer didn't liked the product as expected then he /she can return the product.

4. MD-5 algorithm is used for making the passwords more secure and to make all the authentication secure.

SDLC

Software Development Life Cycle was used to develop the web-based system. SDLC is a framework that describes all activities and processes in a software development project. It consists of five phases such as planning, design, development, and evaluation.

1] Planning.

In this phase, all information, data and problems about the project were gathered by reading articles, journal, and thesis from previous research. From the information gathered, all the requirements and opportunities were recognized. The aims to find core problems and constrains occur on current rental websites and their features.

2]Analysis.

Analysed the current rental websites workflow, looked for the problems occurs in the current rental websites. Besides, the activites included were the identification of software requirement in development system.

3]Design

In this phase, during research we defined the flowchart and use case diagram to define our system.

4] Development

Layouts of interfaces for the web-based development were created using ReactJS and PHP coding through codeignitor. PHP language is used to execute the system and MySQL is used for the database, while Apache runs as a web server software using Xampp package.

5]Evaluation

Debugging and testing of the program for fixing bugs or errors of the design were also done in this phase.

VI.   RESULT & DISCUSSION

The Rent-up system presents a significant advancementin the domain of web development for making rental process easier and conventionally easy to use, there are several avenues for future research and development that can enhance its capabilities and applicability. These potential areas of improvement are outlined below:

User Authentication and Dashboard

In this section, we present the outcomes of the first module, which encompasses user authentication features, including login and registration, along with the user dashboard.
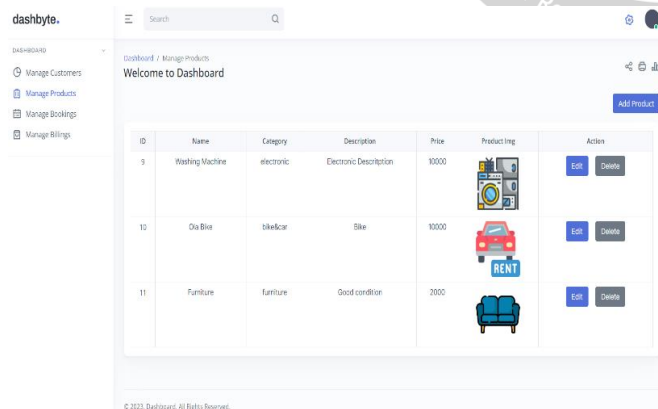

User Authentication and Dashboard

SIGN-UP PAGE

In this section, we present the outcomes of the second module, there are 7 columns (Register ID, Name, Username, Email, Contact, Password, Confirm password). Here, the phone number and email must be unique. For registration user have to fill up this page, first of all user give the register ID, then write the full name, username, here email have to be verified email then contact number, password and confirm password. From this page user can reset their information also.
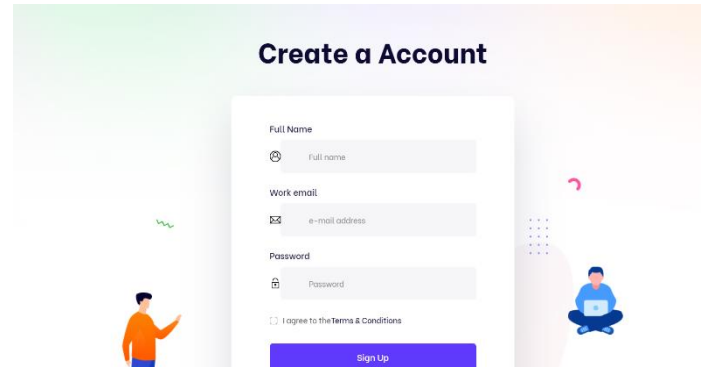
Sign-up Page

SIGN-IN PAGE

There is a login page for the system. There are two columns on the login page (username and password). In this system there is also the "creating a post" page. This page is important to the owner. The owner can post information about his home, including photos. The customers can see this post and contact them to get the products he wants. For admins, this system is open for extension but closed for modification. The admin can delete the post if the owner uploads something that is violent.
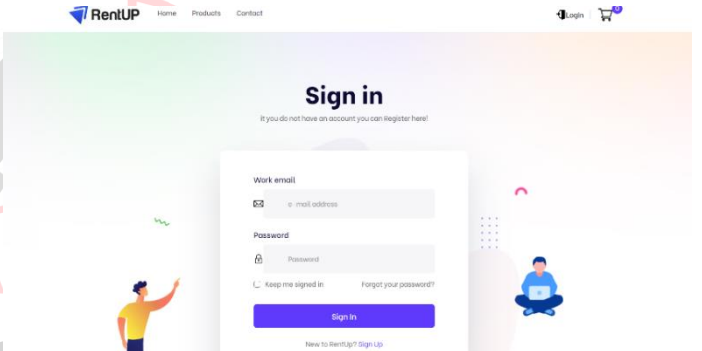

Sign-in Page

HOME PAGE

Home page is the main page of the system in which the Owners post the product images and can also put the price tag, description and customers can rent the product according to their needs and can also select the range of months for which the product should be given to the rent.
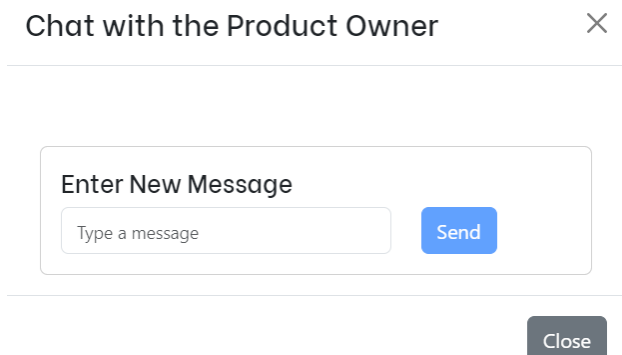
The customer can add the product in their cart and can also review the product in the cart.
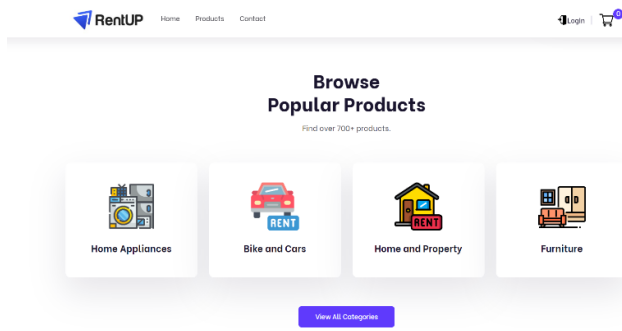
Home Page

CHAT OPTION

If the customer liked the product posted by the owner and he had some queries about the product then he/she can directly chat with the Owner can get details about to product to make product more convenient to rent.

Chat Option

VII. CONCLUSION

As we have proposed this web system and declared it to make it more user friendly and secure, in a rapidly changing world where the conventional concept of ownership is being redefined, Rent-Up: The Rental Web Application emerges as a powerful and transformative platform to meet the growing demands of the sharing economy. The sharing economy, characterized by its emphasis on access over ownership, reflecting a shift in consumer preferences. Our system offers an innovative solution to cater to this evolving landscape by providing a user-friendly, web-based platform designed to facilitate effortless access to a diverse range of goods and services on a rental basis.

FUTURE SCOPE

As we have concluded our project, and to make it more advance so that it may also be used in future would be to make the website mobile responsive, so that it may be also used in portable mobile phones and also to make this website more performance conscious and add more details.

This website can also be made to sell new products so that more people could engage to this site and have access to all its commodities.

REFERENCES

[1] Voumick, D. Deb, P. , Sutradhar, S. and Khan, M. (2021) Development of Online Based Smart House Renting Web Application. Journal of Software Engineering and Applications, 14, 312-328. doi:10.4236/jsea.2021.147019.

[2] Busse, M., Swinkels, J. and Merkley, G. (2017), "Enterprise Rent-A-Car", https://doi.org/10.1108/case.kellogg.2016.000112.

[3] M. Krishnakumar, Akanksha Dayma, Shivkumar M. Belli, Online Clothing Rental Website Quality: Mediating Effect of Attitude on Behavioural Intention,Vol. 1 No. 44(2023).

[4] E S Soegoto and R Wijaya 2018 IOP Conf. Ser.: Mater. Sci. Eng. 407 012017DOI 10.1088/1757-899X/407/1/012017.

[5] Norulelin Huri et al 2022 IOP Conf. Ser.: Earth Environ. Sci. 1067 012053DOI 10.1088/1755-1315/1067/1/012053.

[6] B Kurniawan et al 2020 IOP Conf. Ser.: Mater. Sci. Eng. 879 012010DOI 10.1088/1757-899X/879/1/012010.

[7] International Journal of Advanced Research in Computer Science. Mar/Apr2023, Vol. 14 Issue 2, p39-44. 6p.

[8] S. H. Mahi, U. H. Maliha and S. Sakib, "Development of Web and Mobile Application Based Online Buy, Sell and Rent Car System," 2020 Advanced Computing and Communication Technologies for High Performance Applications (ACCTHPA), Cochin, India, 2020, pp. 143-147, doi:10.1109/ACCTHPA49271.2020.9213208.