Peer to Peer Online Rental Platform

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Abstract— **This paper proposes a new model for online peer to peer rentals of goods. The website RECO is an attempt to implement this above mentioned model, devised after considering the flaws and shortcomings of existing business models and models proposed by other fellow researchers. RECO focuses on sharing economy and adhere to sustainability goals.**

Keywords— Rental Platform; C2C rentals; Rental business model;

I. INTRODUCTION

The practice of renting or borrowing goods and services has been a part of the economy, ever since the prevalence of barter system, but it is being performed in an unregulated manner or based on verbal contracts. In the recent times, there is a paradigm shift in these practices due to consumers being offered alternatives through the medium of internet. Web services like Furlenco and Rentomojo offers its customers furniture and home appliances for short duration of time, Drivezy and Zoomcar provides cars and bikes for rentals and there are many similar services available. The companies follow asset light business model and temporary transfer of ownership of products happen. This provides no room for local rental suppliers or even general public to act as a lessor. The models put forward by others researchers like Rent Shoppee [1] and LeKeDe [2] just digitalizes and connects both the parties, yet it was not widely accepted or implemented to its fuller potential.

Understanding the shortcomings of similar researches paved the path to RECO's business model. RECO allows listing of products under 10 basic categories such as adventure, event, home appliances, furniture, garment, fitness, books, machineries, musical instruments and gadgets. The lessor fills a list declaring the fitness of the product and any current damages to it. The list would depend on the category selected and also understanding the different characteristics of each product. This can be verified by the lessor before using the product and the vice-versa happens while returning the product. This allows the customers to be sure about the working condition of the products and gives necessary information which mere photos wouldn't be able to provide. RECO proposes two modes of use-one which just connects lessor and lessee and communicates the contact details of each other and second which allows RECO to act as a middle man in transaction of the product and provide additional quality checking and transportation facilities. The later mode collects quotient deposit and also facilitate payment gateway. The former mode can be used by customers that just wants the contact details of local rentals suppliers, the later could be used by customers who wish to have the all the additional service provided too.

Renting products would help decrease the need to manufacture new products and promotes shared economy. It could ultimately prevent unused products being dumped into landfill and promote reuse and sustainable use of goods. Considering the current climate change and increased natural degradation rate, switching to sustainable consumer practices is inevitable.

II. PROPOSED SYSTEM

The main objective behind this project is to provide a convenient and efficient framework to digitalize the rental marketplace. The model is implemented through a web based peer to peer online rental platform RECO.

A. Registration Module

This module is used to register and authenticate users. The user needs to create an account providing necessary information about the user. The registration form contains information which needs to be validated and the id and password is used for further login.

B. Posting Ad Module

The verified logged in user is allowed to post ad of a product they would want to give it for renting, mentioning the category it would fall on, posting images of the products, describing a description, citing the dates it would be available and quoting the rent rate. These ads can be viewed by other users. The product ads can be sorted based on the category or location.

C. Product Booking Module

The procedure for booking a product is very simple. There are to modes to book a product through RECO. The user can view a product ad an either request for the lessor information or request booking mentioning the dates they user wants the product through the portal. Upon choosing the latter option of booking a request, the user now needs to wait for a conformation from the lessor end. The lessor receives the notification and can accept or deny the request. Upon accepting the request, the lessee at the other end can now proceed towards the payment gateway. The lessee would be asked to pay the upfront total rent, caution deposit and convenience fee.

D. Payment Module

Payment gateway provided in RECO is Razorpay, which allows users to efficiently and securely conduct online transactions. The RECO collects a caution deposit which can be used to resolve disputes in case of damage to the product during the temporary transfer of ownership. This is later paid back to the lessee once the product is returned.

E. User Dashboard Module

The users would have a dashboard offering all the statistics regarding bookings and earnings. The dashboard would also contain information regarding pending requests and date of return of products. This would help users give and insight to all the important information regarding the transaction.

III. LITRATURE SURVEY

Amika Mehta, Vedant Patil, Apurva Shinde [1] introduced a web based application for users and rental products owners to communicate in an effective and efficient manner through this paper. The application titled LeKeDe allows the rental product owners to post ads on the platform which can be viewed by the users. There are categories of products enabling users to apply filtered searches for desired products. The user can get contact information of the rental product owner upon enquiry via email to establish communication. Both call services and location services are provided by the application. An additional feature of inbuilt camera allows users to verify the condition of the product in real-time.

Harish Bankar, Payal Thakare Dinesh Parate [2] presents the concept of an e-classified website for sale on rent. The website titled RentShopee allows its users to rent or lend products based on 10 major categories. The rental product owners can register and login to post a free ad with description and images of the product. The admin verifies this ad and post them on the platform. Users can now search and book for renting these products. The website enables online payment gateway for its users, making it easier for transaction of payment. The website provides convenient method of online rental and lending of products for the users.

Jui-Che Tu and Chi-Ling Hu [3] studied the factors that affect consumers' willingness to rent garments. The study is based on the market conditions and behavioral patterns in Taiwan population. People's notion towards sustainable fashion has increased the acceptance of the fashion rental platforms and elevated opportunities in this sector recently. Consumer's ease of access is directly linked with a positive outlook towards the idea of sharing garments. Poor experience builds a negative mindset the whole process of renting clothes among consumers. The study also shows that only 45% of participants have no experience in online clothes renting which indicates the relatively low acceptance among people.

Vijayudu Gnanamkonda, Chakravarthi Koundinya, Purna P. Nandamuri [4] conducted the study to find the market dynamics across executive garments rental service for men and to assess the importance of determinants of the growing consumer preferences for renting the garments for personal consumption. The study shows that users prefer customer experience to be at par. More consumers give importance to possession and owing the product, the less they prefer renting of garments. Consumers are cautious about what if the product damages while in consumption. These consumers have a negative attitude towards rental products in general.

Rahul Kulkarni , Chaitanya R , Pratibha , Pooja A Patil , Nikeeta Biradar [5] proposes a Self Drive Online Car Renting System which is proposed after significantly inspecting the present structure and understanding the imperfections in it. The web based car rental system is integrated with SMS technology which enables convenient use of the technology. This system makes the storage of all the data related to rentals easy. The usage of SMS technology feature can be adapted in the case of rental platforms as it gives the users a better experience of the platform.

Lahari Bitra, Jashuva Chukka, Katyayani Bellamkonda, Chandra Sekhar Genji, K. Srnivas [6] puts forth the idea of online laptop rental system. The idea is catalyzed by the pandemic which shifted offline mode of education to online. Laptops are still a luxury to rural parts of India. The Efficient Laptop Rental System aims to find a solution to this problem. The mobile application provides a basic user-friendly interface which enables users to both rent and lend laptops with varied specification and software requirements.

Sabine Moeller, Kristina Wittkowski [7] studied and assessed the importance the growing consumer preference for renting consumer goods, as opposed to the actual transfer of ownership. The results show that the demand for non-ownership services is negatively influenced by the importance that a consumer attaches to full ownership and positively influenced by trend orientation and convenience orientation. The user experience or price does not affect the non-ownership services. The study concluded an important finding that even the consumers find renting services convenient, they still value ownership of the products. Thus suppliers should try offer a mixture of ownership and non-ownership mode of consumption to the customers.

Julia Buch, Jakob Trenk [8] explained the relationship between intrapersonal barriers and drivers with attitude and behavioral intention towards furniture rental. Further, it was aimed to show which furniture categories are most likely to be rented. The factors that affect the consumers are the perceived risk factor and the trend orientation. The study showed that consumers prefer renting newest and trendiest furniture. The study also showed that the companies benefit more when they highlight sustainable impact they make in their marketing campaigns. Attracting new customers are positively affected in doing so. Also, to increase the intention of possibly materialistic consumers, service providers should highlight options for purchasing rented furniture after the rental period.

Heeju Noe [9] focuses on behavior of users and non-users of fashion rental services. The users had positive feelings of emotional values for fashion rentals and are satisfied with the service whereas non-users have negative feelings of emotional value towards the fashion rentals when not using the services. The non-users must interact and participate in fashion rentals to gain a sense of pleasure. Therefore companies should use customer testimonial videos to attract the non-users to the services. The motivation of the non-users to experience the services is positively affected when customers share their positive experience with the fashion rental services. Companies should emphasize the fact that the customers have an opportunity to try multiple styles and trends in their marketing strategies to increase sales.

Anuj Pal Kapoor, Madhu Vij [10] attempted to provide more understanding regarding the aspects that could shape Indian customers' behavior towards online furniture rental platforms. The results imply that online furniture rental platforms need to design a platform which not only provides value to the customers but influences their lifestyle as well and eventually result into conversion. Occupational mobility, psychological ownership, complementary services, social gratification, price value and customization affect the

conversion from conventional methods to online furniture rental platforms.

Joshua Centenera & Maruf Hasan [11] aimed through this project to build awareness of product-service systems and their potential application and to develop a sustainable product-service system. It was concluded that the only way to develop a truly sustainable model is to create a successful business model that provides ongoing services with minimal cost involved while reusing already available resources. The study introduced a website titled Rent-sense to showcase the business model. The major achievement of this model is financial, social and environmental sustainability. The website would benefit the businesses which provide renting as a service, creating an inexpensive way to develop wider market share and brand exposure.

Orrachat Pisuthipat' [12] motive for the study is to digitalize the library functions. The proposed model acts as online book rental system which works similar to a brick and mortar library. The study mentions different functional requirements to facilitate the working of book rental system.

Michael Martina, Mirjami Heiska, AnnaBjörklund [13] evaluates a use-oriented tool rental service, called 'Tools for you' with the aim to identify critical processes to improve the sustainability of the service. The study put forward the conclusion that the rental service had a positive impact on environment, as it prevented manufacturing of new tools, which required lot of materials and energy. The lifecycle of the tools are also extended with increased usage and regular refurbishing.

Yoon-Young Chun, Kun-Mo Lee [14] compares environmental impacts of the rental business model with the conventional model of manufacturing and selling through this study. The study focused on a water purifier which was in use for 15 years. The study concluded that education of the product's operation and proper usage showed approx. 35% improvement in the life cycle of the product. The rental businesses should educate its consumers the proper usage of the products to maximize lifecycle of the products.

B. Dhanalaxmi, K. Sainath, B. Saikiran, Sravanthi Varaganti [15] presents an android based application for online peer to peer rental platform. The application allows its users to rent what they need and also rent out what they don't need. The users need to create an account using a mobile number through an OTP function. After creating the account, the users can now post an ad of the product the like to rent out to others. The product must come under 10 categories provided by the application.

CONCLUSION

The proposed system would be an attempt to regulate and digitalize the rental marketplace. RECO would be very helpful to local rental business, widening their reach. It could act as a new passive source of income to some, providing all the logistical services and quality control. Since the website can be accessed from remote locations too, users can manage their accounts on the go. Embracing the model would assist the digitalization mission of Indian Govt. Encouraging the concept of sharing economy would enable reusing the products to their maximum life, minimizing the need to manufacture new products and ultimately reduce the per capita carbon footprint and promote sustainability goals.

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