



RentalHood - Neighbourhood Rental System

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Abstract: Pandemic has led to a global health crisis and people are forced to move in. People may face the need for equipment or utilities for a temporary period. In such a case, purchasing the tool or item may not be an appropriate solution. The proposed system helps you find local people from the neighborhood who may make use of the item required for some time in exchange for a small rental fee. People can connect and bargain for a better price and rent the item. So, the system plays the role of a portal to rent items. People with spare items can list it on the app to generate a small amount of passive income by renting it out to neighbors. On the other hand, people who need items for a short time may search for the item on the portal and possibly find someone who can rent it to them. The feature to look forward to here is the security against scams.

Keywords: Flutter, Rental, Money, Scams, Bargain, Exchange.

I. INTRODUCTION

Based on the abstract, the research conducted by communicating with people brings up the issues faced by people in pandemics. One of the common issues was that people were not able to get hold of things for temporary use or that are to be used only once. People talked about how they wanted a physical keyboard whilst their keyboard had been gone for a repair, or how they wanted to put a nail on the wall but also, didn't want to buy a drill machine just for that only time, or how they needed an extra mobile phone for some time to keep on with their work whilst their one has been going through a problem. The main purpose of RentalHood is for Vendors/users to advertise their available products on the system or application and also to provide available products to be rented by the consumers/users. Here in the system, we are providing great flexibility for the vendor/user to add, delete or update his products listed in the system. They can update or delete their account. We are maintaining good communication between vendors and the customers. There are many rental systems available online but they don't provide all products in one place. Also, many of them provide service to a wide area that requires logistics.

A. OVERVIEW

To overcome conventional, traditional methods and problems arising from them, the following technology/system is proposed.

- Developed an android application for the system.
- Android applications will be used by civilians or the general public.
- A single application will be used by the owner of the commodity and renting party.
- Google Firebase is used for authentication and data storage.
- IPFS is used for taking records of transactions.
- Integration of Maps for ease of tracking.

II. LITERATURE SURVEY

Sr.No	Published Year	Research Paper Name	Description
1	2020	Smart Rent Portal using Recommendation System Visualized by Augmented Reality.	This project would be able to influence the lives of students where they can view and access relevant data at the tip of their fingers. Students from other universities could also adopt the same concept and change how this system works for different environments.VR can be used to visualize properties and their layout for any user. Having the power to move objects around in your own house without actually having any form of physical component attached to it also is a possibility.



2	2020	Development of Web and Mobile Application Based Online Buy, Sell and Rent Car System.	This research paper aims to develop an online car trading and rental system. It's an online marketplace where anyone can buy, sell or rent cars using this website and application. This system will help the users to rent cars when needed. It can also help users to give their idle car in rent which will give them an extra bit of income. They can also sell their used car to others. Users can also buy new or used cars directly using this system more cheaply.
3	2019	LeKeDe: Online Rental System.	With a web-based rental management information system, hassle-free renting can be provided. The data of all the products are stored in a centralized manner and the costs can be controlled and monitored by the operational manager and owner thus avoiding over-budgeting. Data storage and computerization will ease the process for companies and the users for performing pre-processing, recognizing the buying patterns and maintaining the integrity of the data, and using this information to a personal benefit.
4	2018	A Blockchain and IPFS based framework for secure Research record keeping.	The framework proposed in this paper attempts to create a secure, tamper-proof model for the storage of research records in a distributed file system with no central point of control. Further, the metadata information retrieved from the distributed file system is stored in the blockchain. Since blockchain is a distributed ledger technology that records all the transactions, which cannot be modified or altered. So, this avoids malicious modifications to the metadata information on the blockchain.
5	2016	Online Vehicle Rental System.	Nowadays the net plays a crucial role in our lives and brings lots of information & nice things. The online vehicle rental reservation system is the system that has been developed for this project. This can be one in each of the applications which will complement different existing applications in the net. The system uses the net as its medium to speak with a broadened audience. Online vehicle Rental System basically may be a web-based system designed to produce users for simply organizing their vehicle rental reservation.

Table 1. Literature Survey

III. TOOLS AND TECHNOLOGIES

A. TECHNOLOGY STACK

- Flutter: Flutter is an open-source UI software development kit created by Google. Flutter is Google's UI toolkit for building beautiful, natively compiled applications for mobile, web, desktop, and embedded devices from a single codebase.
- IPFS: IPFS is a peer-to-peer (p2p) storage network. Content is accessible through peers located anywhere in the world, that might throwback information, store it, or do both. IPFS knows how to find what you ask for using its content address rather than its location.
- Firebase: Firebase provides tools for data storage, tracking analytics, reporting and fixing app crashes, creating marketing and product experiments. Also used for authentication and storage purposes.
- Android Studio: Android is used to accelerate project development and help you build the highest-quality app for every Android device.

B. ADVANTAGES

- Same application for the owner as well as the renting party.
- Cost-Effective because of no logistics.
- Time-Saving.
- Highly Efficient.



- Scalable
- Real-Time Collaboration

C. MODULES

Login and Authentication: Firebase Authentication provides backend services, easy-to-use SDKs, and ready-made UI libraries to authenticate users to your app. It supports authentication using passwords, phone numbers, popular federated identity providers like Google, Facebook and Twitter, and more.

Renting and Exchange: Renting is a resorted solution when something is needed only temporarily, as in the case of a special tool, a truck or when something is needed that may or may not be already owned but is not in proximity for use, such as renting an automobile or bicycle when away on a trip. Renting and Exchange helps to tackle the problems faced by the people where they need.

Integrated Google Maps: With Google Maps you can develop customized map-based applications for your company. Whether a static or interactive map, mobile or browser-based, with the Google Maps Platform you can integrate customizable maps into shops, websites, apps, and business software.

Chat System: Online chat may refer to any kind of communication over the Internet that offers a real-time transmission of text messages from sender to receiver. Chat messages are generally short to enable other participants to respond quickly.

Transaction Management: Payment methods selected and gateway for the transfer of fee and payment are to be managed here. Additionally, storage the transaction details on firebase as well as the IPFS decentralized storage system. Payment windows may include Cash, Card, UPI, and any leading source of monetary transaction

D. SYSTEM ARCHITECTURE (UML)

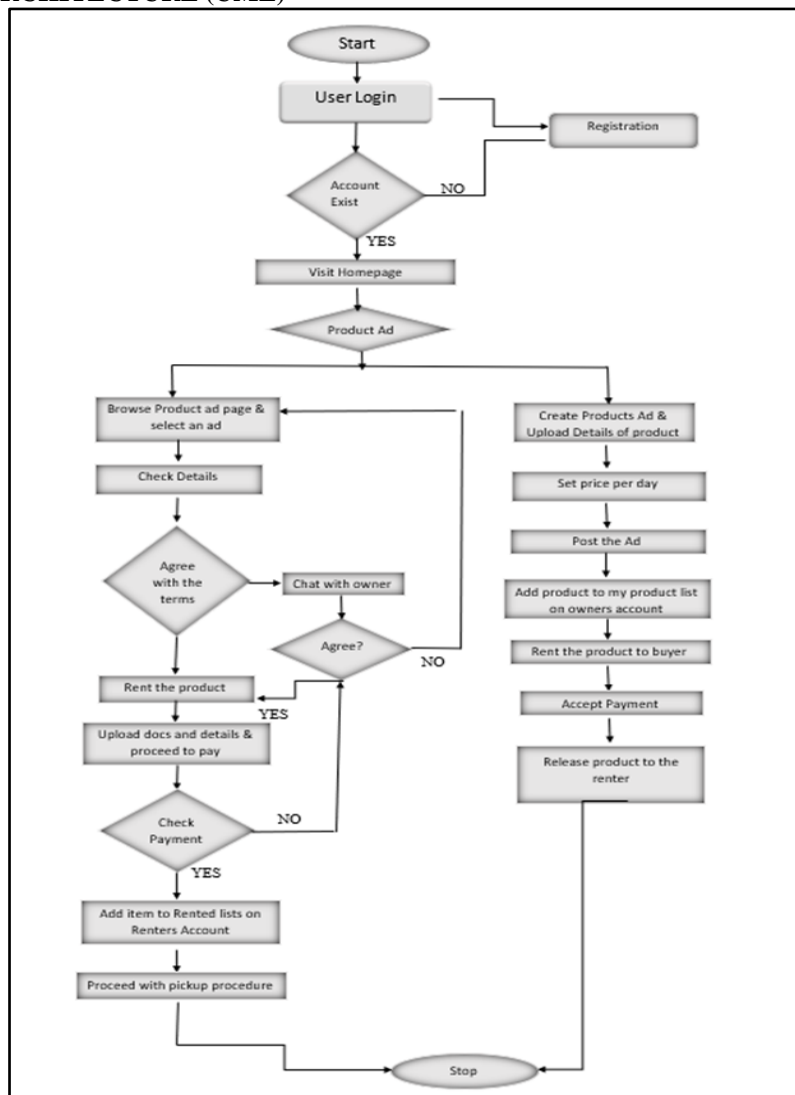


Fig 1. System Flow Diagram



IV. RESULT

The system provides a rental portal on a limited area of service where people with spare items can list them on the app to generate a small amount of passive income by renting it out to neighbors and on the other hand, people who need items for short time may search for the item on the portal and possibly find someone who can rent it to them. Details of the commodity or item with its owner and details of the person acquiring it would be stored in the IPFS file system and is seen to be impossible to reverse or modify and will act as a strong proof to trace transaction in case of scam or fraud by any party. The system is working on a smaller area of service, evading logistics requirements for delivery of items and one can receive the items from the lender on their own.

V. CONCLUSION

This system solves the purpose for Vendors/users to advertise their available products online and also provides available products to be rented by the consumers/users. Here in the system, we are providing great flexibility for the vendor/user to add, delete or update his products listed in the system. They can update or delete their account. We are maintaining good communication between vendors and the customers. There are many rental systems available online. But, they are not providing all products in one place. Also, many of them provide service to a wide area that requires logistics services additionally. That means the online car rental system deals only with cars. Also, many of them are not providing effective communication between customers and the vendor but our system is aimed to give room for bargaining.

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VII. SOURCES

1. Amika Mehta, Vedant Patil, Apurva Shinde, BE COMP Student, Pune University. LeKeDe: Online Rental System. In: International Journal of Engineering Research & Technology (IJERT) Vol. 8 Issue 10, October-2019.
2. Shashank Mouli Satapathya, Rutanshu Jhaveria, Ujjwal Khannaa, Ashish Kumar Dwivedi. Smart Rent Portal using Recommendation System Visualized by Augmented Reality. In: Third International Conference on Computing and Network Communications (CoCoNet'19), 2020.
3. Mr. R. R. Ajar, Ms. V. H. Salunkhe, Ms. A. A. Pujari, Mr. G. D. Kharmate, Prof. M. S. Sawane, Karmayogi Engineering College Shelve, Pandharpur. Online Vehicle Rental System. In: International Journal for Scientific Research and Development – IJSRD, Jun 2016.
4. Shakhawat Hossain Mahi, Umme Habiba Maliha, Sadman Sakib, North South University Dhaka, Bangladesh. Development of Web and Mobile Application Based Online Buy, Sell and Rent Car System. In: Advanced Computing and Communication Technologies for High-Performance Applications (ACTHPA), 2020.
5. Rajalakshmi, Lakshmy K, Sindhu and Amritha P, TIFAC-CORE in Cyber Security, Amrita School of Engineering, Coimbatore, India. A Blockchain and IPFS based framework for secure Research record keeping. In: International Journal of Pure and Applied Mathematics, Volume 119, No. 15, 2018.