



# Development of Interactive Seller-Buyer Interface for Property Search

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## Abstract

People move from one place to another due to work, study or business. They need to search for property like house, flat, shop, or office space at that new location. The task to search for most relevant property with best possible facilities at lowest possible cost is a difficult and time consuming process for people, who are new to that place or are not fully aware of that place. They generally approach some real estate broker or owners who have posted their property details online or offline. As there are higher chances of getting incorrect details as well as excessive price and other charges quotations from these brokers and property owners, there is a need to provide an easy, interactive, need-specific, reliable and economical interface for those people searching for a property. In this paper, an interactive user interface for web and application based access to properties has been proposed and developed to provide various features like validation and verification of sellers and buyers, location based multi-parameter property search, real time calling and messaging with identity hiding, through an interactive interface.

## Keywords

authentication, interface, location, map, search, verification.

## Introduction

In our day to day life, buyers face a lot of issues related to finding a rental or owner property like flat, house, shop or office space when they are new to a place. In such cases, they usually approach the real estate brokers or follow advertisements displayed in public places. Due to this human interface, there might be chances of getting cheated with regards to the quoted price/ rent, hidden charges as well as poor facilities against the committed ones. The situation further deteriorates when people find it difficult to shift later to another property due to agreement terms, security deposited, man-hours required to shift, burdensome packing and transport process, and expenses involved. Finally, it gives dissatisfaction as well as unrest to the buyers. With digital transformation, online websites and applications are providing fruitful interfaces to resolve many of these problems in one or another way. Applications like OLX, Magicbricks, 99Acres and Nobroker have provided easy interface for sellers to display their properties with good details to reach interested buyers. They add information like locality, size, facilities and expected price for their property

along with photographs. It helps buyers to filter out the properties based upon distance, price and other information filters to select and reach the buyer for further information and visit to the property. While the online platforms are replacing the traditional seller-buyer approach, still there are some limitations. The studied platforms are lacking in terms of customer ratings to the individual properties, apartments, facilities available, owner behavior, terms and conditions and prices analysis with respect to other similar properties in that locality. In this work, an interactive user interface for web and application based access to properties is proposed and developed to cater the optimal search requirements of the seller-buyer model. Further, OTP based user authentication and verification as well as user contact information hiding is used to secure the system from unauthorized malicious users.

## Literature Survey

Micheal et al. [1] observed that the sellers and buyers are shifting to online interactions from face to face interactions, while the online platforms are offering better information symmetry for interactions. Due to this, the customer behavior, attitude and interaction effectiveness is improving. The authors have reexamined the developments in seller-buyer interaction theories.

Marzieh et al. [2] focused on the privacy and security issues related to online selling and buying for products, services and goods. It revealed that trust is a key issue for successful promotion of online shopping applications and reduced customer risks. A detailed analysis of reputed publications to identify possible implications and issues in online platforms has been also made.

Sonya R. Manalu et al. [3] discussed that push notifications and chat features are important application features to provide information updates. The implementation of various features in applications can provide viewing, detailing, listing, reviewing and broadcasting of useful information to the users.

R.B. Shiram et al. [4] developed a web application to help the user registration of individual seller apartment or home to the buyers for possible assistance in searching the optimal or most suitable rental or buying property available. It also provides the search of property in a particular targeted area.

DiptaVoumick et al. [5] developed interface for users to make registration using mobile phone number, storing information of their identity, searching for available properties, sending messages to the property owners as well as choosing a suitable property.

AderonkeIkuomola et al. [6] have given a system to assist the prospective users to search properties in easy manner, while helping the owners and brokers to solve user issues as well as facilitating communication between sellers and buyers. It also provides features like alerting system, location finding, user authentication, exchange of messages as well as search engine facility.

Mark Lloyd Lester S. Consignado et al. [7] developed an application to help the individuals in searching as well as posting properties for sale, and to locate a new apartment or house. The same application can be used for selling as well as buying purpose with multiple features. It also provides search map feature to visually explore and search the properties.

Dhanalaxmi, B. et al. [8] developed an application to authenticate and validate users through one time passwords. It eases the user registration to some limited information only. The registered users can post their property details and view the details of properties posted by other users. It works on the basis of current location of the user, and sorts the users based upon the distance between their current location and properties.

### **Proposed System**

The proposed system consists of development of an interactive user interface for web and application based access to properties to ease the selling-buying process. It has inherited many key features from existing methods like registration, verification, menu driven search, property ordering, location awareness and interaction through call or messages. Still, there are some un-noticed limitations or possible improvements in the existing methods that motivated towards development of the proposed system.

Following are the key features of the proposed system that offer upper hand over the existing systems:

- Validation and Verification of Sellers and Buyers through One Time Password (OTP)
- Location-based search in available properties: category-wise, budget-wise, user experience ratings, locality, amenities
- Identity hiding based secure interactions between seller-buyer through chat and voice/video calling, until they do not want to reveal identities
- Additional details like alterations permitted, mode of payment, hidden charges, broker charges, and support for documentation work like contracts, maintenance charges, and legal support.
- Support for transportation, gas connection, repair works and maintenance services on one-to-one basis.
- Interface to sellers as well as buyers to enter their available/required property details

Seller and buyer are the two key parties, other than brokers and officials, involved in property matters like sale-purchase, lease or rent. The proposed interactive interface aims to provide a complete solution to the sellers and buyers for selling and buying properties. Figure 1 shows the block diagram of the proposed system.

## Block Diagram of Proposed System

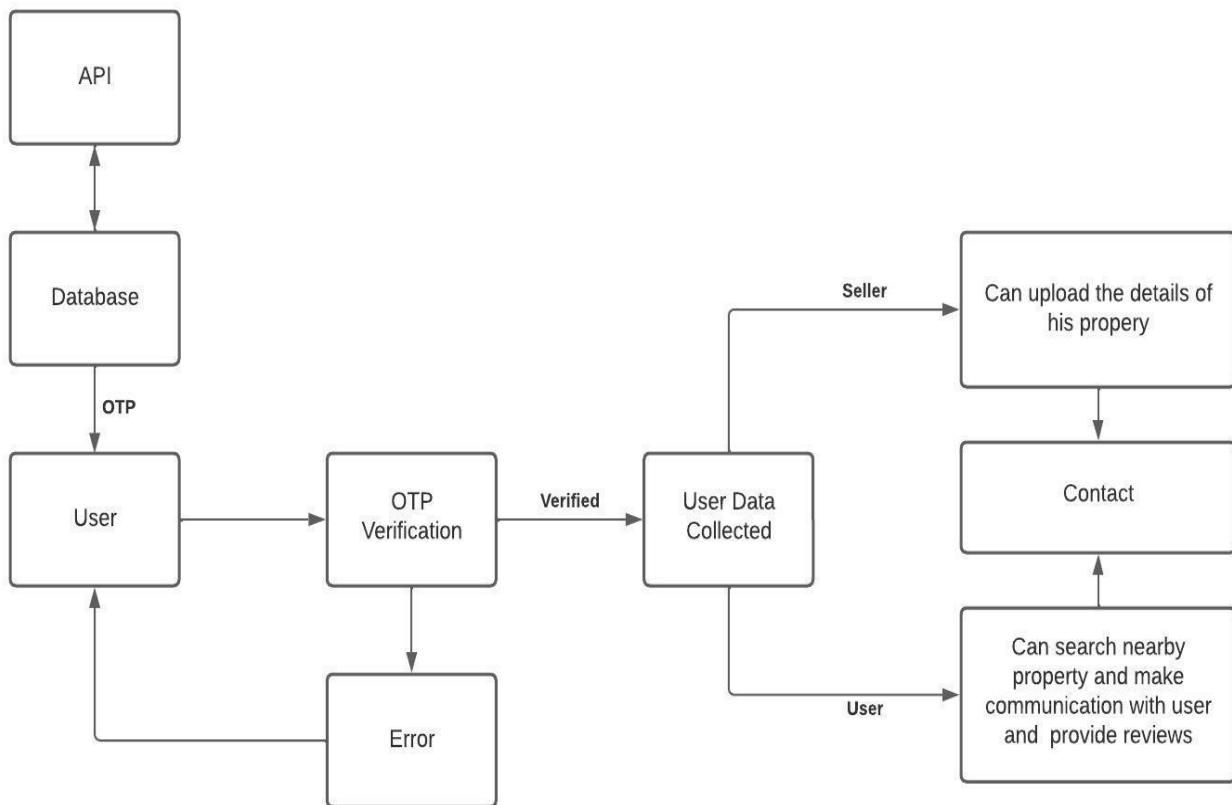


Figure 1 : Block Diagram of Proposed System

The seller and buyer needs to register themselves for access, update and communicate in the proposed system. User authentication being the key concern for Customer-to-Customer platforms is addressed through one-time password validation, to ensure legitimate sellers and buyers. The sellers and buyers are authenticated every time a new session is started. The sellers can enter their property details through pre-specified feature set, consisting of type of property, location, photographs, price and facilities checklists, which is chosen to meet the requirements of most of the existing customers. The buyers can access the system post-verification, and can provide their reviews on the properties they used earlier. Other than basic review like star ratings, value for money, reach to key places, some additional features like property-specific review, comparison to other properties in locality radius, as well as owner reviews for behavior, hidden charges and interference are also included. The seller and buyer can communicate through chat or calling facility with identity hiding feature, where one party can request another party to share contact details. The application is being developed keeping in mind the security and authenticity as key features. The buyer is provided with the features of keyword search, drop down menus and order by attributes. It makes the user experience more interactive and focused to their desired outcomes. The user can scroll between different properties, and the detailed features will be displayed to the chosen property including reviews from existing users and analytics based upon other properties within the chosen radius. The entire process of seller and buyer registration, verification, search, and communication is shown in figure 2 and 3 respectively.

### FLOWCHART OF USER



Figure 2: Flowchart of User

## FLOWCHART OF OWNER

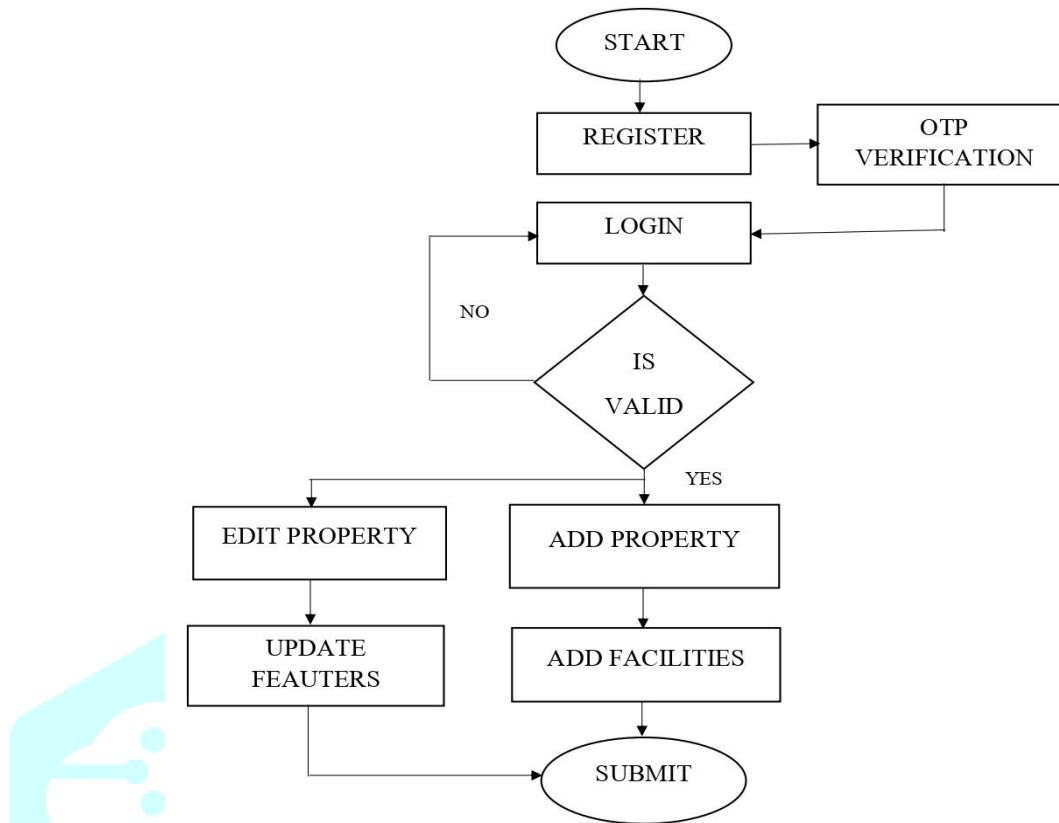


Figure3: Flowchart of Owner

### Conclusions and Future Scope

The demand for property selling and buying platforms is increasing due to the increased movement of people from one place to another for personal, service and business purposes. The proposed system provides an interactive user interface to the sellers and buyers of properties like houses, shops and offices with secure user authentication and identity hiding based communication. It gives features of individual property reviews; locality based analysis as well as additional costs information. The proposed system is having many advantages over existing platforms that makes it a good fit for user requirements overcoming various bottlenecks in existing applications. The implementation of the system may lead to better property selection at a reasonable price without any physical third party.

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