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Online Auction System with AI

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Abstract

An online auction is type of an auction that takes place over the Internet. It is a popular method for buying and selling products and services. Such systems give the best price to the seller as well as the buyers. The application proposed in this paper was developed with the objective of making the system reliable, easier and fast. Through this application, anyone can sell anything on the website by sitting at home. It's as easy as browsing the app website. Even non-technical persons can easily interact with the process of buying and selling on the application. An online auction system permits a customer to submit online orders for items and/or services from a store that serves both walk-in customers and online customers. The online auction system presents an online display of an order cut off time and an associated delivery window for items selected by the customer of any 2nd hand products. The online auction system does not settle with a credit supplier of the customer until the item selected by the customer is picked from inventory. Therefore, customers can go online to modify their order. In addition, the service window is presented to the customer as a function of the order and service type selected by the customer, and also the choice is made according to the person's preference, where the order selection is correct. When ordering goods, a virtual shopping cart is also provided by many shopping systems for holding items selected for purchase. Until a customer completes their shopping trip, successive items selected for purchase are placed into the virtual shopping cart. Virtual shopping carts may be examined at any time, and their contents can be deleted and edited at the customer's end.

Keywords: *Online auction, App development, Service windows, Platform development, User interface design, User experience design, Artificial intelligence.*

1. Introduction

ONLINE auction is a business model, where bidding is done in order to sell items. With the binary classification we treat the fraud detection. For buying product online user have to provide his personal details like email address, license number, PAN card number etc. The authority to bid will be given only to the valid user. This prevents various frauds occurring in online shopping. In online auction system proposed in this paper, one is able to sell 2nd hand product in online mode. This project is different from others as many such websites don't follow rules like return of items, price refunds, product-quality etc. The system is designed to be large in capacity and able to support many candidates for competitive jobs. Online auction systems are also called as electronic auctions, e-auctions. It is also known by other names such as. Customers can specify their online auction or bid online. It must be healthy, and it will be a good application when it becomes transparent. Online bidding has become more common for many business purposes. It includes not only the goods or goods but also the services that can be provided. This expansion allowed the system to grow due to its low cost. Online gambling has become the standard method for shopping. Candidates may optionally be stored and tracked in a warehouse facility. User data may be stored confidentially to ensure validity and integrity to data contract. Clean advertising; it will reduce documents, mail, printing and time. Easily communicate with multiple candidates. The system allows a user to place

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multiple bids. Online bidding is based on the lowest or highest starting price, not the best price for the item. In fact, this is the time to follow the process where the seller waits for the asking price. Selling Online is Subject to many types are shown in Figure 1.

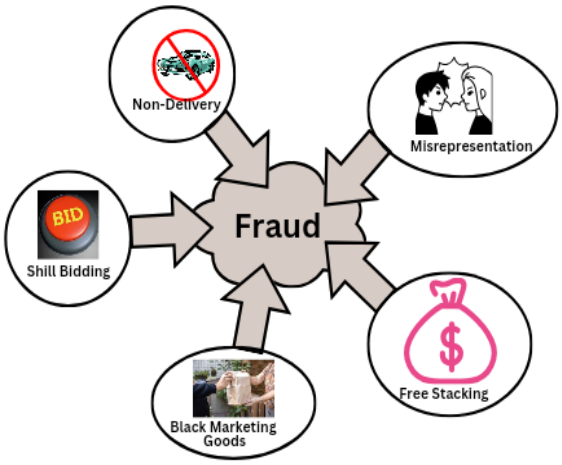

Figure 1 Selling Online is Subject to Many Types

2. Problem statement

When purchasing second-hand products from online platforms, it's frequently observed that there are no provisions for returning items if the buyer is dissatisfied. Complaints about fraudulent activities or scams perpetrated by sellers are widespread. Our aim here is to address and mitigate such unethical behaviors [3]. Block Diagram is shown in Figure 2.

3. Design

3.1 Market Analysis

To maximize the potential of a mobile application, thorough market research and promotional analysis are essential [4-6]. Key areas of focus include:

3.1.1 Consumer Demographics

One should be sure about various categories of customers and integration before making any sales. Accordingly, presentation of products or services is determined. Diverse mix of buyers need different ways of showcasing commodities for success.

3.1.2 Niche Competitors

One must know competitors well for ensuring sales. It pays to study their app design and features: what people like about their app and what they don't? One should find their strengths and weaknesses to add value to your app design. There is a well-known piece of advice: "While it is wise to learn from experience, it is wiser to learn from the experiences of others" — Rick Warren

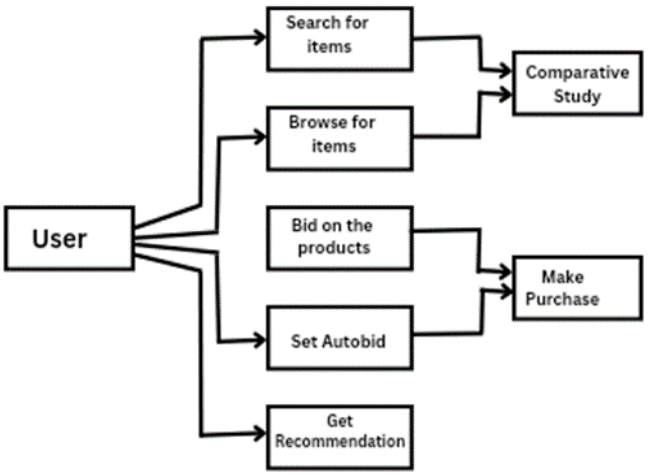

Figure 2 Block Diagram

3.2 Different Existing System Analysis

3.2.1 EBay Bidding System Online biddings

Give examples of the massive growth that has been achie ved, particularly through Internet technology. EBay, the premier online bidding retailer with over 80% of the online bidding market, boasts that, on any given day, there are more than 12 million items listed on eBay across over 18,000 categories. In the second quarter of 2003, EBay reported record net revenues of $509.3 million, up 91% from the same period in 2002. The major fact of eBay is anyone can sign up and start selling without any experience. According the pricing model, sellers who do not have a store can receive 100 free listings per month.

Advantages

- High quality products, well known and reliable website.
- As the number of users increases, more review/suggestions will be provided.

Disadvantages

- Profit Loss.
- Scam rates.
- Customer service.

4. Specifications and Prototype

Depending on the target audience and the business model, MVP features and functionality are finalized e.g., for book shopping app, it must have a preview of the book besides comments from previous buyers. However for a grocery shopping app, an option to pay by coupons and discounts is desirable to lure buyers .A prototype represents the first glance of what the mobile shopping app would look like. An App builder can help to create a prototype which will cover all visual aspect of the application [10-12].

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5. App Design

5.1 Two Approaches in Recommendation System Design

5.1.1 UI Design (User Interface Design)

UI Design, short for User Interface Design, focuses on creating an interface that is easy to use and user-friendly. This entails designing elements such as buttons, color schemes, post types, and functions to ensure that users can interact with the app seamlessly. The goal is to enhance user understanding and interaction with the app, facilitating a smooth user experience [13].

5.1.2 UX Design (User Experience Design)

UX Design, or User Experience Design, revolves around the overall feeling and experience that users have while using the app. This encompasses aspects such as easy-to-read fonts, smooth scrolling, and app performance. Smooth and secure payment processes, supported by various payment gateway options like credit cards and net banking, are crucial to enhancing the user experience. As Jeff Bezos famously said, "If you do build a great experience, customers tell each other about that. Word of mouth is very powerful. “In the realm of e-commerce systems, user sessions are conceptualized as sequences of web pages that illustrate how users interact with the system while making purchases according to their preferences. With increasing competition in the e-commerce landscape, factors such as consumer benefits, product reviews, and comparison of similar products are vital considerations. Consumers tend to buy products based on ratings and reviews, making selling rates and good ratings directly proportional [14]. Hence, the aim is to design a tool (system) that recommends the best-suited products to customers based on their requirements.

5.2 Collaborative Filtering

Collaborative filtering (CF) [5] and its modifications is one of the most commonly used recommendation algorithms. Collaborative filters recommend products based on customers and features similar to products. For recommendations, it is very important to remember similar interests, behaviors and activities of others who will recommend similar products. Or we can see the previous items the user bought, and recommend products which are similar.

The two basic approaches in CF [5] are

User based [5] collaborative filtering and item-based [5] collaborative filtering, respectively. In each case the recommendation engine has two steps:

1. To find out similar users/items in the database to the current user/item.
2. Considering the total weight of users/products similar to this product, evaluate other users/products to estimate the user rating you would give this product.

5.3 Content-based Recommendations

Content-based filtering also referred to as cognitive filtering, recommends items based on the user activities and the content description of an item. The content of everything is represented as descriptive process or content, this is usually by word or sentence. The user profile is represented with the same phrase and projected by analyzing the description of item which has been previously seen by the user. Content based system takes input from the user activities and profile and content parameter along with item's description and features to make the recommendation. Proposed system is shown in Figure 3.

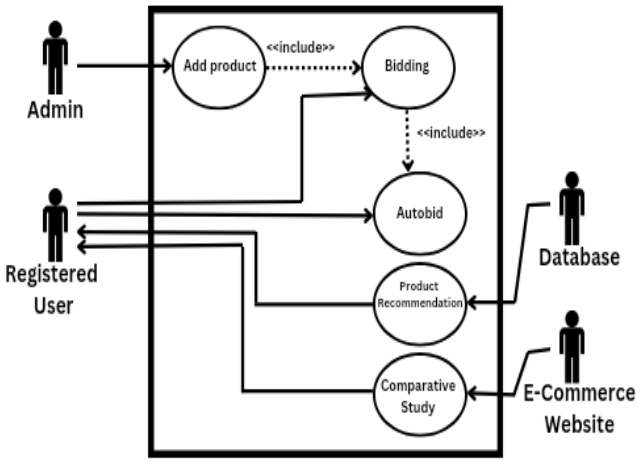

Figure 3 Proposed system

6. The Right Platform

Selecting the right e-commerce platform is crucial for developing a shopping app that maximizes business growth. With countries like China and India witnessing rapid growth in smartphone adoption, the dominance of the Android operating system presents a vast market for expansion. Conversely, customers in regions like the US, North America, and Eastern Europe show a preference for iOS devices and are often willing to pay higher prices. Developing an iOS shopping app offers the advantage of targeting these lucrative markets while requiring less development time, as it needs to be designed for only the latest two versions. On the other hand, an Android-based shopping app must cater to a wide range of devices and screen sizes, making development more complex. A

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strategic approach is to create a shopping app that is compatible with both Android and iOS platforms, prioritizing development for iOS initially and then for Android. This ensures broad market coverage and maximizes the app's potential for success [15].

7. App Development & Testing

Mobile app development involves translating design concepts into functional software through coding. It's an ongoing process that requires regular testing, updates, and modifications to ensure smooth functionality, usability, and performance. Hiring professional app developers is advisable, as they possess the expertise to write simple yet functional code efficiently. Even for those with coding knowledge, engaging developers saves significant time. Building a shopping app entails supporting online transactions and integrating shipping services, necessitating highly secure coding skills and thorough testing prior to launch. Failing to do so may result in legal issues and damage to the brand's reputation, which can be costlier than investing in professional app development services [16].

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