ONLINE MARKET SYSTEM BASED ON BIDDING MECHANISM USING AN AI AUCTIONEER

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ABSTRACT

The digital market systems have brought a revolution in the ways of buying and selling of goods. All the existing market system either sell new products or reselling markets use the static (discounted) pricing systems. This paper presents the development and design of a secure and efficient marketplace / market system using the core concepts of bidding so that an effective platform for buyers and sellers to bid and exchange goods can be developed. Overall, online market systems will revolutionize the way businesses operate and provide customers with greater convenience, access, and transparency in the purchasing process.

KEYWORDS

Market System , Bidding Mechanism , AI auctioneer , Analysis , Recommendation

1.INTRODUCTION

The use of bidding systems can improve the whole digital market systems for reselling and make it easier for users at both the ends [1-7]. This paper aims to provide a comprehensive solution to the challenges faced by the sellers and buyers in digital market systems through the creation of digital market system based on a bidding system. This paper proposes to create a website which will enable seamless experience of buying and selling.

1.1 This website in future will offer an **AI auctioneer** which will be used to auction luxurious items and items which need quick attention

1.2 **How an AI auctioneer works** – It enables the auction process on it's own which mean it will be able to conduct auctions , start it , stop it , declare the winner all at the run time .

1.3 The website's continuous updating database will help making a user friendly and user required recommendation system using ML methods.

2.LITERATURE SURVEY

In year 2021, Secure and Efficient Online Market System Based on a Bidding System.[11] paper was published by A. Gupta and S. Verma, mentioning the key feature of this project as this project has a User- friendly UI, it has an ability to automate the bidding process, it also provides features such as real time-alert and it also contains a bidding history on this online platform. In this project, PHP, MySQL, HTML, and CSS these components are used to develop and execute the project. As a result, the system can handle an increasing number of user and transactions without compromising it's performance, security, and reliability. A scalable system is designed to accommodate growth by adding resources such as servers, databases, and network bandwidth as needed. The system should also be able to distribute its workload efficiently across these resources to avoid overloading any particular component. Additionally, the system should be designed with some security measures to protect against potential threats and ensure data confidentiality. In conclusion, a scalable system can maintain its performance and stability even if the user and transaction volume increases. A major limitation of the following project was that it was falling short of data for its further implementation.

The paper "Design and implementation of an Online Auction System" is published in year 2018 by M.F.Alhamid, M.Z.Alshamrani, and A.Alghamdi. In this system they defined many key features. As a project is able to perform a module auction listing, it has an ability to show real-time alerts, and can able to automate the bidding process and the most important facility which is required in today's market is a secure , fast payment options which has been included in this particular project .As a development tool of project PHP, HTML, CSS, and JavaScript are used. the system underwent testing to evaluate its performance and functionality the results showed that it met the expected standards of reliability and efficiency. This means that the system is able to function effectively and consistently without experiencing errors, breakdowns, or other issues that could compromise its performance. The system is also able to accomplish its intended tasks in a timely and efficient manner, with minimal delays or wastage of resources.

This outcome is a positive indication that the system can be deployed and used with confidence, knowing that it will perform as expected.
designed to work with only one specific pair of users and did not have any payment gatteway integrated. This means that the

system was not built to handle multiple users or transactions, and it could only be used by the specific pair of users for which it was designed.
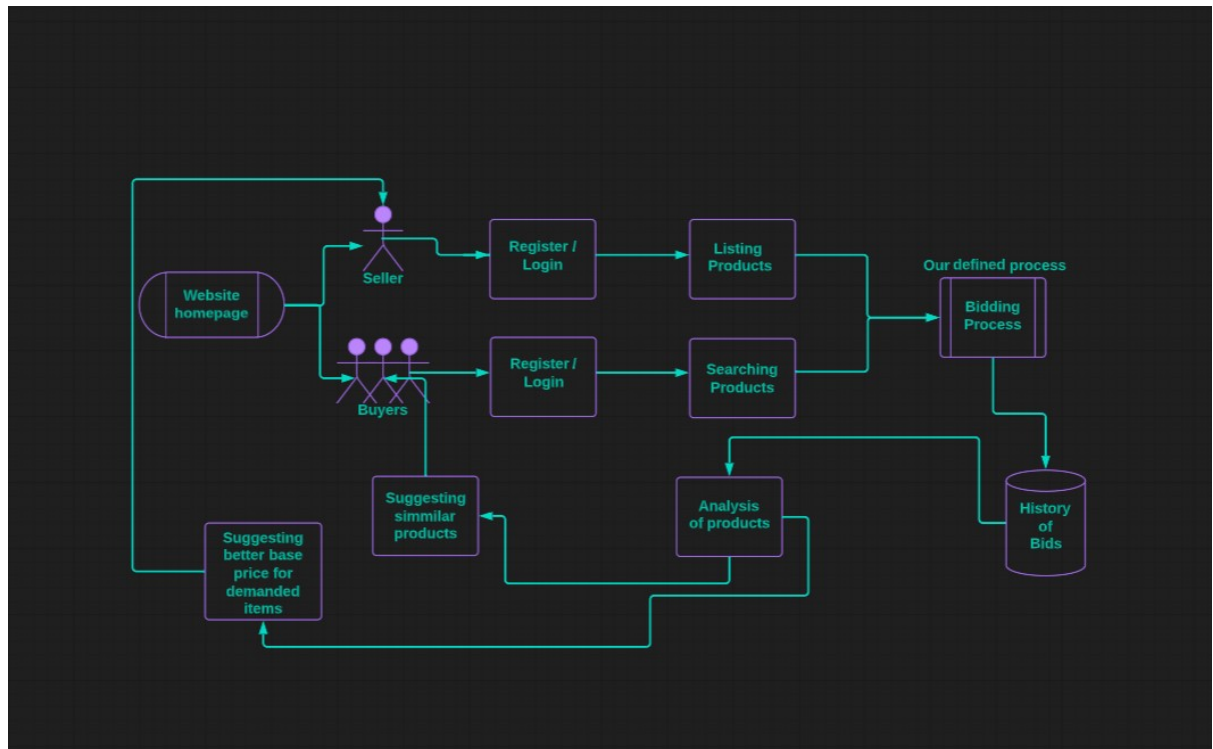

Figure 1. System Architecture of Online Market System

3.SYSTEM ARCHITECTURE

Figure 1 is the proposed system diagram – It's functional parts would be Figure 4 – Website homepage from there the customers can create their id and then select whether they need to continue as a customer or buyer as shown in Figure 3. Below is the description of both the scenarios:

3.1 **If the user continues as seller** – If that user is already logged in he/she can continue directly otherwise needs to log in then the seller can go on with listing their product they want to sell for that some required fields need to be filled such as adding picture of the products from all the sides, adding a proper description of the product , the base price seller wants to start the bid, starting time of the bidding , expected time to stop bidding , is the ending time fixed or it can change for an higher bid and finally their UPI details for payments and then a seller can list their product , after that our defined auction system which we're going to make using java will come to play and the bidding process for that product will start which will be added dynamically with all the other products available for bidding at that time.

3.2 **At the buyers POV** if the buyer is already registered he/she can explore the market place search for items also

if he's been our user from a duration of time he'll be getting suggestions, the buyer can place bids on any product he's interested to buy the if he wins that auction the product will be delivered to him after the payment is done.

3.3 Also the database will be constantly updating on the basis of inputs received from the bidding process, this data will be used for analysis of products via **ML techniques** and multiple provisions can be provided to the users such as recommending correct base price of a product[13-14] , suggesting the max bid of a product, recommending products relevant to users and suggesting them to stop if they're overbidding all these analysis and their outcomes will used to create a better and seamless experience for both sellers and buyers.

4.DISCUSSION

This market system provides visible advantages when compared to the traditional players of reselling goods. It's handy behaviour makes it easy for the users to participate in auctions from anywhere with an internet connection[15]. This market place also provides a secure and efficient platform for reselling goods. Also, the recommendation system creates a very secured environment for selling and buying of goods.
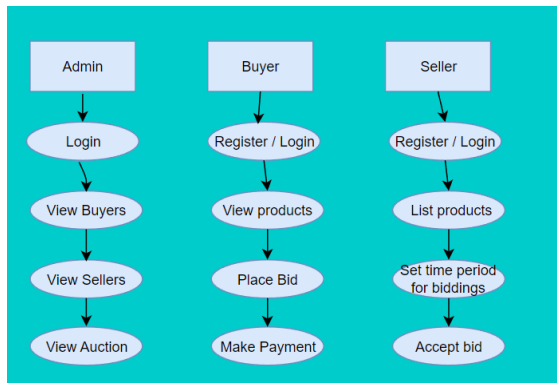
5.MODULE DIAGRAM

Figure 2. Module Diagram

Figure 2, represents the module diagram which includes three modules – Admin, Buyer , Seller. Admin module will be only accessible to the developers it will have the login for validations, then view buyers which will be useful for the study of the active buyers and help in the analysis purpose too. The next functionality will be view sellers which will provide the same mentioned details but for sellers , and the last will be the view auction by which bidding process will be controlled. The second module / interface is the buyer module it contains functionality such as view products, place bid and make payments all these are informed above in the system architecture part. The final module is the sellers module which have functionality such as list products, set time period and accept bid and then accept payment all these modules are also dynamic will be getting updates every now and then to make the system more reliable and effective. Figure 3 shows the landing page for the website that incorporates two options Buyer and Seller. Figure 4 shows the login page with proper validation controls on the password field to ensure security.

6.CONCLUSION

This market system provides an accurate and perfect platform for reselling of goods, which is efficient, reliable and easy to use [8-11]. It offers a visible betterment over the existing players and their methods, which makes this market system more easy to use and easily reachable. This market system can be the best possible and achievable approach in the field of reselling and buying.
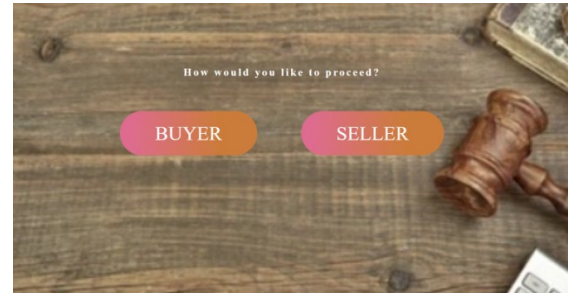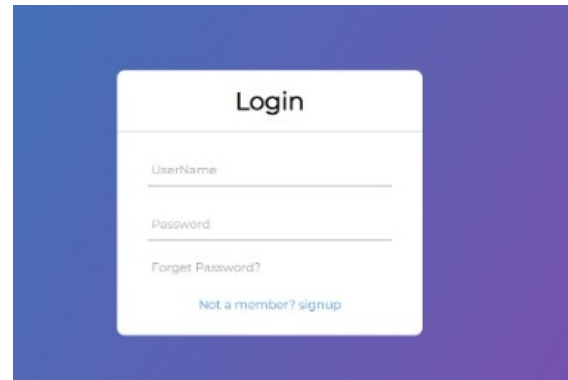

Figure 3. Landing Page

Figure 4. Login Page

7.FUTURE SCOPE

In near future our vision with this project is very bright and big we aim to add a AI auctioneer which will be useful for conducting live auctions and also it will be a great way to create an audience pull for the website. As technology continues to advance and more people gain access to the internet, online market systems are expected to become even more prevalent and sophisticated. Some potential areas of growth and development for online market systems in the future include:

Enhanced personalization: Online market systems are likely to become more tailored to individual customers' preferences and needs, offering personalized product recommendations, pricing, and promotions based on their browsing and purchasing history.

Integration of emerging technologies: Emerging technologies such as virtual reality, augmented reality, and artificial intelligence are likely to be integrated into online market systems, providing customers with more immersive and interactive shopping experiences.

Expansion into new markets: Online market systems have already disrupted traditional retail markets, but they are expected to expand into new areas such as healthcare, education, and government services.

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