International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 06 Issue: 05 | May - 2022 Impact Factor: 7.185 ISSN: 2582-3930

Virtual Auction featured with AI Chat System & Payment Provision (VACP)

Prof. Poonam Railkar[1], Ajay Kharat[2], Pavankumar Maurya[3], Pratik Kulkarni[4], Manish Yadav[5]

[1]*Project Guide, Department of Computer Engineering, Smt. Kashibai Navale College of Engineering, Pune, India*

[2 3 4 5]*Projecties, Department of Computer Engineering, Smt. Kashibai Navale College of Engineering, Pune, India*

[2]ajaykharat2222@gmail.com, [3]pavankumarmaurya1999@gmail.com, [4]pratikcmkulkarni@gmail.com,

[5]mani12yadav29@gmail.com

Abstract - The design and the implementation of an effective virtual auction service providing a platform for clients and vendors is presented in this paper. It uses a very efficient way of purchasing and selling any products through a virtual auction system. Virtual auctions reach buyers and sellers worldwide. Virtual auctions provide the reach to find the right buyer for every item. By using this system any person or an organization such as a government, or business institution can be more modular and organized in their buying and selling. Features like an AI chat system, Payment provision make this system more attractive and efficient. The system has been designed in such a manner that the users of the system will get all the necessary information, and it is capable of providing an easy, effective and reliable way of purchasing and selling via a virtual auction system which will change the usual scenario of auctions which happens in the real world.

Key Words: machine learning, e-commerce, web application, payment gateway, assistive technology, virtual auction.

I. INTRODUCTION

As an online-based system, the Virtual Auction System is quite similar to any E-commerce system and can be accessed from any device, such as a computer, laptops, mobiles, etc. Virtual Auction featured with AI Chat System & Payment Provision (VACP) is an online service platform to provide ease of access for its consumers. An auction is usually a process of purchasing and selling products by offering them up for bids, taking bids, and then selling the item to the highest bidder or purchasing the item from the lowest bidder [1]. The internet has become a very important aspect of life today. More than 3 billion people in the world have an access to the internet, which is relatively 45% of the world population. With this in mind, the rate at which this large population is seeking to buy items is also on the rise, as many people are seeking advanced and ideal routes of trading services. Some people spend a lot of money on transportation, using a lot of time which at the end of the road they might lack to get the desired items which they opted for. Regular clients face various challenges while doing online marketing. Some of them might experience internal limitations in this criteria which include motivations while for some it would be external, as in related to proficiency in this online service. This system describes research methodology, experience, and motivation for making online trading services easier through bidding and buying. VACP is a web-based application where participants can bid for the products and users can upload products for auction. In Online Auctions authenticity of products auctioned is always questioned. To overcome this issue, this system is designed to allow customers/users to set up their products for auctions only when it is authenticated by the admin [2].

This paper is classified into various sections. Section I introduces the main goal and introduction of Virtual Auction System. In section II, the motivation for this system is mentioned. Section III covers some relevant issues which explore the various challenges and problems facing clients and vendors in their earlier steps of online service aspects. Section IV has covered the whole proposed system is described. Section V presents the methodology of the research including, system portfolio, system architecture, and data collection and elaborates the analysis. Section VI shows the result of the system. Section VII presents the conclusion and future work of this proposed work. Section VIII has been marked with the proper references.

II. MOTIVATION

It is well acknowledged that the majority of people seek to purchase products daily in most cities and towns, both locally and internationally, desperate to find a solution or the proper person to deliver a solution to them. On the other hand, there are legitimate business people who have good quality products at the same place where the auctioneers are residing, but they do not meet because the auctioneer is not informed about the products available. That's why, these people settle for items or service providers who are common or who sell illegal and fake items to desperate buyers. This is a source of significant frustration in practice. This project will address this issue by developing an online platform via which users will be able to list items for auction regularly. The items will be accompanied by a description of the item, its selling price, and a visual presentation for the bidder's consideration. The bidder, if he/she is interested in the item, will auction for the goods and will be able to physically inspect the item to ensure that it is

satisfactory before concluding the transaction with the seller.

III. RELATED WORK

Administrators can accept or decline the request for auctions send by different users, also they can view all information about users and products. They can create, modify and delete the categories of auctions. (Categories like cars, electronics, books, cloths, music stuff, antique items etc.)[3]. Clustering-based method is used for recommendation of products and also to forecast the end price of an online auction [4]. The chatbot is used to respond to basic chat, answering the user questions based on a set of questions that have been already defined. A chat-bot is developed so that users can work smarter, faster, and more accurately while using this system. In the chatbot system, there are several processes, namely data parsing, data crawling, and pattern matching [5]. The manual procedure of bidding is an expensive complicated and challenging process it is highly time-consuming and it involves a lot of official and unofficial paperwork. Creating a website application project to solve the given problems where vendors will provide electronic products cheaply. Clients can find their expected products without facing any difficulties. That will be an online product service system via a web-based application [2]. This paper sees scope for improvement in the current system as they are susceptible to a lot of fraudulent activities. The users need to be verified before being able to sell or buy products and that is what we have tried to achieve by the means of this project. After the auction is over, it is the seller's responsibility to deal directly with the buyer concerning payment and delivery. The auction companies do not hold any responsibility for the transaction. Auction fraud is therefore an increasingly difficult problem in the virtual market [6]. The recommender system could be a new generation of web tools that helps users to access the online and receive data concerning their preferences. An internet recommender is relatively a straight forward and quicker procedure to buy things and this can be done quickly. Recommendation systems play an important role in e-commerce websites to assist users in distinctive the proper merchandise. One of the best methods to increase profits and attract customers is a recommendation process. The existing methodologies allow the systems to collect irrelevant data and lead to a downfall in attracting the users and completing their work quickly and reliably. We have used a User-Based Collaborative Filtering approach and measured the performance of similarity measures in recommending books to a user. The proposed system's overall architecture is introduced and its implementation is represented with a model design [7]. Recently, virtual assistants for customer service have become more and more popular with customer-oriented businesses. Most of them are built from human conversations in the past, which are straightforward but faced with problems of data scale and privacy. Most of the time, customers need to wait in line to get a support staff person's answer, which is less effective and difficult to scale up. Meanwhile, Customers might have privacy considerations concerning the conversations, hence conversations with customers cannot be simply leveraged to coach a chat-bot. It is essential to search out large-scale and in public offered client service information sources on which to create such assistants. Therefore, chat-bots are often an excellent supplement customer service offerings since they're a lot of economical and tireless [8].

Paper/ Reference	Existing Solution	Content Quality	AI Chat System	Recommendation System	Payment Provision
[11]	eAuction India	High	✕	✓	✓
[12]	eBay	Moderate	✕	✓	✓
[13]	Copart	High	✕	✕	✓
[14]	ebid	Moderate	✕	✓	✓
[15]	LiveAuctioneers	Moderate	✕	✓	✓
[16]	Our Project	High	✓	✓	✓

✓: Corresponding parameter is present in that particular solution

✕: The corresponding parameter is lagging in that solution

IV. PROPOSED SYSTEM

The main goal of the web application is to help both clients and vendors to ease down the hassle related to the current scenario of real-world auctions where the bidder and seller need to be present at the auction site physically. The risks for sellers of not receiving the bid amount as well as an unnecessary increase in the bidding price of products will be resolved by the system as all bidders need to subscribe to the access to the auction by paying some initial amount. If the bidder increases the bid amount but fails to pay then the amount of the subscription will be confiscated and compensated to the seller. This prevents bidders from increasing the bid amount and not paying for the product [2]. This platform will create a new era of auctions. In our system, when the clients search for their desired product in this web application by selecting their criteria they can find the products from the vendors as per their criteria. If the clients can find their desired product they can participate in the auction and then bid directly after the auction starts. The product is usually auctioned for a particular duration during which bidders can compete with other bidders for the product. After the auction duration completes the bidding will commence and the highest bidder will be declared the winner. The highest bidder will be prompted to pay money for the product through the payment provision provided. Vendors can post their products with details. To make the system more reliable, clients and vendors can give ratings and comments to each other's profiles after doing a business, which will help future clients and vendors to do a smooth business. If any clients and vendors have any issues, then they can also contact the support provider of our system to resolve the issue. In our system, to place an order or post a product both clients and vendors have to have an account, where they can provide their necessary information and edit or delete their posts. The vendors will have their interface to display their products and the clients will have their interface to search for a product or post for a product of their requirement. Both vendors and clients will have different interfaces with each other. There will also be another interface for the admin. Admin needs to approve the products for each

auction only then the product can appear for auction for the authenticity of the product. Admin will resolve issues regarding the system or the complaints from the clients and the vendors. Admin could block any client or vendor from using the system for a while depending on the issue reported. Admin will also check if the reported issues are correct or wrong before making a move [2].

V. SYSTEM ARCHITECTURE

The architecture of this system is very simple Figure 1. The users can easily find all the necessary options from this web application. Access on multiple devices and web-based internet browsers or software is allowed by the VACP system. There are three types of users i.e. bidders, sellers, and system admin. The system consists of eight main components: signup and authentication, user profile, buy or sell products with the auction system, payment provision, AI chat system, recommendation system, and feedback.

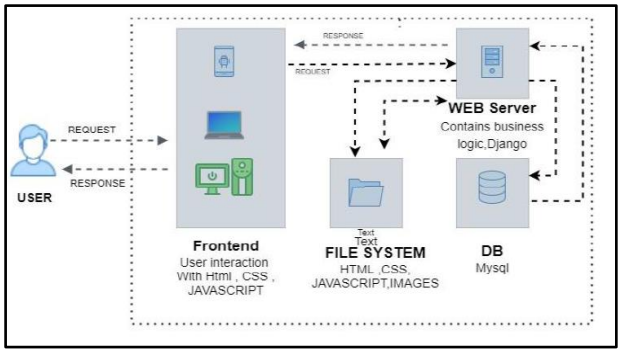

Figure 1: System architecture

The system is mainly implemented between the client-side and server-side. To design the VACP System according to the planning, some basic system requirements must be fulfilled.

At first, the web application architecture and a use case diagram Figure 2 that consists of the relationships and interactions between application components, such as middleware systems, UI, and databases are researched.

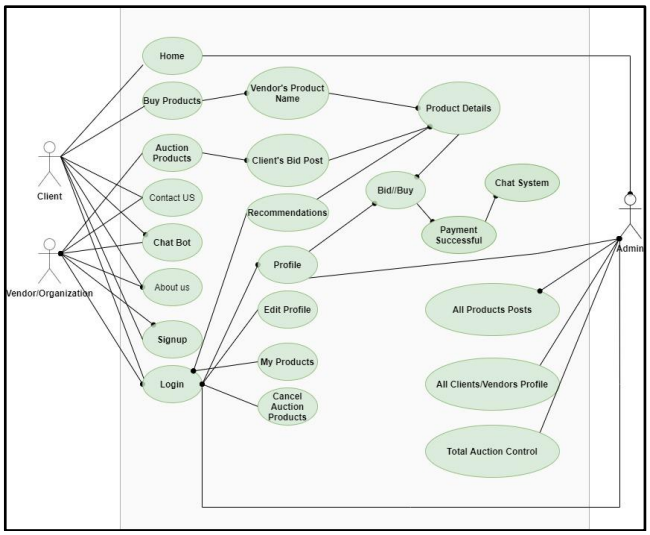

Figure 2: Use a case diagram

After that, the works begin with the client-side part and which is the UI/UX design of the website which introduces the features of the system to the users. UI/UX design or visual content part is specified by HTML elements, Cascading style sheets (CSS), and JavaScript. Web pages are made with HTML elements and the whole system's frontend part is designed by this.

The system uses the MVT design pattern Figure 3. The MVT (Model View Template) could be a software style pattern. It's a group of 3 vital parts Model View and Template. The Model helps to handle the information. It's a knowledge access layer that handles the information. The model could be a presentation layer that handles the program part utterly. The View is employed to execute the business logic and move with a model to hold knowledge and renders a model [9].

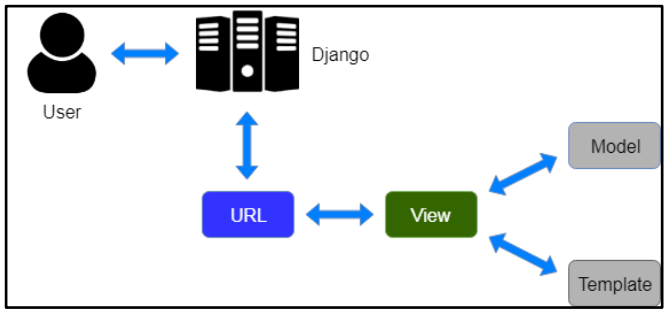

Figure 3: Django MVT based control flow [9]

Here, a user requests a resource to the Django, Django works as a controller and checks the available resource in the URL. If URL maps, then the view is called and it interacts with the model and the template, it renders a template. Django responds to the user and sends a response as a template. The system uses PostgreSQL/MySQL for maintaining the database.

VI. RESULTS

This section highlights the result of the system from relationships as well as interactions of the user with the system. The stated objectives are justified as follows: The virtual experience of an auction is much better than the

auction in the real world and it is very much efficient for both seller and bidder. Due to the online-based bidding system, the corruption related to the auction has been reduced. The client gets their desired product without any hassle. On the other side, the vendor can sell their desired product without any time delay. System Design and Implementation for the web-based auction system, the relationships, and interactions of the components are described below:

1. Signup and Authentication:

There are two types of signup systems for a user: bidder/seller signup and admin login Figure 4. After giving the required information a user can complete the signup process. Authentication is responsible when a user needs to log into the system. Through the user account, user authentication is done. We utilize the fastest and most efficient authentication system. Users can see the user profile page after login into the system.

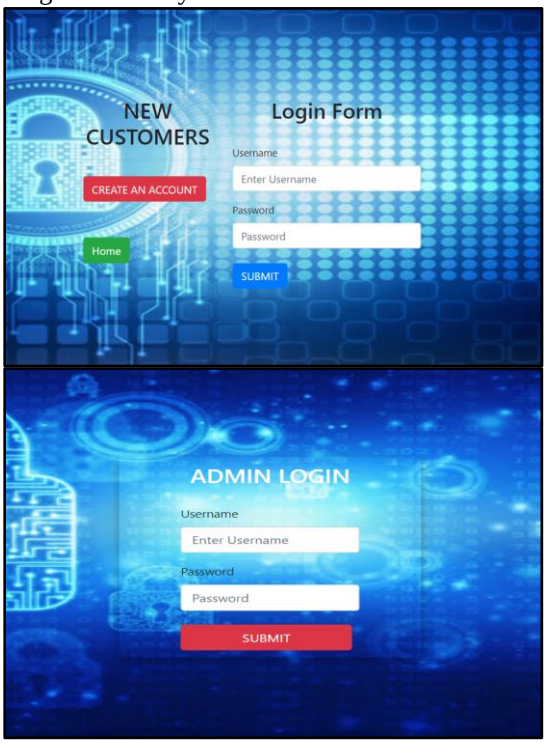

Figure 4: User and admin login

2. User profile and Admin dashboard:

On this page, all information of a user will be shown such as his/her name, profile editing, comment, and so on according to the user type Figure 5. There is some change in profile according to type. The Bidder profile and Vendor profile are almost similar, but there's a great change in the admin profile. Admin can monitor all the users, and their activity and can edit information on the webpage in real-time without the need to tamper with the code Figure 6. Admin can create any new product post on the website. Users can be notified of their activities as well as other information including admin messages via email or direct messaging system admin.

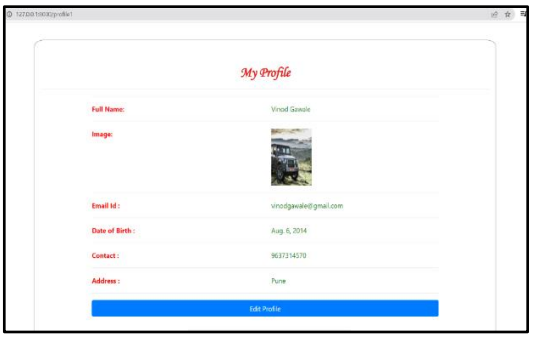

Figure 5: User profile

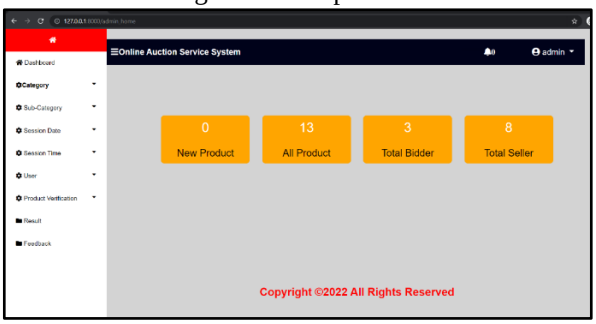

Figure 6: Admin dashboard

3. Buy or sell the product with an auction system:

This component is the most important component of this website or platform Figure 7. Clients buy products from this platform and vendors sell their products here in two ways: regular and bidding system. When a vendor makes a product post with a bidding system then a client can bid on that product. Both client and vendor can bid as per quantity. So a client or vendors can perform the bid according to his/her price until they reach their goal and best option. For this reason, everyone will be benefited from the best service and quality products. When a bidding process will be completed then the vendor can change the status of the product post and sell the products to the exact client. Besides the bidding system, there is a regular basis selling system. Regularly selling a vendor can simply sell his/her products by making a product selling post after approval of admin.

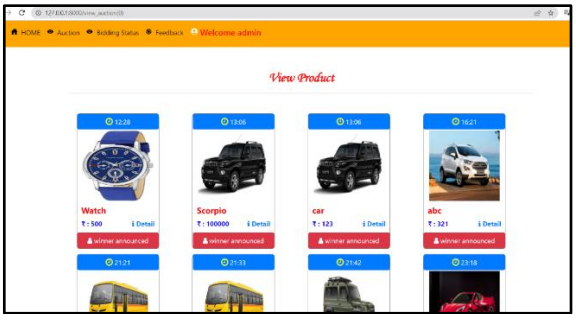

Figure 7: Products View

4. Payment provision:

Users will be needed to use the payment provision of the system for subscribing and buying the products. The payment process involves various steps which can be seen in Figure 8.

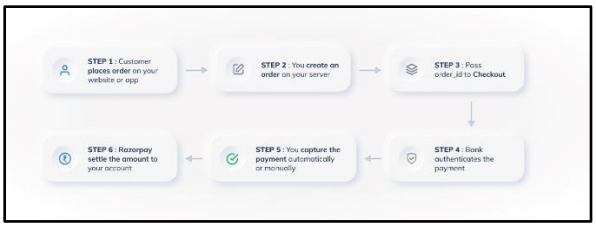

Figure 8: Payment system [10]

5. AI Chat system:

Chatbots shorten the wait time by answering user questions in a flash Figure 9. They collect insights about customers and their needs, helping your team reduce resolution time. VACP chatbot helps the sellers and bidders by resolving their queries about the system.

Figure 9: Chat system

6. Recommendation system:

Recommendation systems are programs that attempt to predict items that a user may be interested in, given some information about the user's profile. Most existing recommender systems use collaborative filtering methods, content-based methods, or hybrid filtering methods that combine both two techniques. Collaborative filtering methods base recommendations on other users' preferences[R]. VACP system uses collaborative filtering to recommend products to the users.

7. Feedback:

Sellers and bidders can give feedback or file complaints to the admin about any issues throughout the process of bidding Figure 10.

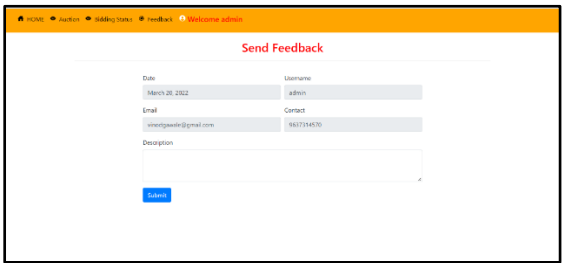

Figure 10: Feedback form

VII. CONCLUSION AND FUTURE WORK

Virtual Auction featured with AI Chat System & Payment Provision (VACP) an effective online-based platform for clients and vendors to make the concept understandable for the newer users. A significant result can be found in an online-based service while this platform system will be more familiar. This paper has covered the different types of impacts that our systems offer and those have been described and discussed. On the other hand, the proposed system can be accessed online via the internet. So people with disabilities can involve themselves in a business here. They can sell or buy their products through this online platform. They don't need to move here and there. Everything will be controlled with a computer or a smartphone; they can access the interactive multimedia content on the web and get proper services at home. People will be benefited from this. With proper guidance and motivation, they create jobs for themselves.

In the future, more payment options can be included as well as improvement of the security of the system. It would be nice for users to make payments using their way of payment to exchange money with the help of the website. The future work also consists of providing live tracking of products during the shipping of the product once the auction is completed. Also, we will provide a notification for the same. Live streaming of the auction can be done which will enhance the experience of the auction.

VIII. REFERENCES

[1] https://en.wikipedia.org/wiki/Auction (Wikipedia)
[2] Rahman, H., Barua, E., Afrin, S., Rahman, A., & Khan, M. M. (2021, April). Bid & Buy: An Effective Online Based Platform for Client and Vendor. In 2021 5th International Conference on Computing Methodologies and Communication (ICCMC) (pp. 472-477). IEEE.
[3] Nursetyo, A., & Subhiyakto, E. R. (2018, November). Smart chatbot system for e-commerce assistance based on AIML. In 2018 International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) (pp. 641-645). IEEE.
[4] Lee, C., Wang, P., & Niyato, D. (2013). A real-time group auction system for efficient allocation of cloud internet applications. IEEE Transactions on Services Computing, 8(2), 251-268.
[5] Kaur, P., Goyal, M., & Lu, J. (2011, April). Data mining has driven agents for predicting online auction's end price. In the 2011 IEEE Symposium on Computational Intelligence and Data Mining (CIDM) (pp. 141-147). IEEE.
[6] SOMANI, M. A., BOBADE, M. G., SHARMA, M. V., GUIDE, M., & ASHWINI, N. (2018). SECURE ONLINE AUCTIONING PORTA.
[7] Kommineni, M., Alekhya, P., Vyshnavi, T. M., Aparna, V., Swetha, K., & Mounika, V. (2020, January). Machine learning-based efficient recommendation system for book selection using user-based collaborative filtering algorithm. In 2020 Fourth International Conference on Inventive Systems and Control (ICISC) (pp. 66-71). IEEE.
[8] Cui, L., Huang, S., Wei, F., Tan, C., Duan, C., & Zhou, M. (2017, July). Superagent: A customer service chatbot

for e-commerce websites. In Proceedings of ACL 2017, system demonstrations (pp. 97-102).
[9] https://www.javatpoint.com/django-mvt (JavaTpoint)
[10] https://razorpay.com/docs/payments/payment-gateway/how-it-works/ (Payment Gateway)
[11] https://eauction.gov.in/eauction/#/ (eAuction)
[12] https://www.ebay.com/ (eBay)
[13] https://www.copart.com/ (Copart)
[14] https://www.ebid.net/us/ (ebid)
[15] https://www.liveauctioneers.com/ (LiveAuctioneers)
[16] https://virtual-auction.herokuapp.com/ (VirtualAuction)