

The Chatbot Based Online Shopping Web Application

Jeripothula Ajay*¹, A. Iswarya*², N. Aman Rao*³, S Venkata Ramana*⁴, Mr. N. Thirumala Rao

*¹B.Tech. Student, *²B.Tech. Student, *³B.Tech. Student, *⁴B.Tech. Student, *⁵Professor

CSE Department, JB Institute of Engineering and Technology, Hyderabad, India

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ABSTRACT

This paper presents the design and implementation of a Chatbot-based online shopping web application. This chatbot-based online shopping web application provides customers with a user-friendly and personalized shopping experience. By integrating a chatbot, the web application allows customers to interact with the system using natural language and simple commands. The chatbot uses previous browsing and purchase history to offer personalized recommendations to customers, which helps them find the products they are looking for easily. The application also includes a 24/7 customer support system that addresses customer queries and concerns promptly. The incorporation of a chatbot-based online shopping web application enables customers to have a more engaging and convenient shopping experience.

Keywords : Chatbot, Online Shopping, Natural Language, Personalization, Customer Support.

I. INTRODUCTION

During this pandemic many day-to-day things are done online, in which shopping is one such aspect. This scenario has compelled everyone to take their businesses online. While talking about shopping, the most important things that come into our mind are the quality and cost of the product. A customer never gets compromise in these two things. There are many apps available in the market for online shopping of products but the one tedious job here is searching for products. All the time the customer searches for the product he again needs to do clustering to fetch data of desired product. The rise of e-commerce has transformed the way people shop, and businesses are looking for

innovative ways to improve the online shopping experience for customers. Chatbots have emerged as a popular solution, enabling businesses to provide personalized recommendations, support, and assistance to customers, leading to higher customer satisfaction and loyalty. In this context, we developed a chatbot-based online shopping web application that leverages MySQL and PHP for the backend and XAMPP for web hosting. The use of MySQL and PHP provides a secure and scalable backend that enables businesses to manage their inventory, orders, and customers with ease, while XAMPP simplifies web hosting, making deployment and production more efficient. Our rules-based chatbot interacts with customers and provides personalized

recommendations, answers frequently asked questions, and assists with order tracking and status updates, improving the customer experience and reducing the workload of customer support teams. Additionally, our chatbot enables customers to chat with stylists to get advice and suggestions on product selection and styling, enhancing the customer experience and improving customer satisfaction.

II. LITERATURE SURVEY

A chatbot-based online shopping web application is a system that allows users to purchase products and services through a website or mobile app using a chatbot as the primary means of interaction. The chatbot simulates conversation with the user and presents options for products and services, as well as handles payments and any other necessary tasks.

There have been several studies on the use of chatbots in online shopping. One study found that chatbots can provide a more personalized shopping experience for users and can lead to increased customer satisfaction and loyalty. Another study found that chatbots can reduce the workload for customer service representatives and improve efficiency for businesses. There are also various challenges to using chatbots in online shopping, including the need for effective natural language processing and the potential for customer frustration if the chatbot is not able to understand or fulfill their requests. Some researchers have suggested the use of hybrid systems that combine chatbots with human customer service representatives to address these challenges. In terms of technical implementation, there are several approaches to developing a chatbot-based online shopping web application. Some systems use rule-based approaches, where the chatbot follows a set of predetermined rules to respond to user input. Others use machine learning-based approaches, where the chatbot is trained on a dataset of customer interactions and can adapt its responses based on the input it receives. Overall,

chatbot-based online shopping web applications have the potential to provide a convenient and personalized shopping experience for users while also improving efficiency for businesses. However, there are challenges to be addressed in terms of natural language processing and the potential for customer frustration, which may be addressed using hybrid systems or ongoing improvements in chatbot technology.

III. EXISTING SYSTEM

Many customers go for purchasing offline so as to examine the product and hold the product just for the payment of the product. To do offline shopping we have to plan where to go and at what time it will be open. So there are some disadvantages to it. Offline shopping refers to the traditional method of purchasing goods and services in person at a physical store or retail location. This can include shopping at brick-and-mortar stores, outdoor markets, or kiosks. One advantage of offline shopping is the ability to physically examine and interact with the products before making a purchase. This can be particularly useful for items such as clothing, where fit and feel are important factors. Offline shopping also allows for the opportunity to receive personalized assistance from store employees, who can provide recommendations and answer any questions the customer may have.

Drawbacks of Existing System

While physical stores offer the benefits of immediate gratification and the ability to physically interact with products, they also have some drawbacks. These include a limited selection of products, inconvenience in terms of traveling to the store and the possibility of facing long lines and crowds, the difficulty of comparing prices across multiple stores, and limited availability of certain items. These factors can make shopping at physical stores less efficient and enjoyable for some consumers.

IV. PROPOSED SYSTEM

A chatbot-based online shopping web application can be designed with several essential components to provide a seamless shopping experience for customers. The system would include a chatbot interface that allows customers to interact with the chatbot through a chat window and other controls. A product database with details such as pricing, availability, and descriptions would be available to enable customers to search and purchase items easily. Order processing would involve receiving, confirming, and fulfilling orders through payment processing and shipping. A customer service system would be in place to handle inquiries, complaints, and other requests for assistance. Integration with other systems such as inventory management or social media platforms may also be necessary. Lastly, the system would include analytics and reporting tools to track and analyse customer interactions with the chatbot, as well as generate reports on performance and usage, which would help improve the customer experience.

Advantages of Proposed system

The proposed system for a chatbot-based online shopping web application provides several advantages for both customers and retailers. Firstly, the 24/7 availability of chatbots ensures that customers can get assistance at any time, even outside regular business hours. Quick responses to customer inquiries through chatbots provide a convenient experience for shoppers who need information quickly. Personalization is another advantage of chatbots as they can offer customized recommendations based on a customer's browsing or purchase history. Convenience is also a benefit of chatbots as they help customers to find products, complete transactions, and track orders with ease. The system increases efficiency by automating many routine inquiries and tasks.

V. IMPLEMENTATION

We have used Html, CSS, java script as front-end languages and to design the backend we have used python, java script to write the logic of chatbot and

MySQL for registration form. Essentially, the chatbot using Python is programmed to take in the information you provide to it and then analyze it with the help of AI algorithms, and provide you with either a written or verbal response. Since these bots can learn from behavior and experiences, they can respond to a wide range of queries and commands. The registration page is designed with the help of PHP and MYSQL. Registration page has two fields i.e., login ID and password. The user needs to login using their credentials. The entered credentials would be checked by the database present. If the user is already a user to the website, then they are directed to the home page, else the user is shown invalid authentication message and they're again shown a registration form to sign up to the website. The chatbot is designed using many JavaScript functions some are submit Msg function which is used to pass the message entered by the user in the textbox to the UI controller if no message in the textbox its returns false to UI controller so no reply message will be displayed and generate_message function which returns the reply Message to the UI controller to the users' message from the known dictionary which is given by the admin normally in the questionnaire form. The prevent_Default function is used to hide the chatbot on the home page when homepage is reloaded and by clicking the chat icon chatbot will be open. The ready function is used to execute some JavaScript code only when the HTML DOM is fully loaded.

Firstly, the system requirements need to be analyzed to identify the key features and functionality that the chatbot-based application should provide. This includes determining the type of chatbot technology to be used, the user interface design, the features required for personalized product recommendations, and the customer support system.

Secondly, the development team should select an appropriate programming language and framework to build the web application. This includes choosing a suitable chatbot development platform that is compatible with the web application.

Thirdly, the chatbot should be trained to understand the natural language used by customers and provide relevant responses. This involves providing the chatbot with access to a database of product information, and training it to use machine learning algorithms to analyze user data and offer personalized product recommendations.

Fourthly, the web application needs to be tested and deployed on a secure server with proper encryption and security protocols in place. This ensures that the customers' personal and financial information remains confidential and secure.

Finally, after the web application has been launched, it needs to be regularly maintained and updated with new product information and features. This includes continuous improvement of the chatbot's natural language processing capabilities and enhancement of the user experience.

SOFTWARE TOOLS

Operating system : Windows 10

Language: HTML, CSS, PHP, JavaScript

XAMMP : 8.0.23 version

VS Code : 1.73.0 Version

VI. FUNCTIONAL REQUIREMENTS

The functional requirements for the system include the ability for the admin to create, modify, and delete data, verify user login credentials, add and delete categories, restore backups of chats, and maintain a log of all activities. For stylists, the system must provide the ability to create an account, edit their profile, and have a user-friendly interface for chatting with customers. Customers must be able to create an account and access the stylist profile.

NON-FUNCTIONAL REQUIREMENTS

The non-functional requirements for the system include providing privacy and an error-free environment for users. The system must also function

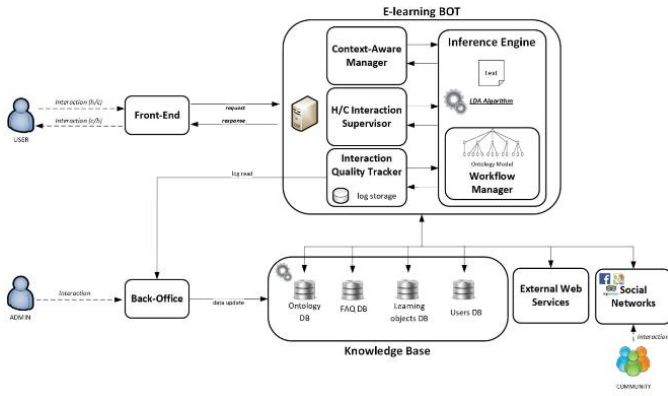
without failure, protect hardware and software from information disclosure, theft, or damage, and record an audit trail for unsuccessful or unethical access of data. The system must not conflict with other applications and environments while running, provide low response time for any operation, and be efficient and effective even during high workload. For stylists, the system must provide ease of use of its tools, high availability, user descriptive interface, maximum 3 clicks to reach the content, security for user personal information, high accessibility, and privacy to data. For customers, the system must immediately respond to users and provide an error-free environment for users.

VII. SYSTEM ARCHITECTURE

The system architecture of a chatbot-based online shopping web application typically consists of several layers or components that work together to provide the desired functionality and user experience. These components might include:

- User interface:** This layer includes the chat window and any buttons or other controls that the customer uses to interact with the chatbot. The user interface may be web-based or mobile-based, depending on the platform.
- Chatbot algorithms:** The chatbot algorithms are the core of the system, responsible for understanding and responding to customer inquiries and requests. These algorithms may use natural language processing (NLP) techniques to parse and interpret the customer's input, and may be trained on a large dataset of example conversations to improve their accuracy.
- Product database:** The product database stores information about the products available for purchase, including descriptions, pricing, and availability. This database may be integrated with the chatbot algorithms to allow the chatbot to provide personalized product recommendations or to assist with product searches.
- Order processing:** The order processing system is responsible for receiving and processing orders from customers, including payment processing and shipping. This system may be integrated with the chatbot to allow the chatbot to

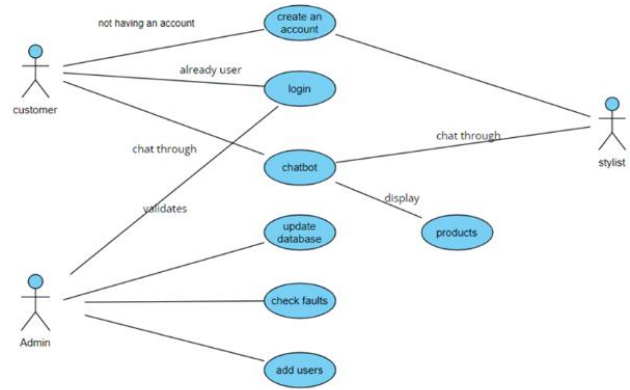
assist with order placement and tracking. Customer service: The customer service system handles customer inquiries, complaints, and other requests for assistance.:



System Architecture

1. USE CASE DIAGRAM

A use case diagram for a chatbot-based online shopping web application is a graphical representation of the system's functionality from a user's perspective. It consists of three main elements: the actor, use cases, and system boundary. The actor in this context is the customer who interacts with the chatbot through a chat window or other controls. The use cases refer to the specific actions or tasks that the chatbot can perform in response to customer requests. Examples of use cases include searching for products, placing an order, tracking an order, and requesting customer service. These use cases represent the key functionalities of the chatbot-based online shopping web application. The system boundary is the limit of the system's functionality, defining what the chatbot can and cannot do. The use case diagram provides a visual representation of the chatbot-based online shopping web application's capabilities, which can be useful for developers and stakeholders to understand how the system works and what features it offers.



Use Case Diagram

VIII. RESULT

A chatbot-based online shopping web application provides a user-friendly and efficient way for customers to shop and communicate with stylists. By integrating a chatbot into the web application, customers can easily find and purchase products, ask for recommendations, and receive support, all through a conversational interface. The chatbot can also provide personalized product recommendations and assist customers in finding the products they need. The use of a chatbot in an online shopping web application can reduce the workload of customer support and improve response time to customer inquiries. It also provides a new channel for communication with stylists, which can increase customer engagement and loyalty.

Overall, the chatbot-based online shopping web application results in a seamless and satisfying shopping experience for customers, with faster response times and personalized support, all while increasing the efficiency and effectiveness of customer support and stylist communication

IX. CONCLUSION

The integration of a chatbot in an online shopping web application presents a multitude of benefits for both customers and businesses. By offering a user-friendly and efficient shopping experience, customers can

enjoy personalized product recommendations and support, all through a conversational interface. This approach reduces the workload of customer support and can improve response times to customer inquiries, which results in higher customer satisfaction and loyalty. In addition, the chatbot-based web application offers a new channel for communication with stylists, enhancing the customer experience and increasing engagement. The use of a chatbot can help to increase efficiency and effectiveness in business operations, ultimately leading to greater success and growth. In conclusion, a chatbot-based online shopping web application represents a significant advancement in the e-commerce industry, delivering a seamless and satisfying shopping experience to customers while enhancing the efficiency and effectiveness of businesses. The integration of a chatbot can help businesses to meet the demands of today's customers and remain competitive in an ever-changing market.

X. AUTHORS' CONTRIBUTION

As authors of a chatbot-based online shopping web application that uses only MySQL and PHP for the backend and XAMPP for web hosting, Ajay was responsible for front-end development, Aman for back-end development, Venkat for database development, and Iswarya for chatbot development. Our contributions were essential in creating an interactive and user-friendly web application that simplifies the online shopping experience for customers. We leveraged MySQL and PHP to create a secure and scalable backend and used XAMPP for web hosting to ensure efficient deployment and production. Our approach allowed us to develop a rules-based chatbot that enhances the user experience by providing personalized recommendations and support, reducing the workload of customer support, and improving response times to customer inquiries. Our collaboration and effective communication led to a successful and high-quality end product that is

beneficial to both customers and the e-commerce business.

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