

Ecommerce Shopping Assistant

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ABSTRACT

This project proposes the development of a chatbot that will assist customers in selecting the right products and bridge the gap between online and offline shopping. The chatbot will be equipped with features such as personalized recommendations, virtual try-on technology, and product reviews to improve the customer's shopping experience. The aim of this project is to reduce the risk of returns and increase customer satisfaction by providing customers with a more personalized and interactive shopping experience. The feasibility study considers the technical, economic, and operational aspects of the chatbot. If successful, this chatbot has the potential to revolutionize the ecommerce industry and transform the way customers shop online.

Keywords: Augmented Reality, geometric matching module

I. INTRODUCTIONS

The rise of ecommerce has made online shopping more popular, but the lack of personal interaction with a salesperson and inability to physically try on products can lead to unsatisfactory shopping experiences. To address these challenges, a chatbot is proposed to assist customers in selecting the right products and provide personalized recommendations. By integrating virtual try-on technology, the chatbot can reduce the risk of returns and increase customer satisfaction. This chatbot has the potential to revolutionize the ecommerce industry and provide a more enjoyable and efficient shopping experience.

II. PROBLEM STATEMENT

The rise of ecommerce has led to an increase in online shopping, however, the inability of customers to physically touch and experience products before purchasing can lead to an unsatisfactory shopping experience. There is a gap between online and offline shopping that needs to be bridged. The main problem is that there is no salesperson available online to assist in deciding the right product for the consumer. Additionally, to get a good idea of a product, customers have to go through numerous reviews, which can be time-consuming and tedious. Another major difficulty is the inability to judge how fashion products like clothing and sunglasses would look on them. To address these issues, a

chatbot will be developed that can suggest products to the consumer based on their needs, provide virtual try-on technology, and summarize product reviews. The chatbot aims to bridge the gap between online and offline shopping, reduce the risk of returns, and increase customer satisfaction by providing customers with a more personalized and interactive shopping experience.

III. RELATED WORKS

"Improving the Shopping Experience with Chatbots" by Mario Kluser and Bjorn Schuster: This paper discusses the potential of chatbots to improve the shopping experience for customers in the ecommerce industry. The authors argue that chatbots can provide personalized recommendations, simplify the shopping process, and reduce the risk of returns. They also suggest that chatbots can be used to collect customer data and improve business intelligence.

"Virtual Fitting Room: A Key Technology for Enhancing Customers' Online Apparel Shopping Experience" by Jialiang Liu, Chaojun Wu, and Hua Zhang: This paper focuses specifically on the use of virtual fitting room technology to enhance the online shopping experience for customers purchasing apparel. The authors argue that virtual fitting rooms can provide a more interactive and personalized shopping experience, as well as reduce the risk

of returns. They also suggest that virtual fitting rooms can increase customer engagement and loyalty.

There is a significant body of research on ecommerce chatbots and their potential impact on customer engagement and sales. For example, a study by eMarketer found that 48% of online shoppers would prefer to interact with a chatbot rather than a human, citing convenience and 24/7 availability as the primary reasons for their preference. Another study by Grand View Research predicts that the global chatbot market will reach \$1.23 billion by 2025, driven by the increasing adoption of chatbots in ecommerce.

In terms of design considerations, researchers have identified several key factors that contribute to the success of an ecommerce chatbot. These factors include conversational flow, natural language processing, and user interface design. For example, a study by IBM found that chatbots that use natural language processing to understand the intent of the user and provide relevant responses are more effective than those that rely on rule-based systems. Similarly, a study by Nielsen Norman Group found that chatbots with a clear and intuitive user interface design are more likely to be adopted by users.

In addition, there are several popular ecommerce chatbots that have gained traction in the market. Some of the most popular ecommerce chatbots include:

Amazon's Alexa: Amazon's Alexa is a voice-activated chatbot that allows users to browse and purchase products through voice commands. Alexa can also make recommendations based on the user's purchase history and shopping behavior.

Google Assistant: Google Assistant is a chatbot that allows users to search for products, make purchases, and get personalized recommendations. Google Assistant is also integrated with Google's shopping platform, allowing users to easily find and purchase products.

Sephora's Virtual Artist: Sephora's Virtual Artist is a chatbot that allows users to try on makeup virtually and get personalized product recommendations. The chatbot uses augmented reality technology to create a realistic makeup experience.

eBay's ShopBot: eBay's ShopBot is a chatbot that allows users to search for products, get personalized

recommendations, and make purchases directly through the chatbot. The chatbot also provides real-time updates on shipping and delivery.

IV. SOLUTIONS

The problem can be solved by Shopping Assistant , a chatbot, which can assist consumers in deciding the right product.

It will give some suggestions to the consumer depending upon his needs.

It will also provide a summary of all the reviews about that product, which will help the consumer to make a wise decision.

It also helps the consumer to virtually experience fashion products.

E.g. If a consumer needs to try a dress or a spectacle our shopping assistant gives

him real time experience of how that product would look on him/her

Objectives:

- To provide personalized product recommendations to customers based on their needs and preferences
- To help customers virtually experience fashion products, such as clothing and sunglasses, in real-time
- To provide a summary of product reviews to help customers make informed decisions

A. Solution architecture

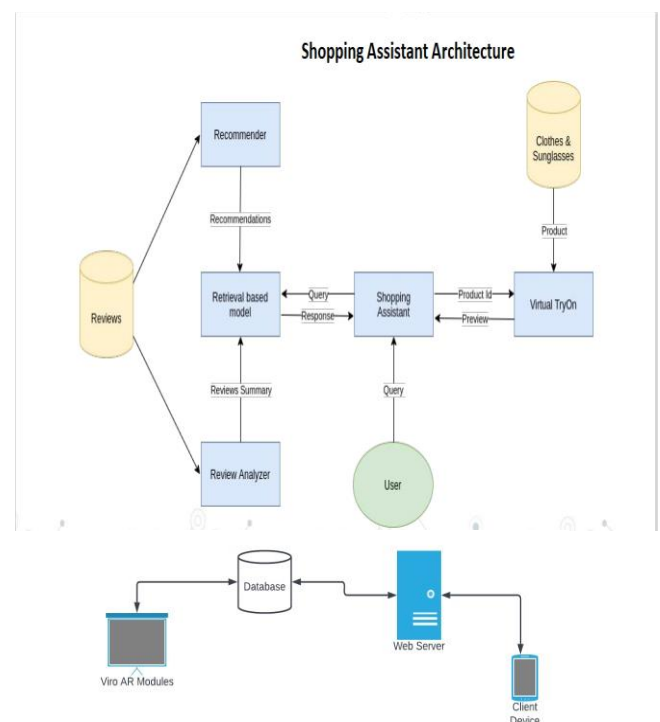


Figure 1:
Architecture Solution

B. Coding Strategy

The coding strategy is a set of actions used to complete all of the project's goals. Because of the project's large size, it was separated into many parts. Before the database was constructed, a detailed design of how it would be structured was drawn. Before the classes were established, the structure and connections between them were determined. Some of the features were created by trial and error until the intended outcomes were achieved.

B. Experimentation and Testing

geometric matching module

(GMM) 13 GMM is used to transform the target clothes c into warped clothes \hat{c} which is roughly aligned with input person representation p . GMM consists of four parts : • Two networks for extracting high-level features of p and c respectively using downsampling by convolution layers. • A correlation layer to combine two features into a single tensor as input to the regressor network. • The regression network for predicting the spatial transformation parameters θ . • A Thin-Plate Spline (TPS) transformation module T for warping an image into the output $\hat{c} = T\theta(c)$. Try-On Module (TOM)

A Try-On Module (TOM) is used as generator to generate image as final output which is the try-on result of the desired cloth on input person. • A TOM consists of encoder-decoder architecture like Unet in which a concatenated input of person representation p and the warped clothes \hat{c} , are fed simultaneously to render a person image I_r and predict a composition mask M . • The rendered person I_r and the warped clothes \hat{c} are then fused together using the composition mask M to synthesize the final try-on result I_o . $I_o = M * \hat{c} + (1 - M) * I_r$

V. CONCLUSION

The Shopping Assistant chatbot is a great solution to help consumers make informed decisions when shopping for products. By providing personalized suggestions based on the consumer's needs, as well as a summary of reviews, the chatbot can help consumers find the right product for them. Additionally, the virtual try-on feature for fashion products is a useful tool that can help consumers see how a product will look on them before making a purchase. This can save consumers time and money by reducing the need to physically try on products in a store.

VI. FUTURE WORKS

The following are potential areas of future work for the shop assistant chatbot: Machine Learning: The chatbot can be upgraded to incorporate machine learning algorithms to improve the accuracy of personalized product recommendations and to better understand customer preferences. Augmented Reality: The chatbot can be extended to support augmented reality to allow customers to virtually try on products in a more realistic and immersive way. Natural Language Processing: The chatbot can be upgraded to incorporate advanced natural language processing techniques to better understand customer queries and provide more accurate responses.

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