



Development of an E-Commerce Sales Chatbot

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ABSTRACT

This paper presents the development of an e-commerce sales chatbot designed to enhance customer support and boost sales. Leveraging machine learning for natural language understanding, the system employs a modular chatbot framework featuring a web-based training platform for natural language, a micro service for text classification and entity extraction, and a responsive framework for routing user requests to specialized controllers. The innovative approach aims to seamlessly integrate e-commerce and AI, striving to create a chatbot with human-like sales capabilities by comprehending context and intent. This entails a focus on effective text classification and entity extraction, enabling the chatbot to generate contextually relevant responses. Overall, the system represents a significant stride in the fusion of e-commerce and AI, offering an advanced chatbot experience for users that goes beyond conventional customer support to drive sales through nuanced understanding and responsiveness.

Keywords: E-commerce, natural language processing, neural network, challenges, customers, Chabot, support, face-to-face contact.

I. INTRODUCTION

The rise of e-commerce has transformed global business, offering consumers the convenience of 24/7 shopping from anywhere, particularly benefiting those in rural areas. Project E-commerce emphasizes the expanded product variety accessible through online retailers unrestricted by physical space. Globalization further catalyzed business evolution, enabling companies to serve customers worldwide, leading to the emergence of global e-commerce platforms and subscription services.

In the proposed system's implementation phase, a chatbot utilizing AIML for natural language processing will facilitate customer interactions. The chatbot, post-deployment, will analyze customer queries, identify intent, and respond in a natural and informative manner. The survey highlights the potential of Deep Neural Networks (DNNs) in enhancing chatbot performance within the customer service industry, offering benefits like improved natural language understanding, personalized responses, and adaptive learning capabilities.

The design principles for an effective chatbot include the ability to understand and respond to natural language, ensuring clear, concise, and easily comprehensible responses. Additionally, the chatbot should prioritize being helpful, informative, engaging, and friendly, creating a user experience that simulates interaction with a real person.

II. RELATED WORK

The Role of Customer-Centric E-Commerce Implementing Artificial Intelligence for Better Sales and Service Authers Salu George Thandekettu, M.Kalairasi Statement to provide potential of implementing artificial intelligence (AI) in customer-centric e-commerce to enhance sales and service, addressing challenges in AI systems' understanding of customer needs.[1]

Authers Chaiara Valentine misischina Flora – plazain paper [2] Chatbots in customer service: Their relevance and impact on service quality mentioned that Chatbots' significance in customer service lies in their capacity for instant, automated support through AI and natural language processing, enhancing service quality by delivering quick, consistent, and accurate information.

The implementation of Chatbot in online Commerce, and Open Innovation Authers Maria D. Illescas Manzano, Noe Vicente Lopez Nuno Afonso Gonzalez, Carmen Cristofol Rodriguez statement to improve customer acceptance, addressing concerns and offering a seamless experience is crucial, with a promising future as chatbots advance in intelligence, potentially integrating with voice assistants and augmented reality for enhanced interactions.[3]

In accordance with Authers Bilal Jafery in paper suggested that connecting meaningfully in the new reality mentioned that Chatbots, powered by AI and open innovation, streamline customer interactions, offering personalized information and tailored solutions to foster meaningful connections.[4]

The development of an e-commerce Sales Chatbot Authers Mohammad Monirujjaman Khan, Shahnoor Chowdhury Eshan Statement The e-commerce sales chatbot focuses on enhancing customer support and boosting sales through a modular framework and machine learning for natural language understanding. [5]

The Sambot – Intelligent conversational Bot for Interactive Marketing with Consumer-centric Approach Authers Aditya Pradana, Goh Ong Sing, and Yogan Jaya Kumarthe development of SamBot, a conversational bot integrated into the Samsung IoT Showcase website, utilizes Artificial Intelligence and deep learning to enhance interactivity and information provision. [6]

According to Thomas NT Amrita Vishwa, an E-business Chatbot using AIML and LSAThe implemented solution involves AIML-defined templates for greeting and general queries, incorporating both pattern-based AIML and semantic-based Latent Semantic Analysis (LSA) for more diverse and effective customer interactions. [7]

III. PROPOSED SYSTEM

The challenge at hand involves creating a sophisticated e-commerce sales chatbot with capabilities to comprehend and categorize customer queries adeptly. This advanced chatbot aims to provide personalized product recommendations and real-time discounts, emulating human-like interactions. Its primary objectives are to enhance customer support, alleviate concerns arising from the absence of live sales representatives, and ultimately drive higher sales. The solution must strike a balance by remaining cost-effective and scalable to accommodate 24/7 customer support demands within the dynamic e-commerce sector.

A. Block Diagram

The block diagram is a visual representation of a system, emphasizing overall structure and functions. It features three main components User Interface, Web Server, Chatbot core chatbot core with specific operations.

For instance, Intent reorganization, database, and response generation. The components extract data from loaded sub-databases through a repository, containing updated cloud service with the help of recommendation engine, adaptive price engine. A main gateway facilitates storing integrated schema data in a highly structured database, showcasing relationships between components in a hierarchical manner.

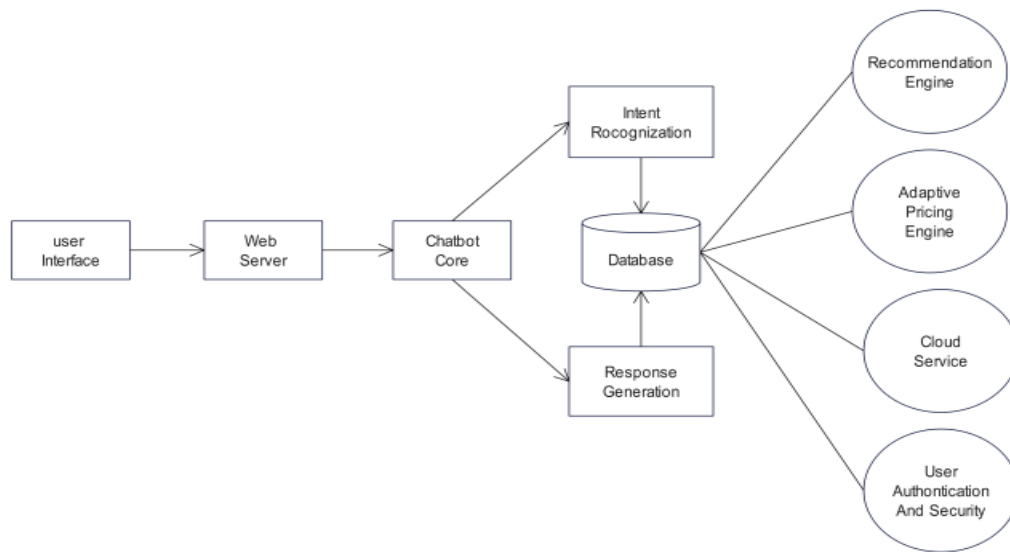


Figure 1: Block Diagram

IV. RESULTS AND DISCUSSION

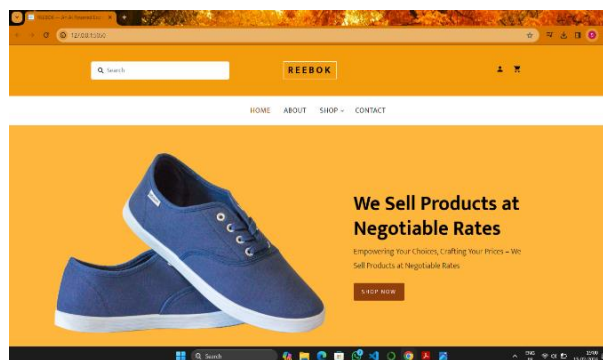


Figure 2: Home Page

Home page of E-commerce platform with navigation bar which provides different options like home button, about section, shop section with a dropdown menu with a list and contact section.

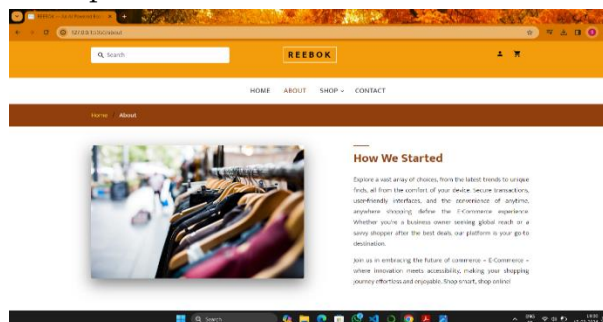


Figure 3: About Page

In the About section, there is information related to our proposed system and also elaborate on how to use it to perform the bargaining with online products with the help of E-commerce chatbot.

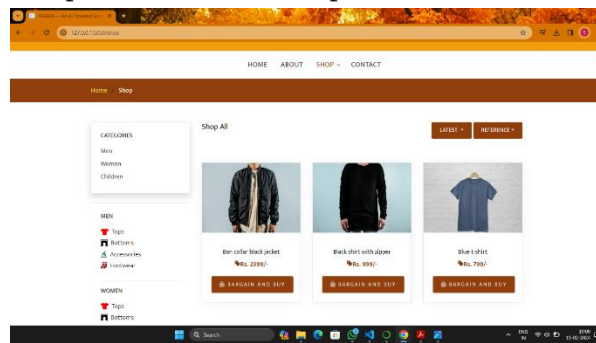


Figure 4: Shop Page

Here is about the shop section in that there are different lists to shop the products for Men, Women, and children to buy the product.

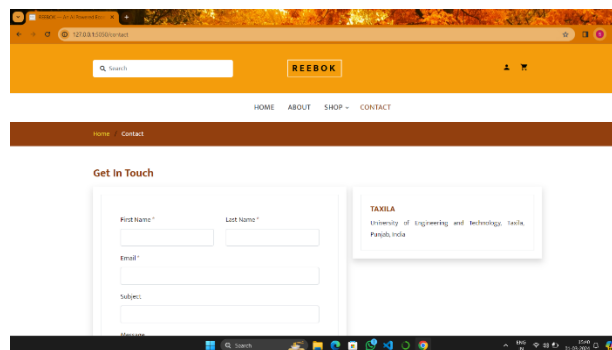


Figure 5: Contact Page

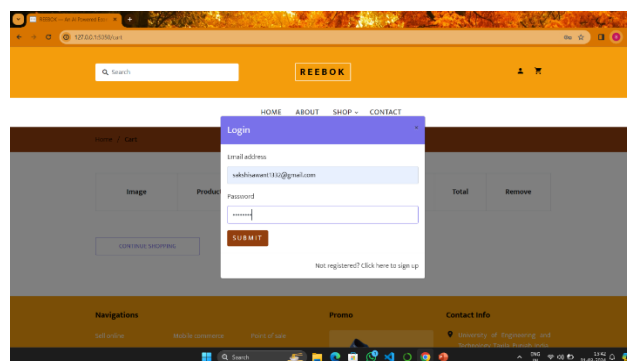


Figure 6: Login Page

This is the login form to login into the system if user does not have an account there is an option to create an account also and then login into the system.

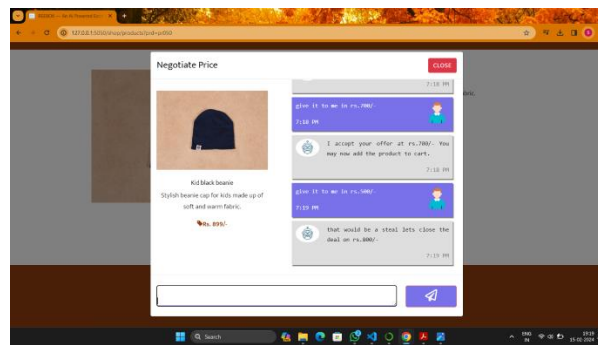


Figure 7: E-commerce Chatbot

Here is the product bargaining section to chat with the E-Commerce chatbot with the user with the help of AI and buy the product.

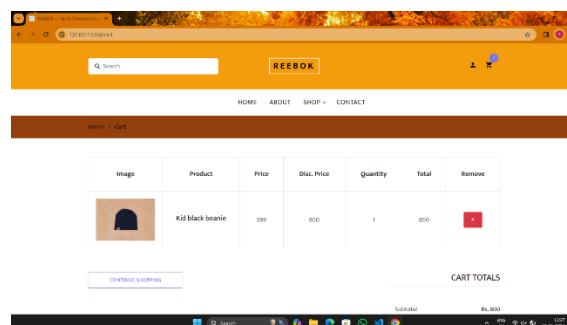


Figure 8: Cart Page

Here is the cart section in the user can save the products that he can buy after some time in that it will show the all information about that product.

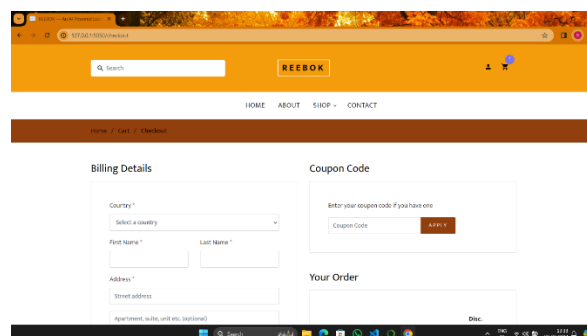


Figure 9: User Ordered Page

Here is the final billing section which helps also get the discount coupon also show the list of ordered product.

V. CONCLUSION

We designed and implemented the e-commerce chatbot system which provides an automatic response to the incoming customer-to-seller question. An E-Commerce Website intelligence is one of the most important factors for improving customer satisfaction in the era of intelligence. Through collected customer information automatically by intelligence technology, a website can better feel customer feelings and better understand

customer needs, then can provide one-to-one service for customers, realization customization service, thus can provide optimum services exceeding customer expectations.

VI. REFERENCES

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