

A Survey On Development of an E-Commerce Sales Chatbot

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ABSTRACT

This paper revolves around the development of an e-commerce sales chatbot, aiming to provide effective customer support and increase sales. Utilizing machine learning for natural language understanding, the system adopts a modular chatbot framework. Key components include a web-based natural language training platform, a microservice for text classification and entity extraction, and a responsive framework for routing user requests to specialized controllers for processing and generating responses. This innovative approach seeks to bridge the gap between e-commerce and AI, striving to create a chatbot that offers a human-like sales experience by understanding context and intent.

Keywords- e-commerce, natural language processing, neural network, challenges, customers, Chatbot, support, face-to-face contact.

I. INTRODUCTION

The rise of e-commerce over the past 2 decades has had a major impact on society and the way business is done on a global scale. E-commerce allows consumers to shop from the comfort of their own homes, 24 hours a day, 7 days a week.[1] This is especially convenient for people who live in rural areas or who have difficulty getting to stores. In our Project E-commerce gives consumers access to a wider variety of products than they could find at any brick-and-mortar store. This is because online retailers are not limited by physical space and can sell products from all over the world.[1]

Globalization has also played a role in the evolution of business models. In the past, businesses were largely focused on serving their local markets. However, globalization has made it possible for businesses to reach customers all over the world. This has led to the rise of new business models, such as global e-commerce platforms and subscription services.[2]

Once the chatbot is deployed, customers can interact with it using natural language. The chatbot will use AIML to parse the customer's query and identify the customer's intent. The chatbot will then respond to the customer's query in a natural and informative way.[3]

Overall, the survey found that DNNs are a promising technology for chatbot implementation in the customer service industry. DNN-powered chatbots can offer a number of advantages over traditional rule-based chatbots,

including a better understanding of natural language, more personalized responses, and the ability to learn and improve over time.[4]

Use natural language: Your chatbot should be able to understand and respond to natural language queries. This will make it easier for users to interact with your chatbot. Be clear and concise: Your chatbot's responses should be clear, concise, and easy to understand. Avoid using jargon or technical language. Be helpful and informative: Your chatbot should be helpful and informative. It should be able to answer user questions and provide them with the information they need. Be engaging and friendly: Your chatbot should be engaging and friendly. It should make users feel like they are interacting with a real person.[5]

II. LITERATURE SURVEY

'Customer-Centric E-commerce Implementing Artificial Intelligence for Better Sales and Service', Salu George Thandekattu, M. Kalaiarasi, 2022, In the context of customer-centric e-commerce, implementing artificial intelligence (AI) can help improve sales and service. However, a problem statement could be ensuring that AI systems effectively understand and respond to customer needs, provide accurate product recommendations, and maintain a personalized and seamless shopping experience, To address the problem of implementing artificial intelligence (AI) for better sales and service in customer-centric e-commerce, a solution could involve leveraging AI algorithms to analyze customer data and behavior patterns, The future scope for customer-centric e-commerce implementing artificial intelligence (AI) is promising. AI can enable personalized product recommendations, tailored marketing campaigns, and improved customer service through chatbots and virtual assistants. As AI technology advances, it will become more sophisticated in understanding customer preferences and delivering customized experiences.

'Chatbots in customer service: Their relevance and impact on service quality', Chaiara Valentine misichina Flora – plaza, 2022, The relevance of chatbots in customer service lies in their ability to provide instant and automated support to customers. By leveraging AI and natural language processing chatbots can understand customer queries, provide relevant information, and assist with common issues, Chatbots play a crucial role in customer service by enhancing service quality. They provide instant support, reduce response times, and ensure consistent and accurate information, Chatbots have a significant relevance in customer service, and their impact on service quality is expected to continue growing in the future. As AI technology advances, chatbots will become even more sophisticated, capable of understanding and responding to customer queries with higher accuracy and efficiency.

'Implement of Chatbot in online Commerce, and Open Innovation', Maria D. Illescas Manzano, Noe Vicente Lopez Nuno Afonso Gonzalez, Carmen Cristofol Rodriguez, 2021, Implementing chatbots in online commerce can enhance customer support and streamline the shopping experience. However, a problem statement could be ensuring that chatbots provide accurate and helpful responses, as well as effectively handle complex customer queries, Customer acceptance of shopping assistant chatbots can be improved by addressing potential concerns and providing a seamless user experience, the future scope for customer acceptance of shopping assistant chatbots is promising, As technology advances, chatbots become more intelligent and capable of providing personalized and seamless shopping experiences. Integration with voice assistants and augmented reality could enhance the interaction further.

'Connecting meaningfully in the new reality', Bilal Jafery, 2021, In the new reality of information overload, connecting meaningfully is crucial. With the implementation of chatbots, businesses can streamline customer

interactions, provide relevant and accurate information, and enhance overall service quality. By leveraging AI and open innovation, chatbots can adapt to changing customer needs and preferences, ensuring a more personalized and engaging experience, by leveraging AI and open innovation, chatbots can understand user needs and preferences, offering tailored solutions and recommendations. This enhances the quality of interactions and fosters meaningful connections in the digital age, AI-powered chatbots will play a crucial role in this, offering personalized and relevant information, understanding user preferences, and providing tailored recommendations. With advancements in natural language processing and machine learning, chatbots will become even more sophisticated, enabling deeper and more meaningful interactions with users.

'Development of an e-commerce Sales Chatbot', Mohammad Monirujjaman Khan, Shahnoor Chowdhury Eshan, 2020, Development of an e-commerce sales chatbot in order to provide customer support and increase sales. The system uses machine learning for natural language understanding. It is developed on a modular chatbot framework, natural language understanding, chatbot, artificial intelligence, machine learning, e-commerce, sales customer support, and Artificial Neural Network can be used to improve the accuracy of the NLU Engine.

'Research on the construction of Livestreaming Ecommerce', Li Shuhua, 2020, Livestreaming Ecommerce rose in 2016 and achieved explosive growth in 2019, which has attracted extensive attention from society. The construction of these new business modes, mainly involves brands, MCN institutions, streamers, live streaming e-commerce platforms, consumers, and other participants, Stream Livestreaming e-commerce, mode construction, The integration of upstream and downstream industry chains will become an important competitiveness of live streaming e-commerce, including the establishment of interactive mechanism between brands, streamers, and consumers, and the improvement of supply scheme.

'Development of an e-commerce Sales chatbot', Mohammad Monirujjan Khan, 2020, Address the issues of potholes and humps on roads in India, which contribute to traffic congestion, accidents, and loss of human lives. The paper aims to propose a cost-effective solution for the automatic detection of potholes and humps on the road and collecting data to fix the problem, Use of a camera with Raspberry Pi and an Android application for capturing images of potholes and humps and sending them to a server for necessary action to be taken It capture the geographical location coordinates of the potholes and humps using a global positioning system(GPS) receiver, The future scope of the proposed solution includes the integration of machine learning algorithms to improve the accuracy of pothole and hump detection. This can involve training the system to differentiate between actual potholes and other road irregularities, such as speed breakers or road cracks. Additionally, the system can be enhanced to provide real-time alerts to drivers through mobile applications or in-vehicle systems.

'Smart Chatbot System for E-commerce Assistance based on AIML', Arif Nursetyo, De Rosal Ignatius Moses Setiadi, Egia Rosi Subhiyakto, 2018, The tight online market competition demands excellent service from sellers to buyers, so many online stores provide full 24-hour service. This service certainly requires a lot of money if done manually. Chatbot can be used as a solution to automatically shop online. Then the bot must be able to provide an accurate and fast response. This study proposes an intelligent chatbot system based on Artificial Intelligence Markup Language (AIML) which can be used as an e-commerce assistant, AIML, E-commerce Assistance, Intelligent Chatbot, Smart Chatbot, Telegram, then a pattern matching process is performed to determine the most appropriate pattern. The data crawling process is carried out with AIML by classifying three types of questions, namely general questions, calculations, and stock checking. In this study, the case study used was a chatbot for food sales in Indonesian.

'Sambot – Intelligent conversational Bot for Interactive Marketing with Consumer-centric Approach', Aditya Pradana, Goh Ong Sing, and Yogan Jaya Kumar, 2017, Moreover, the usage of Artificial Intelligence applications

is growing in many sectors. In order to improve the interactivity and effectiveness of corporate websites in providing information, a conversational bot called SamBot is developed. As a Part of an Artificial Intelligence application, it can respond to users' questions and prolog the conversation with its intelligence. It is integrated into the Samsung IoT Showcase website as the corporate website, Artificial Intelligence, conversational bots, deep learning AIML, and marketing, Future scope one biggest concern is to improve the knowledge creation to be automated using generative models of deep learning on big conversation log data or any other big data resources. It will make the knowledge creation more objective, and automated, and have larger knowledge bases.

'An E-business Chatbot using AIML and LSA', Thomas NT Amrita Vishwa, 2016, E-commerce is one of the e-business models that mostly do business over the internet. The major drawback of this field is the quality of customer service they provide. In every e-business model, customers have to wait for a long time to get a response service representative, E-business, AIML, LSA, and AIML are defined with templates of greeting and general queries. Greeting messages by customers like hi, hello, good morning, etc will be answered by using AIML templates. It also has general questions. Here, we have two types of answers pattern-based answers by AIML and semantic-based answers by LSA.

III. LIMITATIONS OF EXISTING WORK

- This can limit their ability to provide accurate and up-to-date information to users.
- Price-Negotiator-Chabot-System for a single user only.
- Lack of human touch.
- Limited conversational abilities.
- Inability to handle complex scenarios.
- Language and culture barriers.
- Dependence on accurate data input.
- Lack of empathy and emotional intelligence.
- Unsatisfactory error handling.
- Security and privacy concerns.
- Continuous improvement and maintenance

IV. CONCLUSION

We designed and implemented the e-commerce chatbot system which provides an automatic response to the incoming customer-to-seller question.[6] 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.[7]

The future scope for customer acceptance of shopping assistant chatbots is promising. As technology advances, chatbots become more intelligent and capable of providing personalized and seamless shopping experiences. Integration with voice assistants and augmented reality could enhance the integration further.

V. REFERENCES

- [1]. M. M. Khan, "Development of an e-commerce Sales Chatbot," 2020 IEEE 17th International Conference on Smart Communities: Improving Quality of Life Using ICT, IoT and AI (HONET), Charlotte, NC, USA, 2020, pp. 173-176, doi: 10.1109/HONET50430.2020.9322667.
- [2]. M. Orero-Blat, V. Simón-Moya, H. M. Guerrero, D. B. Carrubi and J. Sendra, "Client orientation in fashion e-commerce: a comparative study," 2020 15th Iberian Conference on Information Systems and Technologies (CISTI), Seville, Spain, 2020, pp. 1-6, doi: 10.23919/CISTI49556.2020.9141057.
- [3]. A. Nursetyo, D. R. I. M. Setiadi, and E. R. Subhiyakto, "Smart Chatbot System for E-Commerce Assistance based on AIML," 2018 International Seminar on Research of Information Technology and Intelligent Systems (ISRITI), Yogyakarta, Indonesia, 2018, pp. 641-645, doi: 10.1109/ISRITI.2018.8864349.
- [4]. M. Nuruzzaman and O. K. Hussain, "A Survey on Chatbot Implementation in Customer Service Industry through Deep Neural Networks," 2018 IEEE 15th International Conference on e-Business Engineering (ICEBE), Xi'an, China, 2018, pp. 54-61, doi: 10.1109/ICEBE.2018.00019.
- [5]. C. Pricilla, D. P. Lestari and D. Dharma, "Designing Interaction for Chatbot-Based Conversational Commerce with User-Cantered Design," 2018 5th International Conference on Advanced Informatics: Concept Theory and Applications (ICAICTA), Krabi, Thailand, 2018, pp. 244-249, doi: 10.1109/ICAICTA.2018.8541320.
- [6]. A. Bhawiyuga, M. A. Fauzi, E. S. Pramukantoro and W. Yahya, "Design of commerce chat robot for automatically answering customer question," 2017 International Conference on Sustainable Information Engineering and Technology (SIET), Malang, Indonesia, 2017, pp. 159-162, doi: 10.1109/SIET.2017.8304128.
- [7]. J. Xiang and X. Chen, "Customer Satisfaction of E-Commerce Websites," 2009 International Workshop on Intelligent Systems and Applications, Wuhan, China, 2009, pp. 1-5, doi: 10.1109/IWISA.2009.5072797.