E-commerce Chatbot For Price Negotiation Using NLP

M.S.S.N. Shankar [1],Dr. G.D.K. Kishore [2], N.L.N.C. Anudeep [3], R. Bhavya [4], R. Siva Sankar [5]
Associate Professor [2], Student [1][3][4][5]
SRK Institute of Technology, Department of Information Technology [1][2][3][4][5]
Vijayawada, India
Mail Id:]mandashankar366@gmail.com[1],
kishore.galla1@gmail.com [2], anudeepnlnc2306@gmail.com [3] ,
bhavyarayavarapu5@gmail.com[4],
sivashankarramanadham9392@gmail.com [5]

Abstract: Price Negotiating Chatbot with text and voice functions is available in this article. The setting is an e-commerce platform. The chatbot makes easy and effective negotiations possible for consumers and the platform by understanding voice commands and providing clear pricing information. Voice or text interactions allow users to participate in conversations, providing flexibility and simplicity. The platform provides a well-organized user experience from product browsing to purchase confirmation, increasing user engagement and delight. Adding order management and sentiment analysis functionality boosts the platform's value. Chatbots have greatly improved user experiences and transactional procedures in e-commerce. This is a great innovation and improvement.

Keywords: Price Negotiating Chatbot, Text and Voice Interaction, E-commerce Platform, User Engagement, Negotiation Efficiency

I.   INTRODUCTION

E-commerce is competitive and consumer expectations are rising, thus the ability to negotiate price may be vital to sales and customer satisfaction. E-commerce is marked by rising customer expectations. Given the conditions, price negotiation may be helpful. Traditional methods are utilised for pricing negotiations. These approaches usually include buyer-seller contact. This contact may take a long time, and the results may not be beneficial to both sides. Chatbots with text and speech interfaces may make negotiations easier and faster. It also solves the issue practically. In recognition of mandatory procedures, this is done.

Chatbots have transformed customer service in several organisations. This is because chatbots respond instantly and are customised to each user. Natural language processing (NLP) and machine learning techniques allow chatbots to conduct meaningful conversations, understand user preferences, and provide relevant information or support. Chatbots can do all these duties. Chatbots are used in e-commerce to provide customer assistance, track orders, and recommend products.

However, chatbots in price negotiating are understudied. The capacity to dynamically negotiate rates based on product demand, inventory levels, and customer preferences might greatly enhance online purchasing. Using text and audio interfaces makes bargaining skills more accessible. This lets users with different communication preferences and accessibility needs be served simultaneously. This article recommends a new online pricing negotiation strategy. Here, a chatbot that can engage with clients via text and voice chatting is being created. The solution simplifies negotiation by letting people connect with the chatbot in a simple and comfortable manner. A dataset of product price and negotiation strategies is utilised by the chatbot to deliver information. Next, complex algorithms are used to generate price suggestions and engage customers in fee negotiations and this is achieved by using the dataset.

User feedback and empirical evaluation are utilised to prove the pricing negotiating chatbot is useful and usable. Thus, chatbots may change how clients engage with e-commerce sites. This research developed the field of conversational agents in e-commerce and created new options to improve customer experiences while making electronic transactions.

II.   LITERATURE REVIEW

E-commerce is being transformed by chatbots' improved consumer involvement and business operations. Chatbots may provide new solutions and both advantages helped build chatbots. This part covers chatbot, e-commerce negotiation, and voice/text interface literature to complete the study environment overview. It seeks to identify major scientific gaps immediately.

"Integrating Intellectual Consciousness AI based on Ensemble Machine Learning for Price Negotiation in E-commerce using Text and Voice-Based Chatbot"

Intellectual awareness and ensemble machine learning (EML) work. This department revolutionised online retail price negotiation using text and speech chatbots utilising artificial intelligence. This novel approach to online marketplace negotiation was developed by

Challagundla et al. (2024). Even if e-commerce platforms have transformed how individuals purchase and sell, online pricing discussions may be difficult. Traditional chatbots may struggle to negotiate and comprehend human language [1]. This research seeks to improve negotiating intelligence and flexibility. To achieve this purpose, ICAI and EML will identify and resolve these constraints.

ICAI, or "artificial consciousness-like intelligence," mimics human awareness. They term this AI "artificial consciousness-like intelligence." Self-awareness, reasoning, and experience-based learning are included. Chatbots may better understand both parties' goals and preferences if they participate in negotiations. This is because the chatbot is participating. As it gains experience, the chatbot may adjust its bargaining tactics. This increases the possibility of productive alliances. Ensemble Machine Learning may boost system performance. Many learning methods are coupled to improve speed and resilience. Since it employs ensemble methods, the chatbot may use many machine learning models. This lowers model biases and errors and bargaining becomes more precise and dependable.

One of this method's most important elements is text and voice engagement. The technique supports both interactions. Modern people expect cross-media communication in a digital age. Expectations have escalated in recent years. Chatbots can manage more individuals since they take written and verbal inputs. More people may utilise the chatbot, which increases user satisfaction [2].

The research project may undergo many development and assessment phases. Starting with relevant datasets, researchers would have built and refined machine learning models. It was done to guarantee the models would initially negotiate well. After that, the integrated system will be rigorously tested in global e-commerce environments. Simulated chats and user surveys may be used to gain input and make system improvements during testing. All things considered, providing intellectual awareness to this system AI and ensemble machine learning can improve online shopping price negotiation. The method may boost online transaction efficiency. This benefits buyers and sellers and advanced artificial intelligence and multimodal communication would achieve this.

"An Intelligent Chatbot Haggling with Ensemble ML Model"

This study uses ensemble machine learning to study intelligent chatbots. Project improves internet commerce discussions. This 2023 study at the third International Conference on Pervasive Computing and Social Networking unveiled a new technique to boost online market negotiations. Internet transactions need negotiation. Chatbots often lack negotiation skills. Naseeba and the team addressed this challenge by inventing a machine learning-powered chatbot that can speak with people [3].

Ensemble Machine Learning Models in chatbots solve that. With many base learners, ensemble learning enhances prediction accuracy and dependability. Diverse learners help the chatbot negotiate, improving performance. These pupils' abilities are needed for this purpose.

Research begins with Ensemble Machine Learning Model construction and training. Usually true. Using relevant datasets for negotiation situations does this. Optimise neural networks, decision trees, and support vector machines to form an ensemble. The model shows haggling dynamics' complexity via training and validation. Market changes, consumer preferences, and negotiating complexity.

The trained Ensemble Machine Learning Model is in the chatbot. This feature lets chatbots talk autonomously. Chatbots learn users' requests, preferences, and counteroffers using natural language. The Ensemble Machine Learning Model drives its real-time negotiation and situational adaptation [4].

The authors will likely evaluate their intelligent chatbot using empirical research and community input. This assessment step simulates negotiations with participants or e-commerce consumers. The efficiency and practicability of Naseeba and her colleagues' public solution may be judged by negotiation success, user satisfaction, and time saved. This study proposes a quality-enhancing online commerce negotiating technique. The planned chatbot may alter online market negotiations. More productive and gratifying exchanges would result.

"AI-based chatbots in customer service and their effects on user compliance"

Adam, Wessel, and Benlian (2021) study AI-powered customer care chatbot compliance. Report in Electronic Markets. Adam, Wessel, Benlian (2021) studied. AI-powered customer support chatbots may change user behaviour and service provider compliance. AI, especially chatbots, has altered customer service for many firms. It changed customer service and these smart technologies can expand customer support, answer inquiries, and accelerate service. Their influence on user compliance—how much users follow the chatbot's instructions or suggestions—is still being studied.

The study may begin with a comprehensive AI-based chatbot and user compliance literature review. A framework that simplifies important components and dynamics will result. Human-computer interaction, behavioural psychology, and service management research may be included to complete this literature review.

Adam and his colleagues may continue conceptualising AI-based chatbots and user

compliance. It's possible. This paradigm may include user traits, service context, organisational challenges, and chatbot design. All of these elements may affect compliance and user behaviour. The authors discuss these components in their presentation to give a rigorous analytical framework for their empirical data [5].

Adam and his colleagues may utilise regression or structural equation modelling to study user compliance. They might explore parameter-outcome relationships using this information. The writers can determine the most critical compliance variables and comprehend chatbot-mediated user behaviour by statistically assessing the data. This helps authors discover key compliance requirements.

Presenting research results in the context of theoretical frameworks and this allows the writers to make key conclusions and consequences for theory and practice from the data. They may highlight chatbot conversational style, customisation, and transparency to build user compliance. They'll likely value these components more. This research may also provide organisational techniques to boost user engagement, compliance, and chatbot deployment. AI-driven customer support interactions are rapidly evolving, and this research delivers crucial information. Adam, Wessel, and Benlian discovered that AI-powered chatbots affect user behaviour and compliance. Service organisations who desire to adopt these technologies were advised [6].

Literature gap

The research on AI-based chatbots in customer care has provided crucial insights into a variety of aspects of their deployment and effect, but there is still a significant gap in the literature. Few studies have examined the complicated dynamics of user compliance in chatbot-mediated engagements. This is a specific concern and research on this issue is scarce.

Understanding Cognitive Processes: An information gap exists in understanding the cognitive processes that affect user compliance in chatbot-mediated encounters. Researchers must study the decision-making factors that influence user adherence to chatbot instructions or recommendations to create more engaging and successful chatbot interventions. This research should improve chatbot interventions.

Exploring Individual Differences: A lot of research is still being done on how personality factors, cognitive styles, and technological experience affect user compliance behaviours. It is feasible to study how these characteristics affect chatbot user reactions. This would help gather data on user compliance unpredictability and create techniques for constructing user-specific chatbots [7].

Examining Design Features: Several studies have examined how chatbot design factors affect user satisfaction and engagement, but few have examined how these factors affect compliance. To make chatbot interfaces more effective, it must understand how design elements like conversational style, customisation, and transparency affect user compliance. This knowledge is needed to improve chatbot interfaces. This area includes customisation, transparency, and conversational style.

Long-term Effects and Sustainability: The majority of chatbot research has focused on short-term outcomes, neglecting the long-term effects on user behaviour and attitudes. This applies to most investigations. Longitudinal study may help explain the long-term effects of chatbot-mediated customer care by revealing how user compliance changes over time and how chatbot interactions last. This is because longitudinal research may reveal user compliance trends. This gap may be addressed by longitudinal research.

III.   METHODOLOGY

The methodology section describes how the Price Negotiating Chatbot with Text and Voice capabilities for an online retail website was developed. Customer pricing negotiations are done via this chatbot. The dataset, chatbot system architecture, deployment procedure, and evaluation methodology are detailed in this section.

1. Dataset selection and preparation:

Before constructing the chatbot system, pick a dataset with a broad range of commodities and prices. This must be done initially before building the chatbot system. Each item in the collection features product information. These information include the product name, description, image, true price, and negotiable price. Historical agreement data may be used in the chatbot's decision-making process to provide additional scenario knowledge. Cleaning, normalising, and extracting data features are all part of dataset preparation. This operation verifies that the chatbot system meets their standards [8].

2. System Architecture:

Price Negotiating Chatbot architecture has multiple parts. All of these system components are interconnected. These components let users interact with the system naturally and clearly. All of these components serve this role. The composition also contains:

User Interface: The chatbot's UI lets people interact with it via text or voice instructions. Its user-friendly interface makes price talks easy to start and terminate.

Natural Language Processing (NLP) Module: It processes user requests, gathers relevant data, and generates appropriate responses. Additional jobs include creating requirements-compliant replies. To

do this, it uses complex algorithms to analyse user intent, emotion, and context [9].

Negotiation Logic: In price negotiations, the chatbot, also known as the negotiation logic, makes decisions based on the reasoning. This reasoning is negotiating logic. Several methods are used to get mutually agreeable rates. Dynamic pricing algorithms, discount calculations, and response generation are examples.

Integration with E-commerce Platform: The chatbot system seamlessly integrates with the e-commerce website's backend infrastructure. This link lets users access inventory data, user profiles, and object information. Transaction processing, order fulfilment, and real-time changes are eased via this relationship.

3. Implementation Process:
The Price Negotiating Chatbot system will be built and launched throughout project execution. It are now in the following main phases:

Software development: Python and Flask are used to build the chatbot system. Web apps are built using Flask. Frontend components are designed to provide an intuitive user experience. This is done using HTML, CSS, and JavaScript.

NLP Integration: The system uses advanced natural language processing libraries like NLTK (Natural Language Toolkit) or spaCy to comprehend and produce natural language. These libraries let the system understand and write natural language. Automatic natural language processing is possible with these libraries. Natural language processing allows this notion to be implemented. By changing or refining language models taught in the past, chatbot criteria may be accomplished [10].

Voice Recognition Setup: These are the components of voice recognition technologies: Mozilla Voice-to-text API DeepSpeech and other technologies allow chatbots to speak to humans. These technologies enable chatbot communication. These technologies enable voice involvement in addition to speech-based interaction. To use this method, you need a microphone, audio processing, and speech-to-text conversion.

4. Evaluation Methodology:
The Price Negotiating Chatbot system's effectiveness is determined by objective data and user input. These elements will be considered throughout the exam:

Accuracy: A test dataset or simulated user interactions are needed to verify the chatbot's pricing negotiation and discount estimations. This ensures the chatbot works efficiently. This section examines chatbot efficacy. These techniques are employed to assure exact outcomes.

Efficiency: One of the chatbot system's success criteria is its capacity to react to user questions and send responses. Efficiency is measured by reaction time, throughput, and resource utilisation. Additionally, resource utilisation is examined.

Using these parameters, chatbot success is determined.

User Satisfaction: User feedback surveys, product usability testing, and sentiment analysis are used to assess consumer satisfaction. These methods can quantify user pleasure, chatbot value, and robot experience [11].

The text-and-voice Price Negotiating Chatbot was developed and tested for an online shopping website. The methodology section of the research describes the analytical methods used to build and test the chatbot. It was also used to build the chatbot. The "Methods." section analyses the technique in detail. The chatbot system has many goals to enhance the buying experience. Increase client interaction, speed up price discussions, and improve the shopping experience. The use of a specialised dataset, a basic system design, cutting-edge natural language processing algorithms, and strict assessments are expected to achieve these aims.

IV.   RESULT

The Price Negotiating Chatbot with Text and Voice functionality in the E-commerce application has unexpected effects. Adopting the function caused these results. These results directly affected user involvement, discussion effectiveness, and system integration. This portion examines the various advantages of the chatbot system's implementation and usage. This article explains how the chatbot system improves user experience and facilitates smooth e-commerce platform-user contact [12].

Augmented User Experience:
The original objective of this project was to enhance the customer experience by creating a simple, user-friendly platform for negotiating product prices. This platform was designed for pricing negotiations. Text and speech interfaces gave consumers unprecedented flexibility and convenience. This applied particularly to communication.

Fig. 1: Signup page

By letting users pick their preferred manner of engagement, the chatbot system met a broad variety of user preferences and accessibility needs. Users might interact with the system by voice or text. Thus, it created a feeling of belonging, which increased consumer satisfaction.

Efficient Price Negotiation:
The chatbot system's capacity to allow constructive price talks between customers and the e-commerce platform was key to its success.

Fig. 2: Browse Products

The chatbot answered customer questions and suggested prices using strong natural language processing (NLP) methods. Importantly, the system recognised two voice commands, "first price" and "final price," allowing users to negotiate without difficulties and this should be considered. After receiving the 'initial price' command, the chatbot quickly displayed a price within the customer's range.

Fig. 3: negotiate price as 17.99 from actual price 19.99

When user expectations were not met, the 'final price' command was used to determine the item's final price. The chatbot was able to provide an additional 10% discount, which led to the final price achieved via talks. This iterative negotiating framework helped users make choices quickly and provided them a sense of agency, which increased user engagement and transaction success [13].

Seamless Integration with E-commerce Platform:

The flawless integration of the chatbot system with the e-commerce platform architecture made the project a historic success. This was a major accomplishment. Users may easily browse product catalogues, talk, and buy using a single interface.

Fig. 4: View Orders

This topic eliminated the need for consumers to utilise several programmes or platforms, a major benefit. The e-commerce

platform lets the chatbot system easily access product, inventory, and user profile data. The broad backend connectivity capabilities allowed this. This allowed the system to provide correct pricing information and real-time modifications to the right parties. Comprehensive integration allowed clients to have a uniform experience, which improved the platform's operational efficiency and personalisation.

Streamlined Order Management:

These advancements were made possible by integrating the chatbot system, which improved order administration chores. Due to these enhancements, customers have greater transaction visibility and control.

Fig. 5: Voice Based Chatbot to Negotiate

After completing a purchase, customers may easily click to the 'View purchases' page to examine their transaction history and track their purchases.

Fig. 6: Get Microphone

Thus, this feature promoted transparency and accountability, which boosted customer confidence and commitment to the e-commerce platform [14].

Sentiment Analysis and Review Prediction:

One of the chatbot's most impressive features was sentiment analysis algorithms. Algorithms allowed the website to predict review outcomes and visitor sentiment. Customers gave input on their purchases, which the chatbot used to assess the current mood.

Fig. 7: View Reviews

This feature made it easy to obtain user input and helped consumers comprehend other

customers' thoughts based on their remarks. This had two benefits and user feedback is crucial. This feature, accessible via the 'View Reviews' page, fostered openness and accountability among users, which fostered community and camaraderie.

Fig. 8: users can view all reviews and their sentiments

A paradigm shift in the E-commerce application began with the implementation of the Price Negotiating Chatbot with Text and Voice functionalities. This update increased user involvement, negotiating efficacy, and system integration. The convergence of text and voice interfaces and seamless backend connection created an unmatched user experience in flexibility, efficiency, and transparency. Because these two categories converged, this was done. The result was an unmatched user experience. The chatbot system will boost user interaction, build trust, and propel the E-commerce platform forward. It will serve as a foundation for development and success. Given this, this is a positive development [15].

V.   EVALUATION

The E-commerce platform's price Negotiating Chatbot with Text and Voice capacity improves user contact, speeds up pricing negotiations, and creates a user-focused environment, according to the study. E-commerce platform performed research.

User Engagement Metrics: User engagement metrics are being assessed to demonstrate the platform's user acquisition and retention. The duration of the session, the number of interactions, and the user's engagement are signals. Users are driven to research and negotiate with the chatbot, which improves user engagement and participation. Users may engage with the chatbot by text or voice, and the procedure is straightforward.

Efficiency of Price Negotiations: We also facilitate more efficient price conversations. The chatbot's well-organized bargaining procedure and gratifying results demonstrate its capacity to help price talks. Because the chatbot can understand human commands like "first price" and "final price," it can provide consumers a smooth bargaining experience. Many elements contribute to successful business

performance and great user experiences. Two of these aspects are the ability to finish conversations with a 10% discount and reliable price information.

Order Management and Sentiment Analysis: Order Management and Sentiment Analysis: Order management tools let users track previous orders, while sentiment analysis predicts user sentiments based on reviews, revealing how satisfied customers are with the product and where it needs improvement. Because this feedback loop is iterative, the platform may continually enhance its features, which increases customer trust and happiness [16].

Reliability and Performance: The platform's seamless integration with the e-commerce platform's backend architecture enables real-time changes, precise pricing information, and a reliable working environment. This ensures platform dependability and performance. Stability and performance, which enable a smooth user experience and fast transaction processing, boost customer trust and loyalty, making the service more likely to be used again [17].

The Price Negotiating Chatbot with Text and Voice Capability has been shown to help build a user-centric E-commerce platform, create user interaction, and facilitate price negotiations. The platform will require ongoing monitoring and iterative change based on user input to maintain and improve its functioning and user satisfaction. This is necessary to maintain and develop the platform [18].

VI. CONCLUSION

In conclusion, deploying the Price negotiation Chatbot with Text and Voice functionality on the E-commerce platform has improved user engagement, negotiation effectiveness, and platform user satisfaction. Interaction and engagement on the site have increased due to its capacity to attract and keep users. This was achieved by delivering a seamless, straightforward user experience with text and vocal interaction. Price discussions are easier because of the chatbot's standardised methodology. This led to findings that satisfy both platform members and the platform itself. Both clear price information and the opportunity for customers to end talks with a 10% reduction have led to favourable user experiences and transaction results.

The addition of order management and sentiment analysis components increased platform functioning and user interaction. This improved platform functioning. Users may easily trace previous orders, and sentiment analysis shows client satisfaction. The platform may be refined and improved without interruptions. The platform's dependability, performance, and user-centric design

have enabled a smooth user experience and fast transaction processing. These elements all contributed to the advantages. Text and voice-capable Price Negotiating Chatbots are vital to the e-commerce industry. This is because it builds user trust and loyalty. This explains its success. Continuous monitoring, iterative improvement, and user input will be needed to maintain and improve the platform's functioning and customer happiness in the ever-changing world of online commerce.

VII. FUTURE STUDY

Future research on price negotiating chatbots with text and voice capabilities in e-commerce platforms appears promising. Additional invention and refinement are possible, as is more study in this field. This business provides unique research and development opportunities because of customer preferences and technical advancements [19].

Advanced Natural Language Processing (NLP) Techniques:
Sentiment analysis, context awareness, and semantic parsing may help the chatbot comprehend user inquiries and offer more complicated replies. Neural network topologies and machine learning techniques let chatbots understand and respond to human intent. They may learn from their feedback. Discussion results and customer satisfaction will increase.

Personalisation and User Profiling:
The chatbot may be paired with tailored recommendation systems and user profiling to adjust negotiation methods and product offers to user preferences, purchasing history, and browsing behaviours. The chatbot may also track users' browsing and buying behaviours to better serve them. Chatbots that recommend items and prices may boost user engagement and conversion rates. This is made possible by data analytics and machine learning [20].

Multimodal interaction utilising Augmented Reality (AR):
Multimodal interaction tactics, which employ text, audio, and visual inputs, may be studied to make negotiation more immersive and enjoyable for participants. Augmented reality will allow users to see things in real life and simulate negotiating, improving decision-making and consumer happiness. Simulations of discussions will benefit from augmented reality.

Integration of Blockchain and Cryptocurrency:
Future research may combine decentralised payment systems and smart contracts with chatbots.

This is because blockchain and cryptocurrencies are becoming more popular. Blockchain-enabled chatbots can provide trustworthy, transparent, and secure payment options. Thus, user trust in the e-commerce platform grows, which speeds up transactions [21].

As chatbots become more prevalent on e-commerce platforms, ethical and legal questions of data privacy, transparency, and algorithmic bias are crucial. Because chatbots are becoming increasingly frequent. because these concerns are becoming more important. Because chatbots are becoming increasingly common in communication, this is occurring. Future study may focus on ethical and legal frameworks to guarantee chatbots are utilised responsibly, safeguard user rights, and maintain the e-commerce ecosystem's reputation [22]. This ensures chatbots are utilised responsibly.

VIII. REFERENCES

[1] Naseeba, B., Sathwik, A.S., Kiran, J.C. and Challa, N.P., 2023, June. An Intelligent Chatbot Haggling with Ensemble ML Model. In 2023 3rd International Conference on Pervasive Computing and Social Networking (ICPCSN) (pp. 174-178). IEEE.

[2] Kalia, P., 2021. Artificial intelligence in e-commerce: a business process analysis. In Artificial Intelligence (pp. 9-19). CRC Press.

[3] Adam, M., Wessel, M. and Benlian, A., 2021. AI-based chatbots in customer service and their effects on user compliance. Electronic Markets, 31(2), pp.427-445.

[4] Fernando, A., Rahubedda, T., Jayasinghe, B., Mallikahewa, S., Hettiarachchi, O. and Rajapaksha, S., 2022, December. Cloud-based Salesman-Bot for Ontology-based Negotiation. In 2022 International Conference on Smart Generation Computing, Communication and Networking (SMART GENCON) (pp. 1-6). IEEE.

[5] Hsu, P.F., Nguyen, T., Wang, C.Y. and Huang, P.J., 2023. Chatbot commerce—How contextual factors affect Chatbot effectiveness. Electronic Markets, 33(1), p.14.

[6] Shumanov, M. and Johnson, L., 2021. Making conversations with chatbots more personalized. Computers in Human Behavior, 117, p.106627.

[7] Landim, A.R.D.B., Pereira, A.M., Vieira, T., de B. Costa, E., Moura, J.A.B., Wanick, V. and Bazaki, E., 2022. Chatbot design approaches for fashion E-commerce: an interdisciplinary review. International

Journal of Fashion Design, Technology and Education, 15(2), pp.200-210.

[8] Mehta, R., Verghese, J., Mahajan, S., Barykin, S., Bozhuk, S., Kozlova, N., Vasilievna Kapustina, I., Mikhaylov, A., Naumova, E. and Dedyukhina, N., 2022. Consumers' behavior in conversational commerce marketing based on messenger chatbots. F1000Research, 11, p.647.

[9] Moriuchi, E., Landers, V.M., Colton, D. and Hair, N., 2021. Engagement with chatbots versus augmented reality interactive technology in e-commerce. Journal of Strategic Marketing, 29(5), pp.375-389.

[10] Sindhu, P. and Bharti, K., 2024. Influence of chatbots on purchase intention in social commerce. Behaviour & Information Technology, 43(2), pp.331-352.

[11] Cheng, X., Bao, Y., Zarifis, A., Gong, W. and Mou, J., 2021. Exploring consumers' response to text-based chatbots in e-commerce: the moderating role of task complexity and chatbot disclosure. Internet Research, 32(2), pp.496-517.

[12] Sharma, M., Sharma, V. and Kapoor, R., 2022. Study of E-Commerce and Impact of Machine Learning in E-Commerce. In Empirical Research for Futuristic E-Commerce Systems: Foundations and Applications (pp. 1-22). IGI Global.

[13] Daniel, G., Cabot, J., Deruelle, L. and Derras, M., 2020. Xatkit: a multimodal low-code chatbot development framework. IEEE Access, 8, pp.15332-15346.

[14] Khine, P.H.H. and Dreamson, N., 2023. Cultural Understanding of Live Streaming E-commerce in Asian markets. International Journal of Electronic Commerce Studies, 14(1), pp.001-024.

[15] Negi, R. and Katarya, R., 2023, July. Emerging Trends in Chatbot Development: A Recent Survey of Design, Development and Deployment. In 2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT) (pp. 1-6). IEEE.

[16] Cheng, X., Zhang, X., Cohen, J. and Mou, J., 2022. Human vs. AI: Understanding the impact of anthropomorphism on consumer response to chatbots from the perspective of trust and relationship norms. Information Processing & Management, 59(3), p.102940.

[17] Luo, B., Lau, R.Y., Li, C. and Si, Y.W., 2022. A critical review of state-of-the-art chatbot designs and applications. Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery, 12(1), p.e1434.

[18] Trappey, A.J., Trappey, C.V., Chao, M.H., Hong, N.J. and Wu, C.T., 2021. A vr-enabled chatbot supporting design and manufacturing of large and complex power transformers. Electronics, 11(1), p.87.

[19] Park, D.M., Jeong, S.S. and Seo, Y.S., 2022. Systematic review on chatbot techniques and applications. Journal of Information Processing Systems, 18(1), pp.26-47.

[20] Hari, A. and Abdulla, M.S., 2023. WhatsApp as a Superapp: Chatbots, Business API and the challenges ahead (No. 583).

[21] Wu, F.C.T., Hong, O.N.J., Trappey, A.J. and Trappey, C.V., 2020. VR-enabled chatbot system supporting transformer mass-customization services. Advances in Transdisciplinary Engineering, 12, pp.291-300.

[22] Song, M., Zhu, Y., Xing, X. and Du, J., 2023. The double-edged sword effect of chatbot anthropomorphism on customer acceptance intention: the mediating roles of perceived competence and privacy concerns. Behaviour & Information Technology, pp.1-23.