ABSTRACT

The rapid development of digital technology in Indonesia has driven the adoption of electronic commerce systems in various institutions, including internal e-commerce platforms such as TokoPoin at Telkom University Cooperative. However, the implementation of customer communication systems on the platform still faces significant challenges, namely inefficiency in customer service communication management due to sellers' limited access to communication platforms and inefficient customer communication patterns with repetitive questions. This research aims to develop a Large Language Model (LLM)-based chatbot system integrated with WhatsApp to address these issues. The research method uses a quantitative approach with llama3.2:3b model implementation integrated through multi-channel between WhatsApp platform and web interface. The results show that the system successfully achieved intent recognition accuracy of 93.75% with an average response time of 8.4 seconds. Multi-channel integration functions optimally with real-time message delivery averaging 2.412 seconds, below the 3-second standard. Chatbot answer quality achieved an average score of 4.10 on a scale of 5. Usability testing using System Usability Scale (SUS) on 36 respondents resulted in an average score of 77.85, exceeding the standard threshold of 68 and falling into the good usability category. This research proves that LLM-based chatbot implementation can effectively reduce sellers' repetitive communication burden, improve operational efficiency, and provide responsive communication experience in internal e-commerce context.

Keywords: chatbot, customer service, e-commerce, Large Language Model, multi-channel integration, TokoPoin, WhatsApp