

ABSTRACT

The rapid adoption of Artificial Intelligence (AI) in higher education has revolutionized student support services, yet delivering scalable, real-time assistance through familiar platforms remains a challenge. This study presents the design, implementation, and evaluation of a WhatsApp-based chatbot powered by a fine-tuned GPT-4o Mini model to streamline the new student admission process at Telkom University. A specialized dataset comprising frequently asked questions and admission-related dialogues was curated and preprocessed for model fine-tuning over 288 epochs. The chatbot system integrates the WhatsApp Business API, a Webhook interface, and the n8n automation platform, all deployed on a Virtual Private Server (VPS) to ensure reliability and low-latency communication. Functionality and performance testing involved manual scenario-based assessments and quantitative measurements of response accuracy and latency. Results indicate that the chatbot consistently delivers contextually relevant answers—achieving an average accuracy above 85%—and reduces average response time to under 3 seconds. User interaction studies with prospective and current students revealed high satisfaction levels, highlighting improvements in accessibility and reduction of administrative workload. Challenges identified include occasional misinterpretation of complex queries and the need for enhanced scalability under peak loads. Future work will focus on periodic dataset updates, advanced prompt engineering, scalability stress testing, and the integration of multimodal features such as voice and image recognition. By aligning AI-driven conversational interfaces with users' existing digital habits, this chatbot demonstrates a viable approach for enhancing admission services and operational efficiency in Indonesian higher education institutions.

Keywords: GPT-4o Mini, WhatsApp chatbot, new student admission, fine-tuning.