

ABSTRACT

The absence of digital transformation in inventory data processing at PT Berlian Jasa Terminal Indonesia has led to a high risk of errors, such as inaccurate data, slow information access, and inefficient asset tracking due to manual processes. The conventional, spreadsheet-based method, which is slow and prone to errors, necessitates a modern technological solution to improve efficiency and ease of access to information. This research successfully developed and implemented a website-based inventory system that integrates QR Code scanning for physical asset tracking and a Transformer model-based chatbot (IndoBERT) for information access through Natural Language Processing (NLP). The development process included architectural design, model training, and comprehensive system testing. The model training results indicate that the optimal hyperparameter configuration (Scenario 3) achieved a 91% accuracy for intent classification and near-perfect performance for Named Entity Recognition (NER) on the initial test data. However, further testing with 100 challenging unseen data samples revealed that the model has limitations in handling out-of-scope requests (unknown intent), many of which were mistakenly classified as cari_perangkat (find_device). The system has been proven to be functional and capable of increasing efficiency compared to manual methods, with the chatbot successfully and accurately responding to user requests for core functionalities.

Keywords: *IT Inventory Management, QR Code Scanning, Chatbot with Transformer Model, Natural Language Processing (NLP).*