ABSTRACT

The Presidential Election is an important political event that often triggers intense debate. With more than 139 million users, YouTube is one of the social media that can be used to understand public opinion through sentiment analysis. This study aims to implement deep learning for multi-label sentiment analysis of comments on YouTube videos related to the 2024 Indonesian Presidential Election. Sentiment analysis is carried out by classifying comments into eight emotional labels, namely; anger, anticipation, disgust, joy, fear, sadness, surprise, and trust. The CRISP-DM method is applied in this study with the stages of business understanding, data understanding, data preparation, modeling, evaluation, and deployment, ensuring a systematic and comprehensive approach. This study focuses on the presidential candidate debate comment dataset from the KPU and Najwa Shihab channels, using three deep learning models, namely; Convolutional Neural Network (CNN), Bidirectional Long Short-Term Memory (Bi-LSTM), and a combination of CNN and Bi-LSTM. The dataset consists of 32,000 comments collected through the YouTube Data API. The CNN, Bi-LSTM and CNN Bi-LSTM models were evaluated using confusion matrix, AUC, and hamming loss. The evaluation results show that the Bi-LSTM model has the highest accuracy with an AUC value of 0.91 and a hamming loss of 0.08, indicating excellent ability to classify sentiment with high precision and low error rate. This study provides insights for political campaign strategies and contributes to the process of natural language processing and data mining by addressing the challenges of multi-label sentiment analysis.

Keywords— ***Bi-LSTM, , CNN, deep learning, multi-label sentiment analysis, 2024 Presidential elections .***