Abstract

The adoption of electric vehicles in Indonesia remains relatively low despite their increasing popularity. To understand public perception, this study conducts sentiment analysis on user opinions related to electric cars on the social media platform X (Twitter). The method used is Long Short-Term Memory (LSTM), a deep learning algorithm effective for text-based classification tasks. Data was collected using the keyword "Mobil Listrik" (Electric Car) from January 2023 to April 2024, resulting in a total of 10,283 tweets. Each tweet was manually labeled by five respondents and categorized into negative, neutral, or positive sentiment based on majority voting. The model was tested under three dataset split scenarios (70:30, 80:20, and 90:10), and evaluated using accuracy, precision, recall, and f1-score metrics. The results show that the LSTM model achieved a test accuracy of 55.30% and a validation accuracy of 57.13%. The model was only able to correctly classify neutral sentiment (f1-score: 71%), while failing to identify both positive and negative sentiments. This indicates a class imbalance issue, suggesting the need for improvements such as data balancing and model optimization to achieve more evenly distributed classification results.

Keywords: sentiment analysis, electric vehicle, LSTM, Twitter, classification