ABSTRACT

The bakery industry in Indonesia continues to grow along with increasing demand for bread as an alternative staple food. However, small-scale bakeries like Efrata Bakery often face challenges in sales forecasting due to fluctuating demand, seasonal factors, and shifting consumer preferences. These challenges can lead to inaccurate stock planning, overstock risks, and declining service quality. This study develops a daily sales forecasting system using the Long Short-Term Memory (LSTM) method, a deep learning technique effective for time-series data. The model is built using a univariate approach for each type of bread and incorporates anomaly detection and handling on historical sales data to improve accuracy. Evaluation results show an average Mean Absolute Percentage Error (MAPE) of 10.84%, indicating good predictive performance. The system not only predicts sales for the next day (H+1), but also recommends daily stock production amounts by considering leftover stock. This approach enables adaptive production planning to avoid both overstock and stockout situations. The system is implemented as a web-based application, allowing bakery owners to easily access sales predictions and stock recommendations. With this system, Efrata Bakery can optimize production planning and improve customer satisfaction.

Keywords: Sales Forecasting, Long Short-Term Memory, Bakery Industry, Time-Series, Deep Learning.