

ABSTRACT

CV. Manufaktur Energi Nusantara is a business entity operating in the automotive service sector. Having been in operation for three years, the company requires a website equipped with a forecasting system to help plan sales and optimize capital expenditures. The website also includes additional features as an alternative to a cash register system, customer data recording, and company-related information. The main issue faced is the absence of a digital system to support efficient operations and assist in business decision-making. Furthermore, sales data is still recorded manually, making it difficult for the business owner to perform monthly recaps and anticipate fluctuating market demand. This study aims to predict the number of product sales and the use of motorcycle gasoline-to-electric conversion services using the Seasonal Autoregressive Integrated Moving Average (SARIMA) method to improve the accuracy between actual data and forecast results. The data used in this study consists of sales transactions for both products and services from January 2021 to January 2024. The website was developed using Visual Studio Code with PHP and CSS programming languages. SARIMA was chosen for its ability to analyze and forecast trends and seasonal patterns in sales data. The testing results show that the best-performing model is SARIMA (2,0,2)(0,0,1)[12], selected based on manual experimentation across various parameter combinations. This model produced the lowest Mean Absolute Percentage Error (MAPE) of 14.32%, indicating the highest prediction accuracy among all tested models. With this low MAPE value, the model can accurately forecast sales and service usage based on historical data. The implementation of this method in a web-based system enables business owners to input new data in real time and receive automatic sales predictions. The conclusion of this study is that developing a website using the SARIMA method as a forecasting tool offers an effective solution to the operational challenges faced by CV. Manufaktur Energi Nusantara. With a reliable website, the company can enhance operational efficiency, improve customer satisfaction, and optimize business decisions based on accurate and relevant data.

Keywords: Website, SARIMA, Forecasting, Sales, Accuracy