

ABSTRACT

This study addresses the challenges of managing a public transportation system in Jakarta, where road congestion and overcrowding at stations have become significant problems. The number of train trips available has not been able to accommodate the number of passengers available, especially during peak hours. In addition, passenger comfort on the train is a concern so that the public continues to have a high interest in public transportation in Jakarta. One method is to develop a predictive model to estimate the passenger load of the Commuter Line (KRL) and use this prediction to optimize the allocation of transportation resources. This study uses time series analysis methods, specifically ARIMA (AutoRegressive Integrated Moving Average) to estimate passenger flow. This study evaluates the accuracy of these models in estimating passenger loads at various KRL stations. In addition, this study explores the implications of these predictions for optimizing commuter train schedules and placing TransJakarta bus stops. The study findings show that ARIMA and AI-based methods offer valuable insights into passenger load patterns, with potential improvements in transportation management and resource allocation. Recommendations provided include adjusting passenger train frequencies and optimizing the distribution of TransJakarta bus stops to accommodate predicted passenger volumes. This study contributes to more effective public transport management in Jakarta and provides a framework for similar research in other urban areas. From the results of the study, the prediction results were obtained with MASE Boarding values (0.4014), Alighting (0.1460), Load Passenger (0.3139)

Keywords: Jakarta, Public Transportation, KRL, ARIMA, Passenger Load Forecasting, TransJakarta.