ABSTRACT

Bus Rapid Transit (BRT) was expected to suppress the congested traffic in The City of Bandung. However, the problem faced by the TMB is that BRT buses do not have their own lanes, what happens is that the buses use the same lanes as private vehicles, so the scheduling of bus arrival times sometimes does not match the estimated time different from the schedule.

In this final project, a tool will be made using a raspberry pi microcomputer for tracking Trans Metro Bandung (TMB) and Machine learning (ML) Bus data to predict the duration times at the TMB Bus stop that is passed. The ML algorithm will predict the duration times of the TMB Bus from the departure stop to the destination stop. The enumeration of the ataset will be carried out at all times so that the data can be processed for model creation. The ML model uses the Random Forest (RF) Algorithm and XGBoost to analyze which algorithm is the most effective for predicting the duration time of the TMB Bus.

From the results of this study, it was found that the best Regression machine learning model for predicting arrival times was the Random Forest model with a Random State value of 102. The model received a high accuracy rate value of 98% and the model got an ERROR value of MAE of 0.95, MSE of 33.63, and RMSE of 5.80 which tended to be lower than the error value from other models. So it can be said that the Random Forest model with a Random State of 102 is the most optimal model.

Keywords: *BRT, Raspberry pi, Machine learning, Random Forest, XGBoost.*