

ABSTRACT

With the increasing number of motorized vehicles in Indonesia, the demand for fuel will also increase. For industries that prioritize vehicle fleets, fuel efficiency is one of the main concerns to reduce costs and avoid wastage. Therefore, the aim of this research is to improve the fuel efficiency of vehicles and enable business owners to easily monitor the fuel conditions of their fleets to prevent theft and obtain more stable data. The method used in this research is to use Time on Delay connected to the fuel sensor of the vehicle to obtain an analog signal. The Kalman filter algorithm is used as an estimation method involving state values obtained from the fuel sensor. Therefore, Time on Delay and Kalman filter are used as fuel stabilizers to improve the fuel efficiency of vehicles. The results of the research show that Time on Delay and Kalman filter algorithms can be used to filter large amounts of data to produce stable and easily understood graphs. Based on the graphs, before the use of fuel stabilizers, there were on average 2 spikes of highly fluctuating data that could cause the sensor to detect fuel additions. After installing the fuel stabilizer, the spikes that previously occurred 2 to 3 times on average were filtered more effectively and became more stable.

Keywords: Fuel Stabilizer, Time on Delay, Kalman Filter, Fleet Operations Optimization