Abstract

Traffic in highway in the modern century, make a new idea of counting about the traffic or the vehicle who used the highway. As we can see in the graph of the increment of vehicle used highway in year by year, the demand and volume of vehicle used the highway is get increasing. Therefore, that data could be the reason for increase side road of highway. The counting is not only in the toll gate. But, could be done when vehicle through in highway.

Due to research previously, the method of edge detection could reach the accuracy up to 80%, in case the research in scope of toll road. The method of edge detection have a weakness, need a lot of resource of computation in density vehicle detection[6].

The goal of this research is implemented method Gaussian Mixture Model for background and foreground subtractions, and Kalman filter for tracking the vehicle due to handle the classification standard the density of highway especially in Indonesia[8].

GMM parameters that used is 5 modes GMM and 0.5 of Threshold value, and Kalman Filter parameters is [1 1] state covariance matrix value, [125 10] process noise value and 25 of measurement value. From these configuration results, the methods could reach the accuracy up to 93.04%

Keywords: CCTV, vehicle counting, highway, density statistic, Gaussian Mixture Model, Kalman Filter.