Abstract

Classification of vehicles on the highway is an important thing to know any different type of vehicles passing on the highway. The classification of these vehicles can be done with human observation, but it will cause a very big effort. Computer Vision is one of the branches to the scientist who can replace the role of such observations.

This study uses data recording toll road as an object that has been done by researchers. In this study, using a Gaussian Mixture Model (GMM) as background subtraction, feature extraction include extraction morphology that includes height, width ratio, masking, edge detection (Canny), windshield extraction, and Bayesian networks to function as a classifier. For the windshield extraction using k-means to segment the windshield a vehicle, and k-means also conducted to cluster training data.

The test results obtained with the average value of f1 score of 0.761, and when windshield extraction add to system, f1 score increase 0.005 into 0.766. Moreover, the segmentation of GMM influential factor in the performance level of the system such as occlusion produced by GMM.

***Keywords** : Bayesian Networks, Vehicle Classification, Highway*