Abstract

In this final project had been built a system that is able to detect the density of vehicles with a video input . The method used in the detection of a vehicle is a combination of *Saturation* and *Value* (CVS). Test data used in a video .avi extension taken offline on the toll roads . The position of the camera used is a low oblique. The system is capable to detect the space-mean speed of vehicles and the number of passing vehicles at a time.

Some image processing background extraction is used with Time Averaging Background Image method (TABI), foreground extraction using frame differencing, as well as several other important processes such as opening and tracking centroid .

The parameters used are background foreground threshold *Value*s to separate the foreground to the background, structure elements square *Value*s to form vehicle morphologic, as well as an open binary image to remove small objects (noise) other than vehicles.

Based on the results, obtained parameter *Value*s for background foreground threshold 0.075, structure element square parameter of 10, and bwareaopen parameter of 250. The error rate in the calculation of the number of vehicle at 0% or vehicles detected. Based on the testing accuracy of the average velocity, obtained the highest 99,66% and the lowest 82,92% with an average accuracy of 94,4% from 9 video test used. The detection of vehicle density testing result was considered good with an average difference of 1,3 Vehicle / Km.

Keywords : TABI , Background extraction , Foreground extraction , CVS Method