

## ABSTRACT

Vehicle computing system is a useful system for counting vehicles on a road or in a parking lot. In many places, vehicle counting is still *manual*. And, in the process of *manually* counting vehicles, required two or more operators (human) using a mechanical machine. With that system, sometime calculation inaccuracies problems due to the limitations of human vision, especially when the counting is does at night conditions. Thus, need a system that can calculate the vehicle automatically and the system is able to calculate the vehicle not only at daylight condition but also at night conditions.

At this final project or research, the vehicle computing system at daylight and night condition using frame intersection method. This method works by looking for a slice between background frame and next frame using logic 'and', then the system will count the number of black pixels of results and compare them with the value of Intersection Threshold. However, the system convert the video into multiple frames.

From this research accuracy level for daylight conditions at 78% and for night conditions accuracy level at 70% with value of Intersection Threshold at 7000 and Loop Threshold at 0. Then, from this study, a method to calculate vehicle at night, the system use light bulbs from car headlights then dilation process thereafter.

Then, in this study there is a process of converting from RGB to HSV format. It is intended that the system calculates the average value of layer Value Brightness on each frame, because based on some experiments average Value Brightness at conditions during the day and night have very much difference.

**Keywords** : vehicle counting, intersection frame, background frame, and next frame