

## **ABSTRACT**

*In this final project, traffic density on offline-recorded video was counted. The video was extracted into frame, and then system detected motion of objects on the video by using background subtraction method, counted objects centroid, and tracked the centroid. By counting the centroid and tracking it, system can count total of vehicles, count average velocity of all vehicles on the video, road traffic density, and classify the road into low traffic road, medium traffic road, or heavy traffic road. System was tested on 3 (three) videos, i.e. videos that were recorded at morning, afternoon, and at evening. The videos were recorded by a digital camera that placed above the road. To get the system accuracy, parameter's changings were done, i.e. changed light intensity, bwareaopen threshold, structuring element width, and label's area threshold.*

*As the result of this final project, a traffic density counter system had been made. Based on the tests that had been done, system accuracy is affected by value of parameters, i.e. light intensity, bwareaopen threshold, structuring element width, and label's area threshold. Highest accuracy system was reached on high light intensity (video that was recorded at afternoon), bwareaopen threshold on 750, structuring element width on 7 pixels, and label's area threshold on 700 pixels.*

**Keywords:** *background subtraction, centroid, total of vehicles, traffic density, light intensity, bwareaopen threshold, structuring element width, label's area threshold.*