ABSTRACT

Nowadays, intelligent transport system (ITS) is being developed by many engineers. One of the implementation is an application for traffic management centre in metropolitan city. Traffic jam in big cities such as Jakarta, Bandung, and Surabaya is a usual thing in daily life. Therefore, in this final task, a system to identify and control traffic density on the roads was made.

One of the subsystem which is applied at ITS is traffic density detection on the roads. By utilizing digital signal processing we can process the video that will be describe the condition of traffic roads. This final project is about creating an application that can process a video which is recorded using hand phone. *Frame difference* is used as the method to determine traffic density. By comparing current frame with previous frame and comparing the current frame and background, this system is expected to identify the changes of frame to determine traffic density. Then this application can be accessed by the users using sms gateway which the output of this system are fluent, a bit jam, or traffic jam.

Performance of the system can be tested by applying simulation test. The result shows that the system is able to detect traffic density with accuracy rate is 98.37% in the morning condition, 81.21% in the daylight, 98.16% in the afternoon, and 27.08% in the evening. Frame interval value of 10 is the best value to determine traffic density level with average accuracy at around 99.10%. For delivery phase, the output system through sms gateway reached for average accuracy at the point of 100% with average respond time at around 1.733 minutes.

Keywords   : traffic density, frame difference, sms gateway