

Abstract

This time, the high level of population becomes a complex problem, especially in big cities. Not only on ordinary roads, now toll roads called highways had been stalled. Information related to the density of traffic on the motorway of course is needed by road users in order to maximize the toll road services.

This final project the author has created the design and manufacture of vehicle monitoring system density to road users in the form of video input which is then sent to the monitoring results of the LCD. The method used in the monitoring of vehicles ie Gaussian Mixture Model (GMM), while for the delivery of the results of its monitoring methods Short Message Service (SMS). Test data will be used in the form of videos taken with the webcam on the toll roads taking video from the top toward the front of the vehicle. While the delivery of monitoring results to the LCD using ATmega8535 microcontroller and as an intermediary for communications using the GSM module Wavecom Fast Track N1306B. Designing a system built capable of monitoring the average speed of the vehicle space and number of passing vehicles in real time and notify the results to the user with the help of the LCD.

Monitoring of the system resulting from this final project to include the value of dilation filtering, blur and morphology respectively by 7,4,7 has an average error rate of 12.51% on the highway during the day, and obtained an average accuracy amounted to 96.625% on the highway during the day.

Keywords : *Gaussian Mixture Model, SMS, Low Oblique*