ABSTRACT

Traffic jam is a serious problem in big city such as Jakarta and Bandung. Sometimes it is happened because of the inappropriate traffic light time setting. In Indonesia, usually the time setting is done manually by referring the statistic result. With this method, it is often happened that the traffic light time is not match with the number of the vehicle in the road especially the green light sign. In this research, the author will implement embedded hardware to determine the level of traffic jam on the road segment and control the time for change the color of traffic light.

Microcontroller receives the road images that have been saved in SD Card. this reserch used microcontroller STM32F407ZG which supported external RAM, because image processing requires a fairly large RAM capacity. The next step , image will be detected using edge detection prewitt, and the elimination of pixels of the image that are not part of the highway, and morphological operations to enhance pixels detected as part of vehicle. And the the connected pixel will be labelling.

All of label will be analysis to be car or motor cycle based on width and height of labelling segmentation. The sum of car and motor cycle will used to time controller the the traffic light. The result of experience , this system has 62,80 % accuracy.

Keywords : Image, SD Card, RAM, External RAM, Prewitt Edge Detection, Morphology Operation