

## **ABSTRACT**

Traffic jam is one problem that often be found in urban areas, especially big cities. Moreover, the increasing number of users highway that be the cause of traffic jam itself. Therefore, there should be a tool or device that can control or even reduce the traffic jam problem.

Based on those problems, this final project has implemented a prototype device that could be beneficial to overcome traffic jam. By using a simulation of webcam, a prototype device based on microcontroller that can controls and monitors through application which is directly connected to traffic lights on the road has been made. Webcam role as input, with the help of the monitoring operator can be used as indicator of traffic jam. Besides control traffic light, this prototype device can also provide information about current traffic conditions through camera which can be monitored by the authorities in order to be used for the purpose of other traffic. So that, the traffic can be directly monitored and controlled from a distance to prevent traffic jam by setting the different time of traffic light in each road depend on the condition in intersection with the green light turn alternately in each road.

From the test results, obtained that in each block can be worked and well-integrated with the voltage in traffic light prototype about 4,78 V and the accuracy level for serial data transmission is 100% with maximum delay 3 ms. So, hopefully with the realization of this prototype device can help the government's effort to reduce the traffic jam and also facilitate related indtitutions in monitoring traffic jam.

**Keywords:** traffic, webcam, microcontroller, application