

ABSTRACT

Indonesia population growth increases year by year. It's equal with increasing of vehicles. Many people use vehicles make the crowded traffic jam on the road. Especially on the traffic lamp. Traffic jam is a condition that many vehicles over capacity on one junction road then cause a long road queue.

In this final project the writer makes congestion detection (sensing) based on the number of vehicles. This is part of the Smart Traffic Light system. Sensing take the data from number of vehicles detected through ultrasonic sensor HC-SR04 in real-time. Then the data from the sensing sent to the control of traffic lights by XBee in wireless network. Smart Traffic Systems project's construction will be divided 2 parts, there are congestion detection (sensing) and section control traffic lights. In this project wil be done by two people. Writer finished sensing part then control section was finished by Okta Putra Yoditio. Project which is done by writer is knowing the congestion using ultrasonic sensor to count vehicles then it delivers to control traffic to change traffic light.

Based on application testing, with detector which put in pairs 3 meters, the 2 others put 30 meters in pairs. This test is done at traffic light Jalan Burangrang, Bandung, Jawa Barat. This tools detect vehicles which has maximal speed 30km/hours until 40km/hours. This tools detect number of vehicles which block pairs sensor in the same time. This tools are installed near the traffic light on the junction. The accuracy of this tools are 80% with ultrasonic sensor transmits distance 200cm.

Keyword : traffic light, Xbee, detector, Smart Traffic, HC-SR04