

ABSTRACT

Communication machines for machines that are increasingly developing now can be applied to communication (V2I), which is an intelligent transportation system (ITS) service using wireless technology. V2I was developed in order to provide solutions to transportation problems, V2I communication in order to meet future transportation needs by providing traffic information to drivers in real time.

The V2I communication design is carried out on the traffic light infrastructure to provide traffic information in the form of traffic lights, from red to green or vice versa to the driver so that the driver can react quickly to continue the trip so that it can reduce the effects of congestion. V2I communication is carried out on the traffic light infrastructure on the road of terusan buah batu channel because the road is observed dense, V2I communication there are three devices used, namely the On-board Unit (OBU) installed on the vehicle, while the Roadside Unit (RSU) is installed on infrastructure, for V2I communication uses the standard Dedicated Short Range Communication (DSRC) at a frequency of 5.9 GHz, with a coverage area of 1 km² and the simulation distance used is 300 meters, 600 meters and 900 meters with the average speed of the vehicle when entering the traffic light area 10 km / hour.

Based on the simulation results, the best Throughput simulation analysis value is 3214.117 Mbps for a distance of 300 meters and the lowest value is 1990.094 Mbps for a distance of 900 meters. end-to-end delay of 0.80904 ms for distances of 300 meters and 0.99939 ms for 900 meters. Reliability is 48.720% for a distance of 300 meters and 26.331% for a distance of 900 meters. Based on the best value of the three simulation distances used, the V2I communication is at a distance of 300 meters.

Keyword : V2I communication, OBU, RSU, DSRC, 5G