

## Abstract

It has been a lot of use of wireless media in this *present* life, such as Wireless Fire Alarm System and Implementation of Wireless for Traffic Avoidance. Wireless Fire Alarm System still use the 802.11 a/b/g wireless Networks because of the media used to be static or just rest at one place only, while the Implementation of Wireless for Traffic Avoidance already using the wireless Network 802.11p on transportation equipment that tend to dynamic or constantly on the move. In this thesis, simulations built Railways Backbone Communication System (RBCS) using the NS-2 simulator to implement the use of Dedicated Short Range Communication (DSRC) at 802.11p wireless Network. The performance of a wireless Network 802.11p badly affected by the connectivity on each equipment. Meanwhile connectivity itself is influenced by packet loss, throughput and delay.

Simulation was built using the ns-2 as a simulator to simulate framework of RBCSs by putting some static wireless device (802.11p) protocol. Dynamic node is then used as the implementation of the train. Effect of speed on the train when the train certainly influential meeting with one device, the static and the moving of the train itself *from* the other direction. The simulator (ns-2) version 2.3.4 used by the authors themselves already support 802.11p protocol.

*From* the analysis of the input parameters are already calculated and observed *from* the images and graphs are made, the authors conclude that the speed has significant influence on the connectivity of 802.11p device by looking at the parameters that have been counted. The higher speed of mobile wireless nodes, the fewer packet can be *sent* by it. Moreover, the addition of speed makes the packet *received* by the Base Station is also less. The connectivity between wireless mobile nodes with wired nodes can still be awake for speed of mobile wireless node is not to high. Connectivity among wireless mobile nodes also may be awake during the first node does not quarrel to much with the speed of second node.

**Keyword** : *Railways Backbone Communication System (RBCS) , Dedicated Short Range Communication (DSRC), connectivity, packet loss, throughput, delay, 802.11a/b/g, 802.11p, ns-2*