ABSTRACT

One of the problems of communication systems in vehicles is the high mobility of nodes that causes the network topology to change dynamicly. In this case DTN occur as a solution, Delay Tolerant Network (DTN) is an architecture suitable for challenging or challenging networks. DTN adapt the Store-Cary-Forward concept that can improve the performance of mobile wireless networks. In DTN there is no end-to-end path between source and destination, as well as relationships between nodes. Temporal links are used for information between sources in order for messages to arrive.

In previous research [4][5][12], analyzing RAPID performance only pay attention to value from performance aspect such as delivery probability, average buffer time, node speed, etc. But no one noticed when the value of expected delay on the routing changes. Based on that fact, this research is attemps by considering the expected delay value in RAPID routing.

The routing algorithm used to analyze DTN performance based on this vehicle is RAPID. In this final project the software used are OpenJUMP and ONE Simulator. OpenJUMP is used here for editing of the map and ONESim to simulate the network according to the specified location map. The purpose of this research is to make and simulate DTN at specified area and can analyze performance of DTN routing algorithm based on parameter of overhead ratio, average latency, delivery probability, average allowance time, and energy consumption.

The results of RAPID protocol study, the expected delay variable can improve the performance in the network because the value of delivery probability has increased. However, the energy consumption occurs because the changing of the value of expected delay is increased.

Keywords: DTN, RAPID, ONESim, OpenJUMP