ABSTRACT

One of a wireless technology that very thriving now is Wireless Sensor Network (WSN). Wireless Sensor Network consists of large number of nodes. Every nodes have the ability to send, received, and to detect. Nodes will move free as long as in network. Zigbee provides layer network for application in Wireless Sensor Network (WSN), so it is able to send the data with multihop using routing method (Route Discovery) to the coordinator. It is necessary because in implementation of WSN, some problem will occur such as the limited distance among the nodes and the limited energy supply. Therefore, it is necessary to find the right routing method to solve the problem and find alternative route to coordinator. DSR and OLSR is one of the routing method in wireless ad-hoc routing that considered suitable for WSN due to the topology dynamic and operate with limited energy.

This final project analyzes the comparative performance of two protocol wireless ad-hoc routing DSR and OLSR. Comparative analysis is done through simulation using Network Simulator 2.35 and VirtualBox. The network simulation using standard Zigbee/IEEE 802.15.4 with hybrid topology. Analyzes and simulation which is done will be provide performance metrics such as delay, throughput, packet loss, and energy consumption.

Scenario used is measurement change of packet size on transmitted data and addition of duration simulation. Based on the results of simulations with scenario used, protocol routing DSR overall which are shown by the performance metrics is better than protocol routing OLSR. Which have better throughput, better packet loss, and fewer energy consumption that needed, eventhough OLSR have better result in delay. That means that protocol routing DSR more efficient than OLSR to use in application on WSN.

Keyword: WSN, OLSR, DSR, delay, throughput, packet loss, energy consumption, Zigbee, IEEE 802.15.4