

Abstract

Recently, the development of the Internet of Things (IoT) has become one of the most potential in recent years. One essential component of IoT is Wireless Sensor Network (WSN) technology, where most of the hardware has limited resources, such as battery, memory and limited computing. Routing Protocol for Low Power and Lossy (RPL) is an IPv6-based routing protocol that was developed to provide more addresses and lower power for sensor nodes on WSN. This research simulates the performance of the RPL routing protocol on Cooja Simulator. The topology tested is grid topology and tree topology. The parameters evaluated in this study are power consumption, routing metrics, ETX, throughput and delay. Power, routing metric and ETX values are obtained from the collect view feature of Cooja Simulator, while throughput and delay values are obtained from Wireshark. The result is the performance of the RPL routing protocol with the grid topology getting better values than the tree topology in the various parameters tested. In throughput parameters, grid topology has values at 901 bps, 722 bps and 678 bps, it higher than tree topology that has 812 bps, 697 bps dan 531 bps.

Keywords: wsn, rpl, cooja, wireshark, qos.