Abstract

ZigBee/IEEE 802.15.4 is a wireless network protocol and is commonly communicated with Wireless Sensor Network (WSN) applications that have low data rate characteristics, low power consumption and free license. ZigBee can be operated using by star, mesh, and cluster topology. ZigBee currently has an important role in life, such as communication with sensors. But over the times, the sensor is not just a few units but can be up to tens or hundreds of sensors. This research will be done by looking at the effect of changing the number of sensors and comparing the performance of ZigBee on the mesh and clusters topology using Quality of Service (QoS) parameters as a comparison assessment such as throughput, delay and success packet probability, for simulations using Network Simulator-2 (NS-2). Then the scenario uses a variety of different nodes of 20, 40, and 60. Star topology is not included in this research because it does not match the modeling of the number of nodes that many. Results from the end of this research that the throughput on the mesh topology is greater than the cluster topology, the largest value is 83.37 kbps. Then on the average delay value that the cluster topology is greater than the mesh topology, this is because mesh topology with interconnected properties with each other has the advantage of cluster topology that must pass more than 1 hop first to go to the coordinator center.

Keyword: *ZigBee, WSN, topology, QoS, NS-2*