

ABSTRACT

Smart home is the coordination of multiple systems (generally includes system monitoring, controlling, and online solution) which is utilized to maximize the surveillance, monitoring, security and so on. And WSN is a very appropriate partner for the smart home, because the WSN technology can bridge the communication from the house up to the home owner with the help of ZigBee (IEEE 802.15.4) and GPRS. Therefore to get the best data, then laying the sensors to be used in smart home should be adjusted in order to reach all parts of the house.

At WSN, there are several problems, one of which is the performance problem. Performance would be nice if QoS on the network has a great value as well. Good QoS values can be seen from the small delay, packet loss and high throughput small.

In this final analysis and reliability laying WSN in smart home network using a star topology and cluster tree. where each topology will be simulated using OPNET 14.5 software with number six and twelve nodes. From the analysis of QoS parameters of the average value obtained for the use of six nodes with star topology: 0.018 sec delay, packet loss 3.8 bit/sec and throughput 53935.65 bits/sec. For cluster tree topology: 0.021 sec delay, packet loss 4.1 bits/sec and throughput 75964.43 bits/sec. And for the use of twelve nodes with star topology: 0.024 sec delay, packet loss 34.25 bit/sec throughput and 118,614 bits/sec. For cluster tree topology: 12:03 sec delay, packet loss 14.94 bit/sec and throughput 130438.18 bits/sec.

Keywords: WSN (wireless sensor network), ZigBee, smart home, QoS.