ABSTRACT

Wireless network is growing rapidly in recent years, the development is supported by the rapid and cost effectiveness required in the implementation.Wireless networks are growing not only in the field of communications (entertainment), agriculture, industry but also has spread to the monitoring and control function are performed through the use of sensors. The sensor detect sounds, motion, images, temperature, etc. This detector is used for monitoring functions. Initially the sensor works standalone but now has been use in large networks (wireless networks) that support distances. This is where integration occurs in a wireless sensor network which is then referred to as the wireless sensor network (WSN).

In accordance with its function in the WSN sensors used for monitoring, monitoring function required data reach to destination (coordinator/ server). But in fact, the devices are very easy to unfunction, this is due to : distance, sensitive links, limited battery capacity, and other things that cause failure communication. These limitations encourage observation of the WSN network optimization designed.

Observations for network optimization in this research is done by determining the value of channel sensing time the yield delay, jitter, throughput and packet loss that is most stable in 0.1s. In the simulation of single failure and double failure decreased performance obtained on the four parameters that have been mentioned. Greatest decrease occurred in the double failure simulation, this is because the number of node failure more and more.

Key words: Wireless Sensor Networks, Robust Communication, ZigBee.