ABSTRACT

The implementation of wireless network sends information packets which also approximately from data rate, coverage area, network capacities, and also power consumption. Wireless network technology is divided into two groups to solve this problem; they are WLAN (Wireless Local Area Network) and WPAN (Wireless Personal Area Network). They have each characteristics, like WLAN is used in high data rate, wide coverage area, but WPAN is implemented for low data rate, low power consumption, and also wide coverage area. Zigbee is one of kind of LR-WPAN (Low-rate Wireless Personal Area Network).

In my final project, in designing Zigbee/IEEE 802.15.4 network in PAN (Personal Area Network) is used by software simulator, it is NS2 (Network Simulator 2) in the star toplogy. The value of performance network uses these parameters of Quality of Services, such as throughput, delay, and packet loss.

Based on my final project's simulation that changing packet rate and increase number device have results like decreasing throughput, increasing delay and packet loss. When Zigbee/IEEE 802.15.4 technology is used for transmitting voice without data transfer model, device-to-coordinator with changing codec voice and increasing number devices that have results, they are for codec G.723.1-5,3Kbps, G.723.1-6,3Kbps, and G.728-16Kbps that the number of devices are six, but G.729-8Kbps is for five devices, and G.726-24Kbps that the number of devices are four, but with data transfer model, device-to-coordinator for transmitting voice isn't good choices in Zigbee/IEEE 802.15.4 network.

Keyword: Zigbee,WPAN, QoS (Quality of Services), NS2, Codec Voice