ABSTRACT

Body Sensor Network (BSN) is a collection of low-power sensors that are placed around the human body. It is used to monitor human body's functions and characteristics. This study aims to find the best routing option so that the sensor node can send accurate data. The method used in this research is Temperature Based Routing TARA and LTRT. WBAN simulation was carried out by using Castalia OMNET++. TARA and LTRT routing was implemented at a hop count of less than 2 with a packet rate of 4 packets per second with an active duration of 250 seconds of simulation. The average node temperature parameters and QoS performance parameters are the parameters tested in the data analysis.

This study produces data that has been analyzed. The data shows that TARA routing can achieve the best packet loss rate of 3.82% and LTRT routing of 4.63% when the number of nodes is less than 24. It affects the network performance in terms of the produced throughput and PDR that become better. However, LTRT is better in terms of routing overhead, and the average node temperature is around 36.08 °C *(Celcius). Meanwhile, TARA has an average node temperature of 37.06* °C *(Celcius).*

The conclusion obtained from the result of the study shows that if you prioritize reliability in shipping, you can use TARA routing. Meanwhile, if you prioritize the safety of using sensor nodes on the human body, you can use LTRT routing. The results of this study are expected to be able to find the type of routing that is safe to be used for health monitoring of BSN with good routing performance results.

Keywords: *Body Sensor Networks*, *Temperature based routing*, TARA, dan LTRT.