

ABSTRACT

The importance of monitoring and recording body temperature data is that it can be used to determine appropriate remedial action in a patient in the hospital. In fact, it can only be seen in each patient room. Supervision of the medical side is also necessary to perform routine checks on each patient's room and to check on the development of the patient's health, so that in case of an emergency that must be addressed requires quite a long time. Therefore, it takes a device detection and remote monitoring of body temperature that can centrally provide early information to act more quickly and precisely, so it is enough to only monitor of all patients in the form of GUI (Guide User Interface) on a PC (Personal Computer).

This final project created a prototype implementation body temperature monitoring system remotely using Wireless Sensor Network technology. The body temperature monitoring system using Arduino Uno microcontroller as data processing of sensor and sensor DS18B20 which serves to take the patient's body temperature data. Sensor data obtained will be sent to the coordinator node using the XBee Series 2 to be displayed in the form of a GUI. Each sensor will be interconnected and can form a cluster-tree topology. Cluster-tree topology enables multihop communication which is suitable for large-scale WSN application and have a system that is more efficient because there are functions Cluster Head.

In designing and experiments that have been carried out, the result of data transmission can be displayed in the form of graphs and tables, and stored in a database with error level sensors to read body temperature of 0,2% with a maximum distance of 36 meters in indoor with NLOS conditions and 40 meters for LOS conditions.

Keyword : *Wireless Sensor Network, Mikrokontroller, DS18B20, GUI, Cluster-Tree, Xbee Series 2*