

ABSTRACT

Baby Incubator is one of the hospital equipment that is used to maintain the baby's body temperature within normal limits. Previous research only monitored one temperature point, so it could not detect even distribution of temperature in the chamber. The purpose of this study is to analyze the effect of distance on the temperature at each point of placing the sensor that has been determined. The manufacture of this tool uses an after only design, with a comparison tool Incu Analyzer, a thermistor sensor for baby skin temperature and 4 LM35 sensors for baby incubator room temperature with 1 LM35 sensor as a PID control system carried out by trial and error method. Based on the results of measurements made with the INCU Analyzer, when the chamber is open it produces an average error value of T1 4.083%, T2 6.06%, T3 3.78%, T4 4.88%, and T5 1.48% while when the chamber is closed it produces an average error value of T1 0.75%, T2 0.88%, T3 1.15%, T4 0.74%, and T5 0.87%. Skin temperature measurements carried out with a thermometer have an average error value of 1.1%. The results showed that the uneven heat transfer, lack of air distribution, the placement of different sensors at each point, and the size of the chamber that did not match the standard were factors that did not occur evenly in each point. Based on the results of the comparison of the module with standard equipment (BPFK) with a temperature tolerance of ± 1.5 C, it was found that this equipment is not suitable for use when the chamber mode is open. It is recommended for further research to use a temperature sensor that produces a smaller error value than the LM35 and improve the air distribution system.

Keywords: LM35 Sensor, Temperature, Baby Incubator