

ABSTRACT

Incubator works to stabilized temperature of premature baby. Premature baby need putted on an infant incubator to keep them warm and comfortable. Based on reference, the temperature that should be controlled is in range 36 to 37 Celsius degree and the humidity that should be controlled is in range 85% to 95% Relative Humidity (RH).

In designing the system we need a smart choice of sensor type and right microcontroller because temperature and humidity has large impact to baby's health. The infant incubator design used SHT11 temperature and humidity sensor. The sensor will applied into ATMEGA 8535 system.

The temperature and humidity system in incubator works to control temperature and humidity based on designed spesification value. LCD display used to display the conditions of temperature and humidity at the incubator. An actuator used to keep the conditions at the incubator, to keep temperature warm used five pieces lamp with 40 Watt each, and to keep the air circulation used three fans (DC motor).

The test show that SHT11 sensor has accuracy 0.1°C and the average humidity error reading of the microcontroller system are $1.067\%RH$. and the respond time of the sensor are $3.427\text{ second}^{\circ}\text{C}$.

Keyword : Temperature, Humidity, Control, Incubator.