ABSTRACT

The ability of engineers to design and develop tools that combine the knowledge medical and electrical engineering to make jobs easier for nurses, and doctors of hospitals is needed nowadays. One of the devices that workers in hospitals use is the Baby Incubator, which is used to treat premature babies. Babies who are born prematurely are babies who are born under the normal timeline for babies, which is around 9 months. Prematurely-born babies are susceptible to diseases such as hypothermia, which is why an incubator is needed with a set temperature between 32-35ºC until the baby can adapt.

In this final project, a baby incubator was designed using a concept of wireless, using a technology called Zigbee. This device is a development of a conventional baby incubator that can be controlled wirelessly, so that people will find it easier to use. With the help of *Series* 2 XBee modules, an Arduino microcontroller, and a SHT11 temperature sensor as its core components, a wirelessly-controlled baby incubator was built.

The wirelessly controlled Baby Incubator was built using RF Module XBee *Series* 2 with *Pair* topology. The result of the designing worked well and the system can be monitored in real-time. On the testing parameter, it was observed that the line of sight of the incubator system was 4 meters long with open room situation, and 3 meters long in between rooms. The measured power was 195 Watt average for the duration of 20 minutes, with observed currents and voltage 1A and 220V, respectively. The security sistem in the form of alarm works 100% of the time during three testing.

Keywords: Baby Incubator, Zigbee, Wireless