

ABSTRACT

Babies born prematurely should be treated with incubators, because their body temperature settings are not stable and will easily experience hypothermia. So it is necessary to provide special care and one of them is to provide an incubator that can keep the room temperature stable. The temperature of the incubator is adjusted to the birth weight or gestational age. Shortness of breath due to the development of bad lungs makes the baby need to get oxygen supply. For this reason, then researchers will create a system similar to incubators.

Therefore, to overcome the problem, a baby incubator is designed that can control temperature, humidity and oxygen and can monitor the sound, air levels and also the condition of the incubator room using a camera module integrated with the website. The BME280 sensor is used to measure temperature and humidity, the mq135 sensor is used to monitor air quality, the sound sensor is used to detect whether a baby is crying or not, the cellenoid is used as a katub opening and closing the oxygen channel to be run using nodemcu microcontrollers. Esp32-cam is used to monitor incubator rooms. The tool will send data to firebase and website monitoring using WIFI communication technology so that data can be controlled and monitored remotely.

Tests that have been conducted on the baby incubator control and monitoring system managed to reach the desired parameters. In this tool can measure the temperature in the incubator room with an error percentage of 0.14%, detect the humidity of the incubator room with a percentage of error 0.53%, successfully raise the temperature in the incubator room and be able to keep the temperature stable in accordance with the provisions that have been set, the camera module managed to send data in the form of video to the website in real time in the form of live streaming. Thus the baby incubator system can be implemented automatically.

Keywords: *Incubator, oxygen, temperature, website, Arduino*