ABSTRACT

Currently, there are still several hospitals that use a manual system to check patients. So, it takes a lot of time and is less efficient. Because of that, an IoT-based tool is made that is capable of monitoring pulse, body temperature and oxygen saturation in the blood connected to the internet network that can be monitored through an Android application. This tool is made using the ESP8266 microcontroller as data processing and as a data transmission medium using the Internet of Things, using the MAX30100 sensor as a detector of heart rate and oxygen saturation levels, and also the DS18B20 sensor as a body temperature sensor. Where the output results will appear and be read on the android application (Blynk). In the output data that is monitored is a normal heart rate of around 60-100 bpm, if it is less then it can be categorized as a patient with bradycardia, but if it is more than 100 bpm then it is called tachycardia. For oxygen levels (SpO2) displayed in percent form with a normal range of 95% - 100%. In the measuring process of this tool, you place your finger on the MAX30100 sensor and the DS18B20 sensor is placed on the arm. From the results of the measurements that have been carried out, the errors in BPM, SPO2 and body temperature obtained during tool testing are less than 5% and thus the designed tool can work well. The average value of this tool was measured twice with an average BPM of 75.49, SpO2 value of 95.85% and body temperature of 35.54 ℃. From the results of the measurements carried out, there was 1 respondent who was classified as tachycardic with a BPM value >100, the remaining respondents had a normal BPM. For SpO2 and temperature results, all respondents were in normal and healthy condition.

***Keywords**:* DS18B20, ESP8266, *Internet of Things*, MAX30100