

ABSTRACT

The Internet of Things (IoT) has now developed and is widely used in various fields such as the pharmaceutical industry in helping the drug production process. One of the production processes that is carried out is the pyrogen test. However, there are obstacles in the current pyrogen testing area system, namely users have to carry out tests from the work room to the test room which makes testing less efficient.

Therefore, one alternative to solve this problem is a tool to run a pyrogen test system using the NodeMCU V3 microcontroller which is integrated with the ESP8266 WiFi module, DS18B20 temperature sensor and the Thingspeak IoT platform that can be accessed via computers and smartphones. The purpose of this research is to implement the IoT concept on pyrogen test medical devices, test hardware functionality, and measure the quality of the network. The method used is literature study, microcontroller system design, tool making bases on IoT, and data reference.

The results of this study are that the functionality shows that the NodeMCU V3 microcontroller and the DS18B20 sensor can function properly and precisely in measuring the temperature of the tested animals. Network quality testing was also carried out and obtained reliability results in terms of efficiency of 60%, delay of 2,382 s, packet loss of 6,054%, and an average throughput value of 33.54 Kbps.

Keywords: *Internet of Things, Pyrogen Testing, DS18B20 Temperature Sensor, NodeMCU V3, Thingspeak, Computer, Smartphone.*