

ABSTRACT

Hemoglobin that is too low or high can indicate health problems. Checking hemoglobin levels in the body is usually done medically by taking blood samples or often called invasive with a long time. Therefore, a hemoglobin monitoring tool was created using the Back Propagation Artificial Neural Network Algorithm based Internet of Things and non-invasive.

From the test results it can be seen that the Hemoglobin monitoring tool is connected to the ThingSpeak, the algorithm prediction process in python and Android application can run well. The value input of oxygen saturation (SpO₂) by processing the Back Propagation Artificial Neural Network algorithm produces an average accuracy value of 93.8108% at the number of 9 hidden nodes and 500 epochs. The average delay end to end in sending monitoring tools to the Android Application is 6.09 s. Average throughput on NodeMCU - Server communication is 10.57 Kbps, Communication Server - Python - Server is 14.01 Kbps and communication on Server - Android application is 12.02 Kbps.

Keywords: Hemoglobin, Artificial Neural Network Algorithm, Quality Of Service, Android, SpO₂, ThingSpeak.