ABSTRACT

Susceptibility to infectious diseases, especially nutritional aspects, is a phenomenon that is one of the causes of death in Indonesia. The number of cases of malnutrition in 2020 was 58,425 cases which were caused by anemia in pregnant women. Maternal iron deficiency anemia can affect the growth and development of the fetus/infant during and after pregnancy. Anemia is a decrease in hemoglobin levels. With this background, researchers aim to create a hemoglobin detector for pregnant women, as a form of prevention of malnutrition in toddlers caused by a lack of hemoglobin in pregnant women. The tool is entitled "Internet of Things-Based Non-Invasive Blood Hemoglobin Detection", so that you can find out if the hemoglobin value is low. This tool is designed to use the MAX30100 sensor as a sensor to read the hemoglobin content in the body, which will be processed by NodeMCU 8266 as a microcontroller. The data is processed by nodeMCU and will be forwarded to the application using firebase. From the design results, it was found that the tool can function properly because the max30100 sensor can read the hemoglobin value non-invasively. The reading of this value can be categorized as good because the biggest error that occurs in the reading is 0.809% with an accuracy of 99.191%. This value is passed to the application using firebase with 100% accuracy, which means that the application can display values according to sensor readings. During the process of sending hemoglobin data from nodemcu to the application, there are 3 parameters that are tested to measure the quality of data transmission. The first parameter tested using the QoS standard is the delay parameter, the delay parameter in this study can be said to be moderate, according to the TIPHON standard assessment, because the delay in this study is 358.417 ms. The next parameter is the throughput parameter where this parameter has a very good value, because it has a value of 199.36 bps according to the TIPHON standard, and the last parameter is the packet loss parameter which is in a very good category because it has a value of 0. It is hoped that for future research it can improve the accuracy of hemoglobin readings and improve the delay parameter for data transmission.

Keywords: *IoT, Firebase, NodeMCU8266, MAX30100, Android*