ABSTRACT

In Indonesia, the rate of increase in diabetes is still quite high. Diabetes is a disease caused by excessive consumption of sugar which can cause the body to be unable to process carbohydrates into energy sources because the pancreas cannot produce the hormone insulin in the body properly. Therefore, someone who has diabetes needs to routinely check blood sugar levels in the body. Designing a tool to detect blood sugar levels using non-invasive techniques is very important for people with diabetes, because this tool allows them to always monitor blood sugar levels easily and know whether blood sugar levels are within the normal range. In the research to be carried out, an Internet of Things (IoT)-based tool will be designed to detect blood sugar levels in the body with non-invasive techniques using the MAX30102 sensor which will then be processed by the NodeMCU ESP32 as the control center. The results showed that the average accuracy produced by the prototype from 10 data samples was 97.17% with an average error of 2.83%. The error value obtained is influenced by the placement of the finger on the prototype during the measurement process. All data is displayed on the LCD screen and sent directly to the telegram bot.

***Keywords**: Diabetes, Non-Invasive, NodeMCU ESP32, MAX30102*