

Abstract

Measurement of body blood sugar levels is one of the important things to do to reduce the number of people with diabetes mellitus. Non-invasive measurement techniques become a blood sugar measurement technique that is more practical when compared to invasive techniques, but this technique has not shown too high levels of accuracy and lower levels of error . For this reason, the non-invasive measurement model using NIR and ANN is proposed to improve the performance of non-invasive gauges. Non-invasive blood sugar measuring devices will be built using a nodemcu board with photodiodes and NIR transmitters whose data is then processed using ANN models compared to invasive blood sugar data obtained from 40 data. 40 data obtained then used as raw data to build ANN models which 75% percent of it use as training data and 25% od it will be use as testing data to validate accuration of the model been built, the split of data doing randomly without any interference from programmer or model designer. All the data gathered are data collected from all volunteers which willingly to test their blood glucose using invasive glucose meter and non invasive glucose meter which been built. The invasive glucose meter used to gather raw data of blood glucose is SafeAccu-2 with 95% level of accuracy so the accuracy and error parameter calculated in this research are based on that 95% level accury of the invasive device.

Keywords: Diabetes, ANN, IoT, Glucose, Blood