

ABSTRACT

Oxygen saturation and heart rate are very important indicators to know the health of the human body. Oxygen saturation can indicate hemoglobin can bind oxygen or not. Low levels of oxygen saturation in the body to carry out normal organ functions are called hypoxia. To increase the value of oxygen saturation, medical action can be carried out, namely oxygen therapy. Monitoring oxygen saturation is very important for patients on oxygen therapy.

In this final project, system for monitoring oxygen saturation and heart rate is made real time for patients with oxygen therapy via Android smartphones. The process of detecting oxygen saturation levels and heart rate using the MAX30100 sensor pulse oximeter. This system can also classify hypoxia using a fuzzy logic method based on the oxygen saturation value. On the smartphone Android will display data in the form of classify hypoxia, oxygen saturation levels and heart rate.

The system that was built succeeded in achieving the objectives, namely: (i) the MAX30100 1 sensor got a SpO2 reading accuracy value of 99.495% and a BPM of 98,75%. And the MAX30100 2 sensor gets an accuracy value of SpO2 reading of 99.498% and BPM of 98.877% and (ii) classifying hypoxia using fuzzy logic method with an accuracy of 99.51%.

Key Word: *Oxygen Saturation, Pulse Oximeter, Oxygen Therapy, Fuzzy Logic, Hypoxia.*