ABSTRACT

Respiratory problems can cause asthma, acute asthma attacks are very difficult to predict because they often occur suddenly and asthma can also cause death in sufferers because the breath can suddenly stop. The purpose of this research is to design an asthma detection device through indicators of heart rate and oxygen saturation. The contribution of this study is to categorize the patient's condition by looking at the value of the heartbeat and oxygen saturation so that when asthma occurs the message of a location will be sent. To measure heart rate and oxygen saturation, a Nellcor finger sensor is placed on the patient's index finger. The finger sensor enters the signal conditioning circuit, then sent to the microcontroller to be processed to produce a heart rate value and the percentage of oxygen saturation. The testing of this tool is done by comparing the module with a standard measuring instrument that produces the highest value of oxygen saturation error which is 1.715% and the largest value of heart rate error is 3.548%. The results showed that the device was appropriate to use, because in the "Medical Devices Test and Calibration Guidelines" Ministry of Health of the Republic of Indonesia in 2001, the maximum limit in oxygen saturation error tolerance was 2%, and heart rate was 5%. The results of this study can be implemented in patients who have been diagnosed with asthma so that it can facilitate the family in monitoring the patient's condition.

Keywords: Asthma, Heart Rate, Oxygen Saturation.