

ABSTRACT

In the heart there is a heartbeat, which is the frequency of one's heart beats per minute. The general range of heart rate is 60 to 100 beats per minute. Heart rate generally depends on the person, age, body dimensions, heart conditions, use of certain drugs, and one's activities. When a person's body is dominated by many daily activities, it will trigger a fast heart rate which can cause physical fatigue. Activities tested for physical fatigue include jogging, going up and down stairs, exercising, and running. Apart from checking the heart rate, knowing oxygen levels is important for daily life, as oxygen saturation can prevent happy hypoxia. This research designs a portable detector that can be carried anywhere and is carried out in real time. Using the MAX30100 as a sensor to determine heart rate and blood oxygen level which is intended to detect a person's fatigue level, as well as output that will be displayed on the website by accessing a local IP. Where the checking process utilizes one optical point and a lit LED light. The results of this design are compared for their accuracy using a pulse oximeter. Where the accuracy of heart rate and oxygen saturation values obtained in normal conditions is 96.2% and 98.97 while for physical fatigue is 97.95% and 97.42%. Based on these results the accurate value is quite high.

Keywords : *Heart Rate, Oxygen Saturation, Website, MAX30100, physical fatigue*