

ABSTRACT

Apnea monitor is a device that is used to give a warning if there is stop breathing. Stop breathing while sleeping is one form of obstructive sleep apnea. This cessation of breath cannot be underestimated, this is related to the main risk factors for health implications and increased cardiovascular disease and sudden death.

The purpose of this study is to design apnea monitor with android interface. This device allow the users to get how many times sleep apnea happen while sleeping and got data to analysis before continuing with more expensive and advanced sleep test. This device used flex sensor to detect the respiration rate, the sensor placed on abdomen or belly so that can measure expand and deflate while breathing. The microcontroller use Arduino chip called AT-Mega328. Bluetooth HC-05 used to send respiration data to android, Mit app inventor used for android programmer, and on the android there are plotting of respiration value and when the device detected apnea so the android also give a warning to user.

Based on the results of testing and measurement then compare with other device, the results of the average% error were 3.61%. This apnea monitor design is portable but there are needs some improvement by using other sensor for detected respiration and using module other than Bluetooth.

Kata kunci : Apnea Monitor, Sleep Apnea, Flex Sensor, Bluetooth HC-05, Android