

ABSTRACT

Patients with sleep apnea have increased, almost more than 80% of patients are undiagnosed, it necessary to monitor breathing signals in real time. Sleep apnea is the occurrence of breathing stops for more than 10 seconds. The purpose this study was design an apnea monitor device order to detect symptoms of sleep apnea by monitoring patient's respiratory signals. The contribution in this study by remote monitoring of abdominal breathing in patients while sleeping that can monitor patient even though they not accompanying. In order to facilitate monitoring, Bluetooth-Based Apnea Monitor to Show Android Signals, by displaying respiration signals on Android so treatment can be immediately carried out when patient stops breathing (apnea). Design uses piezoelectric as sensor for detecting respiratory signals placed on patient's stomach. The ESP32 microcontroller as respiration signal processing then sent to android device using Bluetooth network. If breath stop detected for 10 seconds, the indicator/buzzer will on. In this study, there're 5 respondents who had been tested by comparing Respiration Rate with Patient Monitor tool, results of measurements and calculations obtained highest error value was 2.9%, and could transmit good data without data loss with a distance of 5 meters in room and 10 meters away. meters in different rooms. It can be concluded that piezoelectric (pressure) sensor is effectively used as respiratory signal detector and processed into a wireless sleep apnea detector. This development can remotely monitor patient's breathing and also detect respiratory arrest on Android, that can be implemented in patient monitoring process to reduce sleep apnea sufferers.

Keywords : Apnea Monitor, Sleep Apnea, Piezoelektrik Sensor , Android