DESIGN AND IMPLEMANTATION OF A PROGRAMMABLE APNEA MONITORING SYSTEM (ThuAmPO3)

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Abstract :

Abstract− The monitoring of breathing dynamics is an essential diagnostic tool in various clinical environments, such as sleep diagnostics, intensive care and neonatal monitoring. This paper introduces a noninvasive method for monitoring the respiratory patterns of the patients and the specifications of apnea monitor hardware. The microcontroller based apnea monitor consists of a sensor system interfaced with a microcontroller to detect the apnea from the heat changes in the oro−nazal air flow. The amplified signal obtained from the patient is applied to the microcontroler.After converting the signal into digital form, it is transfered to the computer by using the RS232 serial port to make possible to investigate the relation between the EEG or ECG signals with respiration patterns. The system allows to adjust the apnea period for various applications. In tests, apnea period is selected as 10 sec. Also, an alarm system is available to warn during the sleep apnea. Performance evaluation of the system was complated and satisfactory results were obtained. The requirements for the system reduce cost and discomfort associated with traditional diagnostic prosedures.

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