Abstract

During the recent decade, rapid advancements in healthcare services and low cost wireless communication have greatly assisted in coping with the problem of fewer medical facilities. The main purpose of this research work is to develop a wireless sensor network system that can continuously monitor and detect cardiovascular disease experienced in patients at remote areas. One of the most prevalent healthcare problems today is the poor survival rate of out-of-hospital sudden cardiac arrests. The Objective of this study is to present a Wearable Body Area Network System to continuously capture and sent the ECG signal to patient’s Mobile Phone. By analyzing the signal critical situation will be identified and alert will be sent to doctor, relatives and Ambulance services using data processing algorithm implemented on patient’s mobile phone. A wireless transmission system is also proposed for continuous data transmitting to a server system where a doctor can monitor the patient Electrocardiography (ECG) from a long distance. In this project we developed a wearable ECG device and a real time brachycardia, tachycardia, and sinus arrhythmia detection based android mobile application. ECG signals from patient’s body is collected by the mini ECG device and sent through a Bluetooth module to Android mobile Application. On Android application processed data analysis based Pan Tompkins algorithms to detect complex QRS ECG signal and heart beats. From the number of heart rate can be detected abnormalities. Upon completing the system, we tested the system using signals generated by Fluke PS400 and real data. There are three categories of abnormalities under study: brachycardia, tachycardia, and sinus arrhythmia. Normal heart signal is also included in the test. We have tested this application in real time by collecting the ECG from the patient in stationary as well as simulated data. In both situations the application fulfils requirements of the proposed system.