

prototype a machine electrocardiographs (ECG) and cardiac diagnosis by cardiac signal processing

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Abstract: The mechanical activity of heart is controlled by Depolarization and Repolarization wave propagation all over the heart. This produces electrical currents all through the body and leads to potential differences which can be measured by deploying electrodes on the skin. The main goal of this thesis is to design and configuring and electrocardiogram device which is made using active filters, therefore active filter's classes would be reduced. Two basic destructive factors can lead to quality reduction, one is frequencies higher than heart signal which can disturb heart's signal and the other is lower frequencies which lead to basic line deviation. A noiseless signal can be obtained Using 4th order Bessel filter and a high pass filter with 150mHz cut off frequency and also implementation FIR filter in the micro controller. In respect to the rhythmic beats in a normal mode heart signal, we are able to diagnose any heart's disease by processing its signals. We have discussed about arrhythmia and designed an algorithm by categorizing it to 3 types called Tachycardia, Bradycardia and sinus syndrome to diagnose these kind of diseases

Keywords : Key words: Electrocardiogram(ECG), augmentation of heart signal, noise removal by active filters, Implementation of FIR filter in micro controller, arrhythmia diagnosis

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