Abstract

It is well known that biomedical signals carry important information about the behavior of the living systems under study. With the analysis of the Electrocardiogram (ECG) signal it may be possible to predict heart problems or monitor patient recovery after a heart intervention. A proper processing of these signals enhances their physiological and clinical information. The quality of biomedical signal is degraded mainly by many sources of noise such as power line interference (PLI), baseline drift, muscle contraction noise etc. The objective of this paper is to implement the Chebyshev Type II digital filter to overcome degradation by improving ECG signal quality for quality clinical diagnosis. Different artifacts are the reason in corruption of the ECG signal. Removing noise from the biomedical signal is still challenging and a rapidly expanding field with a wide range of applications in ECG noise reduction. Present paper deals with the design of Chebyshev Type II filters including low pass, high pass, notch filters. Also the performance is tested using cascading of filters. For real time application 1711 add on card is used. Different ECG signals from MIT/BIH arrhythmia database are used for validation and compared with real time ECG signals. The objective of this paper is to implement the Chebyshev Type II digital filter to overcome degradation by improving ECG signal quality for quality clinical diagnosis. Finally results indicate noise reduction in the ECG.
A Real Time Approach: ECG Noise Reduction in Chebyshev Type II Digital Filter

References

- Patricia Arand, "Method and apparatus for removing baseline wander from an ECG signal", US patent Issued on June 7, 1994.

Index Terms

Computer Science

Signal Processing

Keywords

Biomedical Signal  ECG  PLI  Chebyshev Type II  Digital Filter