

Abstract

Introduction:

The system “LabVIEW based ECG signal acquisition and analysis” is developed to assist patients and doctors in health care. An arrhythmia is an abnormal heart rhythm. It may be so brief that it doesn't change the overall heart rate, but it can cause the heart rate to be too slow or too fast. When arrhythmias are severe or last long enough, the heart may not be able to pump enough blood to the body. This can cause the patient to feel tired, lightheaded or may make him pass out. It can also cause death. Before treatment, it's important for the doctor to know where an arrhythmia starts in the heart and whether it's abnormal. An electrocardiogram (ECG) is often used to diagnose arrhythmias. “LabVIEW based ECG signal acquisition and analysis” is meant to acquire ECG signals from the patient and analyze it to detect and classify its anomalies and abnormalities. This is achieved by extracting amplitudes and durations of parameters of ECG waveform such as P wave, QRS complex, RR interval, and PR durations. These parameters are compared with the normal values to determine the type of abnormality-Tachycardia or Bradycardia. The database of the patient is maintained for further use by the doctor.

Description

The objective of LabVIEW based ECG signal acquisition and analysis aims at acquiring and analyzing temporal parameters of ECG signal such as P wave, QRS complex, RR interval, PR durations and amplitudes of the P wave, ST wave, identification of cardiac arrhythmia using LabVIEW. The research work has helped us to explore various features of LabVIEW like signal processing and automated database generation

Conclusion:

In this report, the hardware implementations using commercially available devices and the software written in the LabVIEW program for continuously monitoring ECG data have been described. This system aims to acquire and analyze the ECG signals and measure the rate and regularity of heartbeats. It focuses on acquisition and analysis of ECG signal, identification of cardiac arrhythmia and database maintenance using LabVIEW. This system will help cardiologists and health care systems in the diagnosis of various types of Arrhythmia VI.