ABSTRACT

Arrhythmia is a medical term defined as any abnormality of frequency, regularity, pulse and electrical impulse conduction on the heart. In general, arrhythmias require immediate treatment to prevent a worse condition. The diagnosis of an arrhythmia can be done with Electrocardiograph (ECG). Until now no device can exceed the ECG in diagnosing arrhythmias.

Various studies have been done to detect these arrhythmias automatically. It has also to be supported with a computer that can process data faster and store large amounts of data. Most of the ECG now are not designed for those purpose. ECG is not easily connected with computers, because almost all new computers only supported with a Universal Serial Bus ports (USB).

The purpose of this research is to design and realize ECG acquisition system using USB to support research in automatic detection of arrhythmias. The designed ECG have been able to display signals of 11 types ECG Lead which are taken directly from the patient (Lead I, Lead II, Lead III) and ECG simulator (Lead I, Lead II, Lead III, aVL, aVF and Precordial Lead). This system also able to detect bradycardia and tachycardia arrhythmia disorder.

Keywords: Arrhythmia, ECG, Universal Serial Bus (USB).