

ABSTRACT

Electrocardiogram (ECG) is a medical tool that is vastly used to measure heart's electrical activity by looking into the biopotential difference. The abnormality of the heart can be found by analyzing the output signal from electrocardiograph, or better known as electrocardiogram. Commonly, analyzed electrocardiogram is gained from three-lead electrocardiogram only by using the vectocardiogram method and the displayed signal only comes from one lead. But, the analyzed result becomes inaccurate. Because of that reason, on this final project there will be a designing of twelve-lead ECG system based on the clinical standard and those twelve leads can be displayed on a computer screen, so the analyzing result of the electrocardiogram becomes more accurate.

This final project determines to create a device that can display and analyze EKG signals on computer. First, ADC data will be received from microcontroller via communication of USB (Universal Serial Bus) to serial. Next, the data is multiplexed according to their leads, lead V1 to V6, and displayed in the form of EKG signals. The application is built using Java as its core programming language and Netbeans 7.0.1 as its IDE (Integrated Development Environment).

The output of this project is the display of EKG signals according to their respective leads acquired from the multiplexed ADC data of the twelve leads (lead V1 to V6).

Key words : Cardiac, EKG signals, lead, applications, ADC data, Java