ABSTRACT

Heart is one of the organs of the human body's most important to humans. Heart works to circulate blood throughout the body. Pulsating Heart is a group of muscle cells that move and produce electrical energy. Technological in the field bioinstrumentasi now able to create a device that can detect or record the electrical activity produced by the heart motion called the electrocardiograph (ECG). But conventional EKG only be viewed on a monitor. Up in this essay will be planned 12 lead EKG system.

12 lead ECG system design is divided into 4 parts: analog circuit design lead 1 to lead 6, analog circuit design lead 7 to lead 12, digital circuit design and appearance electrocardiograph 12 lead signals. in this study the author did research in network planning for digital electrocardiograph leads 12 which includes multiplexer, ADC (Analog to Digital Converter) and serial communications.

From the test results using 60 BPM simulator as input obtained plot each system graphic ADC samples per lead ECG data are obtained in accordance with the output signal is analog circuit, Appears signal transition at the turn of the multiplexer selector from leads one to the other until 12 columns of data samples to produce graphical plots incompatible with analog circuit output signal. Signal transitions require 123-533 samples data at every 5 sec EKG data transmission and to obtain 12 lead EKG graph plots at least 111 data needed to establish a lead of each ECG wave signal. Farthest distance for wireless communication access point using the method server to the client is 40 meters.

Keywords: EKG, Microcontroller, wireless access point, server to client, ADC