

ABSTRACT

Electrocardiograph (ECG) is one of the diagnostic sciences often studied in modern healing, used to detect damage to heart components or disturbances in heart rhythm called Arrhythmia. The purpose of this study was to develop an Electrocardiograph simulator (ECG) tool equipped with Arrhythmia. The main design consists of the Arduino Mega 2560 microcontroller, the Digital to Analog Converter (DAC) 4921 range, the Resistor network and the sensitivity selection circuit. The basic signal image data used for the formation of a normal Electrocardiograph (ECG) and arrhythmia is taken from the Electrocardiograph (ECG) recorder using a phantom Electrocardiograph (ECG). Based on the readings on the beat per minute (BPM) settings of the module against Printout Beat Per Minute (BPM) on the Electrocardiograph (ECG) recorder obtained an error rate value for the Normal Sinus Rytm parameter of 0.790% for Beat Per Minute (BPM) 30, 0.383% for Beat Per Minute (BPM) 60, 0.535% for Beat Per Minute (BPM) 120, 0.515% for Beat Per Minute (BPM) 180 and 0.593% for Beat Per Minute (BPM) 240. For error rates in the Arrhythmia parameter of 2.076% for Ventricular Beat Per Minute (BPM) 160 and 0.494% for Supraventricular Tachycardia Beat Per Minute (BPM) 200. Electrocardiograph (ECG) simulator design can simulate human body signals and can be used as a medium in the learning process in the world of health.

Keyword : *Arrhythmia, Arduino mega2560, DAC4921, Resistor Network.*