ABSTRACT

Cardiovascular disease is the leading cause of death in the world and the number one killer in Indonesia, with a mortality rate of 17.05%, early detection of heart health conditions can be done using an electrocardiograph (ECG) signal examination, so that the data transmission process can run effectively and produce waves that are accurate and minimizing noise so that the process of reading data by competent medical personnel in making decisions or diagnosing a patient's heart disease runs fast. In this study, heart signals were detected using electrodes attached to the right hand, right leg, left leg and the data were processed on the AD620 IC, HPF and LPF filters then processed using Arduino nano with the implementation of a digital filter with the type of butterworth filter of order 6, then for TFT and PC. The research method is to measure the heart signal and BPM on the ECG simulator. The results of the study are there is no data loss or delay in data transmission when given variations in baudrate. The data transmission capability can transmit data at a maximum distance of 44 meters without obstructions and a distance of 20 meters with obstructions. This tool can reliably heart signals on the aVR, aVL, aVF leads and the results can be sent using LoRa Wireless, in the future research can be developed with further data transmission distances.

Keywords — ECG 6 LEAD; Heart Monitoring; Arduino Microcontroller; LORA wireless