ABSTRACT

Electrocardiogram (ECG) signal has proven to be a potential biometric to be used in the diagnosis of arrhythmias or pathologies in the human body. ECG signal data retrieval is placed on the iris, fingerprint, and palm of the hand, there will be more noise that will interfere with monitoring the ECG signal. Generally, the location of the leads on the electrocardiogram is the wrist and chest, but in this study, the leads are located on the palms of the hands and feet because they contain more noise than the signal collected from the chest. This digital filter has the ability to improve its frequency response over time which makes it compatible for many biomedical signal processing applications. The purpose of this study is to increase the ECG signal with too much noise that is not needed for signal monitoring by comparing the results of the ECG signal from an analog filter and a digital filter using FFT. The results of this test can be concluded that the digital filter type butterworth order 6 with a frequency limit of 0.5Hz to 50Hz shows that this filter is able to filter frequencies from 90Hz to 120Hz, with the lowest value being 9.24 at 120Hz. When data processing is carried out using a phantom ECG, the increase in signal between the analog filter and the digital filter is not obvious when using a TFT LCD and serial monitor on an arduino but when taking data using the human body, the increase in signal between an analog filter and a digital filter will be obvious.

Keyword: ECG, Digital Filter, Biometric