

## **ABSTRACT**

### **A COMPARISON OF DIGITAL FILTER IIR AND FIR TO NOISE REDUCE 60 Hz POWER LINE INTERFERENCE ON ECG SIGNAL**

**By**

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A comparison has been done on the work of IIR and FIR filter in reducing the interference of 60 Hz power line on ECG signal. This research has been done to find out the work of IIR and FIR filter and to compare it both quantitatively and qualitatively. The ECG data is a secondary data that is taken from [www.physionet.org](http://www.physionet.org). The ECG data contains noise was being filtered so that there is ECG data that is free of noise that can be used by the doctor to acknowledge the heart condition of a patient. IIR uses Pole Zero method while FIR uses Windowing Methods they are Rectangular Windowing, Bartlet Windowing and Hanning Windowing. The result of the research shows that quantitatively IIR filter has a better work compared to FIR filter in reducing the 60Hz noise powerline interference. The work can be seen from the SNR score by IIR filter that reached 32.2008 dB on average and the SNR FIR filter Rectangular Windowing reached 15.6812 dB on average, SNR Bartlet Windowing methods reached 19.1354 dB and SNR Hanning Windowing methods reached 23,2296 dB on average.

**Keywords** : Filter, ECG, IIR, FIR