ABSTRACT

In the medical world, the technology concept of BSN (Body Sensor Network) is being developed in Indonesia to monitor the health of the human body. An ECG (electrocadiogram) is a wrong way to record electrical activity produced by the heart to detect health abnormalities when the heart contracts. Therefore BSN is used for several monitoring in health, one of which is the ECG. However, in BSN (Body Sensor Network) the limited power of biosignal sensors and the ability of computing sensors are very limited and the large signal size causes the need for large storage capacity. For this reason, an efficient method is needed to compress ECG signals by producing good quality.

In this Final Project research, a system design has been carried out by applying the Compressive Sensing method that uses FFT (fast fourier transform) in sparsity transformation and in projection transformation using Gaussian projections and Basis Pursuit algorithms with L1 magic programming for output signal reconstruction. With this method, it will produce more efficient signal data.

Based on the results of measurements made, the SNR of ECG signals generated without AWGN channels with a cardiac period of 2048 samples obtained an SNR value of 7.6144 dB, in the cardiac period of 6144 samples obtained an SNR value of 9.2317 dB, and in the cardiac period of 10240 samples obtained values SNR is 5,1630 dB. Meanwhile, the SNR of ECG signals generated with AWGN channels with a cardiac period of 2048 samples obtained an SNR value of 7,396 dB, in the cardiac period of 6144 samples an SNR value of 9,2317 dB was obtained, and in the cardiac period 10240 samples obtained an SNR value of 5,1778 dB.

Keywords: *BSN, EKG, Compressive Sensing, Basis Pursuit algorithm, FFT, Gaussian*