

ABSTRACT

One major problem in Elektrokardiogram (EKG) monitoring is data compression. EKG signal computerization process yield about 600 Mbit of data every day, thus difficult to be kept and transmitted. Monitoring process require an algorithm for lessening data size which will be kept to maintain signal structure information content. There are various algorithms with its advantages and disadvantages. In some applications, compression and reconstruction process require a real time performance.

At this final project some compression algorithms were simulated, i.e.: TP, AZTEC, FAN, SAPA, and RLE. In this research of EKG signal compression, 3 signal of heart condition used as input were: atrial fibrillation, congestive heart failure, and normal sinus rhythm with sampling frequency of 250 Hertz, all inputs lengths of 1000 sample. The output target has high Compression Ratio (CR) and low Cross Correlation (CC).

The results of the simulation were Compression Ratio and Cross Correlation value from each algorithm. The optimum algorithm from examination result was FAN algorithm with Compression Ratio and Cross Correlation values fluctuate. The compression process which done at normal sinus rhythm conditions yield average Compression Ratio value equal to 2.50076 dan Cross Correlation 20.9959 %, The compression process which done at congestive heart failure conditions yield average Compression Ratio value equal to 1.95755 dan Cross Correlation 45.2443 %, and The compression process which done at atrial fibrillation conditions yield average Compression Ratio value equal to 2.12412 dan Cross Correlation 40.9267 %.