ABSTRACT

The development of information technology and computers provide many conveniences, one of them is ease in the dissemination of digital information. However, digital informations are easy to change and modify. This can cause negative impacts, such as illegal copying and dissemination of information. Therefore, a technique to protect the authenticity of information is required. One technique that can be used is watermarking technique.

Watermarking is a technique of insertion of confidential data (watermark) into a digital information (host). Watermarks can be text, image, or audio. The insertion of the data is done in such a way that the data does not damage the protected digital information. The inserted data can not be removed from digital information and must be retractable. In this final project, watermarking system design with Discrete Wavelet Transform (DWT) and Complex Cepstrum Transform (CCT) method is proposed. Combining these two methods is expected to be more resistant to attack compared to a separate method.

The design is done by using MATLAB software and the testing of watermarked audio quality is done by measuring the parameter value of SNR (Signal to Noise Ratio) and Objective Difference Grade (Objective Difference Grade) objectively and MOS (Mean Opinion Score) subjectively. While testing on the quality of the watermark in the form of images from the extraction results is done by measuring the value of the parameter BER (Bit Error Rate) objectively. The result of this final project is an inaudible watermarking audio system with an average value of BER = 0.16, SNR = 26.38 dB, ODG = -1.13 and MOS = 4.08.

Keyword: *watermarking, audio watermarking, Discrete Wavelet Transform, Complex Cepstrum Transform, Compressive Sampling.*