

ABSTRACT

Watermarking is a technique for inserting data into audio for the purpose of protecting copyright or audio copyright ownership of the audio. Because at this time there are many illegal sales, and copyright infringement on the audio file. Therefore, the watermarking process on audio files is expected to reduce copyright violations that could harm the owner of the audio.

In this research, we will conduct audio analysis and design of Compressive Sensing (CS) based watermarking using Orthogonal Matching Pursuit (OMP) reconstruction algorithm and using LI-Magic by using Lifting Wavelet Transform (LWT) and Quantization Index Modulation (QIM) method. CS works by entering files into compressive measurement vector. The LWT method is a technique for embedding proprietary information into the host without degrading the quality of the host. In QIM the host signal is quantized according to the watermark symbol to be embedded. The image will be reconstructed using Orthogonal Matching Pursuit (OMP) and use LI-Magic, then compare the results of both reconstructions.

Subjective test is done by survey to 30 correspondents by listening to audio that has been inserted watermark, and objectively by measuring the value of SNR, ODG, BER, and PSNR. Audio that has been inserted watermark tested its resistance with given 5 kinds of attacks such as LPF, BPF, HPF, MP3 Compression, and Noise. The optimum result obtained in this final project is having SNR value 74,80884 dB, ODG -3,67E-09, BER 0, and PSNR ∞ , is at Host Instrument watermark 1 size 16x16 pixel and measurement rate 0,02. without attack. The average MOS value obtained from the survey of 30 correspondents was 4.3.

Keywords : Audio Watermarking, Compressive Sensing, Quantization Index Modulation, Lifting Wavelet Transform, Orthogonal Matching Pursuit, LI-Magic