

ABSTRACT

Internet network technology has become a necessity or information provider media by the public. The internet can also be used as a media for distributing files in the form of data and *audio*. This causes the security of the spread file to be very vulnerable to abuse. Not infrequently there are parties who are less responsible for carrying out an act of copyright infringement or copyright. With the existence of these cases, we need a way to improve the security of copyright in *audio* files. Watermarking is one of the technologies that can be utilized to reduce copyright infringement.

In this final project *audio* watermarking has been carried out, where in the watermarking the Compressive Sensing (CS) process is carried out, several methods are carried out to fulfill the characteristics of the watermarking itself. The method used is Lifting Wavelet Transform (LWT) to decompose a signal into 2 frequency sub-bands, QR functions to convert the LWT output into two matrices Q and R, where Q is the orthonormal x matrix and R is the upper x triangle matrix, Quantization Index Modulation (QIM) as a method of inserting watermarking. The test is carried out using scheme 1 with Nframe 32 and scheme 2 with Nframe 64.

The results of this Final Project at the time of testing without attack is that in scheme 1, the results of BER = 0, SNR 30.0, ODG = 3.4589 and C = 358.8866 are obtained. In scheme 2 the results of BER = 0, SNR = 30,6009, ODG = -3,3673 and C = 358,8867 are obtained. This method is resistant to Linear Speed Change, Resampling, and TSM attacks with SNR values above 20 dB, BER <10% and ODG values 1 to -4, and subjective *audio* quality parameters presented with the Mean Opinion Score (MOS) show vulnerable values 3 to 4 given by listeners.

Keywords : *Audio Watermarking*, LWT, QIM, QR, CS.