ABSTRACT

We have entered an era where information can be disseminated in digital form. Various information whether in the form of text, audio, imagery, and audio can now be easily uploaded and accessed by various circles quickly and easily. But also not a few persons who abuse this advantage for its own sake, not least the file in the form of audio that will be discussed in this final project. Audio has become one of the most heavily infringed copyrighted files, such as the most common resampling process. Therefore, this final project provides a solution in order to prevent the occurrence of such violations, using the watermarking method. Watermarking is the process of inserting a file as a sign or copyright without damaging the original file. The file inserted in this final project is an image with audio as the host file.

The methods to be used in this final project are Stationary Wavelet Transformation (SWT), with Spread Spectrum (SS) insertion method, and optimized using genetic algorithm. SWT is a modification of the more commonly known method of Discrete Wavelet Transformation (DWT). What distinguishes both is the absence of downsampling process on SWT after the decomposition process. The genetic algorithm is used to determine the quality evaluation parameters to be modified so that the watermark data still has good imperceptibility and robustness.

Implemented using MATLAB, the audio will be tested with two kinds of attacks: resampling, and MP3 compression. then the test will continue with optimization using Genetic Algorithm. From the test will get the output parameters of each of the five types of audio with given two kinds of attacks. From the process will get the output parameters, namely ODG, SNR, BER and C.

Keywords: Watermarking, SWT, SS, Genetic Algorithm, Resampling, MP3 Compression, ODG, SNR, BER, C.