

ABSTRACT

Along with the development of technology time is growing rapidly such as internet that allows dissemination of information and data exchange become very wide causing the number of data forgery illegally. This illegal data forgery has caused problems such as digital copyright protection such as video, image, and audio. Audio Watermarking is a technique of inserting watermarks into the audio (host). This technique is a solution to overcome the many violations of copyright, especially audio. The watermark usually contains information about the ownership of a file, so that others can not modify, distribute or acknowledge as the owner of the file.

Watermarking can be inserted in time and frequency domains, each having their own advantages and disadvantages. Watermarking in time domain is easier to implement, but watermarking in frequency domain has the advantage of being more resistant to various attacks. In this research, we will design the audio watermarking using Fast Fourier Transform (FFT) transformation method with spread spectrum insertion and log coordinate mapping method as done in previous research. Then the design results will be optimized using genetic algorithm in order to get better results than previous research.

In this study used five different types of audio. The result of this research is able to prove that optimization using genetic algorithm produce audio watermarking better than previous research. In previous research, watermark audio was not resistant to TSM attack (37,75%), pitch shifting (48,75%), and cropping (44,8%). Then after the optimization obtained an increase of audio watermark on TSM attack (0.1%), pitch shifting (45%), and cropping (11.25%).

Keywords : FFT, Watermarking, Spread Spectrum, Log Coordinate Mapping, Genetic Algorithm