ABSTRACT

AYI DIANITASARI. The Implementation of Audio Watermarking Technique using Phase Coding Method. Supervised by SHELVIE NIDYA NEYMAN.

Today, digital data has substituted analog data in various applications. The digital data is easier to make, manipulate and distribute, these are the advantages of the digital data. Otherwise, copyright protection is one of the problems using the digital data. The wider of the use of computer network and technology make digital data easier to distribute illegally at the lower cost and qualified content. This problem could be handled by the digital watermarking, a technology which allows a secret message to be hidden in digital data, without the detection of a user. The watermark is not apparent to the user, and does not affect in any way, the use of the original data.

Audio watermarking is the part of digital watermarking. Audio watermarking is the information insertion process to the audio and the extraction process to retrieve the information without influence the audio quality. In this research, implemented audio watermarking to the wav audio data using Phase Coding method that works in the frequency domain. The phase coding method works by substituting the phase of an initial audio segment with a reference phase that represents the watermark data.

Phase coding method resulted the PSNR (Peak Signal to Noise Ratio) value as the quality measurement. Based on the analysis result, the watermarked audio quality using this method is above 30 db and the watermark file can be extracted in the value of BER (Bit Error Rate) = 0%. Phase coding method has passed 5 (five) attacks as an analysis benchmarking, the attacks are resampling, cropping, noise addition, time stretching, and multiple watermark with the same information and also different information. Based on the analysis benchmarking result, phase coding method only robust to the resampling and noise addition attacks. This audio watermarking technique using phase coding method implemented using Matlab 7.0.1

Keywords: audio watermarking, phase coding