

Abstract

Audio watermarking is a technique or method to hide data or information within a digital audio host. This method have to resists against digital signal processes until certain level.

This final assesment was implemented frequency hopping spread spectrum (FHSS) as the audio watermarking method . Wave audio files (*.wav) used as digital data and was given “fhsswatermark” as the text watermark with variant scalling factors, spread into the audio files with hopping. Result from the system analyzed and then objectively measured using SNR to get the value of watermarked audio quality. To test the resilience of watermark, watermarked audio were attacked using resampling and cropping operations. Analysis was concerned on the changes in quality watermarked audio related to the use of scalling factors and the bit error watermark detection results when extraction process.

Based on the analysis results, the highest quality result gets from host audio Radiohead-Paranoid Android.wav, with rock in genre, with SNR value is 90,13587 desibel. Good robustness level from resampling process showed in scalling factor larger than 0,6 when embedded process, with BER value is 0%. But, this method was not ressistance to cropping process that shown by high percentage of error in watermark bit detected.

Keywords: audio watermarking, fhss, spread spectrum, watermark