

ABSTRACT

As we know, the internet is developing rapidly so it can be access by anyone, anytime and anywhere. With this condition make it easier for us to get anything throught the internet, for example is a music file. There are so many case about piracy of music files, so watermarking technique is required for protect the music files. Watermark is a technique for inserting data or information on digital media such as pictures, sound and video. Watermark can be said good if able to robust against attack and have a good value of robustness, imperceptibility and payload.

In this final project, the writer will design audio watermarking based on Quantization Index Modulation (QIM) with combined technique of QR Decomposition, Catersian Polar Transform (CPT) and Discrete Cosine Transform (DCT). In this method, DCT is used for transform time domain into frequency domain. Convert component into triangular matrix and orthogonal matrix using QR Decomposition. Technique CPT is used for transform component into cartesian coordinate become polar coordinate. Audio will embbded and extracted using QIM. Then, the watermark that have been tested will be rated based on determined parameter such as imperceptibility, robustness, and payload.

The final result of this final project is a system that is able to maintain the originality watermark of an audio when attacked. Using the best parameters has an average BER value is 0.21609 and an average SNR value is 24.1989 when host audio is attacked. In addition, the combined method is used to add resistance levels to multiple attack and reduce the value of BER.

Keyword : Audio Watermarking, CS, QIM, CPT, QR, DCT