

ABSTRACT

Nowadays almost all data transaction is done through the internet because it is easy and could be accessed anywhere. The file is uploaded directly without any security or scanning making people able to upload illegal files or files that is not owned by them. This violation of copyright becomes a huge problem as it reduces the owner's profit. That is why watermarking method is created.

Watermarking is a method of embedding secret information to a host data. The information could be embedded into an audio, image or video data. In this project, I will design an audio watermarking by combining 3 methods of transformation to support the embedding process. Those methods are Stationary Wavelet Transform (SWT), Discrete Cosine Transform (DCT), and Singular Value Decomposition (SVD). SWT will separate the data's frequency into high and low. After that, DCT will map the correlated high frequency data into uncorrelated coefficient. Then those coefficients will be deconstructed into three matrices u , s , and v using SVD method. Later, the s matrix will be embedded with the watermark Quantization Index Modulation (QIM) is chosen as a method to embed the data because it produces a good audio that has a good robustness.

Through this method, an audio watermark with mean value of $BER=0.1170$ and $SNR > 50$ and inaudible embedded bit could be produced.

Keywords: Audio watermarking, Stationary Wavelet Transform, Discrete Cosine Transform, Singular Value Decomposition, Quantization Index Modulation.