

ABSTRACT

Audio watermarking is a technique to embed the digital watermark data into an audio data. Audio watermark can be implemented both in time domain or frequency domain after the transformation of the audio data into frequency domain. One of the commonly used transformation is DWT.

There are many watermark embedding scheme that can be used, one of them is *Quantization Index Modulation (QIM)*, the variant of the quantization based scheme. Using QIM, the watermark is embedded by quantizing the host audio data into one value according to the quantizer that is assigned by that watermark data. It have to be maintained that the quantization process do not create a big distortion to the watermarked audio. To aim this, the level quantization distance is not to big to create the big distortion, but not too trivial so that robust to signal processing attack.

On this final project, was implemented the QIM scheme for audio watermarking, on the frequency domain with the DWT as the transformation form. The QIM is done by quantizing the DWT coefficient according to the value of the watermark. Based on the objective and subjective testing result, the watermarked audio is transparent enough for stepsize value 0.005 .The SNR average value for the watermark can be transparent is about 59.389 dB. From the robust testing output, is concluded that the embedded watermark is not robust to the signal processing attack. This indicate that this watermarking is not suitable for copyright labeling purpose, but it can be use for the tamper proofing purpose.

Keyword : *DWT, Quantization Index Modulation (QIM), watermark, quantizer, stepsize, distortion, copyright notification, tamper proofing*