ABSTRAC

The rapid development of technology, has been exploited in everyday life. However, some of them using the technology to commit crimes. One of the crime is is to steal the creation of others for personal gain. Therefor, a technology called watermarking was found that can protect that creation. Watermarking is method to concealment or cultivation of certain data/information (for public or secret) into another digital data, but unknown to its presence by human senses (sense of sight or sense of hearing), and able to deal with attacks to degree. In this final project the hidden data is image although digital data as storage media in the form of audio.

Previously, who do a lot of research related to audio watermarking, the goal is to get a good and balance watermarked audio in terms of imperceptibility, robustness and capacity. This design uses audio watermarking with Quantization Indeks Modulation (QIM) method, where the insertion process is done by utilizing quantization process on host audio. Prior to insertion, host audio was transformed in tome domain using Discrete Wavelet Treanform (DWT) by separating between high frequency and low frequency. After that, it is transformed again in the frequency domain using Modified Discrete Cosine Transform (MDCT). All these phases will be optimized using Genetic Algorithm.

The result of design of this system to be better after experiencing optimization. Value of BER can reach number zero on six attacks from eight attacks in interms ofrobustness is good. SNR with value 28.6412 so it's a good value for imperceptibility. While tha capacity reaches 10.7666, so has a great capacity. For the subjective parameter was good enough, with th average value of MOS is 4.175.

Keywords: DWT, MDCT, QIM, Genetic Algorithm, *host audio*