

ABSTRACT

Along with the development of current technology, transmitting and receiving information is much easier, especially through the internet. Behind the convenience, there are some people who commit crimes. For example, stealing copyright ownership. Therefore, a technique to prevent theft of copyright ownership is needed, such as watermarking. Watermarking is used to prevent copyright theft by hiding digital data in the form of multimedia data such as sound, images and videos without damaging the quality of the data to be inserted.

In this Final Project, proposed a watermarking design using audio as a host signal. The method used in the design of audio watermarking is Stationary Wavelet Transform (SWT). Audio watermarking is hybridized by several techniques. For the first process, the SWT method is combined with Cepstrum Transform (CT) and Statistical Mean Manipulation (SMM) as an insertion technique. Then the second process, using the Quantization Index Modulation (QIM) insertion technique, the SWT method is combined with a combination of Discrete Sine Transform (DST) - Singular Value Decomposition (SVD) - Cartesian Polar Transform (CPT).

The results from the design of audio watermarking system is watermarking resistant to various attacks. The system obtained the smallest average BER value is 0.13, ODG of -0.07, SNR of 2.8822 - 18.8423 dB, the highest average MOS value is 4.7 and the payload is 172.2656 bps. This proves that the quality of the designed audio watermarking system is quite good and the system has resistance to compression, filtering, resampling and other attacks.

Keywords: *Audio watermarking, Stationary Wavelet Transform (SWT), Cepstrum Transform (CT), Discrete Sine Transform (DST), Singular Value Decomposition (SVD), Cartesian Polar Transform (CPT).*