

ABSTRACT

The increasing number of internet users in the world is a phenomenon that is currently happening. The misuse of copyright in multimedia in digital products is also increasing, such as audio, image or video. The abuse that is committed is not only copying and distributing it, but also regarding copyright labels. Therefore, we need a way to protect the problem. One way to protect copyright is to insert or hide certain information with *watermarking* techniques.

In this study, the authors propose an audio watermarking procedure using the *Discrete Wavelet Transform* (DWT) technique. The quality produced by the *Discrete Wavelet Transform* (DWT) method has a good perception and is resistant to various attacks, *Discrete Wavelet Transform* (DWT) has characteristics of high time resolution and low frequency resolution as well as low time resolution for low frequencies. So that in the wavelet transformation, the signal is decomposed into low-frequency components and high-frequency components. Data transformation is carried out before carrying out the information insertion process. In addition, *Compressive Sensing* (CS) is performed to obtain watermark file compression. With the use of the *Compressive Sensing* (CS) technique, certain signals and images can be restored using only significantly fewer samples than those used by traditional methods. To make this possible, *Compressive Sensing* (CS) relies on two principles namely sparsity, which relates to the signal, and incoherence, which relates to the sensing modality.

By using Matlab R2018a software to design an audio watermarking system, the results of this study have parameters, namely PSNR and MSE. The watermarking technique in this study can produce a Peak Signal-to-Noise Ratio (PSNR) value above 50 dB and a Mean Squared Error (MSE) below 1.

Keywords: *Watermarking, Discrete Wavelet Transform (DWT), Compressive Sensing (CS).*