

ABSTRACT

In the current era of globalization, it is easier for staff to access information through various media. So that many causes determine copyright by irresponsible parties. One solution to overcome this problem is by applying watermarking techniques. Watermarking is a technique that aims to complete the information in the signal so that it is not visible so that it can protect copyright.

This final project will improve watermark detection using shape feature extraction to retrieve or extract important audio information in the detection process. This research is important to improve the watermark detection accuracy level in audio because the watermark detection accuracy rate means that high BER values cannot be identified. The methods used in this final project are Discrete Wavelet Transform (DWT), Singular Value Decomposition (SVD), and Quantization Index Modulation (QIM). The process of watermark insertion and extraction uses the DWT technique. The SVD method will then decompose a matrix into three matrices, namely U, V, and S. QIM method is used for insertion by utilizing the quantization process. After the audio watermarking is inserted, it is given to test its robustness.

The results obtained showed that the watermark quality represented by the ODG parameter was -0.02, the SNR was 33.20 dB, for the average MOS was 4.60. And the large capacity that C represents is worth 215.72 bps. Watermark resistance is represented by an average BER value of 22%, and the watermark detection accuracy rate is represented by the highest average CDR of 71%.

Keywords: *Audio watermarking, Discrete Wavelet Transform (DWT), Singular Value Decomposition (SVD), Quantization Index Modulation (QIM), Feature Extraction.*