

ABSTRACT

The spread of data were done through the media images have taken many of copyright by people who are not responsible. Therefore the image must be copyright protected so it would not claimed by others and there is no violation of law. One way to protect copyright on multimedia content was watermarking technique. Watermarking is a technique for hiding data or information on a multimedia product, and a way to protect the copyrights of multimedia products (pictures, songs, texts and videos) by inserting the information into multimedia.

This research is done by transform host image into greyscale image and watermark image into binary image. Then image is transformed into frequency domain by using DWT to get a high and low frequencies. After that DCT is applied to obtain the DCT coefficients. Then DCT coefficients are quantized to get an integer so that data hiding can be done by changing the value of data bit in the image segment with bits from the watermark image using the LSB method.

The best results are obtained from the host image with 2048×2048 pixels size, DWT subband at HH frequency, DWT level 2, watermark image is 8×8 pixels size and quantization bit divider value is 1. Without attack, the value of BER is 0, value of SSIM is 1 and value of PSNR is infinity. The best of BER value after the attack is 0.39 when the Compression attack is 100%, while the best SSIM and PSNR value is infinitely when given rotate attack. Subjectively, the differences between host image and watermarked image is not significant, but the image watermark is less resistant to attack when viewed from its BER value after being extracted.

Keywords: BER, Discrete Cosine Transform, Discrete Wavelet Transform, Image Watermarking, Least Significant Bit, MOS, PSNR, SSIM