

ABSTRACT

Ease of upload and downloading of digital data such text, image, audio and video on the internet actually causes insecurity of duplication and proprietary violations. This is what underlies the digital proprietary marking on digital data, one of which is watermark. Various methods are used and even combined to produce a qualified watermarked data. However, all methods are mostly done on greyscale images.

In this final project, the watermark is applied on color image (RGB image) as an image host. And using the binary image as logo image. The image host will be converted to YIQ color to obtain the luminance value, then the luminance domain will be transformed with wavelete Discrete Transform (DWT) - Daubechies wavelet (dbN) to obtain the wavelet coefficients. Then, the wavelet coefficients are encoded using the Embedded Zerotree Wavelet (EZW) to obtain the insignificant regional representation. This area is the best area for insertion of the logo image. Inverse DWT performed on the domain of watermarked Y image, then YIQ be converted to RGB so that we will get a color watermark image. Furthermore, the watermark image extraction performed in a non-blind, with the help of the original host to obtain extracted logo and host image. Performance is measured by the MOS, PSNR, MSE and BCR to determine the degree of similarity of the original image and the watermark extraction results.

From the research, watermarking systems using ZTR method generates watermarked images too with MSE up to 9,7 and PSNR at least 38 dB. While the level of resistance to the attack achieve more than 40 % and the extraction takes less than 97 seconds.

Keywords: Image Watermarking, Daubechies Wavelet, Discrete Wavelete Transform, Embedded Zerotree Wavelet, non-blind.