Kata kunci : *Watermarking, Integer Wavelet Transform, binary image, semi-fragile, Least Five Significant Bits*, autentikasi.

Abstract

In line with increasing function and digital media role in so many aspect of human life, hence also increase sum up and the quality of distributed data digital through the computer network specially internet. With the tremendous amount of images distributed over Internet, image authentication has drawn extensive attention for integrity verification. One of them is called watermarking of data digital.

At this Final Task, the compiler will apply semi-fragile watermarking technique, so that the information that embedded can resist to manipulation of malicious attack and able to detect manipulation of cropping and replacement. However, the security of watermark is required. At this Final Task, has three advantages. Firstly, parameterized integer wavelet transform is adopted. The wavelet base is chosen by a parameter. It is impossible to extract the watermark without the exact parameter and thus the security of the watermark is guaranteed. Secondly, the performance of the generated watermark is improved and the computational complexity is reduced due to the lifting scheme used in the proposed framework of parameterized integer wavelet transform. Thirdly, the proposed watermark able to locate the tampered area.

Embedding of binary image Watermark is done at IWT coefficient with three level of decomposition. Before embedding, to increase the security of binary image watermark of watermarking process is done preprocessing that is operate XOR between binary image and key (random matrix yielded by system). Examination conducted with simulation of some attack to image such is sharpening, add white Gaussian noise and JPEG compression. To be analysed by compiler are quality of image watermarking and robustness of binary image. The others, will be analysed influence of location of binary image embedding at every different subband.

The result of examination of semi-fragile watermarking technique shows of good performance in imperceptibility at LL subband. Sharpening represent attack which ossify so that unable to authentication of binary image watermark. While for noise and JPEG compression attack, semi-fragile watermarking scheme shows good performance since at certain level attack of watermark is authentic. Besides that, the system able to locate the tampered area accurately

Key word : Watermarking, Integer Wavelet Transform, binary image, semi-fragile, Least Five Significant Bits, authentication.