

ABSTRACT

Information and telecommunication technology is growing rapidly. One such activity is sending a file, now not only in physical form but has switched to digital data. Digital Data is very accessible and disseminated, but prone to be manipulated. Therefore, digital data must have protection to prevent data manipulation.

Watermarking technique is a technique of inserting a watermark on a media without being known easily, this technique will insert information on a digital media in the form of images, text and video in a transformed image. Image transformation used is Discrete Cosine Transform (DCT). To strengthen the process of watermarking techniques in the transformation domain, several methods are needed. In this research to know the level of security of a digital imagery transmitted, the spread spectrum method is needed. Spread spectrum is a method in which all signals are spread on the available frequency spectrum. This watermarking technique is also not immune from digital image attacks. The types of digital image attacks used are compressive sensing. This type of attack is the same as other compression attacks, where the watermarked image will be compressed based on a predetermined measurement rate ranging from 90%, 70%, 50%, 30%, and 10%.

This research uses medical image data as a test of research facilities. Results from the analysis of the Matlab application, averaging value of Peak Signal to Noise Ratio (PSNR) performance of 5 watermarked image resolutions is above 40 dB. Peak Signal to Noise Ratio (PSNR) performance value of reconstruction of the image of watermarked compressive sensing attacks is best at 1024×1024 image resolution which is 46.33 dB and the worst at 128×128 resolution is 19.38 dB. The results of the analysis of watermark image extraction testing without attacks get the performance value of Bit Error Rate (BER) 0 and Structural Similarity Index Matrix (SSIM) 1. While using compressive sensing attack the best results Bit Error Rate (BER) at the resolution image 1024×1024 uses a 90% measurement rate of 0, for the worst Bit Error Rate (BER) at resolution image 128×128 using a 10% measurement rate of 0.46.

Keywords: *watermarking, spread spectrum, compressive sensing, DCT.*