

## Abstract

In the health care facilities, data and information already using storage media in digital form. Especially for the result of medical diagnosis that stored in digital medical image. However, the use of digital media will make the data or information that is stored to be easily damaged. Both accidental damage or deliberate which is modification. Moreover, the current tools for modifying the image can easily obtained. Therefore, to protect the medical image and to maintain the authenticity of medical images needed a system that can detect the modification or manipulation of medical images.

Digital image watermarking is a solution that can be used to overcome these problems. By inserting a fragile watermark, that can detect if there are modifications to the medical image. In addition, which is result from feature extraction process of host image, it can used to *recovery* the tampered image.

In this final project, a fragile and reversible watermarking Prediction-Error Expansion and the method for feature extraction that is AMBTC was performed to detect and recover the medical image.

The experimental results show that this system can detect the modification until 1 pixel , this system also can detect modify from line, block, noise , and sharpening. The tools for evaluation that use for this system is using PSNR and Error Rate. In the other hand, system also can *recovery* the image from several modifications.

**Keywords** : medical image, watermarking, tamper detection, image *recovery*, AMBTC, Prediction Error Expansion