

ABSTRACT

Watermarking is a very important technique in protecting copyright and the authenticity of digital content, especially in today's digital era where the spread of information is very fast and easy. In this context, this study aims to develop a Watermarking method that is not only robust, but also reversible, so that it can provide better protection for digital images. In this study, two main methods implemented are the Spread Spectrum method and Screen-shooting Resilient Watermarking. The Spread Spectrum method utilizes the Slantlet Transform (SLT) to insert a hidden watermark into the image, while the Screen-shooting Resilient method uses Improved SIFT (I-SIFT) to detect stable features in the image to be protected. The test results showed that both methods developed successfully achieved imperceptibility with a PSNR value above 40 dB, indicating that the inserted watermark did not significantly reduce the visual quality of the image. In addition, both methods also showed good resistance to various attacks, such as JPEG compression and noise, as well as the ability to restore the original image intact after the watermark was removed. This research makes a significant contribution to the development of more effective and secure Watermarking techniques to protect digital content and opens up opportunities for further research in this field.

Keywords: Watermarking, Robust, Reversible, Spread Spectrum, Slantlet Transform, Screen-shooting Resilient, Improved SIFT.