

ABSTRACT

Steganography is a technique to secure information data, where it can be done by hiding the information into a carrier media. Thereby, the existences of the information will not expecting suspicion of human visual perception. By using that weakness, the digital image is chosen as carrier media as long as the data that has been embedded will not destruct carrier media quality.

The implementation of steganography technique on digital image has good performance if carrier media quality do not degraded. Therefore, nowadays there are so many methods for steganography, such as LSB, HC-RIOT Coder, and DCT. These methods have advantages and disadvantages so this final project will be used Discrete Wavelet Transform which is expected to handle the weaknesses of the past methods. Digital image that used in this final project is 24 bit colored image in BMP format with low detail, medium detail, and high detail criteria. Data or information that will be embedded in digital image is a text file in (*.txt) format. In order to test the robustness, the proposed scheme of steganography is attacked in several ways with noise, JPEG compression rescaling and rotation.

Based on simulation, it can be concluded that the steganography system is robust to noise at 21 decibel and above. It can be shown by the given BER value at 21 dB is 0.07% and 0.1% for 1st and 2nd decomposition level. The system is also robust to JPEG compression with the quality factor 85 and 55 for the 1st and 2nd decomposition level with 0.12% and 0.2% BER value. But against geometric distortion, rescaling and rotation, BER reaches 53.1% and 0.18% for decomposition level 1, 0.58% and 0.29% for decomposition level 2 with both scaling factor 0.5 and 0.75. Unfortunately, it has 40%-50% BER values for each rotation angle. In a state of without any noise, BER value of extracted data reaches 0%. Subjectively, it has 4.4 and 3 Mean Opinion Score (MOS) value for the 1st and 2nd decomposition level. Its mean that steganography image has good quality.