

ABSTRACT

The need for data protection has become increasingly important in recent years, due to the rapid growth of digital media via the internet. Data can be copied and distributed. Data hiding can be done for data authenticity and copyright protection. In conventional data hiding, distorted data due to the embedding process cannot be recovered back into the original data. However, in sensitive fields such as military and medical images, any distortion cannot be tolerated and the data must be in the original state. Therefore a reversible data hiding technique is proposed. In reversible data hiding, hidden data can be returned to the original state without any distortion.

This final task analyzes and implements reversible data hiding using the histogram modification. The embedding process is carried out using the specified threshold as zones '1' and '0' with a shift in block value as data embedding. The extraction process is performed by extracting the payload in zones '1' and '0' according to the specified threshold and restoring the original image with a shift in block value. When the stego image is attacked, it only extracts the data without recovering the original image completely, the payload extraction uses a new threshold that is adjusted to the number of block values contained in zone '1' and zone '0'.

Based on the experiments that have been carried out, the results of performance scheme without attacks have been obtained with an average PSNR of 45.207 dB and a BER of 0 at a block size of 16×16 . The results of performance scheme against JPEG compression with an average BER value < 0.1 when the quality factor ≥ 60 . The performance results of scheme against salt and pepper noise, awgn noise, gaussian filter, and contrast adjustment with a certain parameter limit can recover the payload without any error with a value of BER < 0.1 .

Keywords: *digital, data hiding, reversible data hiding, histogram modification.*