ABSTRACT

ANDY NURCAHYO. Implementation and Analysis Discrete Cosine Transform (DCT) with Huffman Code to AVI Video Steganography. Supervised by ENDANG PURNAMA GIRI.

The use of digital data is increasingly encountered and began to replace analog media's role in various applications. Digital data has several advantages such as being easy in storage, duplication, processing, and distribution. Digital communication on the one hand strongly support the ease of message exchange transactions, but on the other hand has a higher risk of security, especially for confidential messages. Steganographic methods are used to hide secret messages in digital form into other digital media. This research proposed the implementation of steganography in AVI video using the Discrete Cosine Transform (DCT) technique. DCT is a method that will transform data from the spatial domain into the frequency domain and separates the data into two parts, namely the DC coefficient and AC coefficients. DCT-based steganography embed the text message in Least Significant Bits (LSB) of the DC coefficient. The test consists of subjective video quality analysis based on survey and objective testing using the Mean Structure Similarity (MSSIM), analysis of the data hiding validity, and the level of data hiding capacity. Huffman compression on the text is used to increase the capacity of the storage. In addition, using more bits of DC coefficients will further increase the capacity. The test result shows that the steganographic technique using DCT produces data hiding with level the of validity reaches 100%. In addition, the quality of the resulting video is still relatively good up to 4-LSB for message insertion. Also, it is known that the Huffman compression on the text message can reduce the processing time and increase the capacity of the insertion.

Keywords: Discrete Cosine Transform, Huffman, LSB, MSSIM