Improving Data Hiding Capacity Using Bit-Plane Slicing of Color Image Through (7, 4) Hamming Code

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Abstract

Achievement of high-capacity data hiding with good visual quality is an important research issue in the field of steganography. In this paper, we have introduced RGB color image and bit-plane slicing for data hiding through Hamming code using shared secret key. We partitioned the color image into (3 × 3) pixel blocks and then decomposed into three basic color blocks. Again each color blocks are sliced up to four bit-plane starting from LSB plane. Now, a segment of three bits secret data is embedded within each bit-plane depending on a syndrome calculated using hamming code. As a result, 36 bits secret data can be embedded within (3 × 3) pixel block and achieve a high payload capacity with good visual quality compared with existing schemes.

Keywords

Steganography Hamming code Least significant bit (LSB) Bit-plane Data hiding

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