A Survey On High Embedding Payload In Video Steganography

Anjali Dhobi[1], Gayatri Pandi (Jain)[2]

[1]Research Scholar, Information & Technology Department, L.J. Institute of Engineering & Technology, Gujarat, India

[2] Head of, Information & Technology Department, L.J. Institute of Engineering & Technology, Gujarat, India

ABSTRACT

Now a days, it is risky to protect the data in internet against different attacks. Data is generally many form like text, audio , video and image. Steganography is best method to share the data secretly and securely. In Steganography method they can be applied to audio, video and image file. Secrete data in the form of audio, video, image& text. In video steganography hide secrete information in video file .In this paper we analyses different techniques of video steganography with pros and cons.

Keywords :- *Video steganography, DCT, DWT, BCH code, hamming code*

1. INTRODUCTION:

people communicate over the network and share private data. This data should be protected trough a secure technique that blocks the data from intruders and hackers. In steganography system they are two main factors. first is embedding efficiency and embedding payload.

Steganography is a technique that protects any secret message from an unintended recipient's suspicion within any data form. However many steganalytical detector have been invented that detect a secret message from an unsecure steganography algorithm. In order to avoid the secret data from being detected by steganalytical tools, the steganography algorithm must efficient. Every successful steganography algorithm should contain an embedding efficiency , an embedding payload, and robustness in order to work against attackers.

In steganography system a high embedding efficiency will reduce a hacker's suspicion of finding the hidden data and difficult to detect through steganography detector. The embedding efficiency define perceptual quality, security and complexity.

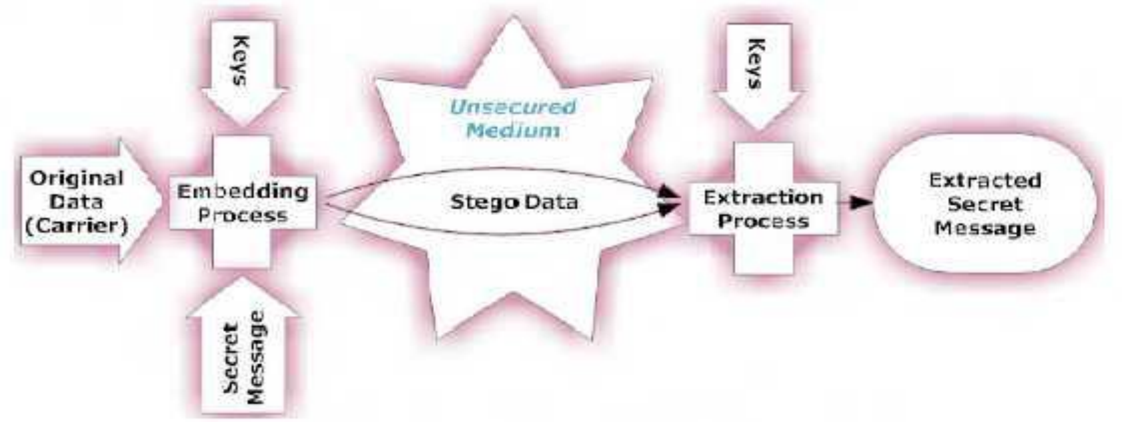

Fig 1 Process of Steganography [1]

The embedding payload is defined as secrete data that is required to be embedded inside the cover data. Furthermore, an algorithm that contains a high embedding payload will have an increase capacity to hide a secrete data. In traditional system an embedding efficiency and embedding payload are opposites.

Improve the capacity of secret information will reduce the visual quality of stego video resulting in a weakened embedding efficiency. Both factors should be take. The final factors depend on the steganography algorithm and the user's requirements. In order to improve the embedding payload with the low modification rate of cover information, many algorithm have been proposed using alternative methods.

2. LITERATURE REVIEW:

2.1 A DCT-based Robust Video Steganography Method Using BCH Error Correcting Codes

In this paper, a DCT-based robust video steganography method using BCH error correcting codes. To improve security of algorithm a secrete message is encrypted than encoded by BCH code. It is embedded into the discrete cosine transform (DCT) coefficients of video frame. The hidden message is embedded into DCT coefficients of each Y,U&V planes. in this algorithm is tested under two types of videos that contain slow and fast moving objects.

2.2 A High Payload Video Steganography Algorithm in DWT Domain Based on BCH Codes(15,11)

In this paper, a high payload video steganography algorithm in DWT domain based on BCH coding. To improve security of algorithm ,secrete message is encoded by BCH (n,k,t) coding. then it is embedded into the DWT coefficients of video frame. the DWT middle and high frequency region are consider to less sensitive data, the secrete message is embedded only into the middle and high frequency DWT coefficients. In this algorithm is tested under two types of video that contain slow and fast motion objects.

2.3 A New Video Steganography Algorithm Based on the Multiple Object Tracking and Hamming Codes

In this paper, a new video steganography algorithm based on the multiple object tracking and hamming code. this algorithm include four different stages. the secrete message is preprocessed, and hamming codes(n,k) are applied in order to produce an encoded message. a motion -based multiple object tracking algorithm is applied on cover videos in order to identify the regions of the moving objects. the process of embedding 3 and 6 bits of the encoded message into the 1 LSB and 2LSB of RGB pixel components is performed for all motion regions in the video using the foreground mask. the process of extracting the secrete message from the 1LSB and 2LSB for each RGB component of all moving regions is accomplished.

2.4 A Novel Steganography Algorithm in the Wavelet Domain Based on the Tracking Algorithm and BCH codes

In this paper, we propose a novel steganography algorithm in the wavelet domain based on the tracking algorithm and BCH codes. this algorithm include four difference phase. the secrete message is preprocessed, and BHC(n,k,t)are applied on the cover video in order to produce an encoded message. face
detection and face tracking algorithms are applied on the cover videos in order to identify the facial regions of interest. the process of embedding the encoded message into the high and middle frequency wavelet coefficients of all facial regions is performed. the process of extracting the secret message from the high and middle frequency wavelet coefficients for each RGB components of all facial regions is accomplished.

2.5 A Video Steganography Algorithm based on Kanade-Lucas-Tomasi tracking algorithm and error correcting codes

In this paper, we address these problems by proposing a novel video Steganography method based on Kanade-Lucas-Tomasi tracking using hamming codes(15,11).the proposed method consists of four main stages. the secrete message is preprocessed using hamming code(15,11)producing an encoded message, face detection and tracking are performed on the cover video ,determine the region of interest(ROI),defined as facial regions, the encode secrete message is embedded using an adaptive LAB substitution method in the ROIs of video frames. In each facial pixel 1LSB, 2LSB, 3LSB and 4LSB are utilized to embed 3,6,9 and 12 bits of the secret message, respectively, and the process of extracting the secrete message from the RGB color components of the facial regions of stego video is executed.

3. COMPARATIVE TABLE:

Table -1: Comparative Table

Paper Title	Methods/Techniques	Advantages	Disadvantages
A DCT-based Robust Video Steganographic Method Using BCH Error Correcting Codes	1 DCT 2 BCH	1 Robust agains several attack 2 Improve Hidden ratio	1 video qulity is less
A high payload video stegnography alogorithm in DWT domain based on BCH codes(15,11	1 BCH 2 DWT	1 Robust agains Gaussian and impolsive noice	1 not robust enoug against all attacks
A Novel Video Steganography Algorithm in the Wavelet Domain Based on the KLT Tracking Algorithm and BCH Codes	1 BCH code 2 KLT algorithm	1 Robust agains several attack 2 Improve Hidden ratio	1 video qulity is less
A New Video Steganography Algorithm Based on the Multiple Object Tracking and Hamming Codes	1 Motion-based multiple object tracking 2 Hamming code Embedding efficiency 3 Embedding payload	1 high embedding efficiency based on high value of obtained PSNRs. 2 reduce hackers suspicion of finding the hidden data.	Increasing the capacity of the secret message will decrease the visual quality of stego videos resulting in a weakened embedding efficiency.
A video steganography algorithm based on Kanade-Lucas-Tomasi tracking algorithm and error correcting codes	1 Hamming code 2 KLT tracking	1 Robust agains several attack 2 Improve Hidden ratio	1 not robust enough against all attacks

4. CONCLUSION:

This proposed algorithm based the video quality and hidden ratio should be increase .we would like to improve the embedding payload of the proposed algorithm with the respect of the video quality by using other techniques that operate in frequency domain.

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