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Steganography Method Hiding Data in Video

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Abstract- **This research we propose a reversible text hiding methods in video. To propose method give a flexible capability in regulate the data hiding ability and the bit rate. The flexibility build the recommend scheme appropriate for further applications, together with users who covet elevate hiding ability and those who want a compressed embedded outcome. The secret information can be concealed in content such as video. This paper provides a novel steganography method to hide both video and key in color cover video using Discrete Wavelet Transform (DWT) and genetic direct clustering based on Fuzzy C-Means clustering. There is no visual difference between the stego video and the cover video. The extracted text is also similar to the secret text. This is proved by the high PSNR (Peak Signal to Noise Ratio), value for both extracted and stego secret video. The results are compared with the results of similar techniques and it is found that the proposed technique is simple and gives better PSNR values than others we try to design a additional authoritative reversible video hiding method that can advance decrease the size development of the embedded outcome. Steganography is the art and science of covert communication**.

Kewwords: **Vector quantization, video hiding, Discrete Wavelet Transform (DWT) , Fuzzy C-Means clustering.**

I. INTRODUCTION

With the increasing popularity of personal computers and the rapid development of computer and networking technologies high quality videos are transmitted via the Internet for various applications, such as exchanging information and sharing photographs. The convenient information exchange approaches are accompanied by several problems, such as information security (since the Internet is a public environment) and the usage of networking bandwidth. To solve the information security problem, several research efforts in cryptography have been proposed, such as AES, DES and RSA. Research in cryptography guarantees the privacy of the transmitted data by transforming the transmitted data from plaintext to ciphertext with keys. It is very difficult to decrypt ciphertext without the appropriate keys. In this way, the transmitted data can be transmitted more securely via the Internet. However, the cipher text is singular, and it can be detected by malicious attackers. Hence, several data hiding schemes have been proposed, such as secret sharing (meaningful shares) steganographic technology and reversible data hiding technologies. All of these schemes try to make the embedded data video indistinguishable from the original cover video, such that the embedded video cannot be detected by potential attacker. The differences of the secret embedded results between the cryptography and data hiding technology based on videos. Various applications because of the huge memory space of storage devices and the rapid computational ability of today's CPUs. The usage of networking bandwidth has become a serious problem due to such high quality videos. Many data compression schemes can be used to solve this problem, and they can be classified into lossless schemes and lossy schemes. Among these compression schemes for digital videos, the vector quantization (VQ) compression scheme, which was first proposed by Gray in 1984, is an efficient compression scheme that has a high bit rate and satisfactory video quality. Based on the advances of VQ, many researchers aim to apply lossless data hiding schemes on VQ videos. In this way, the users can get a compact secret embedded result with the ability to recover the original cover videos. In this research, we will propose a reversible data hiding scheme that has high hiding capacity and a satisfactory bite rate based on VQ videos. In addition, the original VQ videos can be lossless recovered after the secret information is extracted.

II. RELATED WORK

V.Manjula in at al [1] the technique in focused on verdict a direct reversible method to classify the CMV at the decoder and consequently relied on the attributes of the motion vectors. In this works, we take a dissimilar advance directed towards attain a minimum deformation to the prediction error and the data size transparency. This advance is based on the associated calculation error and they have faced by the complicatedness of big business with the nonlinear quantization process.

Jithendra K. Paruchuri in at al [2] proposed specified a fixed channel capacity, how to minimize concurrently the alteration and rate resulted from data hiding. They have main giving is an optimization structure to unite both the distortion and rate jointly as a single cost function and to utilize it in identify the optimal locations to hide data. This permit a significant amount of information to be surrounded into compressed bitstreams without disproportional augment in moreover output bit rate or perceptual distortion.

Arup Kumar Bhaumik in at al [3] suggests a data hiding method for high declaration video. They have intension is give appropriate protection on data throughout transmission. For the accuracy of the accurate message output that take out from source can use a tools for assessment and numerical

Analysis can be done. Its major benefit is that it is a sightless scheme and its influence on video superiority or coding efficiency is approximately negligible. It is extremely configurable, thus it might consequence in high data capacity. in conclusion, it can be effortlessly extended, ensuing in better robustness, enhanced data security and advanced embedding capacity.

Esen, E. in at al [5] propose a novel video data hiding technique that makes use of erasure correction ability of repeat build up codes and dominance of forbidden region data hiding. Discriminating embedding is utilized in the anticipated technique to determine host signal samples appropriate for data hiding. This method also contain a temporal synchronization scheme in arrange to withstand frame drop and insert attacks. The planned framework is experienced by characteristic broadcast material next to MPEG-2, H.264 density, frame-rate exchange attacks, as well as other familiar video data hiding method

III. PROPOSED METHODOLOGY

In this research, we propose a narrative authentication scheme for color palette videos is suggest hide both video and key in color cover video using Discrete Wavelet Transform (DWT) and genetic direct clustering based on Fuzzy C-Means clustering. This method species and clusters all colors by color uniqueness. The video is protecting by embedding features which is measured as confirmation information to entrench into non-overlapped blocks using the LSB replacement. The investigational consequences demonstrate that the embedded figure when only LSB algorithm is used, the PSNR value of the video is 24 dB. In order to recover the video value, a modified idea is used for embedding the quality values in each block. When a embedding bit of the feature value is different from the least significant bit of the block index, the index could be substituted by another index which is belonged to the equal color cluster and has the same embedding bit as the embedded bit we recommend a reversible data hiding scheme for color palette video, which enhances the embedding capacity without perceptible video distortion. For a color palette video which is composed of a palette and an index table, in our scheme, we divide an index table into a series of non-overlapping blocks consisting of indexes. In each block.Center index remains intact but the difference between center index and neighboring indexs are calculated. As a reference of the center index, it will be used to restore the neighboring indexes. The extracted difference values of index are applied to two important operations for concealing information, named as extra space extraction and random permutation of indexes in each block. These operations agree to the proposed scheme to embed not only large secret data but also provide an unnoticeable way into each block in a single pass period. Palette based video file formats such as GIF, PNG, TIFF and Microsoft BMP are well-liked and widely used on the Internet environments. Palette based videos have the effect of video compression, which help saving storage space and reducing transmission time [3]. The color palette video is composed of a palette and an index each palette is composed of a list of the selected colors (or colors in a smaller palette) and set of color indices. The actual video color data for each pixel is one index value of the palette. Each pixel's data based on the RGB colors which are replaced with an index that specifies one of the palette colors. For example, in Figure 1, let video be a color video with size of pixels, we construct an index table and a palette. The index table has large as size of as the color palette video and an every entry corresponds to a pixel. Each pixel displays a value between and which represents a color and corresponds to an index in the palette. The palette is composed of colors. The content of the palette is. For instance, the index at the entry is which corresponds to the color at. Hence, the color of pixel displays its Red Green Blue as Data hiding and extraction phases of our scheme to design a more powerful reversible video hiding scheme that can further reduce the size expansion of the embedded consequences. To propose a reversible data hiding scheme that has high hiding capacity and a satisfactory bite rate based on VQ Videos genetic Direct Clustering Based on FCMC. In our propose approach we work the original VQ Videos Hereditarily Direct Clustering Based On FCMC can losslessly improved after the secret information is extracts. The major objective of steganography is to prevent some unintended observer from stealing or destroying the confidential information. We will consider some factors when designing a steganography system:

1. Invisibility: Invisibility is the ability to be unnoticed by the human.
2. Security: Even if an attacker realizes the existence of the information in the stego object it should be impossible for the attacker to detect the information. The closer the stego video to the cover video, the higher the security. It is measured in terms of PSNR. Value indicates high security.
3. Capacity: The amount of information that can be hidden relative to the size of the cover object without deteriorating the quality of the cover object.
4. Robustness: It is the ability of the stego to withstand manipulations such as cropping, rotation, compression etc.

To design of a steganographic system can be categorize into spatial domain methods and transform domain methods. In spatial domain methods, the processing is practical on the video pixel values directly. The advantage of these methods is efficiency. LSB Insertion methods, Pallete based methods come under this category. In transform domain methods, at first we transform the cover video into different domain and then the transformed coefficients are processed to hide the secret information. These changed coefficients are transformed back into spatial domain to get stego video. The advantage of transform domain methods is the high ability to face signal processing operations. However, this type of methods is computationally complex. Steganography methods using DCT (Discrete Cosine Transforms), DWT, DFT (Discrete Fourier Transforms) come under this category.

IV. CONCLUSION

This research proposes data hiding methods based on VQ videos and hide both video and key in color cover video using Discrete Wavelet Transform (DWT) and genetic direct clustering based on Fuzzy C-Means clustering. Our proposed methods provide a flexible ability in adjusting the data hiding capacity and the bit rate. The flexibility makes the proposed method appropriate for more applications, including users who want high hiding capacity and those who want a compact embedded consequence.

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