A Secure Video Steganography Method in DWT-DCT Domains With Maximum Efficiency In BER

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***Abstract :*In present generation transfer of data through internetbecame insecure as anyone can change or misuse the data. This can be avoided by using a technique Steganography. This paper presents video Steganography technique in which we can hide and extract the secret message in a video. The extracted message has low Bit Error Rate (BER). Data hiding techniques have taken important role with rapid growth of intensive transfer of data and secret communication. The science embedding secret data into cover media with change in cover image, which cannot be identified by human eyes. Various steganographic algorithms can be applied for image, audio and video files. This paper show the progress in video Steganography by hiding and extracting the data and the extracted data has low BER value.**

IndexTerms* - *Steganography,Stegovideo, BER.

I. INTRODUCTION

The term Steganography is derived from Greek word "Steganos" means "covered" and "graphie" means "writing". The intension of Steganography is to provide secret transmission of data. The main goals are: Requirement of this Steganography system is that hidden message carried by stego media should not be sensible to human being. The other goal of it is to avoid drawing suspicion to existence of hidden message. The other goal is whether the hidden result or extracted result contains low BER.Bit Error Rate (BER) is used to measure the robustness of the extracted hidden message. BER is used to find the amount of error introduced in the input data to determine the reliability to acquire data. BER is defined as ratio of number of bit errors to the total number of transmitted bits at certain time. It is expressed in percentage. The primary goal is to provide security to the user data with high quality of hiding capacity.

II. RELATED WORK:

Information security using data hiding video sreagnography using image processing concept and matlab function providing better hiding capacity .We have worked on hiding the secret text behind the video file which is the data embedding stage and this hidden secret message is extracted from an avi file. The data which we extracting contain the low BER (low bit error rate) that is The rate at which errors occcure in the transmission of digital data is lowby this we can get accurate data that is hided in video during the extracting stage .We are hiding data using the DWT and DCT and while extracting the data we do inverse process.

III. SOFTWARE:

3.1 Matlab:

MATLAB is a high-level language and interactive environment for numerical computation, visualization, and programming. Using MATLAB, you can analyze data, develop algorithms, and create models and applications. The language, tools, and built-in math functions enable you to explore multiple approaches and reach a solution faster than with spreadsheets or traditional programming languages, such as C/C++ or Java. You can use MATLAB for a range of applications, including signal processing and communications, image and video processing, control systems, test and measurement, computational finance, and computational biology. More than a million engineers and scientists in industry and academia use MATLAB, the language of technical computing.

3.2 Key Features :

- High-level language for numerical computation, visualization, and application development
- Interactive environment for iterative exploration, design, and problem solving
- Mathematical functions for linear algebra, statistics, Fourier analysis, filtering, optimization, numerical integration, and solving ordinary differential equations
- Built-in graphics for visualizing data and tools for creating custom plots
- Development tools for improving code quality and maintainability and maximizing performance
- Tools for building applications with custom graphical interfaces
- Functions for integrating MATLAB based algorithms with external applications and languages such as C, Java, .NET, and Microsoft Excel.

We use the mattlab for the encoding the secret message by using Hamming code and BCH code .The matlab code of encide text into the video frame the secret message is hidded in the frames by using encode text 2video(encmsg)file in matlab that we are using for decoding the hidded message we use the file that we have in the matlab is decode video 2text(demsg) for convertation of binary bits to the text we use the file bin2text(demsg2)file.

IV. PROPOSED SYSTEM:

4.1 The limitations of the existing video steganography algorithms are :

By utilizing the preprocessing stages to include the manipulation on both secret messages and cover videos earlier to the embedding stage in order to enhance the security and robustness of the steganographic method. Using a portion of each video frame as regions of interest for the concealing process, the imperceptibility of stego videos will improve. Accordingly, we track multiple moving objects in video. Since it is very challenging for hackers to recognize the position of the hidden message in video frames because the hidden message is only concealed into moving objects, which changes over time from one frame to another, it is necessary to preserve the security and robustness of embedded data. Applying encryption methods and ECC such as Hamming codes and BCH codes to encode the hidden message earlier to the concealing stage will produce a secure and robust steganographic algorithm. Transforming video frames into frequency domain such as DWT and DCT transformations will improve the robustness of the steganographic method against attacks, hence preserving imperceptibility of stego videos In this project, we are improving the bit error rate (BER) when compared to the existing algorithms.

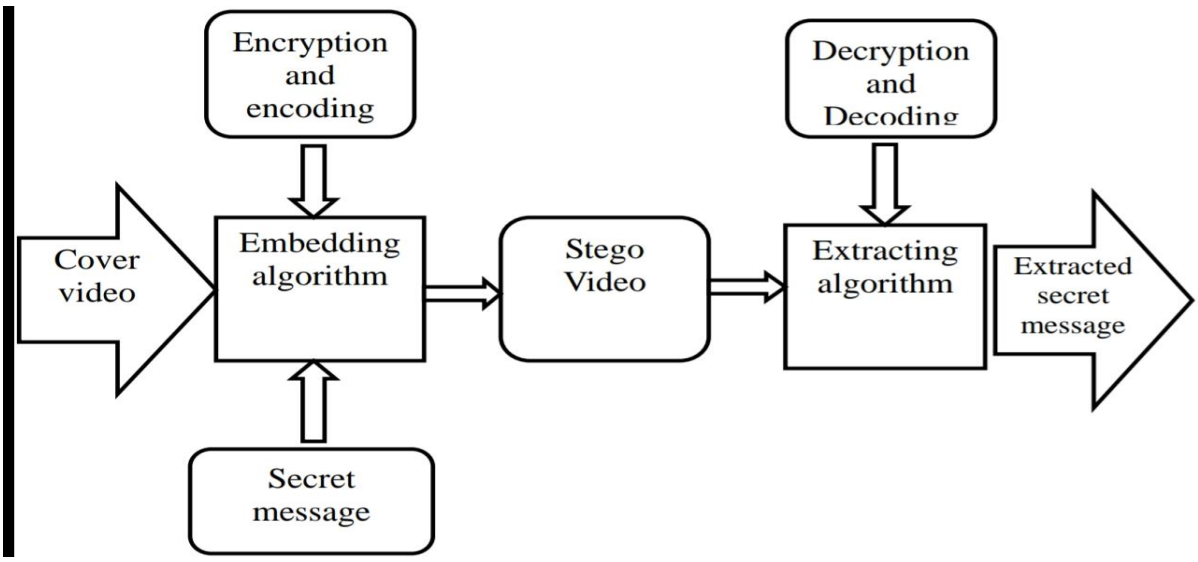

Figure 1.1 General diagram of the steganography method.

Steganograms with low alteration rate and high quality do not draw the hacker's attention, and thus will avoid any suspicion for the covert information. If the steganography method is more effective, then the steganalytical detectors will find it more challenging to detect the hidden message. The hiding capacity is the second fundamental requirement which permits any steganography method to increase the size of hidden message taking into account the visual quality of the steganograms. The hiding capacity is the quantity of the covert messages needed to be inserted inside the carrier object. In ordinary steganographic methods, both hiding capacity and embedding efficiency are contradictory. Conversely, if the hiding capacity is increased, then the quality of steganograms will be diminished, decreasing the efficiency of underlying method. The embedding efficiency is affected by embedding capacity. To increase the hiding capacity with the minimum alteration rate of the carrier object, many steganographic methods have been presented using different strategies. These methods utilize linear block codes and matrix encoding principles which include Bose, Chaudhuri, and Hocquenghem (BCH) codes, Hamming codes, Cyclic codes, Reed-Solomon codes, and Reed-Muller codes.Robustness is the third requirement which measures the steganographic method's strength against attacks and signal processing operations. These operations contain geometrical transformation, compression, cropping, and filtering. A steganographic method is robust whenever the recipient obtains the secret message accurately, without bit errors. An efficient steganography method withstand against both adaptive noises and signal processing operations.

V.FLOW CHART:

VI .DESINGE IMPLEMENTATION:

Firstly the input video frame is taken that is the input frame from the video is considered and taken to embed the input message in the motion objects of the frame the secret message which we need to hide will be secured in the motion object by applying DCT/DWT techniques the secret message will hide in the RGB values coefficient of DCT/DWT. The coefficients of DCT are AC and DC, the coefficient of the DWT are LL,LH,HL,HH

To hide the data in the moving objects we need to extract the frames and we need to apply masking to get the background subtraction after masking we get only the foreground that is on the moving objects where we hide the data after the masking

Fig1:input original text

The input original text is the input what we are giving for the hiding of data in the execution for this we have to select the saved file it in the matlab files as text.txt we need to open this text.txt files in the matlab during execution when the text.txt got open in the matlab we can see input message or data what we are going to hide in the video

After embeddingthe secret message in the moving object the inverse process will be done to get the background of the frame and which is called as output frame from the video. Finally this frames where the secret message is hidden is converted the stegovedio.Stegovedio is nothing but the video which is having hidden message which look same as a original video that means the video which do not contain the secret data and the video which contain the secret data are same that is the input video and output video do not change.

my name is snehaayn I live in hyderabadn My schooling is also at khammamn My intermediate education took place in vijayawadan My bachelors is going on at indian institute of technology delhinMJMJmy name is snehaayn I live in hyderabadn My schooling is also at bandharn My intermediate education took place in vijayawadan My bachelors is going on at indian institute of technology delhinMJMJmy name is snehaayn I live in hyderabadn My schooling is also at bandharn My intermediate education took place in vijayawadan My bachelors is going on at indian institute of technology delhinMJMJmy name is snehaayn I live in hyderabadn My schooling is also at bandharn My intermediate education took place in vijayawadan My bachelors is going on at indian institute of technology delhinMJMJmy name is snehaayn I live in hyderabadn My schooling is also at bandharn My intermediate education took place in vijayawadan My bachelors is going on at indian institute of technology delhinMJMJmy name is snehaayn I live in khammamn My schooling is also at bandharn My intermediate education took place in vijayawadan My bachelors is going on at indian institute of technology delhinMJMJ

Fig2: retrieved text

The above shown figure 2 is the retrieved text after the execution we will get the same input data as output but in place of space we get the alphabet MJ and in place of full stop we get n. This is the retrieve text what we get as an output. This retrieved text is the data which we extract from the stegovideo.

Fig3: BER Result

The above fig3 shows the bit error rate at the end after execution.The BER result after extraction of the hidden data is 0.57791 the bit error rate is the ratio of the number of errors to the total number of bits sent

VII ADVANTAGES:

A. Medical safety: Current image formats such as DICOM separate image data from the text (such as patient, name date and physician) with the result that the link image and patient occasionally gets managed by protocol converts .Thus embedding the patients name in the image could be a useful safety measure.

B. Indexing of video call:Video is nothing but a collection of images. So, we can use steganography to stop piracy by embedding a particular code in the video .So, when it is printed the culprit can be easily embedding a particular code for a particular theatre.

C. Military application: Steganography is very much used during war times. It can be used in the place of cryptography and hence can be used for communication so that the enemies will not be able to decode the information that we want to communicate with our soldiers fighting in other places.

D. Automatic Monitoring of radio advertisements: It would be convenient to have an automated system to verify that adverts are played as contracted.

VIII APPLICATIONS:

- Military application
- Privacy prevention
- Indexing of video mail

IX CONCLUSION

The changes which are bought up in this project is that we get less BER by which we get less error at the extracting stage. The information which we hide at the input will be obtained at the extracting stage with less error (0.5 BER). By comparing with others we get less BER value i.e. others

got BER-4.6 whereas in this project we got the BER-0.5. By this we can say that the data transferred to destination is accurate and more secure .

X FUTURE SCOPE:

In our future work, we will apply our algorithm in some other frequency domains such as curvelet transform for further improving the efficiency, visual quality, and security.In future we can increase the video size We can insert more data .By this we can reduce the time complexity

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