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Implementation of NVSS Scheme In Encryption And Decryption System

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Abstract *– The main aim of this paper is to reduce the transmission risk problem during sharing an image in a network. In ancient time period most of the users use CVSS scheme.But thisscheme arouse suspicion and increase interception riskduring transmission of the shares. To solve this problem the VSS scheme enhanced but it also suffer from a transmission risk problem for the secret itself and for the participants who are involved in the VSS scheme. In this schemeattackers and the hackers easily attack.To overcome this problem, we implement a natural-image-based VSS scheme.A NVSS can share a secret image over n-1 arbitrary natural images and one noise like share image. The natural shares will be digital image and printed image. Instead of altering the content of the natural images the encryption process extracts featuresfrom each natural image.To protect the secret and the participantsduring thetransmission phase, NVSS schemes shares secret images via different carrier media. The unaltered natural shares greatly reducing the transmission risk problem because the natural shares are safe. Experimental results indicate that the proposed approach is an excellent solution for reducing the transmission risk problem for the VSS scheme.*

Keywords— NVSS scheme, natural images, transmission risk, feature extraction, noisy share, image sharing, encryption, decryption.

I.INTRODUCTION

In day today life securely sharing secrete is more important. Secret images can be of various types images, handwritten documents, photographs, and others. Any secret image cannot be understand if anyone holds less than n shares. The secret can be understand when the n shares of the image are put together. Secret images sharing and delivering over the network is known as visual secret sharing (VSS) scheme. VSS scheme has two drawbacks; [1]transmission risk is high..[2] the meaningless shares are not user friendly. To overcome this problem NVSS scheme is proposed. In NVSS scheme the two shares are the natural image and generated share are distributed to the two participant . It shares secret images via diverse carrier media to protect the secret and the participants during the transmission phase.The proposed scheme can share a digital secret image over n-1 arbitrary natural images.Instead of altering the contents of the natural images, the proposed approach extracts features from each natural share. These unaltered natural shares are totally innocuous, thus greatly reducing the interception probability of these shares.

II. RELATED WORK

The VSS uses Transparency, Printed media ,Diverse media for transmission. A existing Scheme using Transparency as a carrier media have noise like share The noise like share is not user friendly. We are trying to improve the property of user friendliness in a VSS scheme. We are proposing a new Scheme NVSS Scheme where a shared secret image via various carrier media.

III. THE PROPOSED SCHEME

The proposed scheme randomly selected (n – 1) natural shares and one generated share use carrier media to share one secret image to share one digital original color secret image that has color depth of 24-bit/pixel. The generated digital shares can be stored in a digital devices of participant (e.g., laptops, tablets Smartphone, digital cameras, computers). We can send the printed media for e.g., digital images, hand-painted pictures as a secret share via NVSS.

The main objective of proposed scheme is to reduce the transmission risk of shares by using various carrier media. Instead of altering the contents of the natural images, the proposed approach extracts features from each natural share. The NVSS makes use of natural image such as photographs, painting. In the encryption process only features are extracted from the natural shares. The next share, which is generated by the secret image and features that are extracted from *n* - 1 natural share, then encrypt the secrete, after that transmit share via various carrier media. It includes three main phases:-[1] feature extraction, [2]encryption [3]decryption.

At the receiver end the receiver received the share these n shares are received after that feature extraction and then decrypt the generated share and recovered the secret.

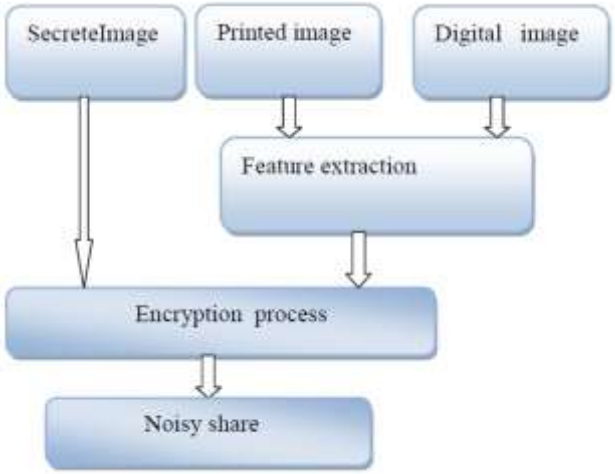

Fig1:-Process at the sender side

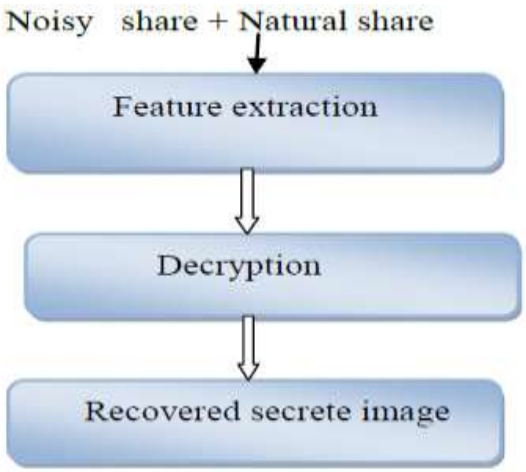

Fig2:-Process at the receiver side

IV. METHODOLOGY USED

The techniques used for natural visual secret sharing include feature extraction, natural visual secret sharing encryption process /decryption process, Data Hiding ,Compression process.

1. FEATUREEXTRACTION PROCESS

This process shows how to extract feature of images from the natural image.

1.1 FEATURE EXTRACTION MODULE

The feature extraction moduledescribed by this section firstthat extracts somefeatures of images from the natural shares. To contribute the noise like feature images from natural images we emerge a feature extraction method that generates the shares which is also the noise- like image. Before feature extractionstartsfeature extraction module carried three processes:-Binarization,Stabilization, and Chaos.

Through the linearization process binary feature matrix is extracted from N natural images. A simple threshold function F is used to determine the binary feature value of a pixel this process is called finalization.

Assume that the size of the natural shares and the secret image are w* h pixels and each natural share is divided into a number of b*b pixel blocks.In the same block ,the median value M of pixels is select as the threshold to obtain an approximate appearance probability for binary values 0 and 1.

The extraction function of pixel (x, y) of N for each block is given as follows:

$$f^{x,y} = F(H^{x,y}) = \{\ 1 H^{x,y} >= M$$
$$0 \quad \text{Otherwise}$$

The stabilization balances the manifestation frequency of values 1 and 0 in the matrix by this number of black and white pixels are stabilized of an extracted feature image in each block .

The number of unbalanced black pixels Qs can be calculated by

$$Qs = \left[\sum \forall x1 \le x \right] \le xb\text{b}\hat{}2/2$$
$$\forall y1 \le y \le yb$$

Finally, the chaos process scatters the the clustered feature values in the matrix by disordering the original matrix by adding noise to it, that will not reveal the texture of the image from the original share This process is called as Chaos process.

Q_c is calculated as**:**

$$\text{Qc} = b^2/2^{*}Pnoise$$

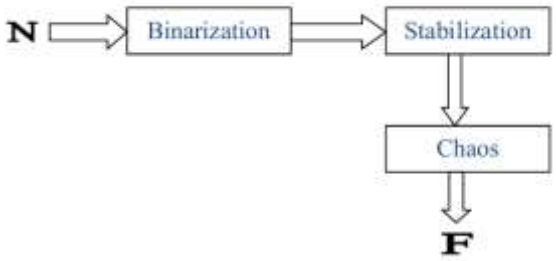

Fig3.Block diagram of feature extraction process

ENCRYPTION/DECRYPTIONPROCESS

Encryption:-

The n-1 natural shares and one secret image taken as input images. The output of the encryption process is the image looks like a noiselike share image. The actual process is, inputs natural shares and the secret image are inputted to the NVSS algorithm, then feature extraction process is done on natural shares . Where the features of natural shares are extracted in the form of feature matrices. Feature matrix encrypts the secret image then noisy share is generated which is hidden in any image.

The generated share is secure after the encryption process. This encryption process has following properties and hence it 's impossible to crack it.

Property 1: The amount ofinformation required for the generated share is same as for the secret image.

Property 2: In a feature image Pixel values are distributed uniformly over [0, 255].

Property 3: Pixel values in a feature image are distributed randomly.

Property 4: Generated share is secure.

Decryption:-

Input images include *n*-1 natural images(shares) and 1 noise-like share. The output image is a recovered image that is the image with secret message. The actual process of decryption is reverse of encryption process.

Fig 4:- Experimental result of Encryption and Decryption process

RESULT ANALYSIS

The traditional visual cryptography schemes suffersfrom share management, pixel expansion, quality of shares, transmission risk, quality ofrecovered image, texture of image. These problems can be overcome in this proposedNVSS scheme.It will produce onlyone share that's why it cannot face the share management problem. The amount of information required for the generated shareis the same as for the secret image. So that the generatedshare is expansion free.By using high quality images such asthe digital images, hand printed pictures, scan photos etc.

They can avoid the image or share quality problems. This proposed NVSS scheme uses the naturalimages so that the problem of quality maintenance can beovercome. Next is the texture problem of theimage as the proposed NVSS scheme uses or work onnatural images there will be no any texture problem occurs.

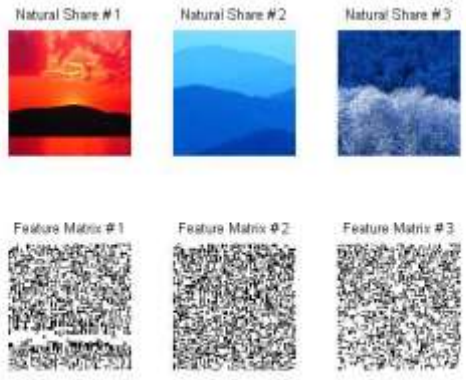

Fig6. Experimental results of Feature Extraction taking 3 natural shares

VI. COMPARISION

Existing Scheme	**Proposed Scheme**
1. In the existing provided unsecure result.	1. In the proposed approach can process with natural shares and Secret image so can able to achieve more secured manner.
2. Storage and transmission of the shares required.	2.Storage resources not much as in existing because of performed feature extraction.
3. It not able to perform efficient result.	3. It suitable for use as a carrier of secret communications.

VII. CONCLUSION

It can be concluded from the above discussion that the NVSS scheme is effectively used to reduce thetransmissionrisk problem by using natural image as shares and data hiding techniques such as reversible data hiding technique. NVSS scheme is also a user friendly technique for the participants and shares who involved in this secure transmission.

VIII.FUTURE WORK

In enhanced system can segment the secret image and perform the encryption for all segmented regions, the same process will inversely perform in decryption, in order to achieve the efficient transmission of secret images.

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