



## A BRIEF REVIEW ON DATA HIDING TECHNIQUES

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### ABSTRACT

With the dangerous development of web and the quick correspondence procedures as of late the security and the secrecy of the delicate information has turned into a noteworthy issue the world over. To shield this information from unapproved get to and does not go to a unintended endpoint, the specialty of information covering up rose. Different procedures have been proposed for concealing a mystery message in transporter report. Different techniques for information concealing like cryptography, watermarking, Steganography have been produced and are by and by today. In this paper, a brief presentation has been given in regards to information covering up in pictures alongside need of encryption and decoding for security purposes in them. Further writing overview has been advised in which reversible information concealing calculations has been proposed for symbolism information.

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## INTRODUCTION

These days, Security of the data is one of the significant variables in information transmission [9]. The motivation behind concealing the information is to give the mystery correspondence framework. Information covering up is the craftsmanship and study of imparting mystery information in a proper sight and sound transporter, e.g. picture, sound, and video documents. Computerized steganography and watermarking are the two sorts of information concealing innovation to give shrouded correspondence and validation. The word steganography is gotten from the Greek words "stegos" signifying "spread" and "grafia" signifying "composing" [11] characterizing it as "secured writing"[5]. Steganography is the craft of concealing data such that it is not recognizable to the stripped eye[9]. Rather than Cryptography, where the adversary is permitted to identify, catch and alter messages without having the capacity to damage certain security premises, the objective of steganography is to conceal a mystery message inside innocuous medium in a manner that it is unrealistic even to recognize that there is a mystery message. The medium for information stowing away is additionally called as spread, host and bearer. Reversible information stowing away reestablishes the bearer after the evacuation of concealed mystery information. In this paper some imperative reversible information concealing strategies are clarified.

### Data Hiding Techniques

Basically the information concealing procedures are grouped into two methods:

#### Reversible Data hiding techniques

In this procedure the message signal and the first cover can be with no misfortune recuperated at the same time. Reversible information covering up is a Technique that is chiefly utilized for the verification of information like pictures, recordings, electronic reports etc.

#### Irreversible Data hiding techniques

In this system the message sign can be recouped with no misfortune yet the first cover can be lost. So by and large reversible information concealing procedures can be utilized now days [11].

In Reversible information concealing system data installs in host media utilizing encryption key as a part of such a path, to the point that it can't be noticeable by stripped eyes. At the recipient side we can ready to remove the inserted message without influencing the genuine picture. Information stowing away should be possible utilizing diverse media like still pictures, sound sign, IPv4 Header, video successions, DNA Sequences.

The primary utilization of Reversible information concealing system lies in IPR Protection, Authentication, Military, therapeutic and law authorization. Strategy

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utilized for reversible information covering up are minimum noteworthy bit (LSB) is a standout amongst the most essential procedures that shrouds a mystery message in the LSBs of pixel qualities without presenting numerous distinguishable distortions, were flipped the LSB of pixel as indicated by straightforward calculation. Another strategy is Histogram Modification system includes producing histogram and finding the top point and the zero point and moving histogram canisters to insert message bits .Difference Expansion (DE) technique which can be organized on the contrast between two close pixels were proposed for information stowing away.

**Image Encryption**

Encryption is the way toward encoding messages or data in a manner that lone approved gatherings can read it. Encryption does not of itself avert interference, but rather denies the message substance to the interceptor. In an encryption plan, the expected correspondence data or message, alluded to as plaintext, is encoded utilizing an encryption calculation, creating figure message that must be perused if unscrambled. For specialized reasons, an encryption conspire for the most part uses a pseudo-irregular encryption key created by a calculation. It is on a fundamental level conceivable to unscramble the message without having the key, be that as it may, for an all around planned encryption plan, extensive computational assets and aptitude are required. An approved beneficiary can without much of a stretch decode the message with the key gave by the originator to beneficiaries, however not to unapproved interceptors.

**Types of Image Encryption**

- I. **Generation of Encryption Key:** The encryption key is a 128 piece esteem. It is created haphazardly by utilizing the irregular capacity. The irregular capacity creates the arbitrary key in a supply disseminated capacity.
- II. **Generation of pseudo-arbitrary arrangement:** Pseudo irregular grouping compares of arbitrary bits produced utilizing the encryption key. In the RC-4 calculation, used to produce the pseudo-irregular succession utilizing the 128-piece encryption key. It is spoken to as a grouping of bytes (A variety of bytes).The number of bytes created ought to be equivalent to the quantity of pixels in the information picture supplied the pixels are spoken to as 8-bit values. On the off chance that the pixels are spoken to as 16-bit values then the number bytes in pseudo-arbitrary grouping ought to be twofold the quantity of pixels.

**Error Correction Codes**

High dependable information transmission and capacity frameworks much of the time use mistake adjustment codes to secure information. The RS code is spoken to as RS (n , k) where

Square Length: n  
 Message size in images: k  
 Number of Parity Digits: n - k = 2t  
 The relationship between the image size, m, and the measure of the codeword n, is given by

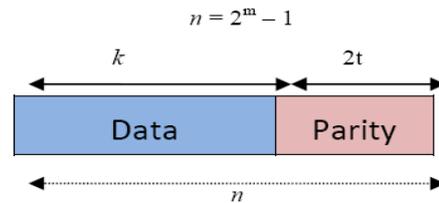


Fig. 1 Structure of RS codeword

Reed Solomon (RS) codes are across the board use to give blunder rectification particularly to blast mistakes. Reed Solomon codes are methodical straight square blunder adjusting codes and these are a critical sub class of non paired BCH mistake redressing codes. RS codes work on the data by partitioning the message stream into pieces of information. After that repetition can be included according to piece depending just on the present inputs. The images are components of a limited field or Galois Field (GF). Galois field is utilized for encoding and translating of Reed Solomon codes. In information concealing Reed Solomon codes produces the codeword from the given message and afterward installing these codeword into the encoded picture utilizing encryption key. At the collector side clients separate the codeword from the scrambled picture by utilizing information concealing key and we can ready to decoded picture to extricate the concealing information from it however the unscrambled picture is like unique picture.

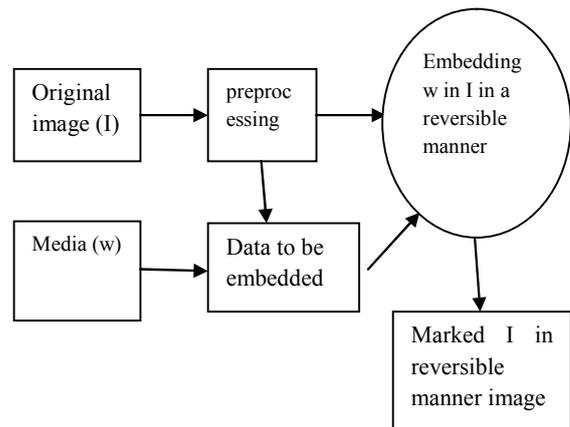


Fig 2 a

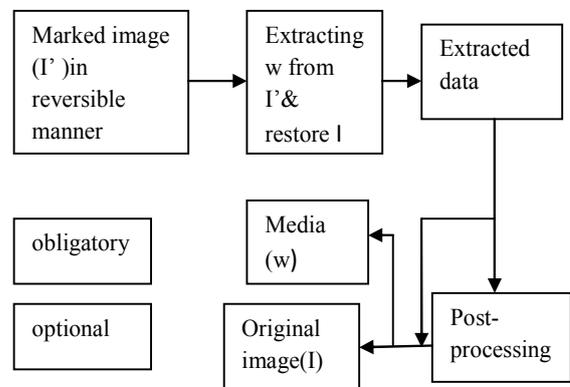


Fig 2 b

Fig 2 General framework of reversible data hiding (a) Embedding process (b) Extraction process

**LITERATURE REVIEW**

Chuang Lin, Jeng-Shyang Pan *et.al* [1] In this paper, they have proposed an incognito correspondence plan for a RS-code-based different depiction picture coding framework. Firstly, the mystery data is installed in the transporter picture by the twofold areas based technique. And after that the bearer picture is encoded with the SPIHT calculation. In this the lost bundles can be redressed by the RS codes. The visual nature of the recuperated transporter picture and the mystery data can be satisfactory when  $\text{bpp} = 0.3$ . The exploratory results demonstrate the adequacy of the proposed incognito correspondence plan.

Marwa Fouad, Abdulmotaleb El Saddik *et .al* [3] In this paper, they have proposed the mix of cryptography with Least Significant Bit - Discrete Wavelet Transform (LSB-DWT) watermarking to secure iris layouts. The biocryptosystem restricting key depends on fluffy representations. Both the arbitrary and burst mistakes that happen in iris codes can be right by utilizing Hadamard and Reed-Solomon codes. They utilize the 210 piece key-length with 0 False Acceptance Rate (FAR) and 0.07% False Rejection Rate (FRR). They have utilize the iris moving calculation to accomplish revocability and there proposed calculation really expanded detachability amongst honest to goodness and fraud appropriations. The proposed framework is additionally fit for withstanding minor spatial and recurrence watermarking assaults without real debasement in the execution.

Wadood Abdul, Philippe Carré *et.al* [2] In this paper they propose the utilization of rundown translating of Reed Solomon codes to enhance the heartiness of visually impaired recurrence area watermarking plans within the sight of assaults, uniquely went for the shading part of the plans. To think about the outcomes they utilize distinctive groups of mistake remedy codes to enhance the heartiness of a visually impaired, wavelet change based shading picture watermarking scheme (repetition, Hamming, BCH, and Reed Solomon). They show the strength of a wavelet based watermarking plan utilizing the Guruswami-Sudan (GS) calculation. List deciphering has excellent results when utilized with the recurrence space shading picture watermarking plan however it is liable to expand the vigor of watermarking plans by and large. In spite of the fact that the test results show consistency with the hypothetical approximations and the watermarked pictures with lower code rates are impervious to an assortment of assaults. They attempt to give a general perspective for recurrence area shading picture watermarking plans.

Huang-Chi Chen *et.al* [4] In this paper the balance strategy base on Reed-Solomon code for watermarking innovation was proposed here. They propose that keeping in mind the end goal to build up a power watermarking the DC, low recurrence coefficients, and the between square connection and Reed-Solomon code will be joined. As it were, these parameter which are has a place with the vital parameter in the picture are utilized to yield the message vector of Reed-Solomon code. In the wake of changing, the excess vector will be implanted in the host picture. What's more, the consequence of Reed-Solomon decoder, succeed or come up short, will be utilized to speak to the watermark in the further. On the off chance that Reed-

Solomon code succeeds in deciphering step, the ones that mean the implanting/separating watermark materials are "1" actually, it is '0'. Moreover, the proposed calculation is has a place with negligent watermarking. To show the subtlety and the strength of the proposed calculation, the strategy has been reenacted utilizing C++ program.

J.S.Y. Jeedella *et.al* [5] They have proposed a watermarking plan for installing telephone numbers into shading pictures caught by a cell telephone camera. To install the telephone number they utilize the low recurrence part of the DCT they additionally utilize the RS blunder revision code for watermarking cellular telephone caught pictures. As a rule, the proposed watermarking calculations have appeared to be safe essentially to JPEG pressure, 3x3 2D Gaussian and low pass sifting, 3x3 middle separating and some rescaling assaults.

Mohammad Hadi Shirafkan *et.al*[10] have proposed another technique for steganography in view of cross section vector quantization and DWT is presented that gives a reasonable security level notwithstanding the concealing probability and additionally finish and exact extraction of information and makes suitable level of security by utilizing blunder adjustment coding Reed Solomon. There proposed strategy is strong against the low pass commotion in channel and for different picture quality estimations this technique can be tried with other wavelet change methods.

HISHAM AL-ASSAM *et.al* [7] have proposes a novel approach that consolidates steganography with biometric cryptosystems viably to build up hearty remote shared verification between two gatherings and additionally key trade that encourages one-time stego-keys. Be that as it may, neither steganography nor biometric cryptosystems are insusceptible against replay assault and other remote assaults. The proposed plan is practical and in addition easy to understand furthermore improves the security.

**CONCLUSION**

With the increased use of internet, proposed system focuses mainly on RDH as the secured way of communicating over insecure channels of internet. Reversible data hiding methods are getting popular because of the reversibility of carrier medium in the receiving end after extraction of secret data. The motivation of reversible data embedding is distortion-free data embedding. the proposed the method has been simulated using MATLAB program. In this paper, a brief review on different methods of reversible data hiding for digital images are presented: Least significant Bit substitution (LSB), Difference expansion, Histogram modification. The performance can be evaluated by determining the visual quality of the image and by determining the complexity of an algorithm.

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