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Review Paper on Image Steganography and Security Using Cryptography

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Abstract*— Steganography is the art of hiding information in other information. This review paper is all about the study of hiding text files or text into image their extension was (.bmp) file. In this review paper we can secure the text files using steganography using cryptography. We propose the substitution technique of image steganography that improve the capacity of cover image for steganography. Using this method message is embedded into LSB. For more secure communication we are providing security by using the RSA algorithm which is based on cryptography. By using RSA algorithm unauthorized person cannot be access the information.

Keywords- Steganography, Cryptography, Encryption & Decryption, LSB.

I. INTRODUCTION

Steganography is the art of hiding information in other information. "Steganography focus on keeping the existence of a message". Any Steganography Technique has to satisfy two basic requirements. The first requirement is perceptual transparency that is cover object (object containing any additional data) and stego object (object containing secret messages) must be perceptually indiscernible [1]. One algorithm for providing security to the secret message by encrypting it. So the algorithm used for encryption is RSA algorithm. Other for embedding secret message in audio we will use multiple LSB algorithm [2].

The word Steganography is formed by the two Greek words that are Stegano means Hidden or Covered and Grafia means writing. The notion of data hiding or steganography was first introduced with the example of prisoner's secret message by Simmons in 1983 [6].

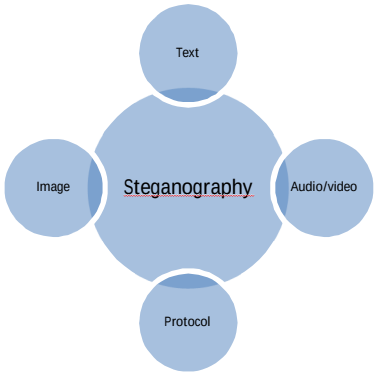

Figure 1:- classification of steganography

A. Different Kinds of Steganography

Steganography is the art of hiding information to other information. There are different kinds of steganography techniques, these are as follow: Text, Image (Transform domain (JPEG, spread spectrum) & Image domain (LSB in BMP, LSB in GIF))., Audio/video & Protocol.

1) *Text steganography:* In text steganography capital letters and white spaces are used for achieving steganography. In text steganography, data are hiding in form of number of bits in text[3].
2) *Image steganography:* Image Steganography allow secret communication between two person. In Image steganography we hide the data into image then it becomes completely secure. Image steganography works on JPEG, BMP and GIF images [4].
3) *Audio/Video steganography:* It is a very secure method of steganography. The private data is hidden in audio or video files. So that the third person cannot recognize it. Video steganography can be done on the formats such as H.264, Mp4, MPEG, AVI

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etc.

4) *Protocol steganography:* in protocol steganography we use protocols through which we send data. Here we use the unused bit in the considered network protocol for hiding secret data. This is called protocol steganography [5].

B. Cryptography

Cryptography**,** a word with Greek origin means "secrete writing", cryptography is the practice and study of technique for secure communication in presence of 3rd parties communication with security so that unknown person neither access nor modify any data [7].

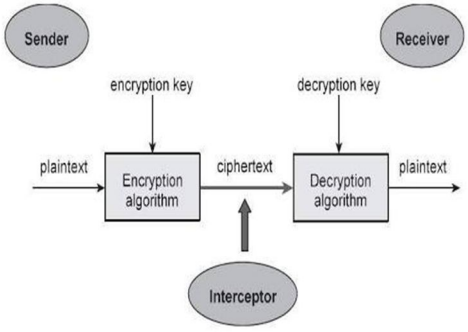

Figure 2:- cryptography

Cryptography Include the following process:

1) *Encryption:* The process of Encoding Plain Text message into cipher text message is called as Encryption.
2) *Decryption:* The reverse process of transforming cipher Text message back to plain text message is called Decryption.
3) *Plain text:* The original message, before being transformed is called plain text in the form of alphabet, numeric specific symbol [8].
4) *Cipher text*: After the message is transformed, it is called cipher text [8].
5) *Key:* Some critical information used by the cipher, known only to the sender & receiver.

C. Cryptography Analysis

It is technique of decoding message from a non Readable format back to Readable format without knowing how there initially converted from Readable to non Readable format.

D. LSB Technique

In this paper, LSB Replacement technique was adopted as the embedding method. The LSB replacement technique was used because of its simplicity. It deals with the least Value (form all the 8 bits) in the byte. Changing the last bit data, and replacing it with our message data. In LSB replacement technique we convert both the cover and the secret data to be hide in binary form. Then we just replace the least significant bit of cover with the data we want to make secret [11].

II. LITREATURE SURVEY

In literature survey, we are presenting the work of some prominent authors in the same field and explaining a short description of various techniques used for image Encryption.

E.P. Musa and S. Philip works on "Secret Communication Using Image Steganography 2015". In this paper author defines the term cryptography and steganography for securing data. In this paper author using LSB technique to hiding the data [9].

Neelam Suryakant Chavan proposed "image steganography – an overview[2015]". In this paper author defines the various protocols and use bit data hiding, information, Payload, Stegoimage, techniques to hide a message into a image. For encoding purpose LSB technique was used by author. Publisher defines the steganography as a "cover writing" [10].

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Asim M. Murshid defines the term Steganography (Encoding text and Hiding it within image)[2008]. In this paper the steganography techniques defines exactly with using of cryptography. Author introduced the technique that encoding a message and hiding it in image. But image was only BMP file. In this paper author hide the data into image their extension was BMP [11].

Zainalabideen Abdual Samad Rasheed introduced an efficient method of hiding binary text image via an optimal using of Fibonacci sequence. The keyword used by author is Steganography, image quality, Traditional Fibonacci, Bit Plan for binary text image steganography. A binary text image is used to represent the secret message instead of normal text. This method is used for the purpose of having a chance to read the binary text image if should any modification happen along the communication channel [12].

Aarti Mehndiratta proposed a compatible modern technique Data Hiding System Using Cryptography & Steganography: A Comprehensive Modern Investigation [2015]. In this paper author defines the cryptography and steganography technique to hiding information in another. The author used the Data Hiding, Cryptography, Steganography, AES, DES, DCT, DWT techniques [13].

Rajinder Kaur and Er.Kanwalprit Singh introduce many Image Encryption Techniques : A Selected Review. In this paper author defines the different encryption techniques of image steganography. it is the survey of different image encryption techniques have been discussed from which researchers can get an idea for efficient techniques to be used, keyword can be used by author in this review paper is Cryptography, Decryption, Encryption, Image Encryption ,Key Space for cryptography and steganography techniques [14].

Jai Singh and Kanak Lata proposed DES, Cryptograph, Symmetric Key, Encryption, Decryption, Cipher, Encipher, Image Encryption method to work on Image Encryption & Decryption with Symmetric Key Cryptography. in this paper author defines the encryption and decryption techniques using symmetric key. Symmetric key algorithms are the quickest and the most commonly used type of encryption. Here, a single key is used for both encryption and decryption [15].

Domenico Bloisi and Luca Iocchi works on image based steganography and cryptography. They used LSB algorithm for steganography And DES algorithm for encryption and decryption. DES is a symmetric key algorithum. In symmetric key algorithm same key is used for encryption and decryption. In this paper author works on image based steganography and cryptography [16].

Champakamala B.S, Padmini.K proposed Least Significant Bit algorithm for image steganography**.** The LSB technique is used for hiding original message into the cover object. It substitutes the last column of the cover object with the binary form of original message which sender wants to send in this paper author uses LSB techniques for hiding data into image [17].

Nick Nabavian works on Image Steganography [2007]. This paper will show how Steganography is used in a modern context while providing a practical understanding of what Steganography is and how to accomplish it. In this paper I will focus on the use of Steganography within digital images (BMP and PNG) using LSB Substitution, although the properties of Image Steganography may be substituted with audio mp3's, zip archives, and any other digital document format relatively easily [18].

III. CONCLUSION

The target of this review paper is to implement two techniques "Steganography and Cryptography" for secure communication. In this review paper we can hide the text or text file in image their extension was BMP file. It is a very efficient way of providing security from non-authorized person. In this paper the steganography technique described in this project helps to successfully hide the secret data into the cover object without any distortion. In this paper plain text was encoded and steganography technique was applied on the encoded text so it was hided in image so it is even more secure.

REFERENCES

[1] Arfan shaikh, vishal , neeraj vishwakarma on " Audio steganography and security using cryptography",(2014).
[2] M.ram mohan reddy,s.s.divya in" hiding text in audio using steganography",(2012) .
[3] Johnson, n. And s. Jasodia 1998 exploring steganography phy: - pp 26-34, (1998).
[4] Nick nabaviar 2007 cpsc on image steganography, (2007).
[5] Handle, T. And M. Sandford 1996 on hiding data in the digital image preceding of the image processing, (1996).
[6] Masoud Nosrati, Ronak Karimi, Mehdi Hariri, An introduction to steganography methods, World Applied Programming, (August- 2011), 191-195.
[7] Vikas Agrawal1, Shruti Agrawal, Rajesh Deshmukh on "Analysis and Review of Encryption and Decryption for Secure Communication".
[8] William Stallings, on "Cryptography and Network Security: Principles & Practices‖, second edition".
[9] E.P musa and S.philip works on "secrete communication on image steganography".
[10] Neelam suryakant chavan on image steganography an overview, (2015).
[11] Asim M.Murshid works on "Steganography(Encoding text and hiding it with in image)".
[12] Zainalabideen abdul samad rasheed on " steganography for binary text image", (2013).
[13] Aarti mehndiratta on "data hiding system using cryptography and steganography, a comprehensive modern investigation".
[14] Rajinder kaur, ER. Kanwalprit singh on "image encryption a selective review" .

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[15] Jai singh, kanaklata on “image encryption and decryption with symmetric key cryptography”,(2015).
[16] Dominico bloisi and Lusa locchi on “ image based steganography and cryptography”.
[17] Champakakamla, B.S padmini K, radhika “ LSB algorithem for image steganography”.
[18] Ramesh Gottipati, “Audio Based Security System with Image Steganography”, (January-2015).
[19] Abikoye Oluwakemi C., Adewole Kayode S., Oladipupo Ayotunde J, “Efficient Data Hiding System using Cryptography and Steganography”,(dec-2012).
[20] Adel A. Sewisy, Romany F. Mansour, S. Z. Rida, Amal A. Mohammed: “Hidden Text into Audio Files”, (may-2015).
[21] K. F. Rafat and M. Sher: StegRithm:” Steganographic Algorithm for Digital ASCII Text Documents”, (Dec-2012).

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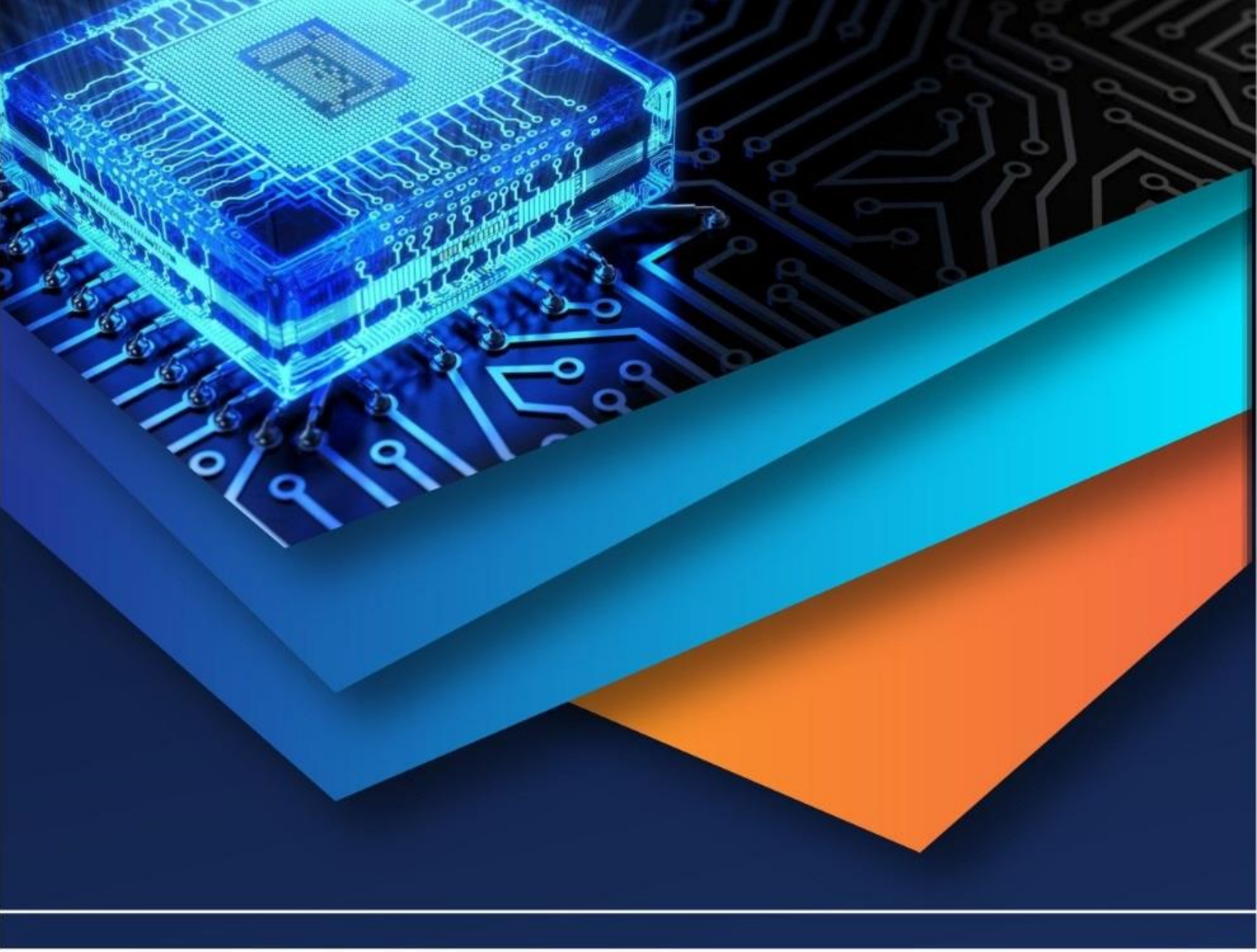

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