SECURE INFORMATION TRANSMISSION USING STEGANOGRAPHY FOR MILITARY APPLICATIONS

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Abstract: Information security is an important factor during transmitting secret information between two objects. Generally, we use cryptography for information hiding and sending secret message in the form of text. Nowadays, there are several techniques used for hiding information in any medium. One of such technique is steganography. In this technique, digital images are used for hiding information and the information is in the form of text, digital image, video or audio file may be used as secret message. Using LSB Steganography Technique we can implement high level of information security without any damage to cover image. In this system we are using the hybrid approach i.e. cryptography and steganography. So, our system have higher security level than existing systems.

***Index Terms* - Steganography, Stego-image, cryptography, encryption, LSB.**

I. INTRODUCTION

The idea of information hiding is nothing new in the history. As early as in ancient Greece there were attempts to hide a message in trusted media to deliver it across the enemy territory. With the development of country and the rise of conflicts, the military information is not that much safe to transfer from one location to another. But with the help of digital communication it is possible that we can easily transfer it. But sometimes it is needed to keep some information highly secure and it must be send secretly. The most secure way of sending information securely is the exchange information in the form of images. There are many techniques like cryptography, encryption, etc. used for keeping the messages hidden through encrypt and decrypt information. In the modern world of digital communication, there are several techniques used for hiding information in any medium.

Steganography is defined as the study of embedding sensitive information in another medium known as the cover medium. The word steganography derived from two Greek words: steganos means covered and graphos means writing and often refers to secret writing or data hiding. In this technique, digital images are used for hiding information and the information is in the form of text, digital image, video or audio file may be used as secret message. In image steganography the information is embedded into innocent looking cover image and the message implanted image is called a stego-image.

1.1 Objective
- Implementing high security to secret information using steganography.
- Developing Encoding software.
- Developing Decoding Software.

1.2 Motivation
Information security plays a major role in any data transfer. Security can be obtained by information hiding that focuses on hiding the existence of secret messages. Steganography is data hiding technique aims in hiding the existence of the communication, to make other parties unaware of the contribution of steganographic exchange.

1.3 Need of System
- It is extremely important to have high level security in military information exchange for national security.
- Nowadays we are using lots of online ecommerce websites, so it is required to have safe transactions.

II. PROBLEM STATEMENT

To create system which implementing high security transmission of secret information using steganography for military information. Also Use cryptography for hiding messages and creating secret message.

Use LSB technique to achieve steganography for image with high security and less damage of information. LSB Steganography is used for an attempt is made to develop a system which provides multilayered security for secure data transfer.
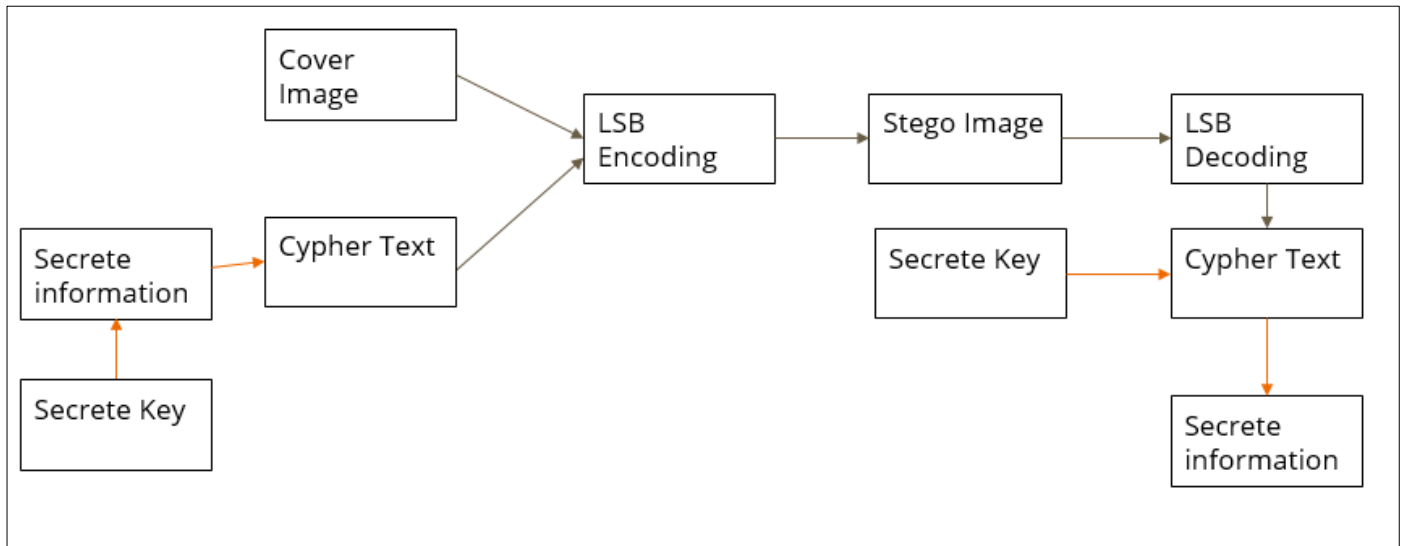
III. METHODOLOGY

Fig. 1 Architecture of System

Method that system follow is:

1. At 1st stage we apply cryptography to shuffle secrete information using some key. Which will produce cypher text.
2. At 2nd stage we hide cypher text in cover image using LSB Steganography, which will generate stego-Image
3. At receiving end we extract cypher text from stego image.
4. Finally secrete information is extracted from cypher text using Inverse LSB operation.

Algorithm used in System are LSB Encoding (steganography), LSB Decoding (steganalysis), Linear cryptography, Linear inverse cryptography.

3.1 Mathematical Modeling

For Encryption:

1. Cypher_text = secrete_text + key
2. Binary_stream = to_bits(cypher_text)
3. For i = 1:row
    For j = 1: column
    stego_image(LSB) = binary_stream(i)
    End
    End

For Decryption:

1. For i = 1:row
    For j = 1: column
    binary_stream(LSB) = stego_image(i)
    End
    End
2. Cypher_text = to_string(binary_stream)
3. Secrete_Info = cypher_text – key

IV. PROPOSED SYSTEM

Proposed System is achieving all the aspects that are consider for secure data transmission. Proposed System provide secure information transmission using steganography for military applications. Proposed System uses Cryptography and LSB Steganography technique for achieving secure data transmission.

Using Cryptography system perform encryption and decryption method that used to create the secret text message. Cryptography is a method of protecting information and communications through the use of existing information, so that only those for whom the information is intended can read and process it.

Using LSB Steganography technique system perform image steganography. LSB insertion is a common and simple approach for embedding information in a cover file. Digital images used as cover file are mainly of two types- 24-bit images and 8-bit images. After applying the LSB algorithm the image obtained having secret message is called stego-image.

V. CONCLUSION

Image steganography is the way of secret communication by the digital images. Using LSB Technique we implement high level of information security without any damage to cover image. It is almost impossible for hackers to attack the stego-image as cover image and stego-image looks similar. LSB technique have its own importance and use for hiding the data in image. The system provides an easy way of transmitting data in media files without exposing its existence. LSB technique involves low cost and is too reliable.

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