

Security For Message By Combining Steganography And Visual Cryptography

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ABSTRACT

Steganography is one of the art of hiding the fact that communication is taking place, by hiding information in other information such as images, videos, messages etc. For hiding secret information in images, there exists a large variety of steganographic techniques some are more complex than others and all of them have respective strong and weak points. Different applications have different requirements of the steganography technique used. It serves as a better way of securing message than cryptography which only conceals the content of the message not the existence of the message. Original message is being hidden within a carrier such that the changes so occurred in the carrier are not observable. In this paper we will discuss how digital images can be used as a carrier to hide messages. This paper also analyses the performance of some of the steganography tools. It is a useful tool that allows covert transmission of information over an over the communications channel. For example, some applications may require absolute invisibility of the secret information, while others require a larger secret message to be hidden. This project intends to give an overview of image steganography, its uses and techniques. For a more secure approach, the project encrypts the message using secret key and then sends it to the receiver. The receiver then decrypts the message to get the original one.

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I. INTRODUCTION

Steganography is technique of hiding a file, message, image, or video within another file, message, image, or video. The difference between steganography and cryptography is that in cryptography, one can tell that a message has been encrypted, but he cannot decode the message without knowing the proper key. On the simplest level, steganography is private writing, whether it consists of hidden ink on paper or copyright information invisible in an image file. Where cryptography rush a message into a code to ambiguous its meaning, steganography hides the message entirely. These two secret communication technologies can be used differently or together for example, by first encrypting a message, then hiding it in another file for transmission. Internet users frequently need

to store, send, or receive private information in the database. The most common way to do this is to transform the data into a different form. The resulting data can be understood only by those who know how to return it to its original form. This method of protecting information is known as encryption. A major disadvantage to encryption is that the existence of data is not hidden. Data that has been encrypted, although unreadable, still exists as data. If given enough time, someone could eventually unencrypt the data. A solution to this problem is steganography. The oldsole art of hiding messages so that they are not detectable. No substitution or permutation was used. The hidden message is plain, but unsuspecting to the reader. Steganography's intent is to hide the existence of the message, while cryptography scrambles a message so that it cannot be understood. As the world becomes more anxious about the use of any secret communication, and as regulations are created by

governments to limit uses of encryption, steganography's role is gaining prominence. The basic terminologies used in the steganography systems are: the cover message, secret message, the secret key and embedding algorithm. The cover message is the carrier of the message such as image, video, audio, text or some other digital media. The secret message is the information which is needed to be hidden in the suitable digital media. The secret key is usually used to embed the message depending on the hiding algorithms. The embedding algorithm is the way or the idea that usually used to embed the secret information in the cover message. In steganography, before the hiding process, the sender must select an appropriate message carrier, an effective message to be hidden as well as a secret key used as a password. A robust steganographic algorithm must be selected that should be able to encrypt the message more effectively. The sender then may send the hidden message to the receiver by using any of the modern communication techniques. The receiver after receiving the message decrypts the hidden message using the extraction algorithm and a secret key. This paper proposes a new algorithm to hide data inside an image using steganographic technique. The algorithm that we have proposed is an enhanced version of LSB technique, that is not very much robust. Also we have implemented a compression technique to increase the hiding capacity.

II. PROPOSED SYSTEM

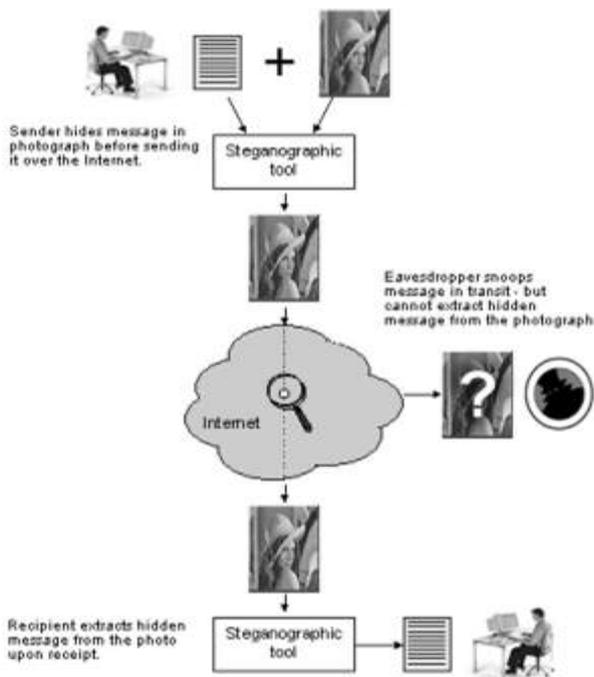


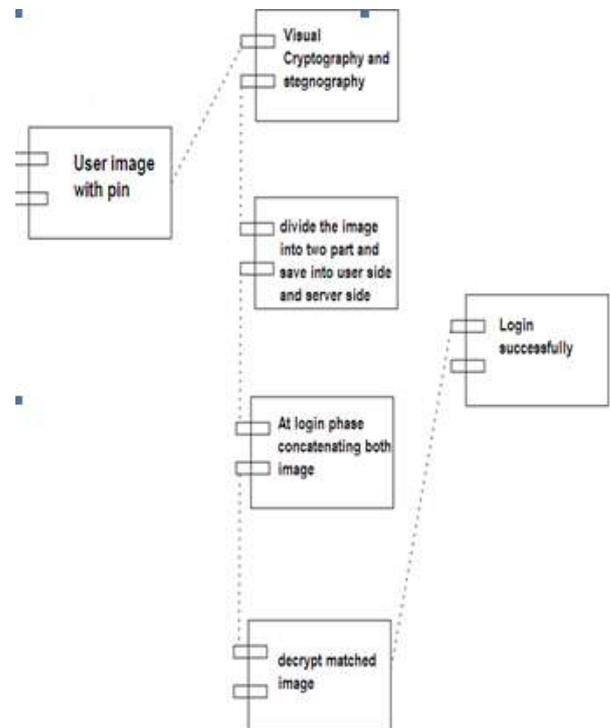
Fig no 1 : SYSTEM ARCHITECTURE

This system is able to send and receive encrypted messages embedded inside images. The user is able to choose the image he wants and the program must tell if this image will suit the text or not. No pixel deformation or size distortion is

allowed. TIF images may suffer slight size increments or decrements, but we will get to that later. The user can set a different password for every message he sends, which will enable the manager to transmit the same image to two groups, but with two different passwords and two different messages. Encrypting data has been the most popular approach for protecting information but this protection can be broken with enough computational power. An alternate approach to encrypting data would be to hide it by making this information look like something else. In this way only concern receiver would realize its true content. In particular, if the data is hidden inside of an image then everyone would view it as a picture. At the same time receiver could still retrieve the true information. This technique is often called data hiding or steganography. For implementing steganography the images which are collection of pixels should be in a proper format. For this purpose image processing is done to convert the required image in proper format.

Image processing usually refers to digital image processing. Image processing is any form of signal processing for which the input is an image, such as a photograph or video frame.

III. FIGURE



IV. MATHEMATICAL MODEL

1] Registration Phase:

Input User: $U = U_1, U_2, \dots, U_n$.

$S = S_1, S_2, S_3, \dots, S_n$.

User: Selected Image = I and Pin = P

UIP = {Uips 1, Uips 2, Uips 3, Uips n}

Images and Pin are encrypted Form

Uipe = Uips 1, Uips 2, Uips 3, Uips n

:-And half image with ping save into server side and user side

Uipe ∈ {Uipeu, Uipeu}

Uipeu => Encrypted half images save to user side

Uipe => Encrypted half images save to server side

2]Login Phase:

$$Uipe = \sum_{U=0}^n Uipeu + Uipes$$

$$UIP = \sum_{Uipe=0}^n Uipe = 0 \dots \dots \dots (\text{Time})$$

User login successfully.....

$$UIP = \sum_{Uipe=0}^n Uipe == 1 \dots \dots \dots (\text{false0})$$

User login Failed.....

V. CONCLUSION

In this project, we were interested in Steganography technique for JPEG images. First, we developed the basic LSB technique that allows hiding information in JPEG images by using the least significant bits of pixels. We found that with LSB steganography method is not effective to hide information in the JPEG image because the size of the image increases greatly after inserting information which facilitates the discovery of the hidden information.

VI. FUTURE SCOPE

This module can be further extended to have support for the Video files. Currently, for encoding, we use this software and for transmission we use some other medium. So the current software can itself be used to transmit the files also. Currently, the length of the message file has some limitations for the Audio Steganography, so for the same, we can have support for a wider size of files. Can be implemented as a plugin to a web browser.

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