

An Overview of Data Hiding Techniques using Steganography.

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Abstract—In today's world internet is most popular medium as huge amount of data is transmitted over a network. Thus the confidentiality of the data is the most important issue for research in the field of internet security, steganography, cryptography. This paper introduces a ways of data hiding using a steganography. The confidential data send over internet should transmit securely to receiver. To achieve the security of data various data hiding techniques are used.

Index Terms— Steganography, Data hiding, Audio Processing.

1 INTRODUCTION

Now a day's Internet is the most popular communication medium but communication over the internet is facing some problem such as data security, copyright control, data size capacity, authentication etc. Thus to protect such a secrete data it is very important to design a robust encrypted method for perfect data security. There are two ways of providing security to the data

1. Cryptography: Cryptography is considered to be one of the fundamental building blocks of computer security [1].Cryptography is process of converting data into unreadable from which is achieved by encryption and decryption. [2] Cryptography is a powerful tool to achieve information security, the security of cryptosystems relies on the fact that cryptographic keys are secret and known only to the legitimate user [3].

2. Steganography: Steganography is art and science of hiding a message, image or audio file within another message image or audio file. Steganography provides a double layer of security as it is combination of encryption and data hiding. The process may be represented as

Cover medium +Embedded message+ Key= Stego- medium

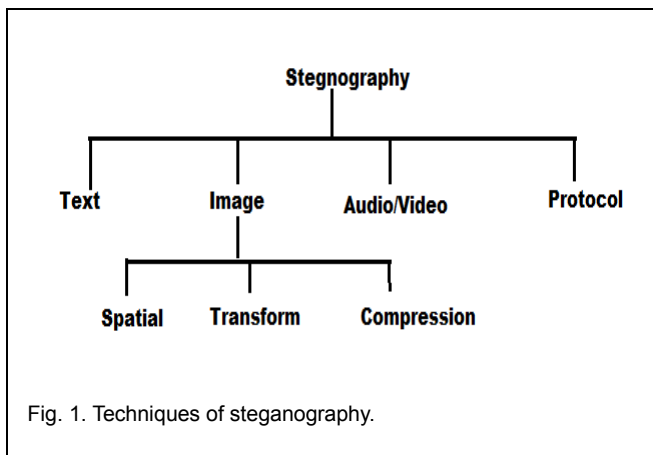


Fig. 1. Techniques of steganography.

The difference between cryptography and steganography is that cryptography conceals content of message not the existence of message.

2 STEGNOGRAPHY

Steganography is process which hides secret information into another media.Steganography is used to send a hidden data over network to improve a security. It is an art of hiding information in multimedia elements like text image audio signals etc. All the multimedia elements are stored in the storages devices as binary values. The binary values can be altered to hide secret information. Altering few bits may not change originality of the image, but if the changes are too high then, originality of the image will be spoiled. So to hide few kilo byte of information we need few megabytesof multimedia elements. Combining both steganography andcryptography together will improve the security dramatically [4]. Here presents the small surveyon data hiding techniques which data hiding done at bit level.

The basic steps that are common in all stenographic method are shown in a figure given below:

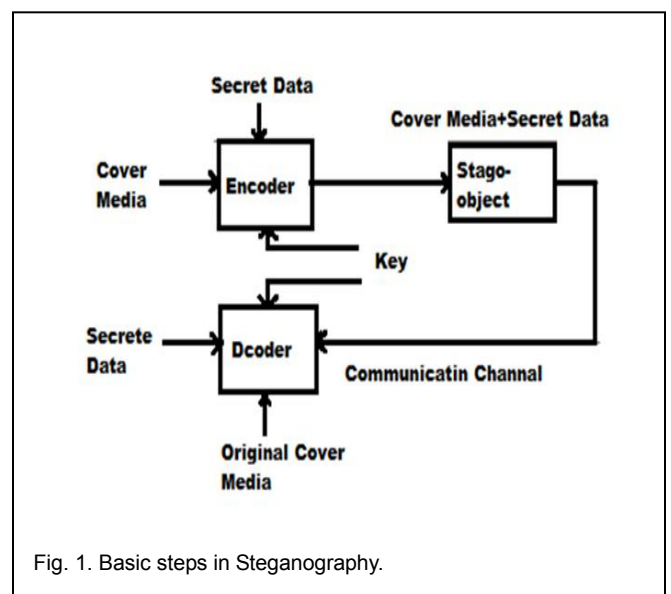


Fig. 1. Basic steps in Steganography.

As describe earlier the cover media and secrete data may be text, image audio file etc. The methods of steganography vary as the cover media or the secret data chosen for that method and also with secret key generation. An overview of image steganography and audio steganography is described in this paper. The common thing in both types of methods is that the data hiding takes place at bit level. The basic units for the storage of the image are pixels and for audio it is samples of audio signals. Either samples or pixels are stored in binary format on storage device of the system. The method changes with data hiding strategies used. Here some methods are described to describe the various stenographic methods.

3 DATA HIDING TECHNIQUES

In this paper a five level cryptography in speech processing and repositioning of elements five levels of security is included to increase the security of speech signal transmitted over the network. In this paper a background noise, hiss and clicking noise are used to encryption thus the encrypted speech signals represents a meaningless audio to the unauthorized person. If one of the levels is broken then rest of level protects the audio data [5].

Separable reversible data hiding technique is the type of stenographic method which is mostly used. The term separable reversible means this method separates two procedures 1. Exact recovery of hidden data and exact recovery of cover data, .While the decryption takes place there are three possible cases Case1: If the receiver has an encryption key only he will get the decrypted cover image with hidden data Case2: If receiver has data hiding key he will get external data only. Case3: in this case receiver can get both information cover image and hidden data with help of two keys data hiding key and encryption key. This paper first encrypts a cover image then makes places at LSB bit of the cover image this is done by using data hiding key. The data hider using a data hiding key compresses the LSB bit to make space for secrete data. [6]

In this paper this method is used for data hiding at RGB-LSB position of the cover image.[7] In this paper there are main tree steps are there data encryption , making place at RGB-LSB and last that is data hiding This method uses the LSB bit position of the cover image for the data hiding. This method is same e as describe earlier but here limitation on size of hidden data are overcome. AS this method uses LSB of red green and blue parameter rather than traditional LSB of image more amount of data can be hidden in cover image.

4 AUDIO PROCESSING

IJSER All the above procedure is examples of an image steganography. In image stenography the cover media is image. The secrete data can be hidden by various methods such as using the bits of image or bits of its RGB parameter. The smallest unit of storage of image is the pixel which is represented by the RGB parameter. The RGB parameter shows the color red green and blue of that pixel of an image.

Similarly the audio signal consists of the samples each sample is 8 bit. All samples represent an audio wave. As the bit posi-

tions of the image can be used for the data hiding there is scope for a data hiding with an audio signal. Data can be hidden at bit positions of samples of audio signal. Thus the strategy of image can be used in a speech steganography.

5 CONCLUSION

The main objective of this paper is to describe data hiding techniques using a new approach. These novel ideas of data hiding based on steganography method. This type of method provides a double layer of security. There are various stenographic methods which provide a security to the data. The steps of encryption may vary leads to changing output .In some methods the original cover media and stago- media are seems to be similar because small part of the cover media is used for data hiding purpose. There are also some cases where cover media and the stago -media differs. In both the cases these methods ensures the security of cover media as well as secret data or hidden data.

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