# A novel approach of Multimedia data file and Image Conceal in Cover images For Image Steganography Using Two Layer New Enhanced Uniform Segmentation

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**Abstract -** In the last few years many researchers putting many efforts for getting good data conceal algorithms which was complex design and undergo rigorous investigation on starting from confidential Multimedia data file sizes ranges from 200kB to 10 MB file has been embedded in it so far for the sake of more secure communication among mobile nodes and local area networks. As of now several steganographic concepts were conceived on data conceal approaches deployed in insecure channel. In this paper, authors designed new data conceal algorithm approach proposed based on two protection layers has been used to maintain secrecy of the embedded message in a true color image. Here, the data is embedded randomly instead of sequentially by an image segmentation algorithm that uses two level non-uniform segmentation(Two Layer New Enhanced Uniform Segmentation). Advanced Encryption Standard algorithm(Advanced Encryption Scheme) has been used to encrypt the confidential multimedia data. Different performance measures from the experimental results have shown the reasonable prototype of the proposed steganography algorithm. The result after comparing the proposed algorithm and the wide spectrum of steganographic schemes confirm that the stego-image with medium perception ratio has been reached even if the stego-image holds a large amount of data with good visual quality and working under jpeg and gray scale images and also resistant to statistical and visual problems.

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*Key Words***:** Network Security, Image Security

## 1.INTRODUCTION *( Size 11, Times New roman)*

Image Steganography is the subdivision of multimedia data conceal process within cover image data, that enables conceal encrypted confidential multimedia in cover image to produce stego-image data.The confidential multimedia data cannot be observed in the stego-image over computer networks. Because the entropy difference between cover image and stegao image is equal to Zero. Then only intruder cannot anticipate the confidential details in and around stego- image. The profusion of our digital media (image, video, and audio) in our modern life has led to a rapid technological development of steganography with digital media files being the carrier contents (camouflage). In the few years, a enormous papers are published on steganalysis of new data conceal algorithms and their contribution is for embedding confidential data in grey-scale[1].

The rest of this paper is organized as follows. the importance and literature survey discussed in second section. The related work was discussed in third section, analysis of apply Two Layer Enhanced Uniform Segmentation and Advanced

Encryption Scheme algorithms on steganography and their mathematical proofs were discussed in forth section, the results and comparisons of given inputs were discussed in fifth section and summery and conclusion and future direction in sixth section..

## 2. Importance of Modern Steganography over Steganographic based communication

Modern Steganography is having important role in improving security standard across networks to make them non-readable form of given cover image against third party vendors. It takes place between the sender and receiver for conceal multimedia data(Multimedia data file and Image). The sender sends the message to the receiver through the communication channel. Encryption is a process where in the ordinary file also called as plain data file is coded into some unrecognizable form which is usually called encipher data file which is in the unrecognizable form to ordinary file that is plain Multimedia data file, The entire process is done for the sole purpose of protecting the message from being used or manipulated by the intruder who is the third person.

Crytography allows to the authenticate users to prevent confidential data from unauthorised access by supplying a private/public key to the end user to read the proper file. Modern Steganography does enenciphering/deenciphering mechanism that protects our valuable file such as your documents, pictures or online transactions, from unwanted people accessing or changing it. Encryption works by using a mathematical formula called a encipher and a key to convert readable data(plain Multimedia data file) into a form that others cannot understand (encipher Multimedia data file). The encipher is the general recipe for encryption and the key makes the encrypted data images.

### 2.1 PROBLEM STATEMENT

In the previous work, summarizes of work regarding the Two Level Non Uniform Segmentation algorithm is to hide confidential file i.e text is in an image to transfer from source mobile to destination mobile and to carry out the task more effectively against statistical attacks while producing a high quality image. The aim of present paper is to delivery the cover image in terms of stego image i.e., hide the data over an image using steganographic algorithms and ensure the quality of concealing data to the destination. However, the paper could try to apply method for embedding and encrypting the Multimedia data file in an image for normal transmission of stego image. The current process[2] provided successful delivery of the stego image to allow the services only to authorized destination user

without any copy right violation. The proposed method will help to secure the content with in the image and to make the personal file much secure because even though if the unauthorized person succeeds in being able to intercept the stego image, the intruder will not able to read the message as well as acquire the file during transit.

Whenever the data is encrypted using steganographic algorithms with in image, neither data nor the image it is embedded in should lose its originality .The main aim is to embed sufficient data in a gray image to made it invisible to end user.

# 3. Existing Prototype:

Information Conceal techniques are termed in the following processes:

1. **Blind Cover Media Process**: It is one kind of process which is used to fix the information within innocuous mode of cover media which contains rules to hide the details for see the information.

It is medium which has some spy ware details to be distributed across network. It is not viable in wireless network. Because the binary details could not convert into radio waves for streaming of bits. it is basically impossible to implement it.

## 4. Proposed Embedding Scheme

In the paper the entire work is simulated in DevC++.

In this paper, the authors have given refined model of the algorithm process in paper[6], have given detailed file about 4 layers. From this four layer model, authors reviewed the algorithm to shorten into simple 2 layers.

## 4.1. Construction of Stego Image

**STEGANOGRAPHY IMPLEMENTATION**

In the steganography process discussed so far is theoretical aspect. Hence now it has been implemented in step process implementation through c plus plus environment.

**4.1 TWO LAYER NEW ENHANCED UNIFORM SEGMENTATION Algorithm :**

In this algorithm, image segmentation process is defined in this work; it is based on different sizes of segments of a CI.

The following steps are applied to display the proposed image segmentation:

**Step 1:** Let S be the key size encipher key of ADVANCED ENCRYPTION SCHEME (encipher key generated from random generator);

S = |ck|.

**Step 2:** In the first level of segmentation process it is found that horizontal segment length (SHS) and vertical segment length(SVS);

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**Step 3:** For the second level of segmentation

Given the length of the different lengths of segments for both the vertical and horizontal directions ( Ver, Hor) according to the values of the switching index (key);

**Step 4:** If partition the whole block into small block contains different sizes of chunks when k is odd parity, then Compute Ver,Hor ;

If block segmentation is completed.

//Where Val($ck_k$) represents the ASCII value of the every $s^{th}$ character in the encipher key such that s{k, j,m}. The (h) and (v) are the height and the breath of the cover image, respectively.

**Step 5:** Start reading of each pixel on each segment at the first and second levels of segmentation;

**Step 6:** End of the main block.

**3.2 Encryption and Decryption in Advanced Encryption Scheme:**

**Advanced Encryption Scheme Encryption Process:**

Here we were using Advanced Encryption Scheme algorithm for better encryption algorithm in mobile platforms.

The Advanced Encryption Scheme encipher is almost identical to symmetric enenciphering techniques where low consuming mobile devices works. It does encryption on mulple bits of input plain Multimedia data file with 128 bits. It contains 10 rounds to mangled the input Multimedia data file into encipher Multimedia data file with random key size.

**3.3 Image Segmentation algorithm using Two Layer New Enhanced Uniform Segmentation:**

In this paper authors initiated Selection of locations[3] over patches promptly for embedding confidential messages randomly to achieve a promising solution in the proposed steganography algorithm; this approach is based on two-level non-uniform segmentation (Two Layer New Enhanced Uniform Segmentation)[4].
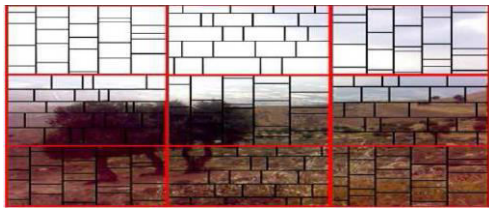
**Fig.4**. Image Segmentation process using Two level adaptive non uniform image segmentation

## 4.3 Experimentation and Results

For cover image taken bmp file in data conceal process. This paper has chosen as 115 X 145 dimension matrix pixel image in Planet Gray scale Image for conceal Simple Multimedia data file " hai " in cover image where we apply TWO LAYER NEW ENHANCED UNIFORM SEGMENTATION and ADVANCED ENCRYPTION SCHEME and apply these algorithms in Dev c++ for getting better results in this paper.

**Test 1: Gray scale image before segmentation:**

This is the input sky image contains all values ranges from 0 to 255, most of the pixels are black in nature given to ADVANCED ENCRYPTION SCHEME process when encipher key given.

**Test 2: Gray scale image after segmentation:**

This is the output sky image contains all values ranges from 0 to 7 only, most of the file starting from very high level with 7 only.

**4.1 Results for Two Layer New Enhanced Uniform Segmentation:**

After simulation, the images gets matrix representation, contains most of the values are occupied with 0's and 255 only.

**4.2 ADVANCED ENCRYPTION SCHEME keys for encryption:**
After encryption, the key size shared the encipher key with confidential file in binary form.

**4.3 Output for plain Multimedia data file to binary file:**

After stego image, all confidential file is about to insert into plain Multimedia data file for transmission.

**4.4 Stego image matrix:**

After embedding confidential Multimedia data file binary file into Plain Multimedia data file using process of Two Layer New Enhanced Uniform Segmentation.

## 5. CONCLUSION:

This paper contributed on the way of conceal the confidential data in the image using steganography and encrypting the steganographic part of the image through analysis. After survey the concept, it mainly focuses on sending the image along with the data Both text and image has to be embedded in it, authors having ability to transfer it in reduced bandwidth, since there is no need to use other bandwidth to send the confidential message we want to share. This paper has simulated exiting algorithm where dividing image into sub blocks using Two Layer New Enhanced Uniform Segmentation instead of selecting the whole image a part of the image is been selected confidential message is in embedding process.

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