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# LSB Based Image Steganography using Passkey

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**ABSTRACT:** In ancient times the people used to hide the message or content in arts,paintings,tattoos or some sort of special ink. Nowadays due to tremendous improvement in technology the computer over network or offline is able to perform. Image processing has tremendously improved from last decade. Main point of image processing is to modify images in the desired manner. The main aim of image processing has been extracting crucial data from which an interpretation or a depth learning of the scene can be concluded. Image processing and text data plays a very important role in today's life. Communication plays an important role in our modern life. The main purpose of our work is to provide a secure method of communication.

**KEYWORDS**: Image Processing Steganography GUI Hidden Message Passkey Encode Decode Grayscale

## I. INTRODUCTION

The word 'steganography' is derived from the greek language that is 'Stego' and 'Graphia', Stego means covering and graphia means writing , it roughly says the art of hiding message or data.Steganography is a process in which plain text is inserted into digital media.Image and texts are very important aspects of modern day communication.steganography is a technique in which the important data is hidden in ordinary images. Image is a collection of vectors of pixels. There are different types of image formats like rgb image, grayscale image, black and white image.

In this project, we have created a gui to process images for a friendly user interface. The user can use any png image by clicking the insert image button given in the user interface. The inserted image will be converted to gray scale image by using a built-in function. Then the text message and gray scale will pass to an algorithm to embed text in the image. While inputting the message the user is also required to create a key for message decoding. The encoded image with text message will be converted to xlsx from png. The user can load the xlsx file generated by the algorithm previously to decode a hidden message from the image. Enter the key in the passkey field and then click the decode button the hidden message will be shown in the text field.

## II. RELATED WORK

In our first reference paper, "Steganography in Images Using LSB Technique ", they have presented an embedding scheme based on the LSB technique. Given the value of the pixel of an image is interchanged by a value of '1' it will not affect the appearance of the image. The advantage of the system is that even if a file is known or suspected to contain Steganographic software, it is almost impossible to extract the information until the correct password is obtained.

In our second reference paper,"A New Approach for LSB Based Image Steganography using Secret Key ", they have proposed an efficient LSB based steganographic method that utilizes the secret key to hide the information into an input pixel of the cover image without producing perceptible distortions. Here a bit of hidden information is placed in either LSB of Green or Blue matrix of a specific pixel which is decided by the secret key.

In our third reference paper,"Image Steganography Using LSB ", Text to Image :- In this, the text is inserted within the image and sends the image with the help of the symmetric key. Stego-key: The key used in the Steganography process.

Receiver Algorithm: The technique used to extract the mystery message from the Stego-symmetric key between the sender and receiver and by the Least Significant Bit. This strategy works when the record is longer than the message document and if the picture is grayscale, when applying LSB strategies to every byte of a 24 bit picture, three bits can be encoded into every pixel.

### III. METHODOLOGY

Images are made up from a collection of pixels, every pixel stands for a particular colour of image. The grayscale is made of black and white pixels ranging from 0-255, where 0 stands for black and 255 for white. Grayscale images are simple because they have only colours of gray. Grayscale images are the product of two-dimensional arrays in which the number of rows and columns are equal to the number of pixel rows and columns in the image. The numeric value indicates the shades, lower value - darker shades and higher value - lighter shades. The LSB stands for least significant bit in concept, the main aim is to use this method because the sink of message in image won't be much in colour of image. Thus, the changes will not be visible to anyone directly. By using lsb technique the changing the value of 0 to 1 won't makeup a major difference in image but just a minor change in shade of colour i.e little lighter

Original image is resized to 255 by 255 while converting it to grayscale because of the Lsb technique to process the image. The message entered by the user is converted to the binary representation and then lsb is overwritten to each bit in the image. The secret key passed while encoding is transferred programmatically and manually to the receiver.

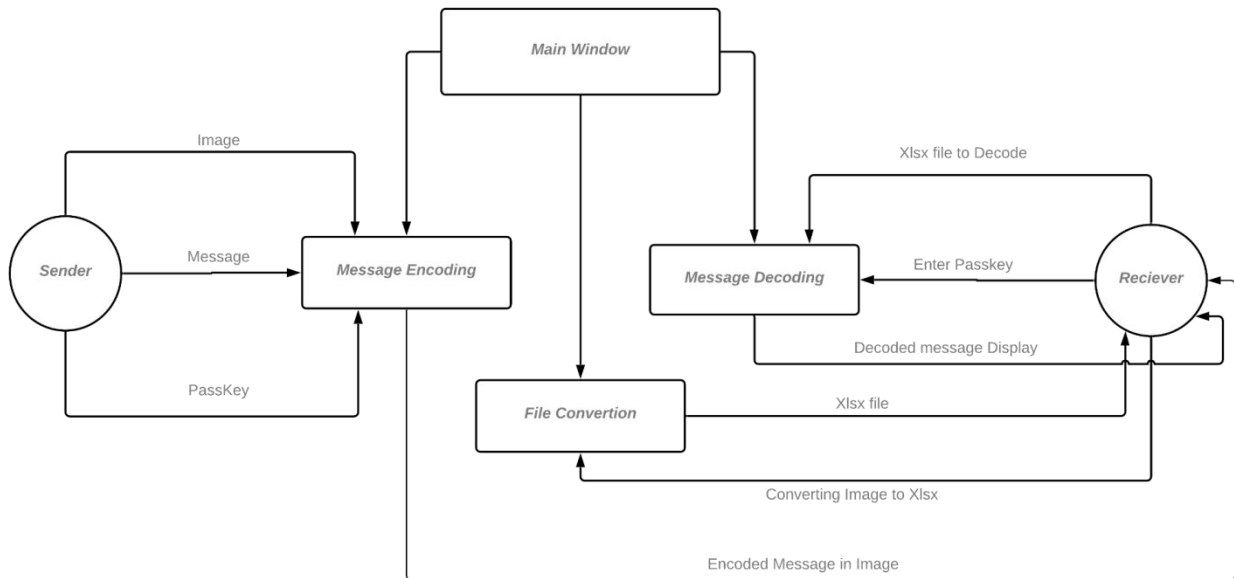**Grayscale image + hidden information\data = steno image.**

### IV. IMPLEMENTATION
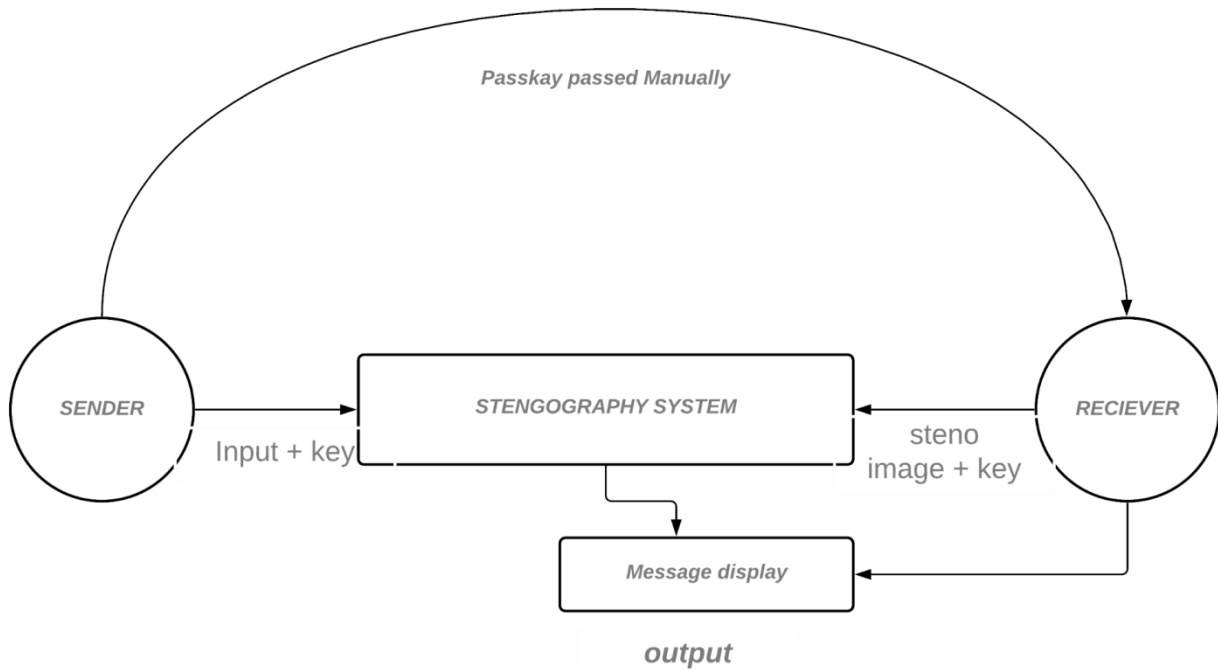


**fig.1 Block Diagram**

**fig.2 Usecase Diagram**

**Sender**

The main window module contains the call for sub-modules to perform action, the module call is registered to respective buttons.

To encode a message you will need to press the "ENCODE MESSAGE "module. First import a png image, users have the choice to insert any png file by clicking the "insert image" button. After that enter the message and passkey, click the "encode" button. As soon as you hit the button the gray scale image and grayscale image with encoded message will be generated in the hard drive.

The sender is able to send the passkey programmatically by clicking the "passkey" button and also by passing the key manually.

**Receiver**

The image generated by the sender needs to be converted to .xlsx format. The sub-module "FILE CONVERSION", loads the png file by clicking the "read file" button. It will take a few seconds and the xlsx file will automatically open and save to the hard drive.

The passkey button from the "encode message" module needs to be pressed for further process.The Generated Xlsx file will be processed to decode a hidden message. To read the message load file by clicking the "load file" button in the "decode message" module. After loading the xlsx file enter the pass key and hit the "decode" button the message will be displayed in editfield(uneditable).
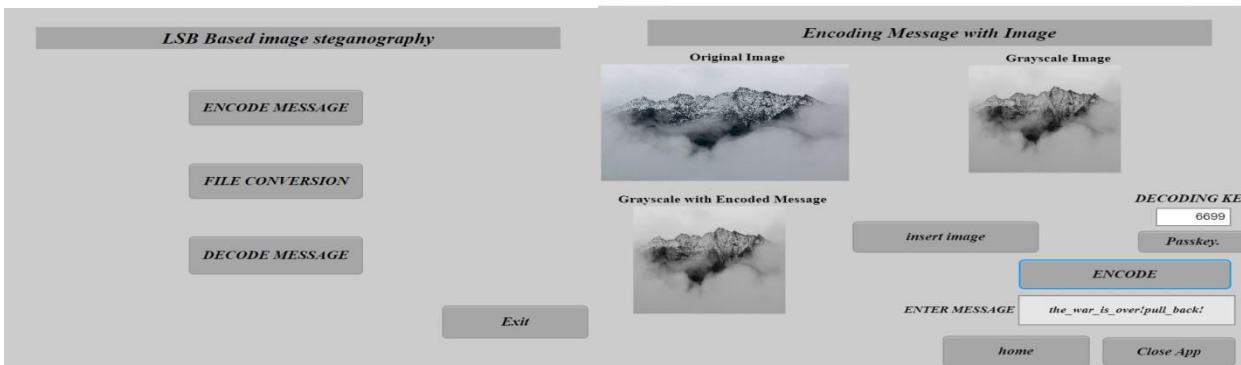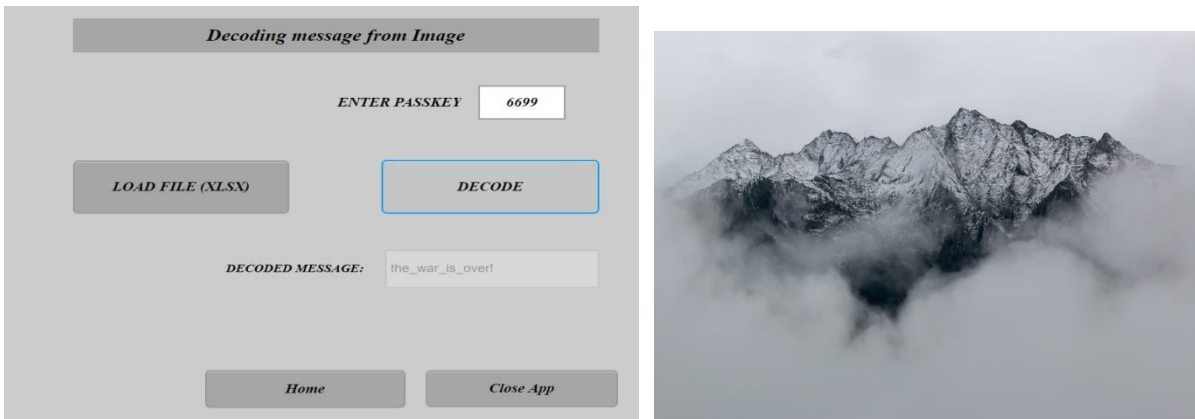
1. Home Module       2. Encode Message Module
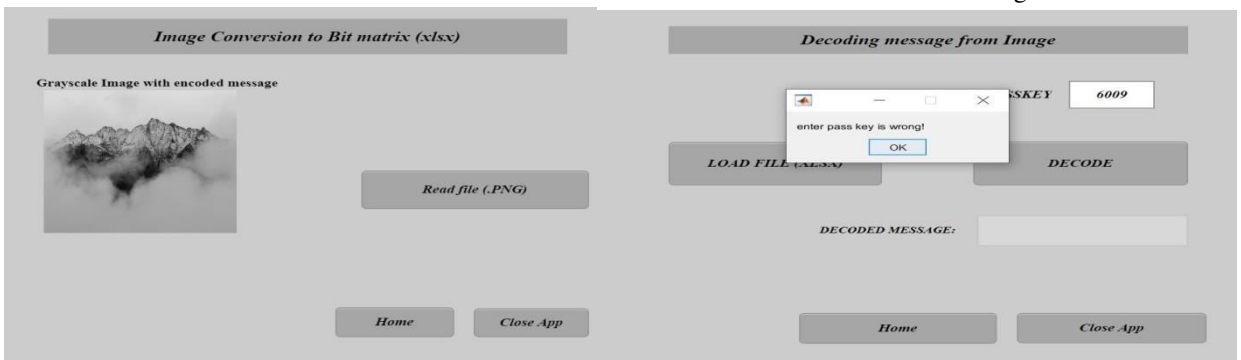


3. Image Conversion to Xlsx file module     4. Prompt displayed in Decoding module(invalid key)

## V. RESULT



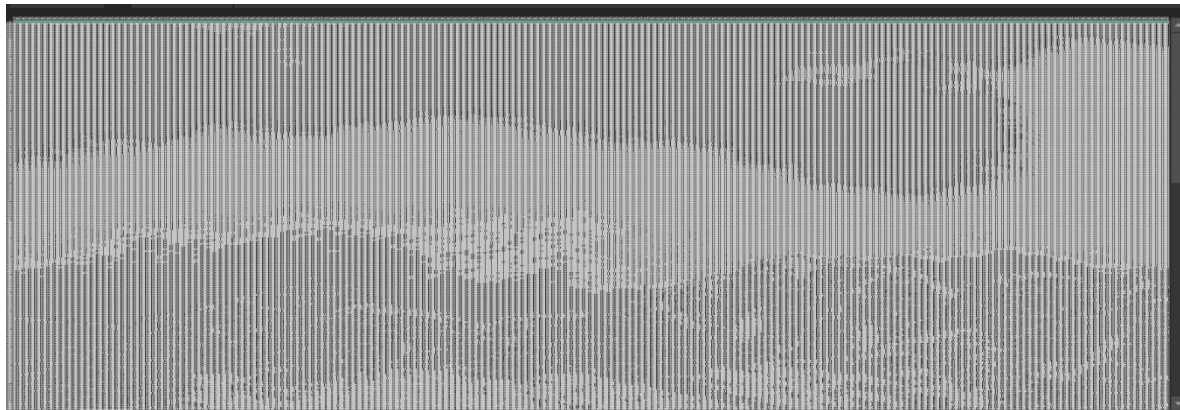1. Decoding module - Messaged displayed after valid key     2. Original Image

3. Grayscale Image of Original



4. Grayscale Image with Encoded Message



5. Excel (.xlsx) of Encoded png



6. Zoom shot of Excel

7. Files generated.

The value in excel file will not vary above 255 because grayscale images are made of 2D arrays and have shades range between 0-255.

### III. CONCLUSION

The paper shows that the proposed method is an effective way to perform image steganography using lsb based technique.we presented a system in which the hidden messages are received without any bit of loss. The steno image obtained from the system has a very lower amount of distortion. As the system has a passkey for decoding messages from stego image it is secure from unauthorized users. It is very difficult to read or see changes in stego image directly.

### REFERENCES

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