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IMAGE COVERT USING STEGANOGRAPHY

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Abstract: Secure transfer of personal and copyrighted material has become a critical issue in today's technological environment. Steganography is the way to hide information or a message using images, etc. Using this website, we can hide the message inside the image and seek it whenever we want. The method we are using is pure steganography. This helps share confidential or important information. Here, we are using canvas tools present in HTML and JavaScript to hide and reveal data using the images. By using these Canvas tools, we are implementing a new way in which secret messages or information is transmitted. The message given by the user will be hidden inside the alpha channels of the cover image given. Using these Canvas tools, this will reveal data within the image using the decoder. This allows users to use the website whenever they want, and it is user-friendly to all.

***Keywords*:** Confidential, Cover images, Hide, Reveal, Steganography.

1.INTRODUCTION

In the present world of growing technologies, there is need of large amount of security for the data in transmission mediums like social media, and other third party applications. It's very risk to send and receive personal information through platforms using Internet. The way of hiding one type of data into another form of data is known as Steganography. This technique will help in transforming secret information in a way that others cannot find or access it.

In this, we are making a website that can be accessible for all those are registered, without installing any tools and all, to run it. This website will work on every browser that supports HTML5 canvas tools. This Canvas tool will mainly helps in process of Hiding and Revealing.

This process of Steganography will be more useful to share the secret data through the Online Communication Channels. Here, the cover image is acts like a carrier of secret message and transfers the data as an image to others, and that output image gives us the output hidden data in the decoder phase.

2. LITERATURE SURVEY

The most common methods of steganographic development were based on the modification techniques of secret information into the cover images, in both encoding and decoding processes. When the output of a steganography method is calculated, the calculation instruments used are MSE (Mean Square Error) and PSNR (Peak Signal to Noise Ratio). Time is used as a parameter by measurement instruments to speed the process. Frequently, the methods used are still hiding the information inside the cover image and transforming both of them into one output image called a steganographic image. Finally, further studies on steganography focus on how to hide information without using cover images.

A new method in steganography using grayscale images is chosen. At the edges of the cover image, the information is stored secretly, and based on the message length, the edges are dynamically chosen. The technique proposed in this technique can resist data from visual, structural, and non-structural attacks, which is better than existing edge-based methods. HBC due to irregularities arising from LSB substitution can be detected by structural detectors. These irregularities can be resisted by LSBM (Least Significant Bit Method), but it can't discriminate between the smooth places and the edges in the images due to some distortion in the LSB plane of the steganographic image. As a result, in the proposed method, they used two-bit LSB substitution for embedding. As a result, it decreases the number of pixels to be twisted. Finally, a reduction in the width of the Gaussian Kernel increases the performance of the proposed methods when finer details are selected as edges. The execution of given methods is expected to be improved if one syndrome coding to reduce the amount of twisting that occurs by embedding.

Image steganography is a way used to transform sensitive data by hiding images. So many Deep learning methods are used in research on steganography. Mostly, LSB substitution methods and variants are used for traditional steganography. Image steganography is a task similar to image reconstruction in which two inputs, a cover image and a secret message, are used to reconstruct a steganographic image that looks like a cover image. This paper gives us the latest methods used in early image steganography. It concludes that deep learning has immense potential in image steganography.

The existed embedding approaches in spatial domain were substantive and discussing the functions of these approaches. All the said approaches by depending upon the proposed algorithms had strengths and limitations. Only in the image steganography there are so many features like high quality, high security and higher embedding payload when compare with other steganographic approaches in real life.

The method of hiding secret information in the cover image without making any changes to the actual image is called steganography. There is less restriction on the weight of data to be stored in the cover image. The main aim of this is to let the authentic user only get the image. This is done by the user ID and password with OTP verification, which is to get high security at the end.

In information security, image steganography is an important and challenging problem and has special attention. This paper focuses on steganographic images that hide secret data, recent achievements, the framework of these functions, and performance for the most representative methods. There is a huge margin for development in the success achieved by coverless image steganography in the past several years.

2.1 PROBLEM STATEMENT

It is difficult to transfer confidential information that can be seen by third parties and fraudsters nowadays. There is no security in sharing messages and information through other applications that allow you to send images in a way that others may not understand. In this paper, we create a new framework for an image steganography system that can hide and reveal a secret message's digital form.

3. PROPOSED SYSTEM

Using this system, we can share sensitive data, like company confidential details or user details. Furthermore, information encoded in images is invisible to others. In this, the given message or information is converted into binary and hidden in the alpha channels of an image given by the user with the help of HTML canvas tools. It is not possible for third parties to access it and make changes to it.

- It cannot be changed or edited by others who don’t know about it.
- We can share it on any platform, which looks like an image to others.
- It can be a way to share sensitive data using the Internet.
- It is easy to share or store the confidential message this way.

3.1 SYSTEM ARCHITECTURE

It is represented in the Fig 1 below the step-by-step works done by the system in both the process hide and reveal process.

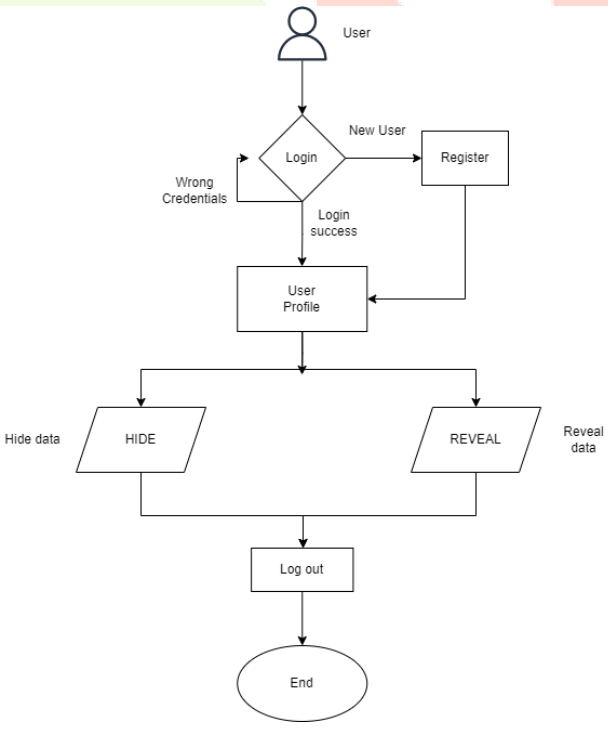

Fig 1. System Architecture

3.2 ALGORITHMS USED

For Hiding:

- Here we are creating the text canvas for the message and the image canvas for image.
- Both of the canvases will have the same size in terms of width and height.
- Now the image pixels present in the canvas are compared with the data present in the text canvas.
- This comparison is made using the constant value.
- The pixels of the image canvas will change using this constant value according to the text canvas data.
- It changes the pixels in the image canvas, which contains the data from the text canvas.
- And it generates the final stego-image containing the secret message.

For Reveal:

- Now a plain canvas is created with the same dimensions as the image given as input.
- The pixels of the image are now checked for the black color data changes present inside the image.
- We are checking this with the help of the constant used in the hiding process.
- If it is found, then it shows the data present at those pixels.
- And data is displayed in the image dimensions canvas.

3.3 IMPLEMENTATION PROCEDURE:

1. At first, we have to login to the website using login credentials.
2. If a new user, can register.
3. An index page is appeared were we can direct to our hide and reveal pages.
4. Then we will see the detailed description of how the website is working and all.
5. In the navigation bar we have the hide and reveal links and we can access them from these options.

To hide data into image:

1. Select Hide option in the navigation bar of profile.
2. Now enter the data or message you want to store inside the image.
3. There is an option “choose the file”, which is bottom of the text area, where you have entered your secret message.
4. Click on the option and browse the image file which is helps to carry your message to destination.
5. Upload the image into the website.
6. An alert message appears will say, what to do next, just click ok on it.
7. Now a new image came to view after uploading the image same as it.
8. It is the image which is carrying your data inside of it.
9. Download that image by right clicking the mouse and save it.

To reveal data from image:

1. Select Reveal option in the navigation bar of profile.
2. Now select the “choose file option “ option.
3. Browse the file which has the secret data inside it.
4. Upload the image to website.
5. Now the data present inside the image will be appeared bottom.

4. RESULTS:

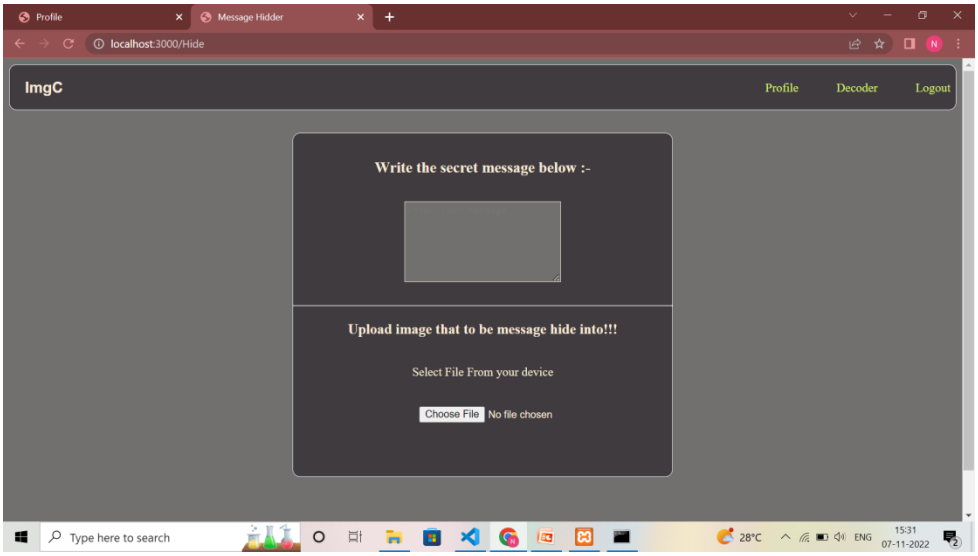

Fig 2. Index page of the Image covert website

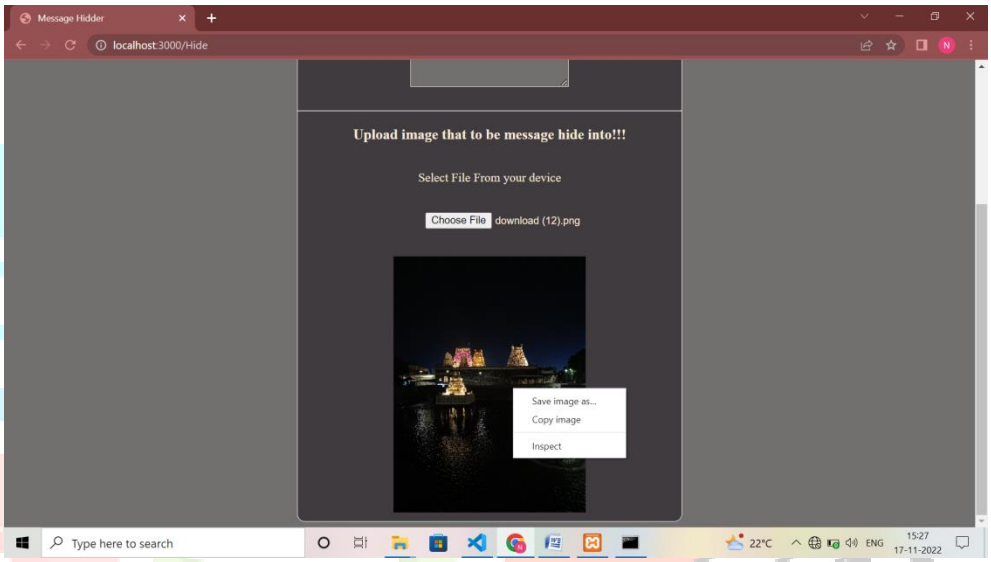

Fig 3.Message is hided inside of the image.

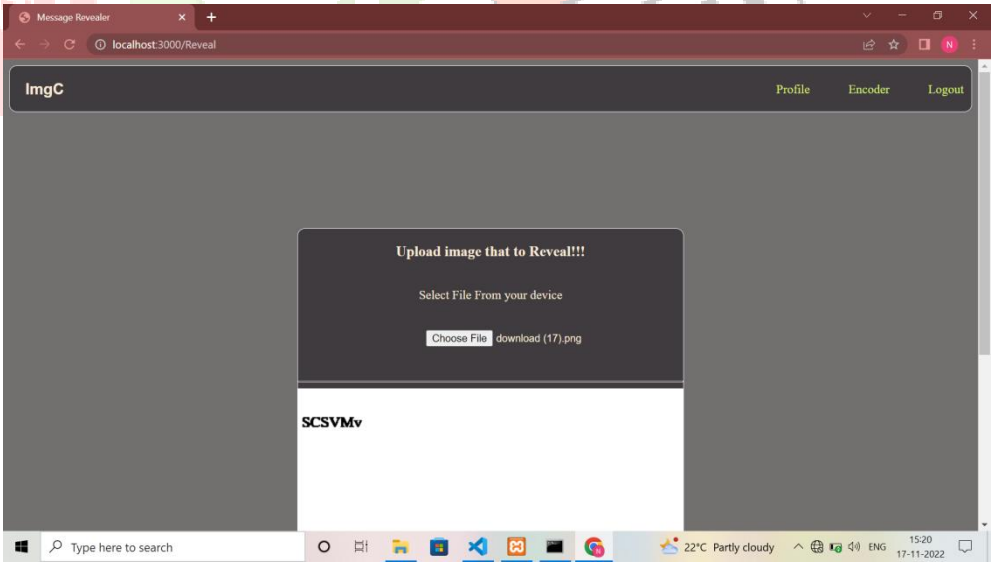

Fig 4. Message is revealed from the image

5. CONCLUSION

The proposed approach in this paper uses a steganographic approach called image steganography. This website creates a cryptographic image in which the personal data or secret information is stored inside the cover image.

To process the data and image, we used the HTML5 canvas element, and by reversing the process, we revealed the data. We have used JavaScript at most in hiding and revealing data, which is faster and more reliable. In this paper, we implemented a new steganographic method using JavaScript Canvas Tools. This website implementation will make it easy for users to access or to hide the data and share it with receivers through online platforms.

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