

# Color Images encryption by using Bit Plane Crypt Algorithm

Muskan Tripathi  
*B.Tech. Student*  
*Galgotias University*  
 Greater Noida, India  
 muskant641@gmail.com

Dr. S.P.S Chauhan  
*Professor*  
*Galgotias University*  
 Greater Noida, India  
 sps.chauhan@galgotiasuniversity.edu.in

Kanishk Tomar  
*B.Tech. Student*  
*Galgotias University*  
 Greater Noida, India  
 Kanishktomar1111@gmail.com

Dr. Usha Chauhan  
*Professor*  
*Galgotias University*  
 Greater Noida, India  
 usha.chauhan@galgotiasuniversity.edu.in

**Abstract -** Image Encryption method is used to provide security and privacy in various applications, by using the process of a model to change initial format of an image (plaintext), into other formats like cipher text, unreadable format or in encrypted form. In this paper, the method of lossless encryption for color images using binary key images has been put forwarded and in this process, key image size and original image size are same. It is either an edge map or a bit plane generated from another image.

**Keywords –** lossless encryption, plaintext, cipher-text, key-images, binary key-images.

## I. INTRODUCTION

In recent years, more electronic functions and devices are available, like mobile phones, tablets etc which have many functions like saving and exchanging multimedia data. Image encryption is a method to provide safety for exchanging and saving multimedia data by transforming the original format of image into unreadable formats. Security of information is very important in the process of data transmission and storage of data. Images are used in many different procedures that's, why the security of encryption process plays a very important role for information hiding, data privacy, and data safety and also in image processing. By using this method, we protect the original and secret information by converting it into incomprehensible form.

## II. SUGGESTED ALGORITHM

Encryption process of an image, i.e. three-dimensional picture and color images hold the several two-dimensional units and each unit can be observed like a two-dimensional. Color images are initial and actual. We used the method Bit plane Crypt algorithm for the process of encryption of an image in binary-key image. The principal aim of this process is to enhance the performance of encryption of an image, decryption of an image method and the security system of an image.

### A. Bit Plane Crypt for Colour Image Model

Bit plane Crypt model (figure 1.) is used to design ENCRYPTION method of an image and to solve the issue of size of the image detachment in the course of encryption which disturbs security system of the image. The key space size is an important role for obtaining high security level of an image encryption algorithm. This method uses a binary bit plane as the key-image. The bit plane is taken out from different fresh or old image which is differ from the initial image to be encrypted input.

- **Step 1:** Choose an actual image with the same dimension of initial image. Get the key-image by release out the  $r^{\text{th}}$  bit size of the image.
- **Step 2:** Break down each unit of the 3D image or the original image as its binary bit planes.
- **Step 3:** Use XOR functions in the middle of each bit size and the key image.
- **Step 4:** Upturn all bit planes series. Change bit planes of image from binary to decimal.
- **Step 5:** For obtaining the 2D image or components, merge all bit planes together.

Then, mix up the following image or units by using a selected scrambling process to create the following encrypted image.

Output -> encrypted image - 2D or 3D.

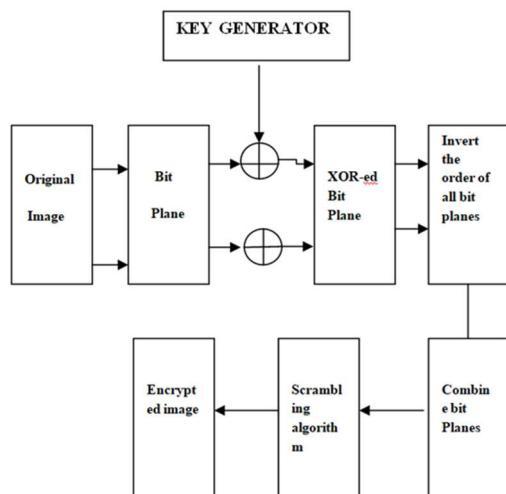


Figure 1

In the process of decryption, the accurate safety keys should be offered to approve end-user to create the key-image. The end-user descrambling the image encryption by using attune scrambling model, which cause the encrypted image as bit planes. Put in an XOR operation in the middle of each bit plane and the key image, the order of bit planes is returned to the initial order. The initial image can be repaired blending all bit planes.

### III. RECENT WORK

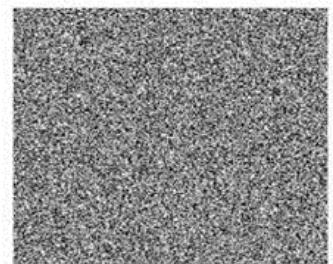
Large amount of image encryption technique and many methods has been developed so far. Recent works on this project are encryption model of image based on many methods like DNA coding, quantum chaotic map, DNA computation based on image encryption model for Cloud CCTV Systems, A safe image encryption system drew on dynamic harmony search (DHS) collected with chaotic map, a systematic plaintext – linked chaotic image encryption system drew on compacting sensing, a better image encryption model for satellite implementation, and Image encryption by chaos mixing.

### IV. EXPERIMENTAL RESULTS

The exploratory results of color image as displayed below. Planned algorithm has auspiciously executed for lossless constrict.



(a) Original Image



(b) Encrypted Image



(c) Decrypted Image

## V. CONCLUSION

Security system is important to cache and carry digital images such as medical images, image recognition, video processing, etc. Therefore, image encryption is very essential to give security against many attacks like hacking, statistical attacks, brute force attack, plaintext attacks etc, while swapping images uniting two platforms on the network. Each and every technique is special in its own method and this builds it worthy for many applications. This paper lay out a course of action to understand the different methods which are used in image encryption method.

## VI. FUTURE SCOPE

We are thrilled for time-ahead probabilities that our project has to offer. We are working on videos encryption by taking out each figure and image encryption at the same time. Videos also have accent. So, we are planning for encryption of videos accent too. So, no one can listen the original message of the video. We are also working on an app for encryption process. This is our time ahead planning for our project we are expecting to execute it successfully.

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