

SECURED IMAGE TRANSFORMATION USING DISORGANIZED CHART PATTERN TECHNIQUE

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ABSTRACT

An Enhanced disorganized chart pattern based algorithm for image encryption to improve the security of the algorithm.. The basic idea behind the proposed algorithm is to alter the coupling direction used to update the map variables. The altered coupling direction results into a totally different set of initial conditions and map variables of three disorganized chart pattern Based on experiments will show that the enhanced algorithm with chosen coupling direction can encrypts the color digital images. The image which given as input is retrieved as same as the original image while decrypting. Here many distortions take place when the image is converted pixel by pixel, this helps in high secrecy of the encrypted image.

Index Terms —Image processing, Information hiding, Encryption, Multimedia information, Image hiding, Decryption.

I. INTRODUCTION

The wide use of digital images across the world in internet, wireless networks, military image database, medical imaging system and various other applications, require reliable, fast and robust security system to store and transmit digital images. In order to fulfill the security requirements of digital images, many image encryption approaches have been used. One of the recently and widely used approaches is the chaos based cryptography. A lot of work is going on in developing the chaos based cryptosystems. In cryptography, the strength lies in choosing the keys, which are secret parameters, used in encryption. It should not be possible to guess the key by an intruder. The chaotic systems are very sensitive to initial conditions and system parameters. For given set of parameters in chaotic regime, two close initial conditions lead the system into divergent trajectories. Therefore, an encryption/decryption scheme can be developed if the secret parameters are chosen as keys [1]. Since the same parameters are used for encryption and decryption, the chaos scheme is symmetric. The parameters and the initial conditions form a key space thereby enhancing the security of the scheme. In recent years, the chaos based cryptographic algorithms have suggested some new and efficient ways to develop secure image encryption techniques to meet the demand for real-time image transmission over the communication channels. Chaos based image encryption methods are considered good for practical use because they have important characteristics like (i) they are very sensitive to initial conditions/system parameters, (ii) they have pseudo-random property and non-periodicity as the chaotic signals are usually noise-like, etc.

II. EXISTING SYSTEM

In the past decade, number of image encryption algorithms based on chaotic maps have been proposed. Some of them are based on a single map (0D system) or on one-dimensional chaotic maps and are appropriate for encryption of plaintext files or blocks of bits. However, they do not allow the direct encryption of images. For image encryption, two-dimensional (2D) or higher dimensional chaotic maps are employed as the image can be considered as a 2D array of pixels. Recently,

Pisarchik *et al.*, [6] have proposed a new practical algorithm based on a chaotic map lattice (CML) that allows direct encryption and decryption of color digital images. The CML was introduced by Kaneko *et al.*, [7] as simple model to investigate the behavior of spatiotemporal chaos in many fields of nonlinear science. In recent times, this kind of system has been utilized for secure communication in number of encryption algorithms. One way coupled CML is extensively used for self-synchronizing, chaos based cryptosystems. Wang *et al.*, [8] have shown that the communication with CML is more secure than the communication with single map.

A. Disadvantage of existing system:

The image must be sent secured for can be taken by the intruders. In existing level hacker, can easily hack the data's in data transaction. Hacker can easily know about the password. The information is not sent to the receiver securely by the sender due to the intruders.

III. PROPOSED SYSTEM

Here in the present an enhanced chaotic map lattice based algorithm for image encryption to improve the security of the algorithm. The basic idea behind the proposed algorithm is to alter the coupling direction used to update the map variables. The altered coupling direction results into a totally different set of initial conditions and map variables of three disorganized chart pattern Based on experiments will show that the enhanced algorithm with chosen coupling direction can encrypts the color digital images. The images encrypted by proposed algorithm are more indistinguishable and have more distortion. It is also shown that the proposed algorithm is more sensitive to a small change in plain images, number of iterations and number of cycles. The pixel color is the combination of three components: red, green, and blue, each of which can take an integer value between 0 and 255. So, three parallel disorganized chart pattern s can be created by converting each of the three-color components to the corresponding values of map variable, for each pixel and these values are used as initial conditions. Each chaotic map in the Disorganized chart pattern, is iterated, this gives a very different value and the image becomes indistinguishable because of an exponential divergence of Chaotic trajectories.

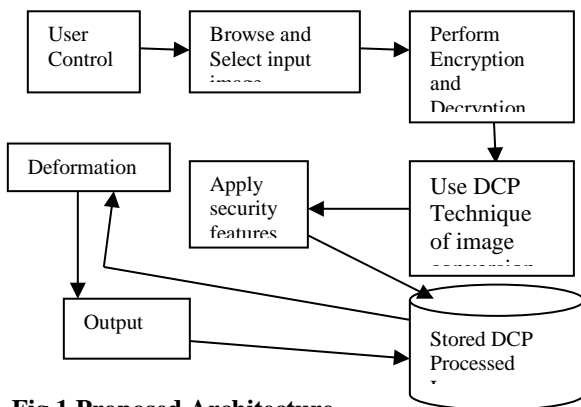


Fig 1 Proposed Architecture

A. Advantages of proposed system:

Using our proposed system, we secure the data from hackers. We can avoid the unsafe of data transactions.

IV LITERATURE SURVEY

Belkhouche et al., [2] discuss in his paper algorithm for binary image transformation using chaotic maps. Because of its random-like behavior, chaos is a good candidate for encryption. We show that a two-dimensional discrete time dynamical system with one positive Lyapunov exponent allows the transformation of the image in an unpredictable manner. The suggested algorithm acts on the pixel position, where the diffusion property resulting from the sensitivity to the initial states is used to accomplish the transformation in a random-like way. The suggested algorithm uses three types of keys: Initial state, external parameters and the number of iterations. Using the so-called Henon map as an example, we show that the algorithm produces almost uncorrelated images even when the keys are slightly changed, making it an attractive and fast method for image encryption. Chen et al., [5] proposed in his paper encryption of images is different from that of texts due to some intrinsic features of images such as bulk data capacity and high redundancy, which are generally difficult to handle by traditional methods. Due to the exceptionally desirable properties of mixing and sensitivity to initial conditions and parameters of chaotic maps, chaos-based encryption has suggested a new and efficient way to deal with the intractable problem of fast and highly secure image encryption. In this paper, the two-dimensional chaotic cat map is generalized to 3D for designing a real-time secure symmetric encryption scheme. This new scheme employs the 3D cat map to shuffle the positions (and, if desired, grey values as well) of image pixels and uses another chaotic map to confuse the relationship between the cipher-image and the plain-image, thereby significantly increasing the resistance to statistical and differential attacks. Thorough experimental tests are carried out with detailed analysis, demonstrating the high security and fast encryption speed of the new scheme. Pisarchik et al., [6] proposed secure algorithm for direct encryption and decryption of digital images with chaotic map lattices. The basic idea is to convert,

pixel by pixel, the image color to chaotic logistic maps one-way coupled by initial conditions. After small numbers of iterations and cycles, the image becomes indistinguishable due to inherent properties of chaotic systems. Since the maps are coupled, the image can be completely recovered by the decryption algorithm if map parameters, number of iterations, number of cycles, and the image size are exactly known.

V. EXPERIMENTAL SETUP

A. User interface

In this module Design the interface for the user to interact with the application. Each and every software application needs fine steps to interact with end users of the application. In this application, the interaction with end users are made under AWT concepts. It is used to provide the user side and admin side authentication.

B. Disorganized chart pattern

This module is used for getting the input as digital images and then it done the encryption. It is used to employing discredited tent map to shuffle the positions of image pixels and then using disorganized chart pattern to confuse the relationship between the plain-image and the cipher-image, image encryption algorithms with permutation-diffusion structure are introduced in detail.

```

if(evt.getSource()==btBrowseHost) {JFileChooser
tFileChooser=new JFileChooser("C:\\");tFile Chooser.
setFileSelectionMode(JFileChooser.FILES_ONLY)
int tResult=tFileChooser.showOpenDialog(this); if
(tResult==JFileChooser.APPROVE_OPTION){HostP
ath=tFileChooser.getSelectedFile(); xtHost Path. Set
Text (HostPath.getPath());tx.setText(""+n"); tx.
updateUI(); ("File Loadeed: ["+HostPath. getName ()
+"]);"} Source code for Encryption process.
    
```

C. Disordered logistic map conversion

In this module, color of the images is converted into disordered logistics maps. Then it checks the colors pixel by pixel and map in to the corresponding values. It provides the security to the images and decrypts the images for converted into the digital image format.

```

if (secretFileName.equals("")){isHideFile = false; if
(msg.equals("")){OptionPane.showMessageDialog(par
ent,"Secret File Name or Message not Entered",
"Error", JOptionPane.ERROR_MESSAGE); return
false;} Convert message to file.XXXX secret File
Name = FileParser.toFile(msg);}
    
```

Source code for file hiding

VI. EXPERIMENTAL OUTCOMES

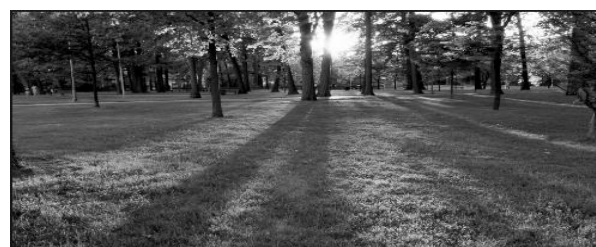


Fig 2. Image selection

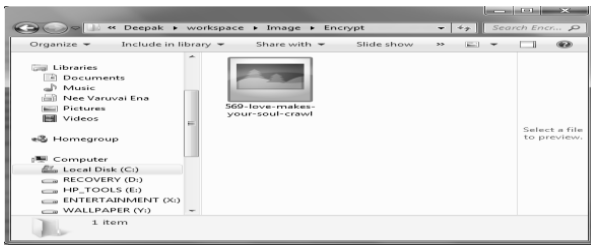


Fig 3. Encrypted image



Fig File to be hidden



Fig select source to hide encrypted image

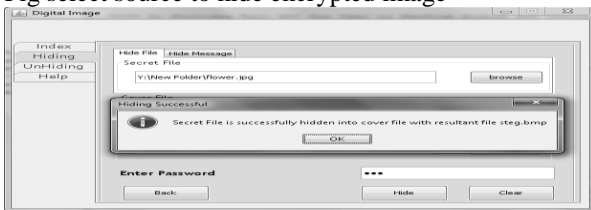


Fig Hidden successfully



Fig file unhidden information

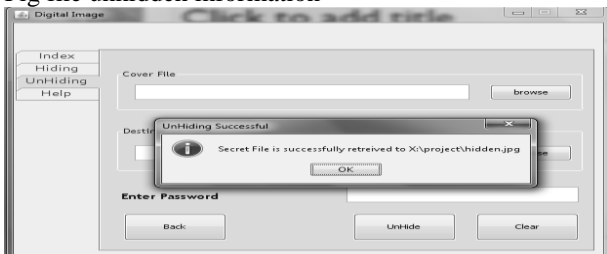


Fig Secret file is retrieved successfully

VII. CONCLUSION AND FUTURE ENHANCEMENT

Thus, we presented an enhanced disorganized chart pattern based algorithm for image encryption to improve the security of the algorithm.

The basic idea behind the proposed algorithm is to alter the coupling direction used to update the map variables. The altered coupling direction results into a totally different set of initial conditions and map variables of three CMLs. Based on experiments, it is seen that the enhanced algorithm with chosen coupling direction can encrypts the color digital images. The images encrypted by proposed algorithm are more indistinguishable and have more distortion. It is also shown that the proposed algorithm is more sensitive to a small change in plain images, number of iterations and number of cycles. Hence, we conclude that the proposed algorithm provides more security and secrecy to the color digital images as compared to the security provided by the existing technique.

A. Future enhancement

In future level, we want to use the images encrypted by proposed algorithm are more indistinguishable and have more distortion. It is also shown that the proposed algorithm is more sensitive to a small change in plain images, number of iterations and number of cycles.

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