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A Survey on Secure Server Verification Using Visual Cryptography on Normal Images

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***Abstract:** This paper gives a survey of different method used by the researcher to avoid phishing attacks which is one of the online attacks that have been increased due to an online transaction. Phishing is an endeavor by an individual or a group to attain personal confidential information such as passwords, credit card information etc from unsuspecting victims for identity theft, financial gain and other fraudulent activities.*
Here we propose an abstract view of the system which we are developing named as "Secure Server Verification by Using Visual Cryptography and normal image" to solve the problem of phishing using Visual Cryptography (VC).

I. INTRODUCTION

Phishing is one of the major attacks [6][7] among all online attacks in which confidential and sensitive information can gain by the attacker. Phishing is a form of online identity theft that aims to steal sensitive information such as User ID, passwords, URN and OTP by sending e-mails [6][9] which come into view to from trusted source like Banks, TAX authorities etc. These emails generate a sense of urgency for updating account related data. Phishing scams have been receiving widespread press exposure because such attacks have been getting higher in number and sophistication. Phishers attempt to deceptively acquire sensitive information, for instance, passwords and credit card details, by masquerading as a trustworthy person or business in electronic communication.
In recent days online transaction [9] becomes very common which gives rise to more number of online attacks. Phishing attacks are becoming a trouble for online transactions and e-commerce users. So here introduces a new method which can be used as a secure way against phishing which is named as" Secure Server Verification by Using Encryption Algorithm and Visual Cryptography by Using Normal Images" Here an image-based authentication using Visual Cryptography (VC) [1][2] [3][4][6][7][9] is used. Visual Cryptography is a top-secret sharing method which owns the technique of sharing the visual information. The image is getting divided into two shares. The basic idea is that the secret image is divided into two irregular patterns of images called shares and they can be unraveled without any complicated cryptographic computation.

II. LITERATURE SURVEY

This section consists of the work that has been already done on this system by various researchers using different methodologies and algorithms.
Sozan Abdulla et al.[1] define a New Visual Cryptography Algorithm i.e. the encryption technique for a color image to hide information in images which divide the secret image into multiple layers.
InKoo Kang et al. [2] generate high quality of meaningful color shares as well as the colorful decrypted share using VIP synchronization and error diffusion methods. The VIPs are pixels that take pixel values of original images to create significant shares. When these VIPs are not assigned throughout the halftone stage, the consequential shares are identical as that of standard VC schemes except the colorful decrypted messages. This method can produce meaningful color shares with high visual quality.
Divya James et al.[3] gives a technique for phishing detection and prevention of an image based on authentication using Visual Cryptography. To defend the privacy of an image captcha by decomposing the original image captcha into two shares that are stored in separate database servers such that the original image captcha can be exposed only when both are available at the same time; the individual sheet images do not reveal the identity of the original image captcha. Formerly the original image captcha is used as the password.
Roberto De Prisco et al.[4] shows two models of visual cryptography i.e. deterministic visual cryptography that deterministic and random grid visual cryptography are strictly related.
Xingxing Jia et al. [5] designed A (k, n)-conventional visual cryptography (VC) method to share one secret and each participant takes one share. Collaborative visual cryptography (CVC) schemes into the multiple secrets VC scheme with a general access structure. The structure of the basis matrices in CVC method in between two VC schemes is formulated into an integer linear

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programming problem that minimizes the pixel expansion under the corresponding security and contrast constraints. In addition, the collaboration among more VC schemes is constructed.

Tanashree Chavan et al.[6] provides an Anti-phishing structure based on visual cryptography and RSA algorithm. An image-based authentication using Visual Cryptography (VC) and the encryption algorithm (RSA) is used to avoid phishing.

This method of image authentication gives 100% result for image size less than 2.5MB. Consequently, security of image can be attained by visual cryptography and RSA algorithm.

Doshi Ruchali et al.[9] provides a system which will build a trust relationship between merchant and customer. For that, a cryptographic technique dependent on visual secret sharing is used for image encryption. In addition to this cryptographic technique, the advantages of steganography are combined to avoid cheating in visual cryptography. Using these techniques the proposed system will provide security to the customer's data using less information.

III. PROPOSED WORK

A. Proposed System

In the area of the internet, different online attacks have been increased gradually and among them, the most popular attack is phishing Which is done by hackers or unauthorized users.

In the proposed system there is a new method for "Secure Server Verification by Using Visual Cryptography Using Normal Image" to solve the problem of phishing where image-based authentication using visual cryptography. Secret sharing scheme is done by visual cryptography as it is a technique for sharing the visual information. The image is divided into two shares. The secret image is divided into two irregular patterns of images called shares and they can be done without any complicated cryptographic computation.

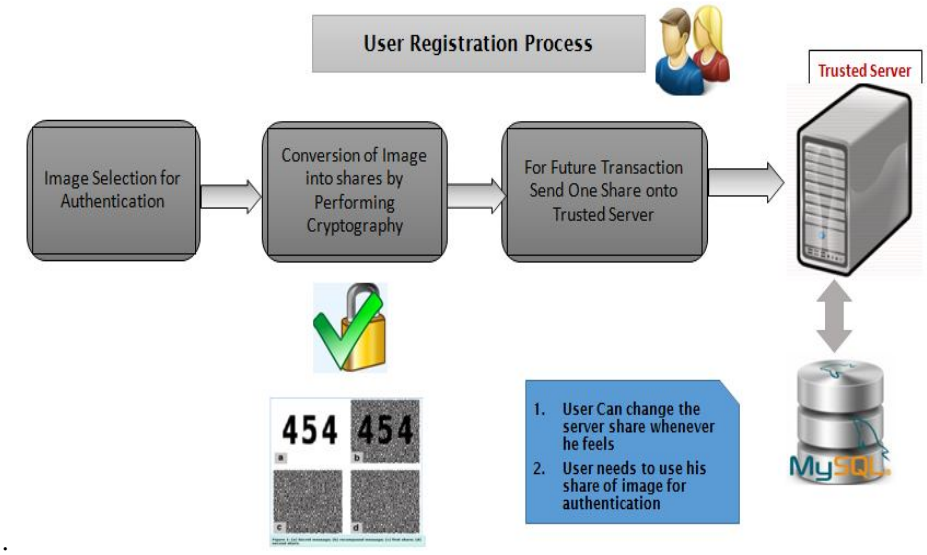


Fig: 1 User Registration Process

The proposed methodology is implemented using J2EE (Servlets as a Server side technology). Figure shows the result of creation and stacking of shares.

1) *Registration Module for Banking:* In the registration phase the most important part is the creation of shares from the image where one share is kept with the user and other share can be kept with the server.

2) *Verification of Shares or Login using Visual Cryptography:* User will upload his/her share and puts his user id and clicks on login button. The share gets uploaded to server and merged with share2 at the server using visual cryptography

If server under test sends some different share then the stacking of shares will create unrecognizable form of image.

a) Visual Cryptography based phishing Website

b) Creation of multiple image shares

c) Forming Original Image on client side

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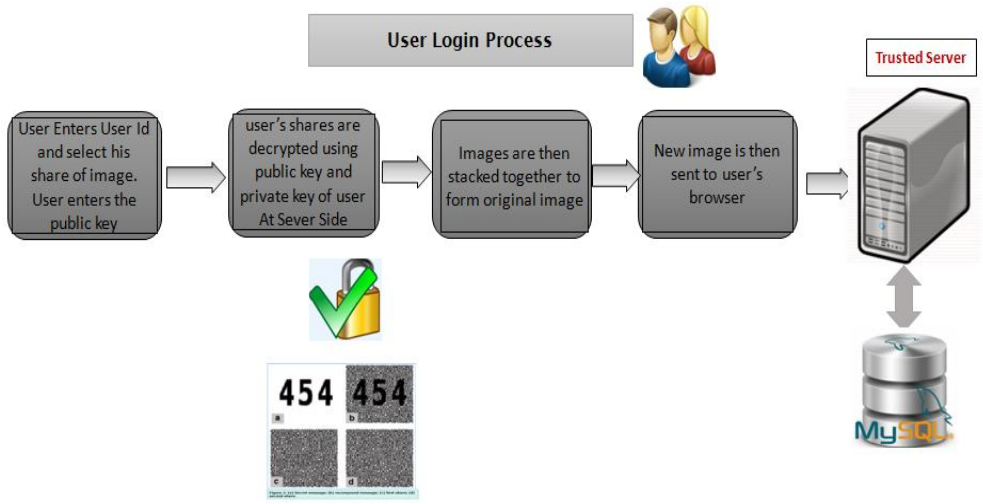


Fig: 2 User Login Process

3) *Registration Module for Banking:* In the registration stage, the most significant part is the creation of shares from the image where one share is kept with the user and another share can be kept with the server.

4) *Verification of Shares or Login using Visual Cryptography:* The user will upload his/her share and puts his user id and clicks on the login button. The share gets uploaded to the server and merged with share2 at the server using visual cryptography.

If the server under test sends some unusual share then the loading of shares will create an unrecognizable form of an image.

a) Visual Cryptography based phishing Website

b) Creation of multiple image shares

c) Forming Original Image on the client side

Advantages of Proposed System

i) To prevent user account details from phishing attack.

ii) To perform authentication of both users of joint account to avoid anonymous use of account by single user.

IV. CONCLUSION

Based on the literature survey and papers studies, visual cryptography provides security against anti-phishing websites. It can also be used as an authorization method for the banking sector. Visual Cryptography use in banking increases usability and security as compared other methods available in the market.

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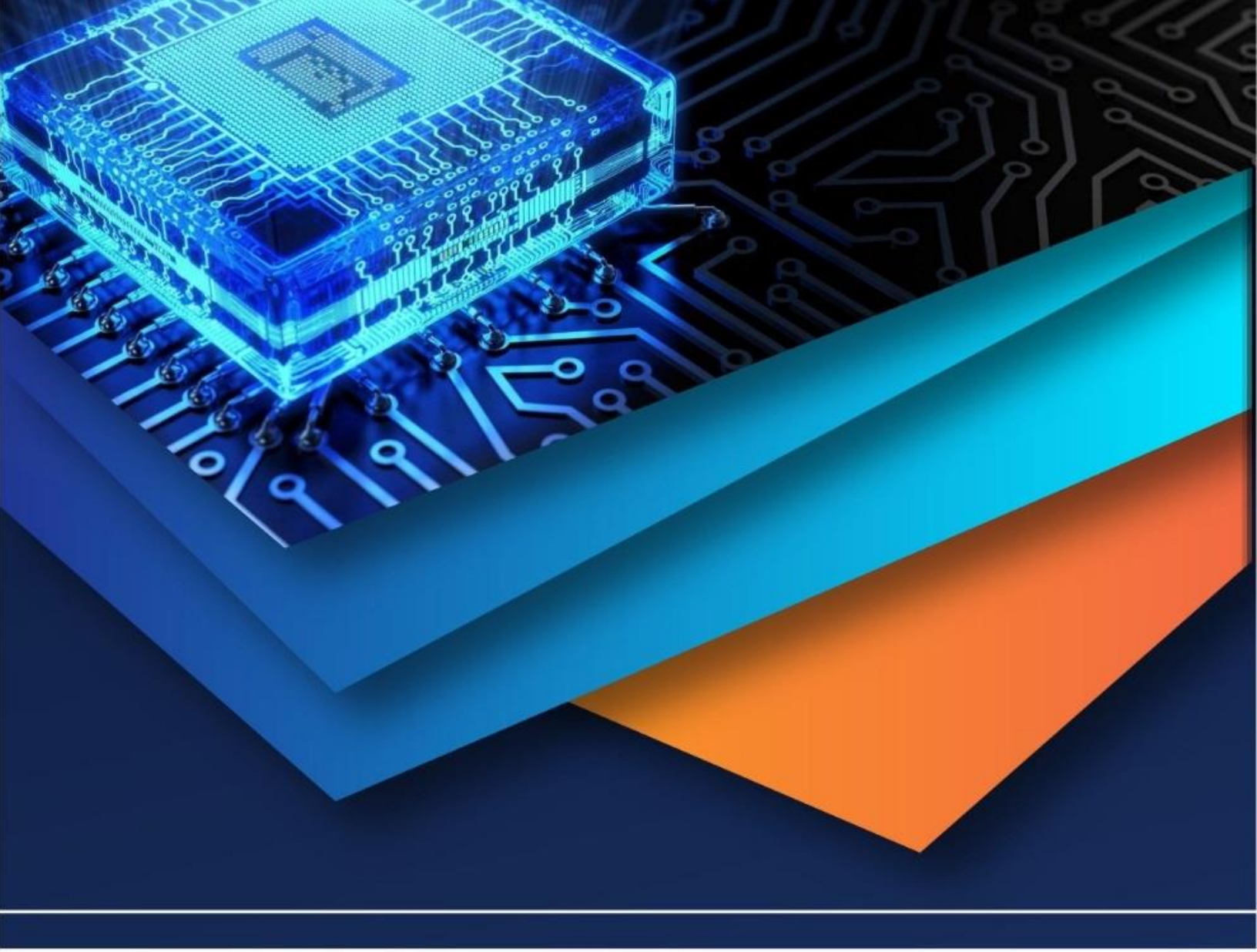
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