Electronic Document Verification using Visual Cryptography

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Abstract - It is a technique that is used to hide the confidential information in images; this is made in such a way that it can be decrypted with the help of human visual system. Here decryption happens without any complex cryptographic calculations, Human Visual System is used to decrypt the encrypted data. Cryptographic computation is required for encryption technique to divide into number of shares. In Visual Cryptographic technique k-n secret share is a special technique where at least a group of k shares out of n shares reveals the confidential information, less of it will reveal no information.

I. INTRODUCTION

It is a technique that is used to hide the confidential information in images; this is made in such a way that it can be decrypted with the help of human visual system. Here decryption happens without any complex cryptographic calculations, Human Visual System is used to decrypt the Encrypted data. Cryptographic computation is required for encryption technique to divide into number of shares.

This System will replace the traditional stamps by generating the e-stamps. Once the stamp duty receipt is generated, the stamp certificate is issued; the stamp can be issued through online or offline. With the help of authentication technique, the e-stamp web application is developed, so that it will help in finding out whether the stamp paper is original or duplicate. With the help of key, the e-stamping system will first encrypt the image and then the encrypted image is divided into number of shares. Here, e-stamp system divided the images into two shares. Where, share one is printed on Electronic stamp paper, share two is stored in the database. Share two is kept on the share one and it is compared with original image to check whether the stamp is original or not.

Fig 1:- Stamp Duties

II. EXISTING SYSTEM

Government losses huge amount of money in stamp paper scam. Stamp paper scam was a big blow in Indian history. There are several steps carried out by government to stop these kinds of scams. In this system, we use Visual Cryptography concept to identify whether the stamp paper is issued by the government or it is duplicated one. In Extended Visual Cryptography Scheme (EVCS), the part of the information about the original share images may appear in the recovered secret image. It's hard to eradicate and this become a challenging problem. Halftoning visual cryptographic method produces a binary image which is composed of black and white pixels. And the image obtained is of low quality.

➢ *Disadvantages of Existing System*
- The existing system is applied for black and white images.
- The obtained image is of low quality.
- The size of the shares increases.
- It requires more computations.

➢ *Need for proposed system*
In order to solve the problems in existing system, there is a need for better standards. To reduce the drawback we should enhance the present system.

III. PROPOSED SYSTEM

This System will replace the traditional stamps by generating the e-stamps. Once the stamp duty receipt is generated, the stamp certificate is issued; the stamp can be issued through online or offline. With the help of authentication technique, the e-stamp web application is developed, so that it will help in finding out whether the stamp paper is original or duplicate. In our paper we have proposed a new algorithm for color image i.e. k-n secret sharing, where division of the image is done with the help of "Random Number Generator". The Image will be divided into shares with the help of key. If the intruder at any case gets the k share, he/she will not be able to decrypt it until the key is known to them. To generate key, combination of character and number can be used. If the higher bits of the image are changed, it will make the image blur, to overcome this a key can be implemented on the higher bits of each pixel. With the help of right shift or left shift of bits of each pixel in the original image encryption can be done.

➢ *Advantages of proposed system*
- Visual cryptography technique is used to make the data secure
- Technique used is k-n secret sharing on color images. And the image recovered is of high quality.
- We use random number generator at the time of dividing an image into n number of shares.
- When compared to existing techniques of visual cryptography on color images this technique needs very less mathematical calculation.
- Each share reflects very little or even no information regarding the original image to human eye hence the intruder has less chance to get the whole information.

IV. OVERVIEW OF THE PROJECT

In this project the e-stamps for different price ranges is generated by the admin and while creating he needs to select the authentication image for each stamp paper. The image which is authenticated will have code word. The authenticated image will be then divided into shares, in this project the image will be divided into two shares, first share will be printed on the stamp paper and that paper will be sold to end user. Member user is allowed to get the second share of the relevant e-stamp paper by providing stamp paper serial number. To verify the stamp, member user has to take the printout of second stamp paper in the transparent sheet and wants to place in printed e-stamp paper on the share one. When second share is placed on first share, authenticated image code word must appear, if the stamp is original or else it will not appear.

➢ *Admin User*
- Login
- Member User Module (Add, Edit, Delete, View)
- Verification Officer Module (Add, Edit, Delete, View) • Secret Image Module (Add, Edit, Delete, View)
- E-Stamp Paper Creation
- Certificate No (Auto Generate – 15 Digits)
- Pick the Secret Image
- Using Visual Cryptography split the Image
- Assign one share for the e-stamp and one share is stored in server
- Change Password

➢ *Member user*
- Login
- Issuing the e-Stamp
- Pick the Generated e-Stamp
- Fill the Details
- Print the e-Stamp (in PDF file)
- Change Password

➢ *Verification Officer*
- Login
- Verification Method
- Enter the e-Stamp Certificate No
- Pick the Secret Image and Secret Image Share 2 from Server
- Show the Secret Image on Screen

- Provide provision to download Share 2 Image
- Change Password

➢ *Module description*
This system as three types of user;
- Admin user
- Member user
- Verification officer

For all these users we have separate login sessions each sessions has various modules, we will see one by one.

➢ *Admin session*
Admin is a super user, He can able to create number user. Similarly he can able to create verification officer and do all the operation like (Edit, Delete, and view)
For each stamp paper we need one authentication image, for that the system as provision to upload the images from the client system to the web server.
Admin user has to create the stamp paper according to specification given by the government. While creating the stamp paper admin has to specify the value of the stamp paper, and the stamp paper certificate number will be generated automatically by the system, and the certificate number is unique. Admin has to provide on authentication image for each stamp paper.
Once the authentication image is specified the image is divided into two shares using color image visual cryptography. And the details are stored in the E- Stamp Paper table, Admin has to change his password using option change password.

➢ *Member Session*
Member users are the users those who are sitting in bank and selling the stamp paper to the end users. Member user has the option to print the E- Stamp Paper and give to the end users or customers. Member user has to select the stamp paper which is in stock status. And he has to select the stamp paper which is in stock status. And he has to fill the customer details and stamp paper purpose details in relevant field, then only he can able to print the stamp paper. This system uses the PDF files interface to print stamp paper. That means the stamp paper is generated into the PDF file and it will open automatically into the PDF file, and it will open automatically so that member user can able to print it easily.

While stamp paper is printing in PDF file one share of the authentication image of particular stamp paper will be retrieved from the database and printed along with the stamp paper. Once stamp paper sold then the status of stamp paper is changed from stock to sell. That means member user is not able to sell the same stamp paper again.

➢ *Verification Officer*
Once the customer purchased the stamp paper from the member user and utilized the stamp paper for land purchase or rental deed or any other purpose. After few times it may need by the person who is purchasing the land from the stamp paper, customer to verify whether the stamp paper is original or duplicate, in this situation verification officer roll

is important. A person who wants to know the originality of stamp paper has to approach the verification with the E-Stamp Paper, Verification officer will enter the certificate number on this system and send a request to the web server to retrieve the authentication image of the stamp paper and share 2 of the authentication image. The authentication is displayed on the download share 2. The download share2 must be printed on the transparent sheet. And the transparent sheet overlapped on the stamp paper. If the authentication image on the screen and visual cryptography retrieval image from the E –Stamp Paper are same then the stamp paper is original, if the visual cryptography image differ then it is not original.
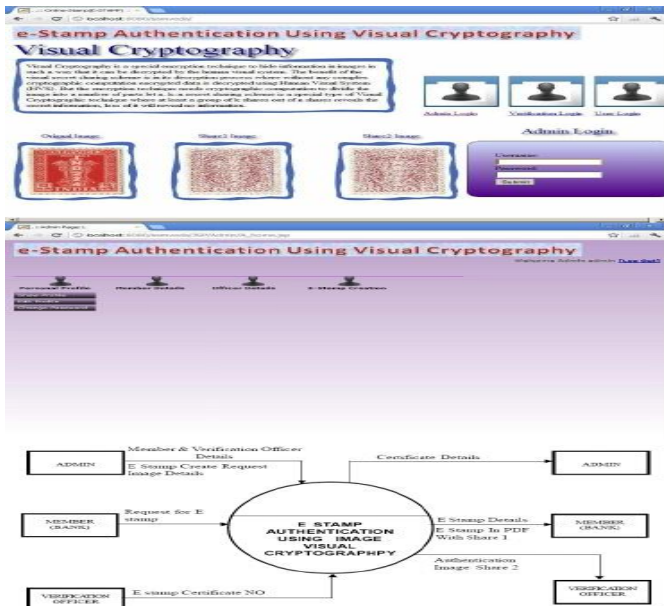

Fig 2:- E-stamp system member creation and Login

Fig 3:- E-stamp creation

V. CONCLUSION

In our proposed system, we have used a random matrix algorithm to divide an image into 'n' number of shares. This technique needs very less mathematical calculation compare with other existing techniques of visual cryptography on color images. Implementation of this random numbers is secure and unbreakable. The 2 secret shares are overlapped on each other to check whether the image is original or duplicate. The recovered image is of same size as original image and is of high quality. E-stamps are created by authorized user only. A unique certification number is generated for each e-stamp and given to end-user. Once stamp paper is sold then the member user is not able to sell the same stamp paper again. A new image is selected for each stamp paper. Hence this technique provides authentication.

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