RESEARCH ARTICLE OPEN ACCESS

Methodology of Password Generator scheme Using Image Fusion

[1]Miss.Snehal A. Mahajan, [2]Prof.Anjali S. Mahajan
[1]G.H.Raisoni Academy College of Engineering & Technology, Nagpur
[2]HOD, CSE Department, Priydarshani Institute of Technology,Nagpur

ABSTRACT-
This paper represents algorithm has good robustness against content preserving distortion. It with stands JPEG compression, filtering , noise addition as well as moderate geometrical distortions. Additionally, we achieve improved performance in terms of discrimination, sensitivity to malicious tampering and receiver operating characteristics. We also analyze the security of the proposed algorithm using differential entropy and confusion/diffusion capabilities. Simulation shows that the proposed algorithm well satisfies these metrics. A randomization mechanism is designed to achieve good discrimination and security.
Keywords -Visual Cryptography, Permutation, PSNR, MSE

I. INTRODUCTION

The effectiveness of a password of a given strength is strongly determined by the design and implementation of the authentication system software, particularly how frequently password guesses can be tested by an attacker and how securely information on user passwords is stored and transmitted. Password strength is a measure of the effectiveness of a password in resisting guessing and brute-force attacks. In its usual form, it estimates how many trials an attacker who does not have direct access to the password would need, on average, to guess it correctly. The strength of a password is a function of length, complexity, and unpredictability. Using strong passwords lowers overall risk of a security breach, but strong passwords do not replace the need for other effective security controls. Risks are also posed by several means of breaching computer security which are unrelated to password strength. In the absence of other vulnerabilities, such systems can be effectively secure with relatively simple passwords. However the system must store information about the user passwords in some form and if that information is stolen, say by breaching system security, the user passwords can be at risk.

II. METHEDOLOGY:

2.1 **Image Fusion***:*

Significance of image fusion algorithm is only to avoid the dependency of generated password on single image. Image fusion modifies input image pixels & at the result end, we find two images are mixed up. Let us consider the following example of two image fusion (RGB Format.

Fig 1: Image Fusion

2.2. Image Encryption:

Once the images are fused, we will apply two shares Visual Cryptography that Encrypt the image & converts it into unreadable format, result of visual cryptography becomes as follow:

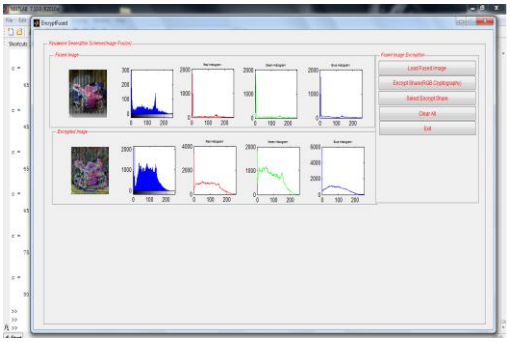

Fig 2: Image Encryption

2.3 Key Generation:

In key generation, select Key file. We suggest the multiple key selection to create more patterns of selection and Segment key file into multiple segments. Select Segments randomly or manually to create key file.

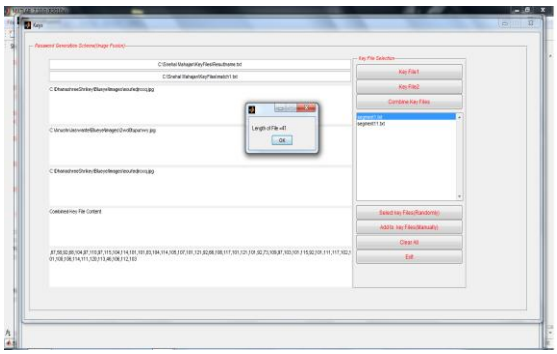

Fig 3: Key Generation

2.4 Hash Generation:

Select Pixels of Fused Image as per Combined Segmented Image. Finally we assemble all these selected pixels into a single dimensional array which we will divide into 04 sections that is Digits, Characters, Special Symbols, & Special Character.then, Convert Pixels value to Decimal Values.after this,Convert decimal Values to ASCII character Values.then Remove redundancy.

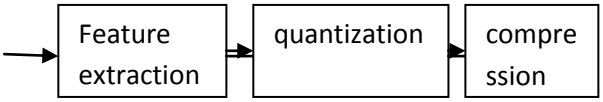

Fig 4: Hash Generation

2.5 Hash Strength Check:

Once the password is generated we pass this password from strong password definition filter if it pass through it than we will use it for the Authentications else we forward it to proposed password generator algorithm again.

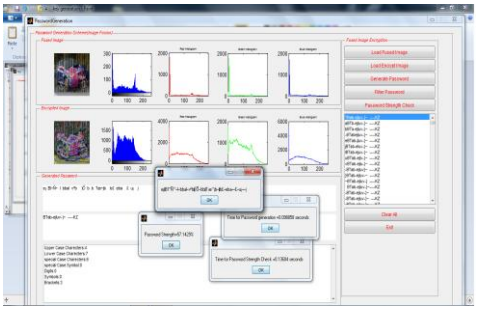

Fig 5: Hash Generation And Hash strength check

III. RESULT:

Table No.1: Image fusion Result

Sr No	Key File length	Segment	Segment Length	Segments Selected	Selected Key length	Password Strength
1	100	4	25	1	25	No
				2	50	No
				3	75	Yes
				4	100	Yes
2	200	4	50	1	50	No
				2	100	Yes
				2	150	Yes
				4	200	Yes

Table No.2: Password strength Result

Sr. No.	No of Images (Unique size)	Fused Image Size	Entropy	Mean Intensity	PSNR	MSE
1	4	50 X 50	45.223	0.3785	10.23	5423
2	5	50 X50	45.223	0.4532	12.33	5644
3	6	50 X 50	45.223	0.4723	32.54	5674
4	7	50 X 50	45.223	0.3786	20.25	5632

IV. CONCLUSION:

In addition to robustness, another important performance aspect of image hashing is security (i.e., the hash values should not be easily forged or estimated without the knowledge of the secret key. In this work, we propose a robust and secure image hash algorithm. The algorithm extracts image features in the Radon transform domain. randomization mechanism is incorporated to make the hash output dependent on a secret key. It is resilient to filtering, JPEG compression, and noise addition. It is also robust to moderate geometrical distortions including rotation and cropping. The proposed algorithm achieves significant improvement to the well- known RASH algorithm.It has better discrimination and higher sensitivity to malicious tampering than RASH, which leads to a better operating characteristic. The key-dependent feature also makes it suitable for a wider range of applications. The security of the algorithm is evaluated in terms of differential entropy and confusion/diffusion capabilities. Good security is confirmed by both metrics.In the future,

we plan to improve the proposed algorithm by detecting several geometric distortions (e.g. scaling and cropping) before computing the hash distance.This will further enhance robustness. More security metrics will be taken into account.

REFERENCES:

[1]. Ashwin swaminathan, Yinian Mao and Min Wu, "Rebust and secure image hashing", International journal on IEEE transaction on information forensics and security, VOL. 1, NO. 2, JUNE 2006.

[2]. Roopashree.S, Sachin Saini, Rohan Ranjan Singh, "Enhancement and Pre-Processing Images Using Filtering", International Journal of Engineering and Advanced Technology (IJEAT) ISSN: 2249 – 8958, Volume-1, Issue-5, June 2012.

[3]. Sarita Poonia, Mamtesh Nokhwal, Ajay Shankar, "A Secure Image Based Steganography and Cryptography with Watermarking", International Journal of Emerging Science and Engineering (IJESE) ISSN: 2319–6378, Volume-1, Issue-8, June 2013.

[4]. V Jyothi , B Rajesh Kumar , P Krishna Rao and D V Rama Koti Reddy, " IMAGE FUSION USING EVOLUTIONARY ALGORITHM (GA)", ISSN:2229-6093 , Int. J. Comp. Tech. Appl., Vol 2 (2), 322-326.

[5]. Kusum Rani1, Reecha Sharma, "Study of Different Image fusion Algorithm ", International Journal of Emerging Technology and Advanced Engineering , ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume 3, Issue 5, May 2013.

[6]. Chetan K. Solanki ,Narendra M. Patel, "Pixel based and Wavelet based Image fusion Methods with their Comparative Study" National Conference on Recent Trends in Engineering & Technology. 13-14 May 2011.

[7]. Dr. M. Sumathi , R. Barani "Qualitative Evaluation of Pixel Level Image Fusion Algorithms" IEEE transaction on Pattern Recognition, Informatics and Medical Engineering, March 21-23,2012.