International Journal of Research in Advent Technology (IJRAT) Special Issue
E-ISSN: 2321-9637
National Conference "MOMENTUM-17", 14th & 15th February 2017
Available online at www.ijrat.org

Pass-Matrix an authentication system securing from Shoulder-Surfing Attacks.

Ms. Tejashri Maruti Dumbre
Department Computer Engineering
Email:tejashridumbre89@gmail.com

Abstract- Mostly users give the security to the accounts files,applications using the method of password authentication. In Authentication Chain, giving the insecure or improper passwords had made the this method weak,which is actually not.Instead of choosing the smart passwords they set those improper passwords which can be easily memorized.So to overcome this method an application is developed which can be used anywhere anytime in all mobile devices like,mobile phones,tablets,etc.But again the problem arised that the passwords given by these application can be easily exposed if the user uses his/her password openly,by recording a video while user is inserting the password or it's pattern can be remembered easily i.e.this increases the probability of exposure of user's passwords to shoulder surfing.So, to prevent the shoulder surfing attacks on user's password the new system called PassMatrix, which are based on the graphical passwords which will resist the attacks of shoulder surfing.This cannot be captured even if camera is used to hack it.This technique can be used in android too.According the experiments which were conducted till now,it proves that this technique can acheive better security to password from shoulder surfing attacks.

Index Terms: Pass-Matrix, Smugde Attacks,

1.INTRODUCTION

Passwords are given in many styles. .Among them textual password is most common & widely used Method or style.But it proved risky in terms of confidentiality.Mostly users set the one password to multiple accounts on social website or devices.So hackers can easily hack such passwords and there are more threats for all the account a single user has.User choose the short and easy password which can be memorized easily,rather than the proper passwords like random alpha numeric strings.Therefore,textual passwords proved insecure. So, to overcome this problem,the graphical password authentication system came into exiatence,which reduced the threats created by textual passwords.It also have the advantages I.e it is easy to memorize.So graphical password system is more secure and also comfortable for user.Graphical password are image-based passwords.But still it have an drawbacks because even they can be easily get to remember,they can be easily get exposed to others i.e they were easily attacked by shoulder surfing attacks.These type of passwords can be easily observed just by movement of user's shoulder orby using cameras it can be captured in video.Giving the poor passwords in case of login is the weakest point of authentication system named Pass Matrix is presented in this paper.It will protect users from being the victim to the shoulder surfing attacks,by using passwords of one-time login.

3 PROBLEM STATEMENT, ATTACK MODEL AND ASSUMPTIONS

3.1 Problem Statement

Nowadays people had increased the use of mobile devices. So they may access their accounts of social websites, snaps uploading .etc. If user is logging in his/her accounts in public then the hackers may hack the passwords through the cameras or by observing the shoulder movement of the user. If the unauthorized user gets the password then there is the threat to the user's asset from shoulder surfing attacks. Due to this shoulder surfing attacks had increased at greater Some of the problems are:

1) There is the problem of how the login operation can be performed in the pub;ic with the security.
2) Next problem is how the space of password can be increased instead of the traditional type of passwords.
3) Next problem is how to memorize the extra stuff while authentication time.
4)The next problem is that only some devices have the restriction of limited usability of login.

3.2 Attack Model

3.2.1 Based on other papers published previously,actions made by the users while logging in

the accounts can be typing method on keyboard,clicking on the images,etc.can prove hazardous to the users. Attackers can use certain categories to hack the passwords:
1) Naked eyes.
2) Video captures while inserting passwords

These type of attacks require lots of efforts and technologies.
Some of the authentication
Schemes including
Textual Password & PIN, which can be penetrated by attack of shoulder surfing
The schemes give access passwords to attackers as soon as users login their accounts on social websites or by choosing the particular images on the screen as password. Other schemes
can be used to hack the passords by the footages captured in CCTV camera or the videos captured by normal cameras.

3.2.2 Attacks- Smudge attacks.
If the device is touch screen like touch screen displays of mobile,TV,tabs,etc. These attacks are common and also threatful.

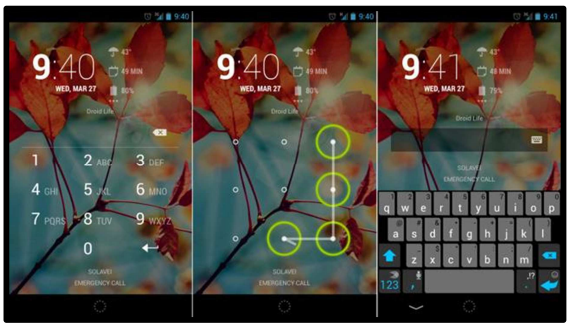

Fig. Smudge Attack

3.3 Assumptions
We not only consider the body movements for reveal of passwords by attackers we also assume
1)SSL protects the client server communication which will prevent the packets or
data won't be eavesdropped by attackers
2) Authentication of client-server should be trustable.
3The display screens or the keyboard on the screen must be smaller so that it can't be attacked by the shoulder surfing attacks.
4) Users shoulde access their accounts privately so that it cannot be exposed to such users which may prove hazardous to him/her.

4. PASSMATRIX

To avoid the shoulder surfing attacks and also the smudge attacks,etc on the mobile computing devices, We propse the system of new system of Authentication named PassMatrix. Passmatrix will consist the sequence of images in the square matrix.. The user will choose the desired pass-squares to secure his/her system of device,in passmatrix system. sequence of number of imageswill be decided according to the user's demand.i.e for example 7squares scheme.

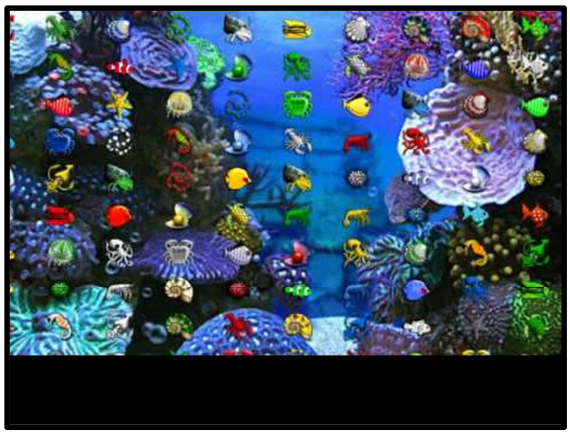

Fig. Passmatrix Authentication System

5. CONCLUSION

Nowadays the use of mobile computing decies or the digital devices and also use of web is increased.And it also increased the risk of passwords hacking So different and also the strong authentication system must be developed to protect the social web-site accounts as well as mobile devices like cell phones,laptops,tablets,etc or any touch screen devices.In this paper we have propoed the system of authentication called Pass-Matrix which is quit strong authentication system as compared to existing authentication systems.

Although the pass-matrix authentication system is considered as safe for the devices to protect them from Shoulder surfing attacks, they had the drawbacks like they are not resistant to the brute force attacks. They can be detected in the brute force attacks. and can be misused to steal the personal or confidential information of an user.Pass-matrix can also be hacked or intruded by random or simply guesses.As compared
DAS , Pass-Points and Marcos's finger-drawn
doodles Pass-matrix is considered strong to secure the devices from the shoulder –surfing attacks.

6. REFERENCES

1] HUNG-MIN SUN, SHIUAN-TUNG CHEN, JYH-HAW YEH AND CHIA-YUN CHENG -A SHOULDER SURFING RESISTANT GRAPHICAL AUTHENTICATION SYSTEM

2] S. GURAV, L. GAWADE, P. RANE, AND N. KHOCHARE, GRAPHICAL PASSWORD AUTHENTICATION:
THE CLOUD SECURING SCHEME, IN ELECTRONIC SYSTEMS, SIGNAL PROCESSING AND COMPUTING TECHNOLOGIES (ICESC), 2014 INTERNATIONAL CONFERENCE ON, JAN 2014, PP. 479483.

3] R. DHAMIJA & A. PERRIG, DÉJÀ VU- A USER STUDY USING IMAGES FOR AUTHENTICATION, IN PROCEEDINGS OF THE 9TH CONFERENCE ON USENIX SECURITY SYMPOSIUM-. USENIX ASSOCIATION, 2000, PP. 44. REALUSER, HTTP://WWW.REALUSER.COM/.

(A.1)