A Shoulder Surfing Resistant Graphical Authentication System

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Abstract- *When users input their passwords in a public place, they will be in peril of attackers stealing their secret. associate attacker can capture a secret by direct observation or by recording the individuals authentication session. this can be often noted as shoulder-surfing and should be a known risk, of special concern once authenticating in public places. until recently, the only defence against shoulder-surfing was the alertness on the a section of the user.*

Shoulder surfing resistant secret authentication mechanism assure shoulder-surfing resistant authentication to user. It permits user to authenticate by coming into pass-word in graphical approach at insecure places as a results of user never need to click directly on secret icons. Usability testing of this mechanism showed that novice users were ready to enter their graphical secret accurately and to recollect it over time. However, the protection against shoulder-surfing comes at the value of longer time to hold out the authentication

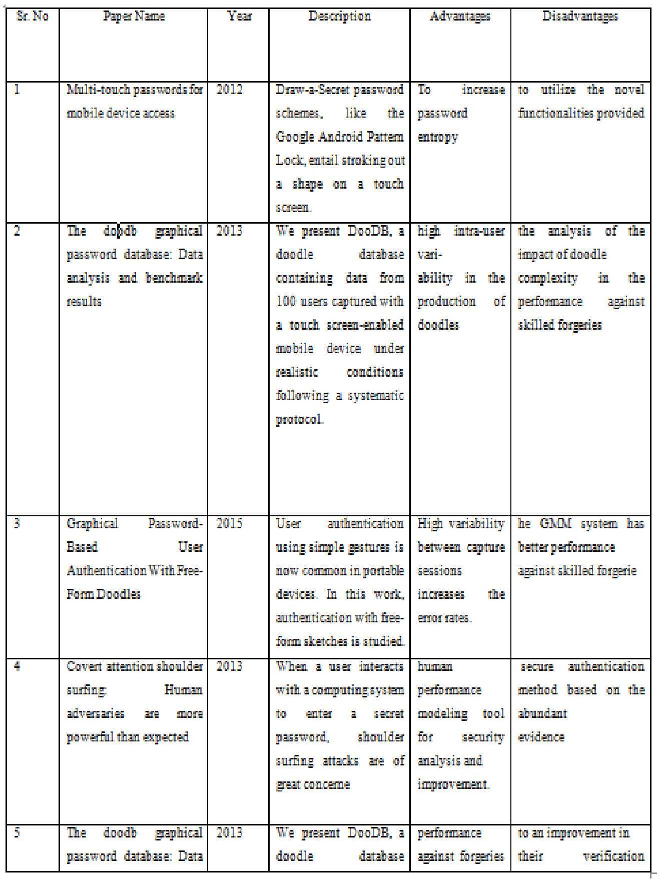
Keywords- Security, Experimentation, Human Factors

I. INTRODUCTION

The shoulder aquatics attack in an attack that will be performed by the antagonist to get the user's secret by observing over the user's shoulder as he enters his secret. As typical secret schemes area unit liable toshoulder aquatics, Sobrado and Birget planned three shoulder surfing resistant graphical secret schemes. However, most of this graphical watchword schemes ar liable to shoulder-surfing a known risk where anattacker can capture a watchword by direct observation or by recording the authentication session.Due to the visual interface, shoulder-surfing becomes Associate in Nursing exacerbated downside in graphical passwords. A graphical secret is less difficult than a text-based word for many people to recollect. Suppose Associate in Nursing 8- character word is very important to understand entry into a specific network. Durable passwords will be created that ar proof against idea, wordbook attack. Key-loggers, shoulder-surfing and social engineering. Graphical passwords ar used in authentication for mobile phones, ATM machines, E-transactions.

Although the graphical password method is beneficial, but shoulder-surfing attack is the main concerns in this authentication mechanism. Shoulder-surfing attack is referred to capturing the password by direct watching or recording the user's authentication session while selecting or producing the images as the password. In this project, a recognition-based graphical password technique based on the false image which is resistance to shoulder-surfing attack is suggested. In this way, the false image within the authentication step can confuse a hacker who tries to capture the password using shoulder-surfing attack.

II. LITERATURE SURVEY



Sr. No	Paper Name	Year	Description	Advantages	Disadvantages
1	Multi-touch passwords for mobile device access	2012	Draw-a-Secret password schemes, like the Google Android Pattern Lock, entail stroking out a shape on a touch screen.	To increase password entropy	to utilize the novel functionalities provided
2	The doodb graphical password database: Data analysis and benchmark results	2013	We present DooDB, a doodle database containing data from 100 users captured with a touch screen-enabled mobile device under realistic conditions following a systematic protocol.	high intra-user vari- ability in the production of doodles	the analysis of the impact of doodle complexity in the performance against skilled forgeries
3	Graphical Password-Based User Authentication With Free-Form Doodles	2015	User authentication using simple gestures is now common in portable devices. In this work, authentication with free-form sketches is studied.	High variability between capture sessions increases the error rates.	he GMM system has better performance against skilled forgerie
4	Covert attention shoulder surfing: Human adversaries are more powerful than expected	2013	When a user interacts with a computing system to enter a secret password, shoulder surfing attacks are of great concerne	human performance modeling tool for security analysis and improvement.	secure authentication method based on the abundant evidence
5	The doodb graphical password database: Data	2013	We present DooDB, a doodle database	performance against forgeries	to an improvement in their verification

	analysis and benchmark results		containing data from 100 users captured with a touch screen-enabled mobile device under realistic conditions following a systematic protocol.	is analyzed using state-of-the-art algorithms	performance which would become closer to pseudo-signatures

III. EXISTING SYSTEM

Using traditional textual passwords or PIN method, users need to type their passwords to authenticate themselves and thus these passwords can be revealed easily if someone peek over shoulder or uses video recording devices such as cell phones shoulder surfing attacks have posed a great threat to users' privacy and confidentiality as mobile devices are becoming indispensable in modern life. In the early days, the graphical capability of handheld devices was weak; the color and pixel it could show was limited. With the increasing amount of mobile devices and web services, users can access their personal accounts to send confidential business emails, upload photos to albums in the cloud or remit money from their e-bank account any time and anywhere. While logging into these services in public, they may expose their passwords to unknown parties unconsciously.

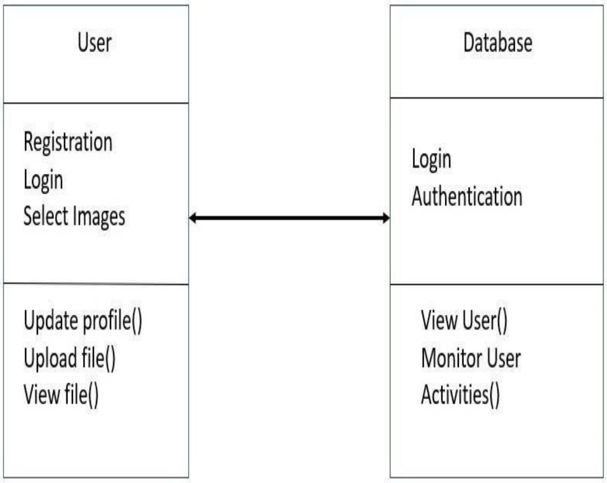


Fig 1: Class diagram of the process

IV. PROPOSED SYSTEM

To overcome this disadvantage, we projected a shoulder aquatics resistant authentication system supported graphical passwords, named Pass Matrix. using a one-time login indicator per image, users can entails the location of their pass-square whereas not directly clicking or touching it ,which is an action vulnerable to shoulder aquatics attacks .Because of the planning of the horizontal and vertical bars that cowl the complete pass-image, it offers no clue for attackers to thin the parole area although they need over one login records of that account .In Pass Matrix, a word consists of only one pass-square per pass-image for a sequence of images. the number of images (i.e., n) is user-defined. In Pass Matrix, users take one sq. per image for a sequence of n images rather than n squares in one image as that within the Pass Points theme Pass Matrix's authentication consists of a registration section and an authentication section as described below. At this stage, the user creates associate account that contains a user name and a word. The password consists of alone one pass-square per image for a sequence of n images. the quantity of images (i.e., n) is decided by the user once considering the trade-off between security and price of the system .At this stage, the user uses his/her username, password and login indicators to log into Pass Matrix.

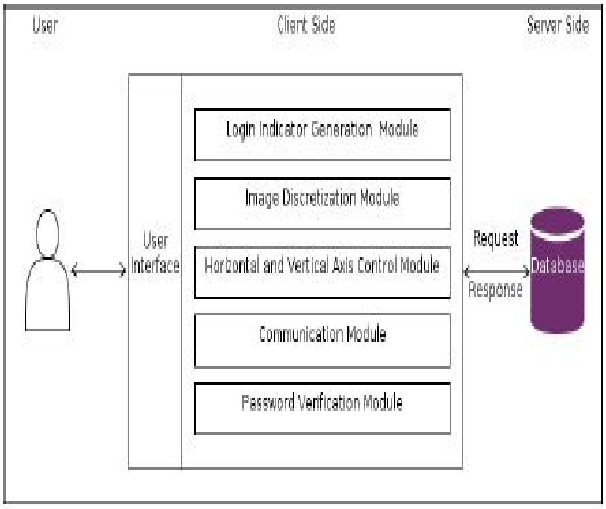

User
Client Side
Server Side
Login Indicator Generation Module
Image Discretization Module
User Interface
Horizontal and Vertical Axis Control Module
Communication Module
Password Verification Module
Request
Response
Database

Fig2. Proposed System Architecture

V. ALGORITHM

1. At time of registration user fill the details as well as select images.
2. That images apply to pass matrix.
3. The pass matrix defined to rows and column i.e number and character.
4. At the time login user choose that images when user select images at the time of registration.
5. All pass values are shuffled and randomly generate the sequence by using login indicator.
6. Creating user access control then notify user about access control .
7. Select pass value for login and adding secrete bit.

Procedure follow by project:-

1) **Introduction phase:** We explained the basic idea and purpose of PassMatrix with a presentation and showed participants how to use the system with some simple animations.

2) **Registration phase**: Participants created an account consisting of a username and a password in Pass Matrix. In the introduction phase, participants were educated by our tutorial so that

a) They knew that they should register their account in a private place. Hence it is safe to choose pass-squares by simply clicking on them during the registration phase.

b) They knew that they should choose the pass quares that do not contain light objects but are meaningful to them.

c) They knew that they should re-choose the chosen square in each pass-image for confirmation.

d) They knew that they should set three or more pass-images.

3**) Practice phase**: Participants were told to log into their account in a practice mode. They repeated this step until they thought they knew how to control the horizontal and vertical bars. The PassMatrix system gives the authentication feedback to users only after the whole password input process is completed, not in between each pass-image.

4) **Login phase:** After practicing, participants were requested to log into their account formally in a login mode.

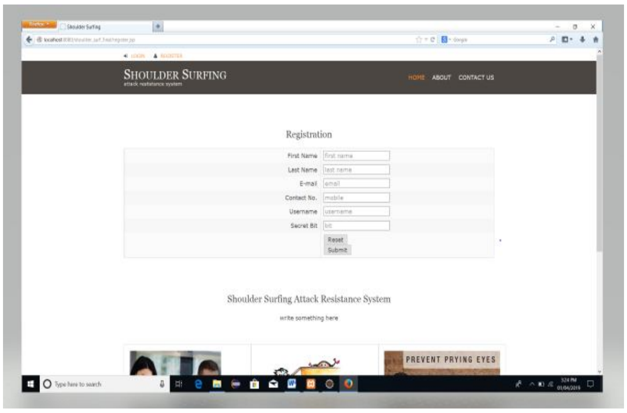
5) Participants were also asked to answer a short demographic questionnaire about some simple personal data and their personal experience on mobile phones or authentication systems.

6) Each participant was then given an answer sheet, containing the information of a third person's two previous login records. Participants were asked to figure out the third person's pass-squares from these two given login records. An incentive gift was provided if they are able to successfully crack the password in ten tries (i.e., ten guesses on the answer sheet). Two weeks were given to crack the password.

VI. MODULES

1. Registration

Since registration is the first step, each user needs to input his full name, email address and username. In addition, he requires to select minimum 3 and maximum 9 image categories from giving options. After the information is submitted to the database, selecting graphical password process will start. In this case, a user can select one image from each category per page, depends on the length of his Password (minimum 3 and maximum 9 image) but this selection must be done by typing the alphanumeric character, which is attached to each image. In addition, the alphanumeric characters which belong to each image and the position of images in each category are selected to be randomized.



Registration

First Name first name
Last Name last name
E-mail email
Contact No. mobile
Username username
Secret Bit bit

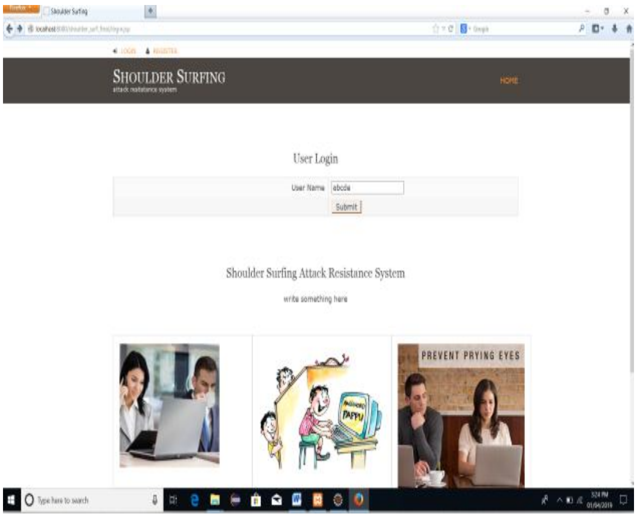
Shoulder Surfing Attack Resistance System

write something here

2. Login

In this system, when user enter the email id and password and at time of registration some the images are selected same images are selected.

Every time, selected images are shuffled. And password will be changed. And in this password we have to use XOR opration.means each time password will change. Hacker will not hack correct password.



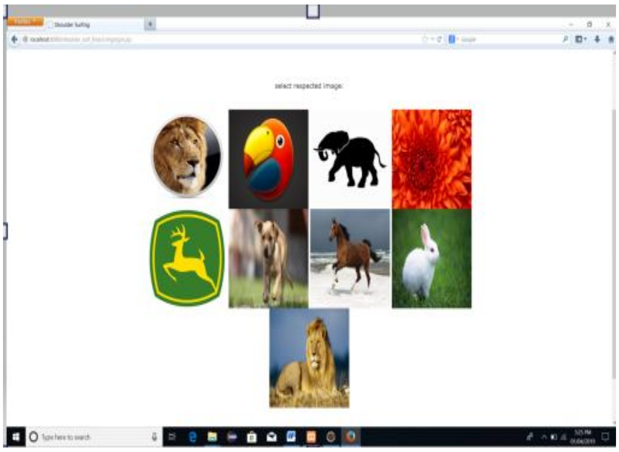
User Login

User Name abcde

Shoulder Surfing Attack Resistance System

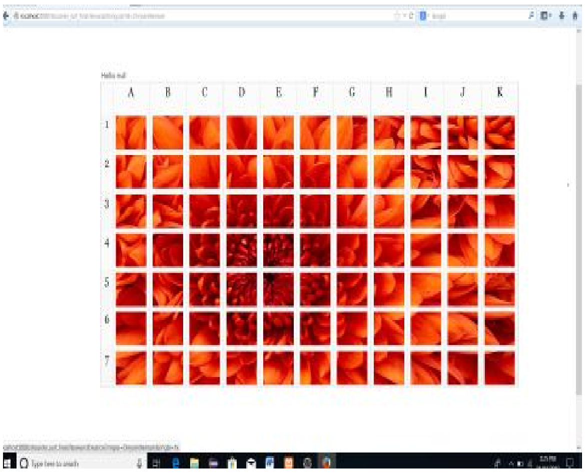
write something here

Select 3 images on registrastion on system but one image can used on system.

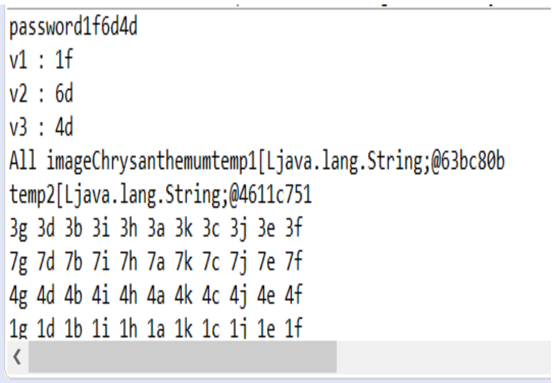


Output

Select image randomly on three image at 7 * 11 matrix

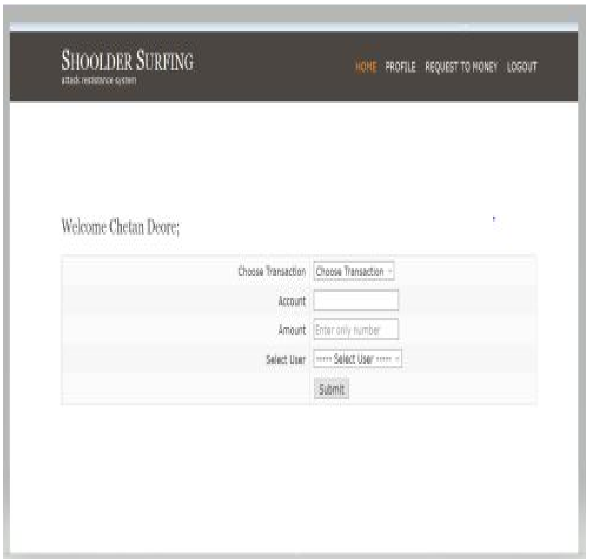


On the password can send the email on the 3 matrix



```
password1f6d4d
v1 : 1f
v2 : 6d
v3 : 4d
All imageChrysanthemumtemp1[Ljava.lang.String;@63bc80b
temp2[Ljava.lang.String;@4611c751
3g 3d 3b 3i 3h 3a 3k 3c 3j 3e 3f
7g 7d 7b 7i 7h 7a 7k 7c 7j 7e 7f
4g 4d 4b 4i 4h 4a 4k 4c 4j 4e 4f
1g 1d 1b 1i 1h 1a 1k 1c 1j 1e 1f
```

Login on main data set



Welcome Chetan Deore;

Choose Transaction: Choose Transaction

Account:

Amount: Enter only number

Select User: ----- Select User -----

Submit

VII. CONCLUSION

Proposed a shoulder surfing resistant authentication system supported graphical passwords, named Pass Matrix. using a one-time login indicator per image, users can point out the location of their pass-square while not directly clicking or touching it, that is an action at risk of shoulder surfing attacks. because of the planning of the horizontal and vertical bars that cowl the complete pass-image, it offers no clue for attackers to slenderize the password space although they need over one login records of that account. moreover, we have a tendency to implemented a Pass Matrix image on android and distributed user experiments to judge the memorability and worth. The experimental result showed that users can log into the system with a mean of 1:64 tries (Median=1), and also the Total Accuracy of all login trials is 93:33% even time period once registration. the full time consumed to log into Pass Matrix with an average of 3:2 pass-images is between 31:31 and 37:11 seconds and is taken into account acceptable by 83:33% of participants in our user study. supported the experimental results and survey information, Pass Matrix may be a novel and easy-to-use graphical parole authentication system, which can effectively alleviate shoulder-surfing attacks. to boot, Pass Matrix is applied to any authentication state of affairs and device with simple input and output capabilities. The survey information in the user study to boot showed that Pass Matrix is sensible within the real world

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