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Image Doodle Password

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Abstract - *A password, is a memorized secret, used for the authentication of a user. Longer passwords provide more security than shorter passwords, which must consist of strings, numbers, special symbols, difficult to recall. So graphical password were introduced that the users can remember more easily than the text password that works by having the user select from image, which was introduced to overcome the vulnerabilities in Text passwords. There are many types of graphical password but most of them suffers from Shoulder Surfing Attack and also it could be easily guessed. Doodle is a free form of drawing, when used it as a password it will increases the security, and also when use an Image as background it will easier for the user to recall the password.*

***Key Words*: Authentication, Text Password, Graphical Password, Doodle, Shoulder Surfing Attack**

1. INTRODUCTION

Authentication is the process of verifying the user. Different systems may require different method to assure user's identity. User's are identified by their user id or password.

Authentication system is subdivided into three which are token based, biometric based, and knowledge based. Token based authentication may includes all items that are physical objects, such as keys, smart phones, smart cards, USB drives, and token devices. Biometric based includes any part of the human body that can be offered for verification, such as fingerprints, palm scanning, facial recognition, retina scans, iris scans, and voice verification . The third and most commonly used category - Knowledge based is used to prove the identity of someone accessing a particular services which ***includes*** passwords, PINs, combinations, code words, or secret handshakes.

The password includes two classes which are: alphanumeric and graphical. In alphanumeric the password must want to be strong in order to ensure the security, which is difficult to remember. It is proven that it is much easy to remember image than alphanumeric characters. So graphical password is more preferable than text based. These are most commonly used in website, mobile devices etc. But it is difficult to maintain the security and usability at the same time.

The main purpose of this paper is to maintain the security, memorability, and usability at the same time. It offers more security than other password.

1.1 Background of graphical Password

Graphical password was introduced as an alternative of alphanumeric password, which is more secure and also easy to remember. Graphical password uses image instead of characters. It requires user to select the image in particular order or respond to the images presented in particular order. Graphical password is classified into three: recognition based, recall based, and cued-recall based.

Recognition based techniques: Here user were given a set of images and the user passes the authentication by recognizing and identifying the images during the registration stage.

Recall based technique: Recall-based techniques, a user is asked to reproduce something that the user selected earlier during the registration stage.

Cued recall based techniques: Cued recall based given certain clues to the user to create their password, the clues were given as hotspot within the image.

1.2 Related Works

Brostoff and Sasse conducted a study where a user choose four pictures of human faces out of nine from a grid to create a password. In the login step a grid will appear with nine faces, from that user need to select the faces that have been chosen in the registration step. The process will repeat until all faces are recognized which make the system more vulnerable to brute force attack.

Jermyn, Mayer, Monrose, Reiter, and Rubin introduced the draw a secret scheme(DAS). This method allow user to draw a picture in a two two-dimensional grid. The value stored in the way which they draw. In login process the user need to draw .In the login process the user need to draw exactly the same picture which has been already drawn at the registration phase. However the main drawback of this was the user may forget the points which they draw since they have no clues to remember the points. In 2008, Tao and Adams presented a pass-go scheme which is an improvement of DAS in which user create password by drawing dots or connecting intersection points with dots which will improve security from dictionary attacks.

Windows 8 Picture Password proposed by Microsoft helps users protect their touch screens by using a "picture password" scheme. A password can be created by using any

combination of three gestures: circles, straight lines, and taps, it can be applied on desktop, laptop, and tablets[1].

2. Design and procedure

Doodle is a free form of drawing, which means that it has no restriction in drawing. The proposed system mainly aims to achieve the following goals: security, memorability, interoperability, usability. It is proven that doodles are harder to crack. But if we are drawing a doodle without a clues it may become hard to remember. The doodle schema is vulnerable to several attacks such as guessing, spyware, shoulder surfing. So to improve the security and memorability draw the doodle within the image. By putting image as background, it also provides the user a set of clues to improve the memorability. A predetermined image is presented to user on a visual display and user can start drawing from a particular position and will end to a particular position. It will record the points the way in which the user draw. Points are recorded by a series of coordinates.

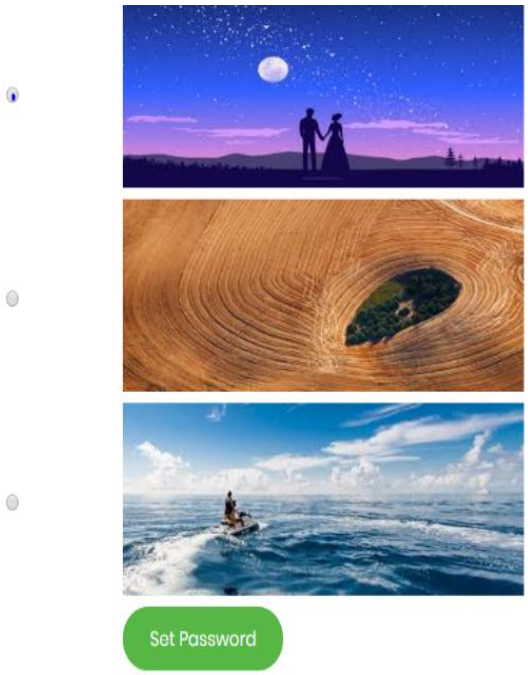

Fig 1: Selection of Image

In the registration time there given a set of images, from that select one image to set doodle password. After registration the user want to inherit the same password, during the login phase. If any change in the form of drawing doodle, login will not be possible. To log in, the user tries to recreate the original doodle.

Fig 2: Image Doodle Password

In Image Doodle Password Click event is an important factor. It starts from a particular position with a click and draw, after the completion release the click. The difference between the points are small enough to accurately represent.

3. IMPLEMENTATION

The proposed system was implemented using .net, CSS, JavaScript, Jquery and Xamp Control Panel v3.2.2. This Image Doodle Password can be implemented in authenticating several systems and websites. The implementation has two focuses:

Password: Contains doodle within the image.

Login: Contains username, images, Doodle password.

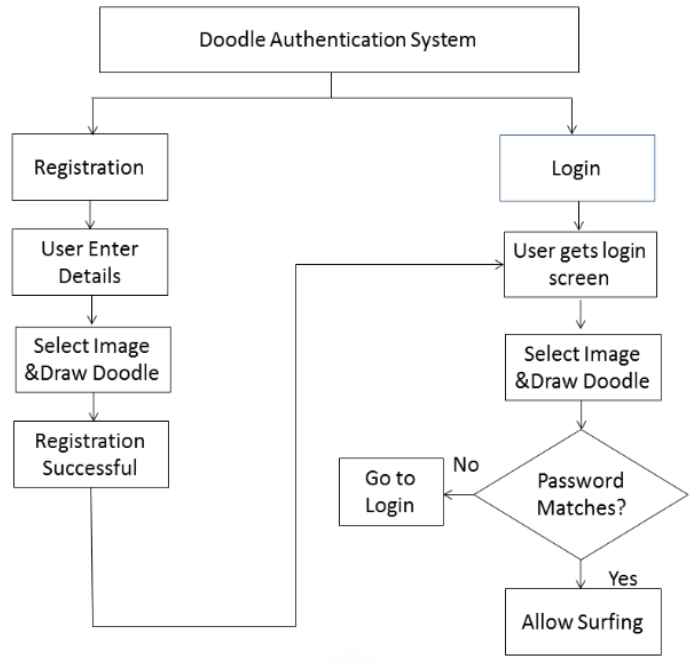

Fig 3 : Flow Graph

4. CONCLUSION

In this paper, presenting Image Doodle Password as an alternative of alphanumeric password, which also shows the drawback of different forms of password. Using doodle with image background will improve the security and memorability but it will take more time than the other passwords .In order to make the password more secure, it provide the facility to make the drawing line transparent .so that the user only know the points and also the user must want to be more vigilant while setting the password.

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