Review of Multimedia Graphical Grid Based Text Password Authentication for Advanced User

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Abstract*- Proposed system is used to solve the problem of text based password system. It deals with graphical password structure. It is used to increase the reliability of password for advanced users by modifying a combination of text and graphical passwords. It will ensure more secure way to users for granting access to an authenticated system. This idea can be very useful in banking system.*

Keywords- Advance user, security, password, access control, authentication, CSR, MySql,JDBC, Tomcat Server, Bootstrap Template, Eclipse, JDK, Servlet.

I. INTRODUCTION

Authentication system plays an important role in every application. It allows an application to authenticate user and provide him access control for the application. A weak authentication system leads to various vulnerable attacks. When it comes to user authentication, the first Scheme comes in minds is text based authentication. In cloud computing to access data one has to authenticate the system. The common authentication method used to access data on cloud is password. The major drawbacks of text based passwords are weak password, forgot password, stealing of password etc. So it requires strong and secure authentication method for the protection of data on cloud.

The strength of authentication system lies in the password. Passwords are simple alpha-numeric strings shared between server and the user. Important factor to note here is that alphanumeric passwords are not stored ―as it is‖ on the server but rather are saved in encrypted form after hashing. Passwords are most simple means of user authentication as no extra hardware (bio metric device) is needed, but have the disadvantage that strong passwords are difficult to remember. User tends to keep shorter passwords which are weak and could be easily broken by dictionary attack and brute force attack.

Graphical passwords systems are the most promising alternative to conventional text based passwords but prone to shoulder surfing. In this scheme, a new authentication system which combines the advantages of both graphical password authentication system and one time session key is proposed. The system uses user defined images as image passwords and system defined pictures are used as dummy images.

Today, authentication is achieved through the use of password technique. To prove and maintain the identity every user uses a password authentication. The traditional method of password is a textual (alphanumeric) password. It is the combination of alphabets, digits and special symbols.

II. LITERATURE SURVEY

R. Dhamija, and A. Perrig in their work "Déjà Vu: A User Study Using Images for Authentication" presented the security of the systems relies on recognition-based, rather than recall-based authentication. They examine the requirements of a recognition-based authentication system and propose Deja Vu, which authenticates a user through her ability to recognize previously seen images. Deja Vu is more reliable and easier to use than traditional recall-based schemes, which require the user to precisely recall passwords or PINs. Furthermore, it has the advantage that it prevents users from choosing weak passwords and makes it difficult to write down or share passwords with others. They develop a prototype of Deja Vu and conduct a user study that compares it to traditional password and PIN authentication. Our user study shows that 90% of all part[1].

The paper "A New Approach For Instigating Security Using single Zoom Mouse Click Graphical Password" presented by MerinSebastiian, Biju Abraham Narayamparambil proposed a graphical password scheme which is more secured than other method. This method also depends not only on image but also number of mouse click on the image. This method reduces the huge image database, as well as images being too simple to cause collisions on points selected for different users[2.]

The paper "Authenticating Mobile Device User through Image Selection" presented by W. Jansen,, describes a general-purpose mechanism for authenticating users through image selection. The underlying rationale is that image recall is an easy and natural way for users to authenticate, removing a serious barrier to users compliance with corporate policy. The approach described distinguishes itself from other attempts in this area in several ways, including style dependent image selection, password reuse, and embedded salting, which collectively overcome a number of problems in employing knowledge-based authentication on mobile devices[3].

In the paper of Xiyang Liu, JinhuaQiu, Licheng Ma, HaichangGao, and Zhongjie Ren "A Novel Cued-recall Graphical Password Scheme" they purposed a novel cued-recall graphical password scheme CBFG (Click Buttons according to Figures in Grids).Inheriting the way of setting password intraditional cued-recall scheme, this scheme is also added the ideology of image identification. CBFGhelps users tend to set their passwords more complex.Simultaneously, it has the capability against shoulder surfing attack and intersection analysis attack. Experiments illustrate that CBFG has better performance in usability, especially in security[4].

In the paper of S.Man, D. Hong, and M.Mathews "A shouldersurfing resistant graphical password scheme" they propose and evaluate a new shoulder-surfing resistant ssscheme which has a desirable usability for PDAs. Their inspiration comes from the drawing input method in DAS and the association mnemonics in Story for sequence retrieval. This scheme requires users to draw a curve across their password images orderly rather than click directly on them. The drawing input trick along with the complementary measures, such as erasing the drawing trace, displaying degraded images, and starting and ending with randomly designated images provide a good resistance to shouldersurfing. A preliminary user study showed that users were able to enter their passwords accurately and to remember them over time[5].

Mohammad Sarosh Umar and Mohammad QasimRafiq presented "A Novel Recognition-based Graphical User Authentication Scheme".In that they propose a novel recognition-based image authentication system called "Select-to-Spawn" which is secure, robust and convenient to use. The scheme can be easily implemented on computers, hand held devices, mobile phones and ATMs[6].

The paper "Proposal for novel 3D password for providing authentication in critical web applications" represented by A.S. Yeole. This paper presents and evaluate on the 3-D password. The 3-D password is a multifactor authentication scheme. Instead of depending on one factor add more security component which will make hackers and crackers job more difficult. In this paper we tried to enhance the password security by adding two more components to a password one is Challenge response protocol and second is USB Token[10].

2.1 Limitation of Existing System

The existing system is a text based password authentication Scheme. It's a combination of Text & OTP (one time password) based approach.

The user authentication is done in two phase Registration and Login phase. A user creates his/her profile by providing personal details & username, password. The system sends verification email or OTP on his/her email or phone number. Then user provides the details given. After verification is done user registration is done.

Advantages:

- Implementation of text based authentication is simple. No other details are required for authentication instead username or password. Various combination can be used for creating password. Its provide various fields for authentication
  - Email as username
  - Phone number as username
  - Alphanumeric value for username
- The text based are most common and well known authentication Scheme and its widely accepted by web sites and other sectors like banking, ecommerce, government and social websites.

Disadvantages:

- It is easy to hack or guess.
- It is found that users are not selecting and handling text based passwords in insecure manner
- Humans can only memorize very few passwords due to this fact Users are writing down, share or Use the same passwords for many accounts.
- To remember easily, here the passwords are kept short and simple like personal names, family member names, birth dates, pet names, phone numbers etc. and so vulnerable to various types of attacks like easy to guess, brute force, dictionary attack, shoulder surfing, hidden camera, social engineering and malicious software's like key logger, spyware etc.

III. PROBLEM FORMULATION

- Authentication technology is the main measure to guarantee information security, and the most common and convenient authentication method is alphanumeric password. However, their inherent defects led to the development of graphical password as an alternative.

- ➢ Adequate user authentication is a persistent problem, particularly with any application such as a banking application which tend to be highly personal and at the fringes of an organization's influence. User authentication is the first line of defense for any banking application.
- ➢ As we know that text based authentication system have some disadvantages so this paper aims to enhance the reliability of text based password for advance user using graphical password with color code and geographical password.
- ➢ The proposed system will use the pictographic and geographical based password authentication scheme which will over the problems of text based password. In order provide a robust and secure mechanism we will allow user to select a color and geo location for login and registration and we will also validate user using OTP (one time password). The main objective of this purposed scheme is to form a nine digit one time password with latitude and longitude location.

IV. PROPOSED WORK

The proposed system will use the pictographic and geographical based password authentication scheme which will overcome the problems of text based password. In order to provide a robust and secure mechanism proposed work will allow user to select a color and geo location for login and registration and also validate user using OTP (one time password). The main objective of this purposed scheme is to form a nine digit one time password with latitude and longitude location.

Proposed work is an alternative to alphanumeric passwords in which users click on images to authenticate themselves rather than typing alphanumeric words. Graphical passwords are more memorable compared to the alphanumeric passwords, because it is easier to remember an image of flower than a set of alphabets and numbers. It will develop a secure and robust mechanism for authentication using pictograph and geographical password. In it Java J2EE will be use for developing the system. It will design a banking web application with the purposed authentication scheme to demonstrate the usability of system.

Text based password are susceptible to dictionary attack, shoulder surfing, eavesdropping. To overcome some of these problems pictographic password will be introduced. This paper propose a pictographic based authentication Scheme which includes

- Color Code Authentication Scheme
- Geographic Authentication Scheme

Modules:

In the proposed system following modules will be implemented:

Web Application :

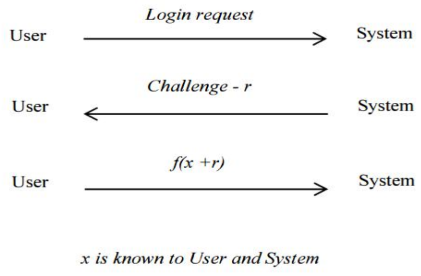
Color Code Authentication Scheme (CCA) ,
Geographic Authentication Scheme (GAS),
OTP (One time password),Challenge Response System (CRS)
The database will be as follows

Database Design:

User table, Colors table ,Location table, Account table.

V. DESIGN DESCRIPTION

The system will be implemented using J2EE, it will use servlet to handle the client side request. To demonstrate the use of proposed system system will implement a banking application which use the proposed authentication system. Overall functionality will be develop using java and jdbcapi for database,in it MySQL database is use. The application will be provide color code and geographical authentication scheme. The UI of application will be developed using bootstrap and jquery. The access control system will be provide a Challenge Response System. The general structure of CRS is given below



VI. CONCLUSION

This paper intend to provide a new and more secure graphical password system which will be designed using Java. It intend to combine Color code and geographical based password to provide a robust and more secure graphical password scheme on cloud application. The purposed system will provide a safe guard against Dictionary Attack, Guessing Attack, Shoulder Surfing etc. A banking application will be developed to demonstrate the use of proposed scheme.

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