GRAPHICAL PASSWORD BY IMAGE SEGMENTATION

Afreen Jiwani , Dhaarna Waghaye 6th semester,

Department of Computer Technology , K.D.K. College Of Engineering,Nagpur

afreen8jiwani@gmail.com

Abstract

The purpose of our project is to secure our system from unauthorised users. The Unauthorised Users cannot hack into our system. The security provided by password or pattern can be easily hacked. The project allows user to input an image as its password and only user knows what the image looks like as a whole. On receiving the image, the system segments the image into an array of images and stores them accordingly .The next time User logs on to the system the segmented images is received by the system in a jumbled order. Now if user chooses the parts of image in an order so as to make the original image he sent, then user is considered authentic. Else the user is not granted access. Actually system segments the image into grid and stores each part accordingly in order. But while logging in the image is shown as broken and in a jumbled order. aim of the project is to implement a Strong Security application. This application can run on the windows platform which is the most widely used in Laptops, Desktops and Mobile platform in India, as well as throughout the world. Thus, the aim of the application is to reach the common people with minimum resources. The app uses an algorithm based on Image segmentation. The algorithm aims to remove the problems that occur while using the original algorithm.

Keywords—
 Security, graphical password,; jumbled order; authentication; image segmentation; image processing

I. INTRODUCTION

Computer Security depends largely on passwords in order to authenticate human users. The main drawback of alphanumeric passwords is what we call the password problem, namely the fact that passwords are expected to comply with two conflicting requirements: a) Passwords should be easy to remember, and the user authentication
protocol should be executable quickly and easily by humans
b) Passwords should be secure, i.e., they should look random and should be hard to guess; they should be changed frequently, and should be different on different accounts of the same user. They should not be written down or stored in
plain text. Hence, graphical passwords act as alternative to alphanumeric passwords because they serve as a solution to the 'password problem'.

II. EXISTING SYSTEM

A study was done of different existing system and a comparison was made on the different existing system

METHODS	ADVANTAGES	DISADVANTAGES

1. CAPTCHA	1. The usages of characters in the captcha images are recognizable by human readers and mostly easy to read. 2. The algorithm of this method makes it hard to read by OCR programs which mean that it is safer.	1. It can be understandable by computers with using powerful and intelligent software and hardware by removing the noise effects. 2. Some patterns could be hard to read by older and disabled human users.		login process than alphanumeric passwords	then the technique is difficult to use.
2. PASS POINTS	1. The password generated is most difficult to break and not easily guessable. 2. Users in PassPoint system were able to easily and quickly create a valid password.	1. Users have more difficulty learning their passwords than alphanumeric users, taking more trials and more time to complete the practice. 2. The login time, in this method is longer than alphanumeric method.	4. RECOGNITION BASED TECHNIQUE	1. Users will select images, icons or symbols from a collection of images. 2. The users can remember their passwords even after 45 days . 3. The password space of the recognition based techniques largely depends on the size of the content.	1. It is less secure than pure recall based technique. 2. Overly large storage requirement is a significant issue for recognition based techniques, since the size of a typical picture is much larger than the equivalent text.
3. DAS	1. The password generated is easily memorable. 2. This technique takes less time for	1. User cannot remember the exact stroke order. 2. If user is not familiar with the input devices	5. PURE RECALL BASED TECHNIQUE	1. Users have to reproduce their passwords without being given any type of hints or reminder. 2. The users can hardly remember their passwords. 3. It is more secure than the recognition based technique.	1. It is difficult to calculate the password space of a recall based technique. 2. It is difficult to draw shapes with mouse. Most users are not familiar with using mouse.

III. PROPOSED SYSTEM
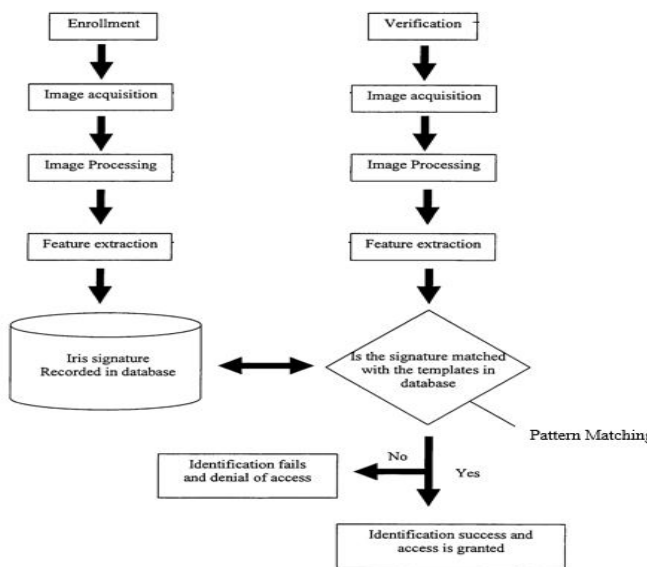
GPSI is proposed with the aim to provide a system which gives strong authentication to the user and protects user data from unauthorized access. The proposed system consists of three parts:

A. Registration Process:

☐ Input module: The user will be asked to provide a unique image to the system and specify the number of grid segments the image will be divided into (Maximum of 8X8).

☐ Image divides into segments: Then the system will divide the user specified image into user specified grid segments. Each segment will be associated with a unique number.

☐ Mapping of image segments to empty grid: The system will then present the segmented image alongside an empty grid and ask the user to place the grid segments from segmented image into the empty grid. The segments of the empty grid will also be associated with a unique number.

☐ Sequence and position of segment mapping noted: The position and order in which the user places the segments into the empty grid is noted in a mapping table and will act as authentication of the user

B. The Login Process:

☐ Matching of input image with registered image: The system will ask the user to provide the same image that he/she had provided at the time of registration. Only if the user provides the right image he/she can go on to the next step otherwise not.

☐ Jumble image: The system then segments and shuffles the image using Fisher Yates algorithm and presents it to the user along with an empty grid. The Fisher–Yates shuffle is an algorithm for generating a random permutation of a finite set. In plain terms, the algorithm shuffles the set. The algorithm produces an unbiased permutation: every 0permutation is equally likely. The basic method given for generating a random permutation of the numbers 1 through N goes as follows:International Journal of Research and Scientific Innovation (IJRSI) | Volume III, Issue XI, November 2016 | ISSN 2321–2705

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a) Store the segments from 1 through N (N=mXn) as numbers from 1 to N (N=mXn).

b) Pick a random number k between one and the number of unstruck numbers remaining (inclusive).

c) Counting from the low end, strike out the kth number not yet struck out, and write it down at the end of a separate list.

d) Repeat from step 2 until all the numbers have been struck out.

e) The sequence of numbers written down in step 3 is now a random permutation of the original numbers.

f) Since each of these numbers represent each image segment, the segments are also jumbled accordingly.

☐ Verify sequence and position of segments mapped and authenticate user: The user has to place the segments in the empty grid in the correct order and position (Same as saved in the mapping table during the registration process) to be considered as an authorised user.

C. The Learning Management System:

☐ Uploading and manipulating data: The users can upload, manipulate and delete data files like notices, notes, presentations, questions, quizzes etc.

 Download and retrieve data: The users can download the data according to their authorisation.

IV. CONCLUSION

The main argument for graphical passwords is that people are better at memorizing graphical passwords than text-based passwords. Our preliminary analysis suggests that it is more

difficult to break graphical passwords using the traditional attack methods such as brute force search, dictionary attack, or spyware. Graphical password by segmentation of image (GPSI) which will use image as a password is designed to provide strong security to computer systems. It provides an exclusive method which segments an image. This paper explains the entire working of GPSI.

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