

IMPROVING SECURITY WITH GRAPHICAL PASSWORD AUTHENTICATION SCHEME

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ABSTRACT—Pictures are remembered better than text by humans, motivated by the proposition that graphical authentication passwords are the possible alternatives for text based passwords. The main objective of this study is to examine the usability attributes of the recognition-based graphical passwords, concerning ISO standard and general usability attributes. Then, the usability attributes and sub features were compared to get the new ones are considered and implemented in the novel proposed graphical password scheme. The proposed scheme was performed as a prototype and a usability evaluation towards the proposed scheme was conducted to measure its usability and practicality as the alternative user authentication scheme. Based on the questionnaire survey result and user's feedback concerning the whole system and the usability attributes of the proposed scheme, all the percentage of findings is described to be very good which from the usability point of view

indicates that the new graphical password scheme is highly acceptable.

Index terms— Password Authentication, Machine Learning, Security.

I. INTRODUCTION

Security requirements are an essential need for computer systems because of threats growth. A graphical password is an authentication system, which works on a Graphical Password Interface (GUI) that permits the users to select specific images in a specific order. The graphical password authentication system is an alternative for the alphanumeric method. For overcoming the common weaknesses and vulnerabilities of the basic method (alphanumeric technique), it has been proposed. It also can be suitable for making more secure passwords and more memorable for users. There have been two basic assumptions in this area; one of the states that users can memorize and remember the pictures easier than alphanumeric character strings and also, on the other hand, an image can have a

value equal to thousand passwords; companies that produce software and some researches which have been done in psychology area verified these assumptions [1].

In defining the authentication process, it is a process that determines that one user can be allowed access to a specific system or data or he/she is not allowed. Traditional passwords are used widely for authenticating users nowadays, but other alternatives also are available such as biometric systems, smart cards, and so on.

II. LITERATURE SURVEY

A study of graphical passwords and various graphical password authentication schemes

Using AI Hans peter Wickelgren applying the usage of text-based passwords is common authentication system in any Application. This conventional authentication scheme faces some kind of limitations and drawbacks with usability and crypto-graphical security issues that bring troubles to users. For example, user tends to pick passwords that can be easily guessed. On the contrary, if a password is hard to guess, then it is often hard to remember. An alternative system is required to overcome these problems. To deal with these drawbacks, authentication scheme that use photo ,image, or set of pattern as password is proposed using knowledge Recall-Based System (KRBS). Graphical

passwords consist of clicking or dragging activities on the pictures rather than typing textual characters, might be the option to overcome the problems that arise from the text-based passwords authentication system. In this paper, a comprehensive Artificial Intelligence (AI) study of the existing graphical password schemes is performed. The graphical password authentication systems are categorized into two AI approach types: An approach on recognition-based System (RBS) and second approach on Recall-based system (RCBS). We discuss adequately the strengths and limitations of each method in terms of usability and security aspects .

Recognition Based Graphical Password Algorithms: A Survey

User Authentication is an important aspect of information security. Alphanumeric passwords are the most common and widely adopted means of user authentication. Nevertheless, there are several disadvantages attached to the alphanumeric forms of authentication. Example, users choose passwords that are easy to guess (dates of births, their names, car plate number) in other to remember them, because difficult passwords are not easily remembered. This brought about the alternative of graphical passwords because research have been carried out to proof that humans find it easier to recall

images. This paper reviews 10 recognition-based graphical password algorithms, and the common usability and security threats of these systems based on these algorithms were analyzed.

III. PROPOSED SYSTEM

The overview of our proposed system is shown in the below figure.

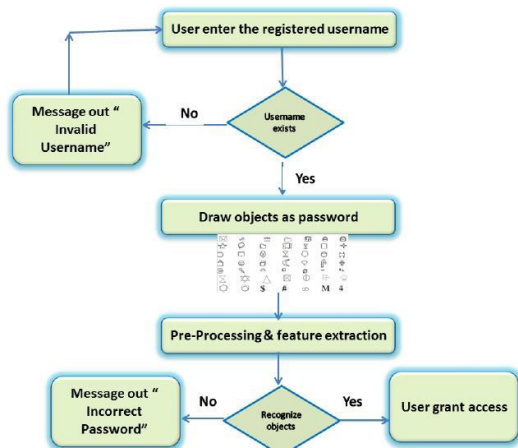


Fig. 1: System Overview

Implementation Modules

Implementation Algorithms

IV. RESULTS

The below figures show the experimental results of our system.

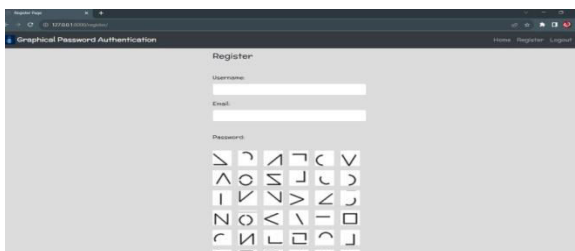


Fig. 2: Registration Details

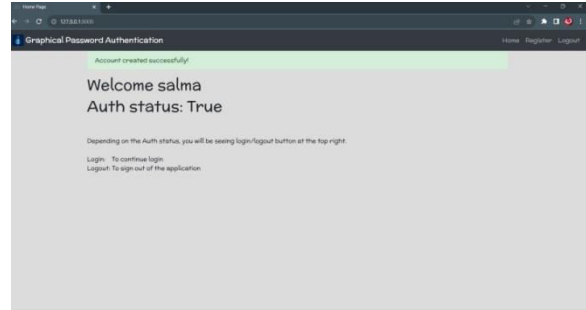


Fig. 3: Account created successfully

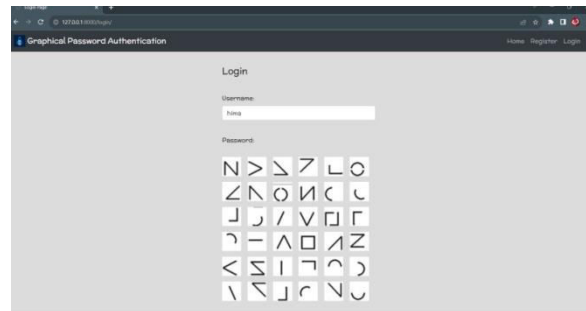


Fig. 4: Login Account

V. CONCLUSION

This study presents a new recognition-based graphical scheme with improved usability features. The usability features of the proposed recognition-based graphical password scheme have been studied and the mapping among available features, ISO features, and general features has also been performed. The prototype of the proposed scheme was developed and given to users to test the prototype. Based on the evaluations, findings suggest that majority of participants agreed The proposed scheme comes up with usability attributes built in and the proposed scheme is user friendly and usable.

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