UNIVERSITI TEKNOLOGI MARA

SECURING GRAPHICAL USER PASSWORD USING MULTI-GRID TECHNIQUE FROM SHOULDER SURFING ATTACK

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Abstract

Graphical password is a possible solution for text- based password, forced particularly by the fact that humans can remember pictures better than texts. Based on previous researches in the graphical password techniques especially recall-based techniques we had some problems from security point of view.

For security in graphical password, there are some attacks such as shoulder surfing, and brute force. Shoulder surfing is one of the major attacks; it means this project must cover the shoulder surfing attacks for making the algorithms more secure.

This project will use a multi grid technique that allows user to log into the system in a way that the password is difficult to be guessed by the attacker. It is done by changing the size of grids in each try dynamically. This means in each login try, the user can see a grid with different number of rows and columns. The size of grids is determined randomly by the system.

This project is designed as a new prototype and then evaluated the security features in the University Collage Sedaya International (UCSI), and then the user's reaction about the whole system and the security facial appearance of the graphical password prototype are explored. Results are collected and analyzed. The comparison between fixed grid technique and new multi grid technique is done and results proved that the new technique is doing better than the fixed grid technique in terms of shoulder surfing attacks while attacker has multiple chances to uncover the graphical password.

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CHAPTER 1

INTRODUCTION

1.0   Introduction

One of the secure verification methods are passwords, which are used by most of systems these days. Actually, the password is an undisclosed data that help the member of a system to access the resources and prevents the access of others who are not member of the system. In modern times, passwords are used to control access to protected computer operating systems, mobile phones, ATMs machines, etc. A classic computer user may need passwords for many purposes: retrieving email from servers, accessing files, databases, logging in to computer accounts, networks, web sites, and still reading the morning newspaper online.

The password is a very excellent and strong authentication method but because of the huge progress in the usage of computer in many applications such as, sharing data, data transfer ,login to emails or internet, some drawbacks of conventional password appears like stolen the password, forgetting the password, week password, etc. So a big requirement of having a strong validation way is wanted to make all applications as secure as possible, and a research area comes out called graphical password where it tries to improve the security feature and avoid the weakness of usual passwords. According to Wikipedia, Graphical password is an authentication system that works by having the user select from images, in a specific order, presented in a graphical user interface (GUI). For