

Survey on Shoulder Surfing Resistant Graphical Authentication System

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ABSTRACT

The biggest problem in the modern IT sector is information and computer security. Only authorized users should have access to the system or data. A password makes sure that only people with the proper access rights can view or use the computer or the information. A text password, often known as an alphanumeric password, is a common password strategy. However, these text-based passwords are simple to break using numerous attack methods. In order to address these flaws, a graphical. A password-based approach is presented. We came up with the revolutionary authentication system Pass Matrix, based on graphical passwords to fend off shoulder surfing assaults, to solve this issue. Pass Matrix provides no suggestion for attackers to figure out or narrow down the password even if they execute several camera-based attacks. It has a one-time valid login indicator and circulative horizontal and vertical bars encompassing the complete scope of pass- images. Additionally, we developed a Pass Matrix prototype for Android and ran actual user tests to assess its usability and memorability. According to the experimental findings, the suggested approach increases shoulder surfing attack resistance while retaining usability.

Keywords - Shoulder surfing, Computer vision, Privacy, Security, Visual eavesdropping, Detection.

I. INTRODUCTION

Authenticating a distant user's identity is done through remote user authentication. Because of its simplicity and high user-friendliness, password authentication has been widely embraced in a variety of remote user authentication systems, including cloud authentication systems. Particularly, password authentication typically won't result in privacy breach issues, which can't be completely prevented in biometric authentication methods, such as fingerprint, iris, face, and voice recognition. A sort of numerical password is the PIN (Personal Identification Number).

Due to its exceptional simplicity, PIN authentication techniques were frequently utilised in the past. However, shoulder-surfing assaults can succeed using traditional PIN authentication methods. As a result, Roth et al.

created the IOC PIN authentication technique, which is resistant to shoulder-surfing attacks. However, it has a low resistance to shoulder-surfing strikes.

II. LITERATURE SURVEY

- 1) **Wei-Chi Ku, HaoJun Xu:** Conventional PIN authentication schemes cannot resist shoulder-surfing attacks. Therefore, various shoulder surfing attacks resistant PIN authentication schemes using audio or tactile feedback have been designed for mobile devices. However, the efficiency of most existing shoulder-surfing attacks resistant PIN authentication schemes with sufficient security is unsatisfactory. Recently, devices with touchscreens supporting localized tactile feedback (LTF) have been developed, designed, patented, and/or implemented.
- 2) **Noor Ashitah Abu Othman:** Authentication has been advanced by implying advancement in security such as cryptography to protect password against data leaking and sniffing; captcha to prevent robot system; Secure Sockets Layer designed to protect users against phishing website and many other solution invented for different types of vulnerabilities.
- 3) **Sruthi P V:** This paper presents an integrated evaluation of the new Shoulder Surfing resistant Cued Recall authentication, including usability and security evaluations, and implementation considerations. In public places, users may be at a risk of attackers stealing their passwords. Capturing the password by direct observation or recording the individual authentication session is called Shoulder surfing attack.
- 4) **Eram Fatima, Mohd Ashfaq, Afrah Nazir, Muneeb Hasan Khan, M. Sarosh Umar:** Use of mobile devices in our day-to-day lives is rapidly increasing with each passing day. Today many services such as online banking, e-mail, online shopping and many more are delivered to users on their mobile devices. All these services carry sensitive information and since people access these services even in public places, there is high probability of shoulder surfing attacks.
- 5) **Muhammad Shakir, Abdul Ayaz Khan:** The most common computer authentication method is to use alpha numeric user name and password. This method has been shown to have significant drawbacks. User tends to pick short password that can be easily guessed. On the other hand, if password is hard to guess, then it is often hard to remember. The vulnerabilities of textual password are well known.
- 6) **Andrew Lim Chee Yeung, Bryan Lee Weng Wai, Cheng Hao Fung, Fiza Mughal, Vahab Iran manesh:** Graphical password is an alternative authentication mechanism in order to access to the system. As a matter of fact, it is more secure than the textual passwords, but it is vulnerable to shoulder-surfing attack. In this paper, we propose a new method which is resistant to shoulder-surfing attack by using a false image in authentication step.
- 7) **Swaleha Saeed, M Sarosh Umar:** Information security is the rapidly rising area of concern in today's world of network technology. Traditionally, secure access to information is guarded by combination of username and password. The idea of graphical password as an alternative to text based approach was proposed by Blonder in 1996 motivated by the fact called as "picture superiority effect" i.e. tendency of human brain to memorize images far better than text.
- 8) **Misbah Urrahman Siddiqui, Mohd. Sarosh Umar, Miftah Siddiqui:** a novel graphical user authentication scheme has been proposed. This scheme is a hybrid scheme which makes the use of images along with the text password. The proposed scheme does not require any sophisticated hardware and can be used as an extra level of security.

- 9) **Shreyans Jain, Shristi Dabola, Shikhar Binjola, Rajni Jindal:** Authentication schemes need to be designed such that they can provide security against observational attacks. Many modern day services use Personal Identification Numbers (PINs) to authenticate their users. However, conventional PIN interfaces provide minimal to no security against observational attacks such as shoulder surfing. We propose AlignPIN, an Indirect PIN selection technique which is resistant to shoulder surfing.

III. LIMITATIONS OF EXISTING SYSTEM

While existing research has made significant strides in addressing shoulder surfing threats, there are several limitations that need to be addressed. These limitations include false positive rates, reliance on specific hardware, and limited usability in real-world scenarios. We identify these challenges and propose strategies to overcome them in our novel approach.

IV. CONCLUSION

Because of their poor efficiency, current PIN authentication techniques that are resistant to shoulder-surfing attacks are not very usable. Recently, touchscreen devices that offer localised tactile feedback (LTF) have been created, patented, and/or put into use. It appears likely that touchscreen devices that support LTF will soon be widely accessible. Here, we've introduced VpointsPES, an effective PIN authentication technique that is immune to shoulder-surfing assaults and can be used in a variety of user authentication systems, including cloud authentication systems.

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