Study of 3D and 4D password Security

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ABSTRACT

3d & 4d passwords which are more famous and very interesting way of security, the human memory in our scheme has to undergo the facts of verified. these passwords are used to secure data or user accounts, these passwords famous technique is based on a combination of multiple set of facts the international company develops and distributes the 4th dimension server s/w 4d owns located in the USA Germany JAPAN & Australia these passwords is the most commonly used recall based authentication scheme used in the computer world where security is needed passwords has one major disadvantage due to its two contradictory requirements at the same time password selection must be easy to remember and tough to guess 4d passwords as a oneup method to the 3d password the 3d password scheme is a relatively new authentication scheme that combines recognition + recall + tokens +biometric in on authentication system.

II. INTRODUCTION

The authentication system which we are using is mainly very light or very strict since many years it has become an interesting approach we are provided with many password types such as textual passwords token or cards (such as an

ATM) biometric scanning is you‟re" natural signature"& cards or tokens prove you‟re validity human authentication techniques

1. Knowledge base
2. Token based
3. Recognition based
4. Computer authentication technique
5. Textual passwords
6. Graphical passwords
7. Biometric passwords(fingerprint)

The selection of biometric in any practical application should depend on the characteristic requirement & the user requirements the 3d password scheme is an excellent paradigm. In which biometrics can be coupled as together they can provide a very strong or impermeable level of security ,this system is responsible to categories the files or confidential data on cloud categorization is depend on 3 important factor confidentiality, integrity and availability.

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HISTORY OF PASSWORDS –

A password is a word or string of characters used resource an access code is a challenge for user authentication to prove identity type of password the user of password is known to be ancient sentries would or access approval to gain access to a resource an access code is a type of password the use of password is known to be ancient sentries would challenge those wishing to enter an area or approaching it to supply a password or watchword in modern times, user name & password are commonly used by people during a log in process that controls access to protected computer operating systems, mobile a phones, cable TV decoders a t typical computer user has passwords for many purposes logging into accounts-mail data base n/w web sites & even reading the morning newspaper online most organizations specify a password policy that sets requirements for the composition and uses of passwords ,typically dictating minimum length required categories (e.g. upper & lower case number & special charters) some governments have national authentication frameworks that define requirements for user authentication to government services, including requirements for passwords.

3D PASSWORD-

Three dimensional virtual environment size a 3d virtual environment can depict a city or even the world the probable 3d password space broadens however a small 3d virtual environment can depict a city or even the world the probable 3d password space broadens however a small 3d virtual environment usually contains only a few objects & performing a 3d password will take less time users are likely to practice textual passwords a the are easy to use and remember a textual password space of eight characters & is a combination of numbers and character string in 1990 Klein has collected the password of approximately 15,000 account users that had textual password and showed 25% of the password such experiments Klein could crack 10-15 password per day compared to today‟s technology Klein performed experiment real life similarity the prospective 3d virtual environment should reflect what people are used to seeing in real life ,objects possible action and interaction toward virtual objects should be reflect real life situations object responses should be realistic the target should have 3d virtual environment that users can interact.

SECURITY ANALYSIS-

To determine the password space we have to count all possible 3d passwords that have a certain number of actions interactions every user has different requirements and preference when selecting the appropriate 3d password since every 3d password system can be designed according to the protected system requirements the attacker password system we try to propose countermeasures for such attacks

1 **TIMING ATTACK –** the attacker observes how long it takes the legitimate user to perform correct log in using 3d password this attacker gives the attacker mere hints this kind of attack alone cannot be very successful since it gives the attacker therefore, it would probably be launched as part of well-studied or brute force attack. Timing attacks can be very effective if the 3d virtual environment is poorly designed.

2 **BRUTE FORCE ATTACK –** the attack is very difficult because time required to log in may vary from 20s to 2 min. Therefore it is very time consuming, cost of attacks environment contains biometric recognition objects and token based objects the attacker has to forge all possible the cost of forging such information is very high therefore cracking the 3d password is more challenging the high number of possible 3d password the high number of possible 3d password space leaves the attacker with almost no chance of breaking the 3d password.

3 **WELL STUDIED ATTACK-** the attacker tries to find the highest probable distribution of 3d password. In order to launch probable distribution of 3d passwords in order to launch such an attacker, the has to acquire knowledge of the most probable 3d password distributions .this is very difficult because the attacker has to study all the existing authentication schemes that are used in the 3d environment it requires a study of the user‟s selection of object for the 3d

1. **4 SHOULDER SURFING ATTACK-**an attacker uses a camera to record the user‟s 3d password or tries to watch the legitimate user while the 3d password is being performed. This attack is the most successful type of attack against 3d password and some other graphical
2. Passwords we assume that the 3d password should be performed in a secure place where shoulder surfing attack cannot be performed.

3D PASSWORD APPLICATION-

The 3d password can have a password space that is very large compared to other authentication schemes, so the 3d password‟s main application domain are protecting critical systems resources

1. Critical server many large organizations have critical servers that are usually protected by a textual password. A 3d password authentication proposes a sound replacement for a textual password.
2. Personal Digital Assistance
3. Nuclear and military facilities such should be protected by the most powerful authentication system. The 3d password has a very large probable password space, and since it can contain token, biometrics, it is a sound choice for high level security locations.

Airplanes and jet fighters because of the possible threat of misusing airplanes and jet fighters for religion, political agendas, usage of such airplanes should be protected by a powerful authentication system, 3d password can be used in less critical systems because the 3d virtual environment van be designed to fit to any system need a small virtual environment can be used in the following systems like

4. ATM ADVANTAGES

1. Provides security
2. This 3d password can‟t take by any other person

3. 3d graphical password has no limit
4. Password can change easily
5. Password can remember easily
6. This password helps to keep lot of personally details

DISADVATAGES

1. Difficult for blind people to use this technology Requires sophisticated computer technology
2. Expensive
3. A lot of program coding is required

FUTURE SCOPE:-

The 3d password is a multifactor authentication that combines these various authentication schemes into a single3d .environment the resulted password space becomes very large compared to any existing authentication schemes. The design of the 3d virtual environment, the selections of objects inside the environment, and the object‟s type reflect the resulted password space. It is the task of the system administrator to design the environment and to select the object. It is the task of the system administrator to design the environment and to select the appropriate object that reflects the protected system requirements. The choice of what authentication scheme will be part of user‟s 3d password reflects the user‟s preferences and requirements

4D PASSWORDS:-

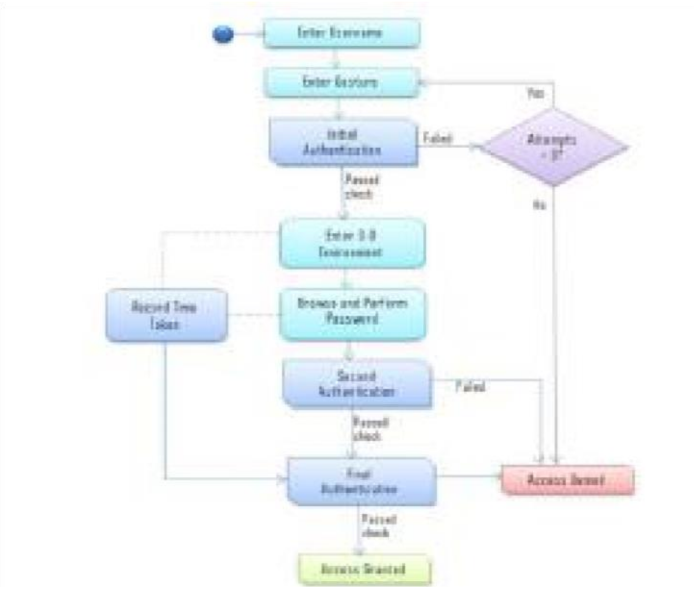
4d was founded in Paris in 1984 this international company develops and distributes the 4th dimension server software 4d owns several subsidiaries located in the USA, Germany, JAPAN 4d is the 1st graphic relational data base management system (RDBMS) 4d 2004 goes a step ahead with integrated back 4d with log file and restore function. Current what we have in the field are the following set of human authentication techniques

Knowledge based (what you know and recall)

Token based (what you have i:e tokens object)

Biometrics (what you are i:e your physical body)

The 4d password scheme is an attempt to make the existing scheme even more robust an powerful. This keys what we propose to refer to as the “fourth dimension” would be an encrypted string that encapsulates a gesture that the user is supposed to make with his hands.

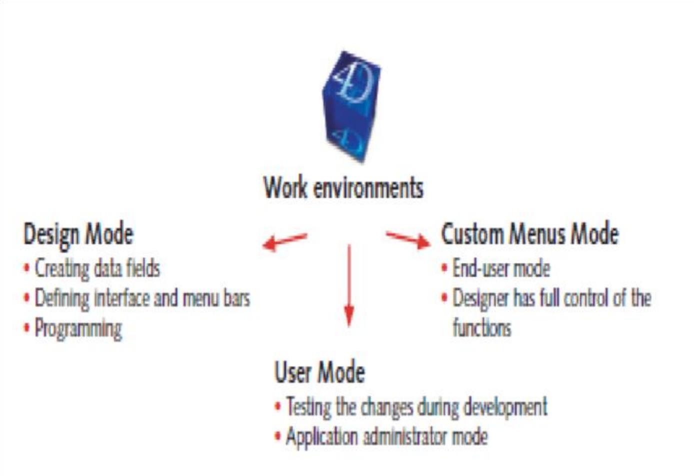


The three operating modes of 4th dimension

Design mode – the design mode environment is the realm of the application developer access to this mode may be locked with the 4d password system

User mode- in user mode the developer tests the application, in this mode only an administrator is entitled make changes on a finished application

Custom menus mode- the custom mode is the working area of the user of the finished solution only the functions provided by the developer are available

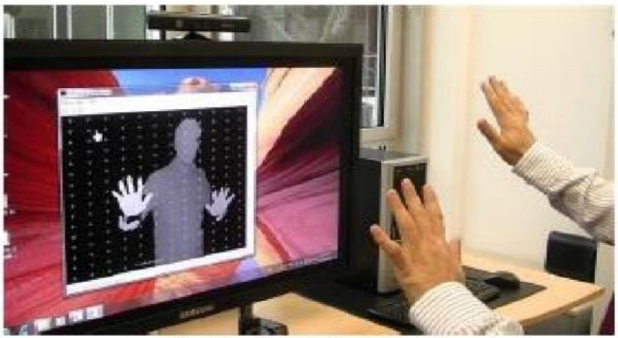

Work environments
Design Mode
• Creating data fields
• Defining interface and menu bars
• Programming
Custom Menus Mode
• End-user mode
• Designer has full control of the functions
User Mode
• Testing the changes during development
• Application administrator mode

Signup process- consider a web based repository of research work for scientists , has his own account which stores his files and folders this repository employs the 4d password scheme as a new user i will sign up as following

1. Choose a user name
2. I will be redirected to password generation page

3. I will enter the 3d environment

4. I will exit out of the environment and submit my actions



Gesture Recognition in use.

LOGGING IN- now when i log in, i will have to enter my user name, and then perform my gesture once this is submitted and verified I will enter the 3d environment and perform my password ,I will exit and submit it.

APPLICATION

1. **CRITICAL SERVERS**- many organization are using critical servers which are protected by a textual password 4d password authentication scheme proposes sound replacement for these textual passwords

2. **BANKING** -almost all the Indian banks started 3d password service for security of buyer who wants to buy online or pay online "how to create 3d password for my master card" our online payment will fail, if will create 3d password so for generating click 3d secure service and then write our card number cvv, pin number and write our password, and rewrite it and then click ok or submit after to his we get a „thank you‟ MSG.

3. **MILITARY FACILITES-** 4d password has a very large password space and since it combines recognition + recall +tokens it can be used for providing security to nuclear and military facilities

ADVANTAGES-

1. Simple to use

2. Simple to deploy since the operating system provides the user accounts and password ,almost no extra configuration is needed

3. Generic password use with SSH tectia connector **DISADVANTAGES-**

1. Security is entirely based on confidentiality and the strength of the password

2. Does not provide strong identity check (only based password)

FUTURE WORK ANALYSIS-

Cloud computing provides various internet based on demand like software, hardware server and data storage it is a better option to use sophisticated and robust password generation and authentication technique this is the future work of our research our future work will be carried out in adding multidimensional password generation method the best of which Generation method the best of which is the 3d password at present of course the 4th dimension makes if totally unsurpassable.

III. CONCLUSION:

In the current state many existing authentication schemes are available that are vulnerable to certain kind of attacks the 3d password is still in its early stages designing various kinds of 3-d virtual environment the 3d password moreover gathering attacks from different background to break the system in one of the future work it will demonstrate how the attacks will acquire the knowledge of the most probable 3d passwords their attacks, shoulder suffering attack are still o possible and effective against 3d passwords therefore, a proper solution is a field of research .the 4d password scheme combines features of all the existing authentication schemes like- biometric scanning techniques, it is also the very powerful against attacks the first two layers text and graphics can be easily broken conventional brute force and shoulder suffering techniques.

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