SURVEY ON MULTILEVEL BIOMETRIC AUTHENTICATION SYSTEM

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ABSTRACT

Now a days keeping data secure is very big issue. There is lack of strong authentication system which can provide security to such confidential data. The existing biometric authentication systems uses static images like face detection and finger print methods, which makes it less secure for authentication. A 3D images can be used for the authentications as it gives more accuracy. We can also use the gestures for the doing the authentication for users.

Multilevel authentication system uses the several levels and each level is different which makes it more secure and reliable. The phases can be like palm print, thumb print and face detection.

Encryption is the process of scrambling a message so that only the intended recipient can read it. AES is one of the most popular encryption algorithm.AES algorithm is most efficient in terms of speed, time, and throughput and avalanche effect. The Security provided by these algorithms can be enhanced further, if more than one algorithm is applied to data.

A comprehensive survey onmultilevel biometric authentication system is presented. State-of-the-art approaches are reviewed based on which an in-depth discussion and an outlook to future prospects are given.

Keywords: Biometric authentication, AES, 3D, Face Detection, Multi-level, Encryption.

1. INTRODUCTION

These days, a growing number of users store and manipulate important and sensitive information online, everything we do on the Web or Mobile devices produce a massive amount of data. Therefore we need to find out more secure and easy-to-use authentication methods, with the increase in exploitation of data the necessity to keep this data secure increases .At present, passwords and PINs are the most widely-used authentication methods for gaining access to PCs, mobile devices and online accounts, and they are well-understood

There are series of application like e-commerce transactions, such applications requires more reliable personal recognition schemes for individuals which are requesting their services. However the traditional authentication systems are having large number of complex passwords is preferred for users having multiple accounts, users typically resort to using options of a simple password, which puts users at high risk if it is negotiated.

Although, researchers have long been working on a wide range of biometric traits of several major categories (e.g. hard and soft biometrics, the static biometrics, the activity-related ones etc.), only specific modalities have been proven sufficient to support robust and accurate recognition performance up to now, i.e. fingerprint-, palm print-, iris, face- and to an extent gait recognition.

The traditional text password can be easily get prone to shoulder-surfing attacks by just observation of password entry or any smudge attacks, by observation of residue its touch-based password or stroke gesture entry. As a likely solution to the previously mentioned problems, we present a biometric authentication method that uses 3D face, in-air hand gestures and key to

authenticate the user. Instead of depending on the user's information of a secret, biometric authentication systems, such as proposed system can enhance security of data by directly using the distinct physical features of a the real user and examining behavioral characters of the genuine user during the authentication process. As biometrics, proposed system uses different points on the user's face and hand (fingertip positions and hand center).

By users the proposed system tends to use key as its first level of authentication. This will allow the user to choose his own key. The next level use the user's in-air hand gestures to provide next level of authentication security. In this case user can put his own unique hand gesture for authentication. The third level of the system focus on users face including depth. This will provide system with additional level of advanced security. The system will take 22 points in case of hand gesture and 72 points with respect to face recognition.

2 LITERATURE SURVEY

[1]AirAuth is a biometric authentication technique that uses in-air hand gestures to authenticate users tracked through short range depth sensor. Our method tracks multiple distinct points on the users hand simultaneously that act as a biometric to further enhance security. We describe the details of our mobile demonstrator that will give Interactivity attendees an opportunity to enroll and verify our systems authentication method. We also wish to encourage users to design their own gestures for use with the system. Apart from engaging with the CHI community, a demonstration of AirAuth would also yield useful gesture data input by the attendees which we intend to use to further improve the prototype and, more importantly, make available publicly as a resource for further research into gesture-based user interfaces.

[2]Proposed 3-level authentication mechanism for data security. When system authenticates users, it requires users ID and P/W firstly. Then, it requires a secondary authentication component to check whether he/she is legitimate user. By doing so, it

can implement a more robust authentication system. The secondary authentication components are usually a security card, an encryption key and bio-information such as iris, face, fingerprint etc. But there is a problem related to ID and P/W exposure and bio-information copy. Especially, nobody knows can check whether ID and P/W are exposed, whether bio information is copied. So, we propose another authentication way using biometric signals. A biometric signal is essentially a pattern recognition factor that operates by acquiring biometric signals from an individual, extracting a feature set from the acquired signal pattern and comparing this feature set against the template set in the database.

[3]Contactless biometric hand geometry recognition presents a contactless 3D hand recognition system based on the novel Intel Real Sense camera, the rest mass-produced embeddable 3D sensor. A particularly appealing application field of 3D sensors is biometric person recognition, as there is a strong experimental evidence that 3D information allows improving the accuracy and robustness of biometrics. In particular, the valuable 3D information is contained mainly in human ear, face, fingers of the hand and also the whole hand geometry and palm print. Inthepastdecade, 3D sensors have experienced a series of revolutionary technological breakthroughs, shrinking in size and dropping in price by several orders of magnitude.

[4]In this paper they represent a multimodal recognition system that integrates three systems together such as, a palm print, fingerprint and face recognition system. The input images of user (in 2D format) that taken as key database distribution for the system are integrated into template form on score level fusion. [4]Fusion module performs score normalization and fusion of normalized scores by weighted sum rule. So, as compare to this existing system we are going to use 3D format for face images and also hand gestures as a password in our proposed system, because 2D images can be get easily tracked and it cannot sense the images in depth. Also the palm and finger print can be easily accessed by intruders. Instead of this we are using

hand gestures as a key to our proposed system that will be much secured than existing system.

[5]In this paper they represent the method for face tracking using face detection and object tracking simultaneously to utilize their advantages at once. Also, for minimizing the errors and their divergence from target, they make the feedback system based on Local Binary Pattern (LBP) and several rules to provide this opportunity that detection and tracking systems can cooperate with each other, so that ability of one system cover disability of another one. So, we are going to integrate the advantages of this paper into our proposed system such that it will provide more accuracy for the face detection by differentiating the face and objects from each other.

[6]Encryption is the process of scrambling a message so that only the intended recipient can read it. Encryption can provide a means of securing information. As more and more information is stored on computers or communicated via computers, the need to insure that this information is invulnerable to snooping and/or tampering becomes more relevant. With the fast progression of digital data exchange in electronic way, with the evolution of human intelligence, the art of cryptography has become more complex in order to make information more secure. Arrays of Encryption systems are being deployed in the world of Information Systems by various organizations. In this paper, a survey of various Encryption Algorithms is presented

2. CONCLUSION

The Biometric security Systems are the systems which uses the physical characteristics of a person like finger print, hand geometry, face , voice and iris. These systems overcomes the drawbacks of the traditional computer based security systems which are used at the places like ATM, passport, payroll, drivers' licenses, credit cards, access control, smart cards, PIN, government offices and network security. The biometric security systems have been proved to be accurate and very effective in various

Applications. The biometric features can be easily acquired and measured for the processing only in the presence of a person. Hence these systems are proved highly confidential computer based security systems.

3. REFERANCES

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