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RESEARCH ARTICLE

AUTHENTICATION USING LIP BIOMETRIC

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ABSTRACT

Authorized system authentication is very sensitive and important task of today's s high technology system. Here in this paper we have proposed a lip movement biometric authentication system in which different phases of operation have explained. Also the attack points are explained. The system will securing authentication.

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INTRODUCTION

As the technology changes in today's system issue regarding the security and confidentiality of data increases. In recent technologies biometric authentication proved highly secured compared with alphanumeric or graphical authentication techniques (Shubhangi Kotkar; Rohit A. Patil, 2016). Different biometric techniques exist which are classified into two categories physiological and behavioral characteristics. Physiological is classified into face, skeleton, palmprint, fingerprint, knuckleprint, Iris, Retina, ear, etc. authentication techniques. Behavioral is classified into keystroke dynamics, waking dynamics, voice, lip moments, touch gesture, signature, handwriting, etc. Different biometric authentication techniques are listed in Fig.1 Biometric Authentication Techniques (Shubhangi Kotkar).

LITERATURE REVIEW

Here the different authentication techniques are reviewed:

Face biometric

Ms. Deveshree R. More and Prof. Vanita Mane(19) proposed Fusion of Multiple Biometric For Photo-Attack Detection in Face Recognition Systems in which the detailed system with proposed system and results explained.

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Gaussian Mixture Model is used to check captured image dimensions. Encryption of biometric password is done here.

Retina biometric

Geethu Sasidharan (2014) proposed Retina based Personal Identification System using Skeletonization and Similarity Transformation in which the detailed system with proposed system and results explained. Different phases are fundus acquisition, preprocessing, detection of bifurcation points. Saraswathi *et al*. (2011) proposed Retinal Biometrics based Authentication and Key Exchange System in which the detailed system with proposed system and results explained. Transformation of bifurcation points is done.

Iris biometric

Priyanka Mukherjee *et al*. proposed Recent Developments In Iris Based Biometric Authentication Systems in which different algorithms are explained in detail to propose a system.

Fingerprint biometric

Dhiraj Sunehra (2014) proposed Fingerprint Based Biometric ATM Authentication System in which the detailed system with proposed system and results explained. Different hardware modules are explained such as microcontroller, fingerprint module, serial communication, hardware connection, power supply, etc.

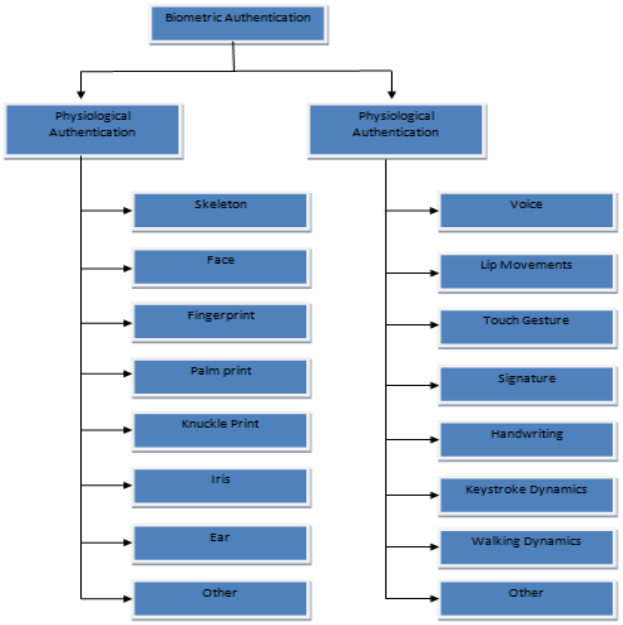

Fig.1. Biometric Authentication Techniques

Prasathkumar and Mrs. V. Evelyn Brindha (2014) proposed Personal Authentication using Fingerprint Biometric System in which the detailed system with proposed system and results explained. Different phases such as binarization, elimination of noise, thinning, minutiae extraction, etc. are explained. Ravi Subban and Dattatreya P. Mankame (2013) proposed A Study of Biometric Approach Using Fingerprint Recognition for recognition of fingerprints. In this paper biometric system is described also different factors needed to take into consideration also explained.

Palmprint biometric

Mojtaba Darini and Houshmand Amiri Doumari (Mojtaba Darini, 2013) have survey on Personal Authentication Using Palm-Print Features – A Survey in which different techniques at different phases have explained. Shanmugalakshmi Ramachandran and Esther Perumal (2015) proposed mutibiometric system. In this system proposed system and results are explained in detail. Different phases of working includes enrollment, preprocessing, multibiometric fusion, transformations, etc. Jaspreet Kour *et al*. (2013) proposed Palmprint Recognition System to recognize palmprints. In this system first region of interest is separated filtered using low pass filter then features are extracted and passed for acceptance or rejection. Different phases such as enrollment, preprocessing, features extraction, classification, acceptance or rejection, etc.

Knuckle Print Biometric

Shanmugalakshmi Ramachandran and Esther Perumal (2015) proposed mutibiometric system. In this system proposed system and results are explained in detail. Different phases of working includes enrollment, preprocessing, multibiometric fusion, transformations, etc.

Ear biometric

Mr. Santosh H. Suryawanshi (2015) proposed The Ear As A Biometric In which description of proposed system is given also experimental results is given.

Balakrishanan and Umamaheshwari (2014) proposed Human Ear Biometric Authentication System in which description of proposed system is given also experimental results is given. Narendira Kumar and Srinivasan (2012) proposed. Ear Biometrics in Human Identification System in which description of proposed system is given also experimental results is given.

Touch Gesture biometric

Ala Abdulhakim Alariki and Azizah Abdul Manaf (2014) proposed Touch Gesture Authentication Framework For Touch Screen Mobile Devices to recognize touch gesture stroke behavior for authentication in mobile phones. In this paper block diagram for proposed system is given and explained different working phases.

Lip Biometric

Ahmad B. A. Hassanat (11) proposed Visual Passwords Using Automatic Lip Reading in which the detailed system with proposed system and results explained.
Deveshree R. More and Prof. Vanita Mane, (?) proposed Fusion of Multiple Biometric For Photo-Attack Detection in Face Recognition Systems in which the detailed system with proposed system and results explained.

Voice Biometric

Dwijen Rudrapal *et al*. (2012) described proposed system and results explained. Eshwarappa and Dr. Mrityunjaya V. Latte (?) proposed Multimodal Biometric Person Authentication using Speech, Signature and Handwriting Features in which the detailed system with proposed system and results explained.

Signature Biometric

Eshwarappa M.N. and Dr. Mrityunjaya V. Latte (?) proposed Multimodal Biometric Person Authentication using Speech, Signature and Handwriting Features in which the detailed system with proposed system and results explained.

Handwriting Biometric

Eshwarappa M.N. and Dr. Mrityunjaya V. Latte (?) proposed Multimodal Biometric Person Authentication using Speech, Signature and Handwriting Features in which the detailed system with proposed system and results explained.

Keystroke Dynamics Biometric

Rohit A. Patil and Amar L. Renke (2016) proposed Keystroke Dynamics for User Authentication and Identification by using Typing Rhythm in which the detailed system with proposed system and results explained.

LIP BIOMETRIC AUTHENTICATION SYSTEM

Here in this system lip biometric password will be generated.

Proposed System

System has different phases of operation it includes enrollment of data, frame separation, segmentation, features extraction, classification, template matching and recognition.

Fig.2. Block Diagram of Lip Biometric Authentication System

- Video File Data: Video file is taken for enrollment which is. mp4 file.
- Pre-processing: It consists of frame separation and segmentation processes. Separated frames are of 480×640 pixels size. Then segmentation is done.
- Features Extraction: It consists of face detection the mouth are detection and then lips are extraction. Extracted features are sent for noise removal using median filter.
- Post-processing: It consists of digitization of templates. Then further templates are sent for classification using hamming distance.
- Accept or reject: It is the final stage in which extracted template are sent for database template matching.

Problems

As technology changed but it is not developed up to the highest level so it could achieve maximum accuracy.
Segmentation in videos and achieving the maximum of its efficiency is the goal.

Error Points

In the diagram arrow shows the different attack points or error points in the system as shown in the Fig.3. Error Points. These are the points from where the spoofing can happened.

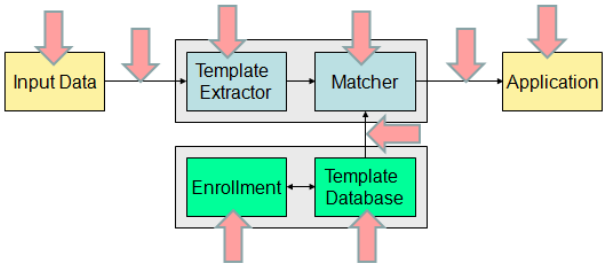

Fig.3. Error Points

Expected System

- System should give higher efficiency.
- System should have low cost.
- System must be user friendly.
- System should be upgradable.

Conclusion

Here in this paper we have explained a proposed system for lip movement biometric based authentication system. Different stages of operation are explained such as enrollment, framing, segmentation, features extraction, classification of templates, and recognition of lip movements. Also reviewed different biometric existing authentication techniques. System is upgradable. Multi biometric features can be added. This system securing authentication.

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