

# SERIAL MULTIMODAL BIOMETRIC AUTHENTICATION FOR SECURITY

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## ABSTRACT

*In early years monomodal biometric were used. To overcome problems with monomodal biometric like noisy data, error etc. multimodal biometric systems were proposed. In this we are going to use serial fusion biometric mode and semi supervised learning. Face recognition from image or video is a popular topic in biometrics research. Many public places usually have surveillance cameras for video capture and these cameras have their significant value for security purpose. It is widely acknowledged that the face recognition have played an important role in surveillance system as it does not need the object cooperation. The actual advantages of face based identification over other biometrics are uniqueness and acceptance. As human face is a dynamic object having high degree of variability in its appearance, that makes face detection a difficult problem in computer vision. In this field, accuracy and speed of identification is a main issue. Biometrics is a technology which identifies a person based on his physiology or behavioural characteristics. Fingerprint identification and recognition is a biometrics method that has been widely used in various applications because of its reliability and accuracy in the process of recognizing and verifying a person's identity. The main purpose of this framework is to develop a fingerprint identification and recognition system.*

*The system consists of two main parts face detection and finger print recognition. Fingerprint images are acquired and stored in the database in the image acquisition stage. These images are then enhanced in the image processing and we use this framework in IT server room for authentication purpose.*

**Keyword :-** Antialiasing, Bitmap and framebuffer operations, Digitizing and scanning Display algorithms, Line and curve generation, Viewing algorithms.

## 1. INTRODUCTION

The accuracy of face image and fingerprint is improved by using different algorithms like LDA (Linear Discriminant Analysis) and PCA (Principal Component Analysis). Also to improve the security Serial mode is used. Previous research has said that a multimodal biometric system usually gives more reliable performance than a monomodal biometric system due to the presence of multiple biometric systems. Due to its ease of use and user convenience, we focus on the serial fusion mode of multimodal biometric systems in this work.

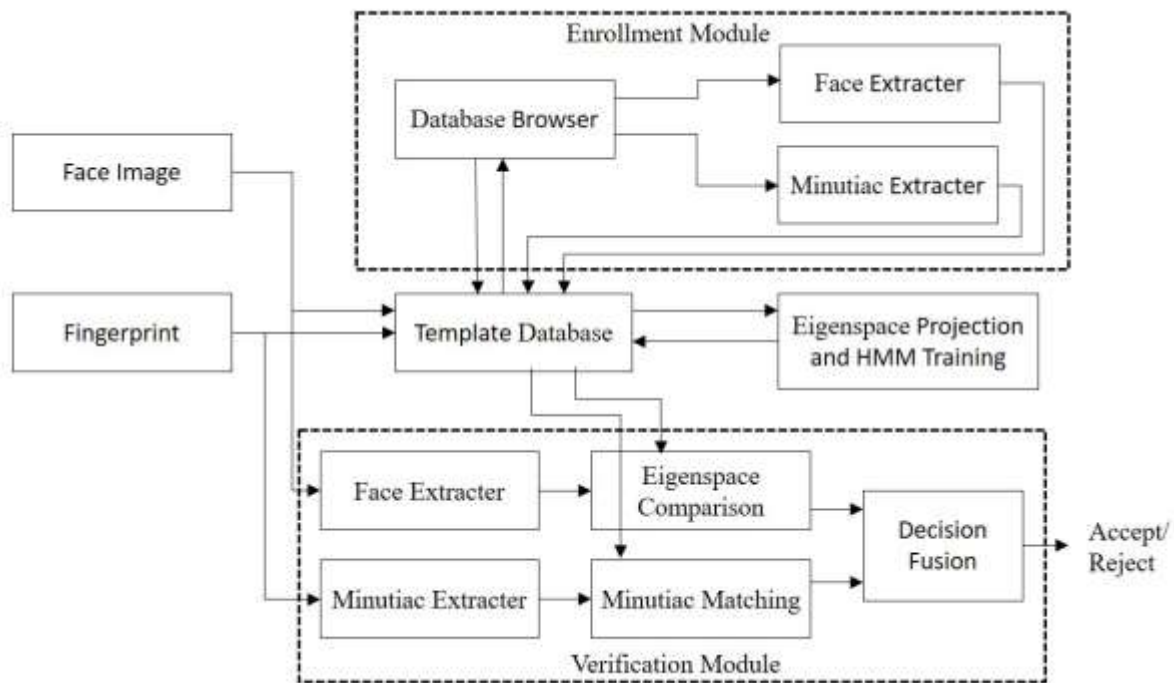
Our system consists of two main parts face detection and fingerprint recognition for authentication of user. Fingerprint and face images are acquired and stored in the database in the image acquisition stage. These images are then enhanced using image processing techniques and we use this framework for authentication purpose.

## 2. LITERATURE SURVEY

Previously parallel multimodal biometric system was developed. Now serial multimodal biometric system with semi-supervised learning techniques was proposed. This proposed system addresses the issues of user inconvenience and lack of security in parallel multimodal biometric systems. Later on the issues of user convenience & lack of security are solved by using serial multimodal biometric system. In terms of methodology there were use of dimensionality reduction method. Dimensionality reduction is the process of reducing the number of random variables under consideration by obtaining a set of principal variables. Dimensionality reduction can be divided into two types feature selection and feature extraction. Feature selection is the process of finding out subsets of original variables. There are three strategies in the feature selection filter strategy, the wrapper strategy, and the embedded strategy. Feature extraction is the process of converting the data in the high-dimensional space to a space of fewer dimensions. In principal component analysis (PCA) the data transformation is linear.

## 3. PROPOSED SYSTEM

Fingerprint identification and recognition is a biometrics method that has been widely used in various applications because of its reliability and accuracy in the process of recognizing and verifying a person's identity. The main purpose of this framework is to develop a fingerprint identification and recognition system. The system consists of two main parts face detection and finger print recognition. Fingerprint images are acquired and stored in the database in the image acquisition stage. These images are then enhanced in the image processing and we use this framework for authentication purpose.



## 4. SYSTEM ARCHITECTURE DIAGRAM

Our system is used for authentication purpose. System takes fingerprint and face image serially. Authentication of face image is done by using PCA and LDA algorithms. PCA algorithm is mainly works on feature extraction. The fingerprint is identified by using different classes in ratha library. The result of authentication is shown by binary values either 0 or 1, if value is 1 then user is authenticated or else not.

## 5. CONCLUSIONS

In this proposed project, we employ the serial biometric authentication mode and PCA (Principal Component Analysis) LDA (Linear Discriminant Analysis), DMDR framework for improving the accuracy and efficiency of person identification for security purpose. First face recognition and then fingerprint identification will be done. Serial mode is more efficient and increasing accuracy and security. PCA and LDA algorithms are improving image processing level. We can use this in many fields like IT server room, ATMs, Defence Area.

## 6. ACKNOWLEDGEMENT

It gives us great pleasure in presenting the preliminary project report on “SERIAL MULTIMODAL BIOMETRIC AUTHENTICATION FOR SECURITY”.

We would like to take this opportunity to thank our internal guide Prof A.V. Kolapkar for giving us all the help and guidance we needed. We are really grateful to them for their kind support. Their valuable suggestions were very helpful.

We are also grateful to Prof. Dr. S. S. Sane, Head of Computer Engineering Department, KKWIEER, for his indispensable support, suggestions.

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