

A BRIEF DESCRIPTION ON FINGERPRINTING IDENTIFICATION & ITS APPLICATIONS IN MODERN ERA

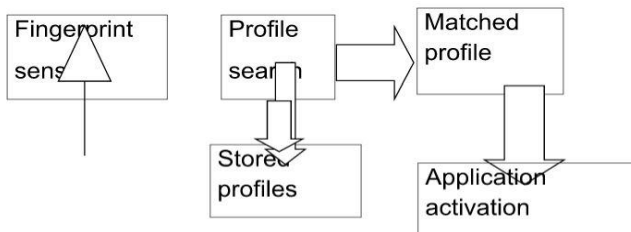
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ABSTRACT: This paper is brief description on fingerprint identification in latest research field of modern sciences and its applications. Nowadays fingerprint is providing a base to authenticate by means of various factors such as signature, fingerprint, passwords, palm, etc. The recent advancement in fingerprinting technology has been playing a tremendous role in various research field and it also structurally important in various branches of science. The fingerprinting technique has been booming to a great extent in the field of science & technology.

KEYWORDS: Fingerprint recognition, Classification, Evaluation, Authentication, Technology.

I. INTRODUCTION

The fingerprint technique is playing a leading role in the process for identification using this technique. There is a process to identify the records which are stored using fingerprint technique. [1]. The researchers have been trying to demonstrate the process of various records on the bases of fingerprint authentication. The process of the fingerprint have been explained with the help of flowchart to understand the recognition process. [2]



The fingerprint identification helps the people to identify the mismatch of the fingerprint between the two individuals. Authentication of fingerprint technology has been playing important role in the human aspect of life. In various branches such as Idproofs, aadhar card, E-banking, Network security, mobile phones etc. The biometric system has been already fulfilled. It is also widely used in various authentication process and to evaluate the basic structure in fingerprint techniques.

II. CLASSIFICATION OF FINGERPRINT AUTHENTICATION BY MEANS OF VARIOUS METHODS WHICH ARE LISTED BELOW.

1. Providing the basic need for security identification system. [3]

2. Extant Methods.
3. Optical Sensor.
4. Fingerprint Detection.

1. Providing the need for security identification: In this method the computer users have been demanding the biometric system because nowadays there is an increase of hacking of data through computer hackers in just few hours. There is an application on the computer how to hack others data so for this we need security so that users information may not be leaked in any way and at any cost.

2. EXTANT METHODS: In addition to this there are various methods which have been came up such as patternlock, passwords, PINS, user Ids, etc. But these methods can be insecure for the people because nowadays in just few minutes we can able to hack others information and we can come to know about these various PINS, passwords etc. So these method cannot be proved to be secure for the people.

3. Fingerprint Detection: In this method after we get the image of fingerprint there are some variations or some distorted views in the images. The ridges and furrows for detection is not clear so some expansion and contrast is created to get the proper image of fingerprint.

III. METHODOLOGY

The major approach to fingerprint technique has been divided into four categories. [4]

1. Orientation for the given fingerprint image.
2. General orientation of flow of curves of fingerprint.
3. Labelling of each OFFC is divided into four classes-left & right loop & whorl & arch.
4. Classification of fingerprint detection.

It also involves to test the given fingerprint of an individual so as to evaluate matching of the fingerprint through biometric system [5]. When a person is to be authenticated then he/she gives two fingerprints named as (A0 & B0) for identification process which is used to verify his/her identity. After the process has been completed if A0 matches A perfectly & B0 matches perfectly then the final score with this metric is 100 & if A0 does not match with A perfectly then it would be reflected because many of the minor minutiae points would not be matched successfully & it makes denominator large. For this identification how to calculate whether the score is matched or not it is given by formula

$$SCORE = \frac{(AM + BM - A'M) \cdot n \cdot B'M}{(AM + BM - A'M) + B'M} \quad [6]$$

ROLE OF DNA FINGERPRINTING PROFILING IN CRIMINAL JUSTICE SYSTEM: The DNA profiling has been

widely used for the investigation of criminals using DNA fingerprinting techniques. In forensic labs DNA fingerprint detection is tested with help of every individual so that the criminal is been prosecuted[7] This method has been proved a significant approach in criminal justice system. It is also done with the help of blood stain samples of the victim. The DNA profile of the blood stain if gets matched with that of victim then the criminal is arrested. The DNA profiling is now widely used by investigating police to screen[8].

APPLICATIONS: The fingerprinting technology has wide range of applications in todays modern era[9]

1.HELPOS TO CATCH A KILLER: In this method the DNA profiling technique is used. In variopus forensic labs the detection of fingerprint of criminal has been taken to test. If the fingerprint is authenticated then the criminal confesses that he has done a murder and he gets arrested by police.

2. It helps to recognise various identity proofs

3. The technique is also used to establish paternity.

4. It is also used in medical sciences.

5. It is also used in drivers license & professional ID card verification.

6. Voter registration & identification.

IV. CONCLUSION

The fingerprint authentication has been proved very significant approach in today's modren world. It has been proved a reliable characteristic for personal identification as it has uniqueness property & it is more persistant. In this paper we have discussed its classification & where the fingerprint authentication is used in day to day life,its methodology & its few applications. The fingerprint technique has been palyed a significant role in the field of research 7 sciences & human aspect of life.

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