

Biometric Authentication Technique on Detection System using Fingerprint

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Abstract— Biometric refers to the method for uniquely recognizing humans based on the physical and behavioural traits. Identifying attackers is a major work for both organization and government. The authentication which proves the ability to require more instance of authentication in a quick and easy manner .Biometrics are more useful as compare to passwords and tokens. on fingerprint recognition which would allow us to detect more efficient manner and abuse of the computer system.

Keywords— Fingerprint; Authentication; Minutia; Ridges; Bifurcation.

particular positions of the minutiae are also recorded, in the structure of arithmetic synchronizes, for every finger.

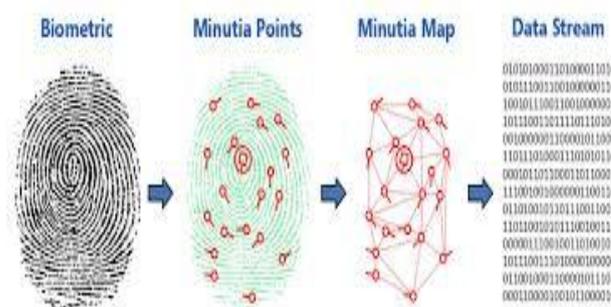


Fig.2: Image of minutia

1. Introduction

Biometrics contains an association among the being and their IDENTITY .It should not be shared simply, misplaced, spared and inexcusable. It can also avoid the consumer from creation a fake repudiation asserts Fingerprints submits to similar the resemblance between the two agreed pictures of a finger. Fingerprints are prepared up of a sequence of crests and grooves on the facade of finger. Enclose a center around which model like whirls, loops or curves are curved to guarantee that each publish is sole.

In the biometric method of fingers scanning, minutiae are exact points in a finger picture. There are two chief kinds, recognized as ridge and trough. On occasion, other minutiae, such the points at which scars commence or conclude, are measured minutiae



Fig.1: Image of an fingerprint

The numeral and positions of the minutiae diverge from finger to another finger in any scrupulous being, and from being to being for any meticulous finger. When a set of fingerprint pictures is acquired from a personality, the number of details is evidenced for every finger. The

2. Related work

2.1 Biometric Security System Based On Fingerprint Recognition

Biometric refers to the method for uniquely recognizing humans based on the physical and behavioural traits. Automated method of verifying a match between two human fingerprints .Application of biometrics: Electronic id card, computer network login, Electronic data security, biometric attendance, correctional facility.[1]

2.2 A Study On Attack And Security Against Fingerprint Template Database

Biometric information cannot be acquired by direct covert observation. The evaluation of biometric system depends on two types of error1) Acquisition errors.2) Matching errors .This also permit the use of the same biometric traits in several different application by merely adopting an application-specific transformation function.[3]

2.3 Finger-Vein Based Biometric Security System

Finger vein based blood vessel pattern have an high security, because the vein are located under the surface of the skin. A method which to make a low cost devices

using vein pattern images with low contrast, and high quality images [2]

2.4 Fingerprint Identification in Biometric Security System

Fingerprint is one of many forms of biometrics used to identify an individual and their identity. Biometric techniques fingerprint identification system has received the most attention due to long history of fingerprint and their use in forensics. [4]

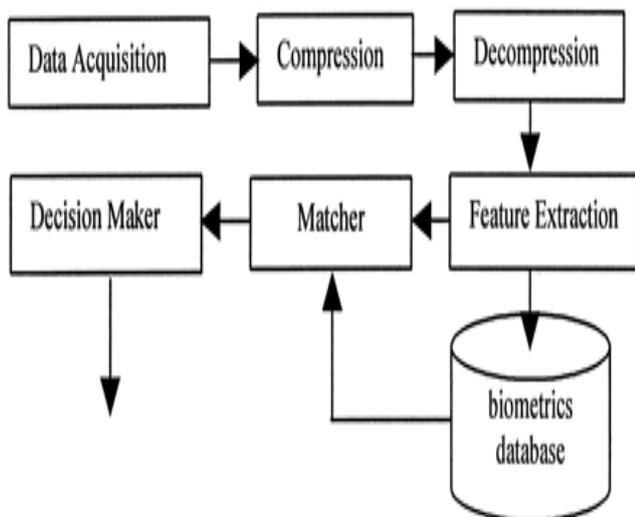


Fig.3: Attack point on biometrics

3. Challenges In Biometric Authentication

The confronts in facade of biometric system are as pursues.

Privacy: During the verification, a judgment is done among the storage data and the input biometric data. Servers are not entirely in the protected manner. Servers with scrawny refuge safeguard can be wrecked by assailants.

Error Tolerance and Nontrusted Devices: Biometric substantiation etiquette cannot merely evaluate the muddle or the encryption of an biometric pattern. Instead biometric confirmation must tolerate stoppages within a balanced bounce. Such strategy are tenuously positioned from the server side and cannot be entirely faith.

4. Fingerprint Recognition

Along with biometric procedure, fingerprint identification is the admired way due to the subsequent advantages:

- Universality.
- High distinctiveness.
- High performance.

The individuality of fingerprints can be discovered by the model of minutia positions, local ridge direction data, and mixture of ridge direction and minutia settings. The fingerprint appreciation has become a dependable process of individual discovery.

5. Process Involved

5.1 The Enrollment Method

This method consists of detaining a people's fingerprint with a fingerprint scanning device. Throughout the enrollment method, the structure keeps the people fingerprint into a record.

5.2 The Authentication Method

It is utilized to verify the stated individual. These methods consist of contrasting a detained fingerprint to registered fingerprint in regulate to resolve whether the two contest. If the two fingerprints match, then the computer will be unlocked. [7]

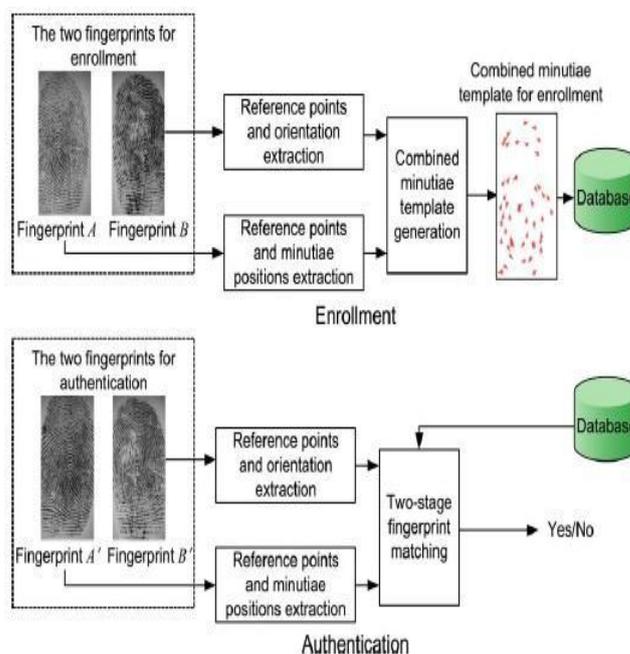


Fig.4: Fingerprint Privacy Protection System

6. Fingerprint Privacy Protection

It presents fingerprint solitude defense method. In the enrollment stage, two fingerprints A and B are captured from two diverse fingers A and B correspondingly. The confirmation procedure will be victorious. With this method, the whole minutiae trait of a solitary fingerprint will not be cooperation's when the record is stolen by the

assailants. And consequently, it preserves the fingerprint seclusion.

6.1 Reference Points Detection

The allusion points are finding in together employment and confirmation stage as follows:

- The direction is resolute from the fingerprint by using direction judgment algorithm.
- The conviction chart of reference chart is unwavering.
- Enhanced conviction chart is dogged.
- Until all reference tips are noticed, recur the beyond step.

6.2 Combined Minutiae Template Generation:

It includes of minutiae place alignment and minutiae path task.

A. Minutiae Position Alignment

Here, an allusion point with the utmost conviction worth is distinct as the principal reference tips. Consequently, two chief reference points for two diverse fingerprints are noticed. Every minutiae tip of fingerprint A is interpreted and revolved to comprise a correct arrangement. Consequently, minutiae location from fingerprint A is associated.

B. Minutiae Direction Assignment

Each allied minutiae location is allocated with a meticulous course which is the identical as that of the minutiae instructions from an unique fingerprint.

6.3 Minutiae Matching

In general habitual finger print verification is achieved with minutia identical instead of a pixel-wise matching or a ridge pattern matching of fingerprint images. The minutia matcher decide any two minutia couple and then contest their connected edges first. If the edges match fit, two fingerprint pictures are aligned and matching is conducted for all remaining minutia.[6]

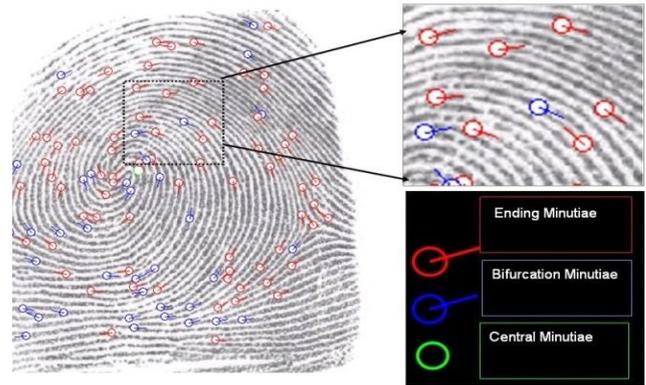


Fig.5: Minutiae matching

7. Conclusion

Fingerprint safeguard scheme which offered lofty level sanctuary and make certain right confirmation of genuine client. Two fingerprints are joint to appearance a mutual minutiae pattern which will be accumulated in the database.

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