Staff Attendance System Based on Fingerprint Recognition

Usha Nandhini.B[1*], Suganraj. L[2] , Selvapriya.P.B[3] ,Gomathi.P[4]

[1]B.E.Computer Science and Engineering, N. S. N. College of Engineering and Technology, Karur, Tamilnadu,India
[2]B.E.Computer Science and Engineering, N. S. N. College of Engineering and Technology, Karur, Tamilnadu,India
[3]Assistent Professor, N. S. N. College of Engineering and Technology, Karur, Tamilnadu,India
[4] Dean, N.S. N. College of Engineering and Technology, Karur, Tamilnadu,India
ushanandhinib_cse2015@nsn.ac.in, suganrajl_cse2015@nsn.ac.in, selvapriyapb_cse@nsn.ac.in, dean@nsn.ac.in

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Abstract— **Fingerprint matching algorithm is a key issue of the fingerprint acceptance, and there already exist many fingerprint matching algorithms, Give to the dependence of the core point, fingerprint matching algorithms are branched into two groups, core-based contest algorithms and noncore-based contest algorithms. Most of the noncore-based matching algorithm is time consuming; therefore, they are not convenient for online application; meantime, the core-based matching algorithm is efficient than the noncore-based matching algorithm, but it deeply depends on the core detection care. In this paper, we present a new core-based structure matching algorithm which considers both efficient and precision. Firstly we used core disclosure algorithm to get the core space, then we define some local structure of the core field. Used these local structure, we can find some contributor points of the two fingerprint image. Secondly, we adoption the correspondent points in the first stage to match the global feature of the fingerprint. Empirical results show that the performance of the proposed algorithm is good.**

Keywords—Component; Formatting; Style; Styling; Insert

I. INTRODUCTION

Staff management is an aspect widely proficient in all workplaces. Day by day security breaches and transaction fraud increases, the need for secure testimony star and personal authentication technologies is becoming a great concern to the academy. Therefore, we present here able management of attendance using fingerprint identification for those area, where the biometric device are not applicable and attendance of employee is calculated at the last of month. First enroll the employee. Store entire the necessary information inclusive of id, image and fingerprint into the database. When attendance is computed, the common fingerprints are accepting with the saved fingerprint by using the scanner. If fingerprint is balanced then attendance is accepted otherwise it is rejected.

II. FINGERPRINT SENSOR

Fingerprint sensor is an electronic device recycled to taking a digital image of the fingerprint pattern (Cappelli etal., 2006). The captured image is called a live scan. This live scan is totally processed to create a biometric template (a collection of extracted minutiae points) which is stored and used for matching. Minutiae are decided as the pattern created and the singleness of how ridges end, split and join, or arrive as a simple dot. The Minutiae subsists of bifurcations, ridge dots, ridge endings and cages, to assure further uniqueness, the minutiae are further busted down

into sub minutiae such as pores, crossovers, deltas. The pores are tiny abjection within the ridge on a fingerprint; the crosses over creates an X pattern within the ridge of a fingerprint and deltas build a triangle shaped pattern within the ridge of a fingerprint description in a fingerprint technology exists when an particular fingerprint is compared against a known source called the fingerprint template (Chirillo & Scott, 2007).


Fingerprint sensors are very complex and continue to grow more complicated. They are becoming a vital part of the conversion to a more technologically unified society. Current fingerprint technologies are generally sensitive to acquiring poor quality images due to different skin conditions and environmental effects. These poor quality images negatively affect the ability to accurately determine a person's identity. Low fingerprint image can be enhanced through several stages of enhancement.

III. FEATURES OF FINGERPRINT

A fingerprint is an impression of the erosion ridges of all or any part of the finger. A friction ridge is a constructed

portion of the epidermis on the palmar (palm and fingers) or plantar (sole and toes) skin, dwell of one or more connected ridge units friction rim skin. These ridges are sometimes known as "dermal ridges" or "dermal papillae". A. Fingerprint Pattern There are a number of different strategies through which fingerprint identification can be done, among which verification through minutia points is the most simple and easy. According to the current most widely used Galton –Henry system, the fingerprint is branched into five classifications,
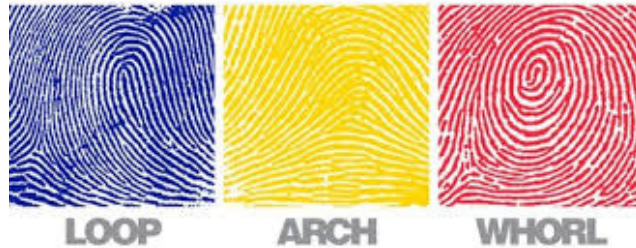
- Arch: Fingerprint lines start from lateral of the finger and end at the other side, do not return and on the core points and delta point.
- Tented Arch: Like an arch fingerprint, but graphic Center higher rise in the vertical order, equivalent to a core and a delta on the same vertical line 38 Patel and Asrodia.
- Left Loop: Circular arrangement that is fingerprint lines access from one order then back from the same direction after a rotation over. To the left is Left Loop. There is a core and a delta at the lower left.
- Right Loop: To the right is Right Loop. There is a Core and a delta at the reduced right.
- Whorl: At least one fingerprint stripe rotate into a closed curve around the interior, there are two core points in center, a triangular point on each side when the cores are not in the same steep line, here will form a double helix.

Minutiae Features
The major Minutia features of fingerprint ridges are: ridge ending, bifurcation, and short ridge (or dot). The ridge ending is the point at which ridges abolish. Bifurcations are points at which a single ridge splits into two ridges. Short ridges (or dots) are ridges which are significantly shorter than the average ridge length on the fingerprint. Minutiae and patterns are very essential in the analysis of fingerprints since no two fingers have been shown to be identical. The minutia based algorithm is widely used for fingerprint authentication. It target on the endings of ridges and bifurcations. Consequently the pivotal area in fingerprint image is very important and this algorithm keenly relies on the quality of the input images. Global and local characteristics of fingerprints are used for identification of particular. Global features are the ones that can be seen with naked eye like ridges, pattern area and delta while local characteristics are the minutia points.

Fingerprint ridges are not endless as there are a number points at which ridges change and end and these points are called minutia points. The unique identifying features are provided by these minutia points. A raw image is appropriated from the sensor and algorithms are implemented on the image to enhance it and further extract the minutia points directly from this representation. This method provides a much more efficient and reliable result as compared to other methods of fingerprint verification.

IV.   FINGERPRINT MATCHING

Fingerprint matching is the process used to determine whether two sets of fingerprint come from the same finger. One fingerprint is stored into the database and other is employee's current fingerprint. Minutiae point refers to the topical characteristic at the end point of the ridge part. The best way to compare fingerprints is to compare all visual information on the fingerprints. However, this is realistically impossible. Comparing all visual information requires too much data, and this is inappropriate to making a commercialized system. Actual commercialized systems do not store the fingerprint itself, but characteristics of the fingerprints, and codes related to the position of these points of characteristics. Since only characteristics are stored, they cannot be revived as fingerprint visuals, and therefore cannot be used as evidence in legal facilities.

Core Point Detection
In early works, we have developed a fast multi-resolution based core point detection algorithm. It mainly involves two steps: Firstly, we need the low resolution direction range to localize a singular space which includes core point.

Secondly, we use high resolution control field of singular area to precisely localize the core point. Used this two step form, we can fast and precisely localize the core point in block levels. Due to various type of image aspect, our algorithm cannot localize the core point in pixel level; then, we can no more directly use the core point as the reference point for the match algorithm. But for better of the case, the core point detection is very actual, and if we use this reference information, we can greatly reduce the search space, therefore, improve the efficient of the match algorithm. In this paper, we develop a core based matching algorithm, which use the core point to select some minutiae points, and use those minutiae points to construct a area of local structure. Correspondence point pair can be got by matching those local structures. Service those correspondent points pair, the global minutiae matching can be carried out.

Database management

Information of employee also finger print record is stored in the database. The database has secure access and can be updated as and when required by the administrator. The information gathered into database is used when a fingerprint is matching. Report stored into the database is:-

- Employee_id
- Employee name
- Father name
- Address
- Phone number
- Date of birth
- Date of joining
- Finger print

The AF system should subsist of two phases: the preparation phase and the recognition phase. First, we contract the database by mixture it with the audio fingerprints and the associated metadata of abounding audio clips, and then the fingerprint of an unknown clip (or the distorted version of the clip brought by compression or classic audio processing) is extracted and related to that of the clips in the database. If the fingerprint of the unknown clip is in the database, it will be accurately identified by the matching procedures.

V. Conclusion

Over the past decades, biometric technique and its applications have undergone tremendous development and advance. More than ever, fingerprint technique is one of the most popular applications in both identification, and verification. In the biometric technique there is a need of biometric device and this technique is not available everywhere. A more advanced solution already known patterns would not serve well due to its high sensitivity to errors. To overcome this problem, we describe a method based on minuate matching that is to extract features of so called minutiae points from the fingerprint image, and research matching between the sets of fingerprint features. After checking it verifies the fingerprint and show identification of employee.

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