Identification and Rectification Algorithm of Distorted Fingerprints

A Dissertation Report Submitted to

Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Towards Fulfillment for the Award of

Master of Technology
(Computer Science & Engineering)

Submitted By

Nikhil D Kasar.

Enrollment No. 0828CS15MT10

Under the Supervision of

Prof. Abhilasha Vyas

(Asst. Professor)

Department of Computer Science & Engineering

Patel College of Science and Technology, Indore

2017-18

Patel College of Science and Technology, Indore
Department of Computer Science Engineering

RECOMMENDATION

This is to certify that the work embodied in this dissertation entitled **"Identification and Rectification Algorithm for Distorted Fingerprints"** submitted by **Nikhil D Kasar** (Enrollment No. **0828CS15MT10**) in fulfillment of the requirement for the award of **Master of Technology** in **Computer Science & Engineering** discipline, to **Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal (M.P.)** during the academic year 2017-18 is a record of bonafide piece of work, carried out by him under my supervision and guidance.

Approved & Supervised by:

17/05/2018

Prof. Abhilasha Vyas
(Asst. Professor)

Forwarded by

17/05/18

Prof. Abhilasha Vyas
Asst. Professor & Head (CSE)

Prof. K.K. Mishra
Director
Patel Group of Institutions
INDORE

Patel College of Science and Technology, Indore
Department of Computer Science Engineering

CERTIFICATE

The Dissertation entitled **"Identification and Rectification Algorithm for Distorted Fingerprints"** being submitted by **Nikhil D Kasar (**Enrollment No. **0828CS15MT10**) has been examined by us and is here by approved for the award of degree **Master of Technology** in **Computer Science & Engineering** discipline, for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein, but approve the dissertation only for the purpose for which it has been submitted.

Internal Examiner **External Examiner**

Date: **Date:**

Patel College of Science and Technology, Indore
Department of Computer Science Engineering

DISSERTATION APPROVAL SHEET

The dissertation work entitled **"Identification and Rectification Algorithm for Distorted Fingerprints"** submitted by **Nikhil D Kasar** (Enrollment No.**0828CS15MT10**) is approved as partial fulfillment for the award of the **Master of Technology** in **Computer Science & Engineering** degree by Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal (M.P).

Approved & Supervised by

17/05/18

Prof. Abhilasha Vyas
(Asst. Professor)

Patel College of Science and Technology, Indore
Department of Computer Science Engineering

DECLARATIONS

I hereby declare that the work, which is being presented in the dissertation, entitled **"Identification and Rectification Algorithm for Distorted Fingerprints"** fulfillment of the requirements for the award of degree of Master of Technology in **Computer Science & Engineering** submitted in the **Department of Computer Science & Engineering** (**Patel College of Science and Technology, Indore**) is an authentic record of my own work carried under the guidance of **Prof. Abhilasha Vyas**. I have not submitted the matter embodied in this report for award of any other degree.

I also declare that "A check for Plagiarism has been carried out on the thesis/project report/dissertation and is found within the acceptable limit and report of which is enclosed herewith."

17/05/18

Prof. Abhilasha Vyas
Supervisor

Nikhil D Kasar
(0828CS15MT10)

Prof. K.K. Mishra
Director

Prof. K.K. Mishra
Director
Patel Group of Institutions
INDORE

महाराष्ट्र MAHARASHTRA ◑ 2017 ◑

SE 612019

वकी 2459 तारीख 07/09/17 रुपय 100
नांव _____ रा. अमळनेर
इस्ते निखील दिलीप कासार
स्वत:

उप कोषागार अधिकारी अमळनेर जि.जळगांव

29 DEC 2017

गजानन प्रमोद गुंजाळ
मुंदडा मार्केट, अमळनेर.
ला नं. १/२००३

उप कोषागार अधिकारी
अमळनेर जि.जळगांव

NOTARY Mrs. P.D. Bhavsar Amalner Taluka Dist. Jalgaon Reg.No: 1116 GOVT. OF MAHARASHTRA

Documents contents 2 Page
Notcd at Sr. No. 27
2018

प्रपत्र

मै निखिल दिलीप कासार पिता दिलीप मोतीराम कासार, आयु - २५ वर्ष, निवासी - १५०२, जुनी चावडी, सराफ बाजार, अमलनेर, जि.जलगांव, महाराष्ट्र काँ होकर शपथ पुर्वक कथन करता हू कि -

१. यह की, मैने एम.टेक के विषय में कंम्प्युटर साइंस इंजीनियरिंग सत्र २०१५ मे काउंसलिंग स्तर काउंसलिंग (सी.एल.सी) के माध्यम से श्रेणी सामान्य से पटेल कॉलेज ऑफ साइंस एंड टेक्नोलोजी, इंदौर संस्था मे प्रवेष लिया था |

२. मै दिनांक जुलाई २०१५ मे नियमित छात्र के रुप मे स्नातकांत्तर पाठयक्रम मे अध्ययनरत था |

३. मै घोषणा करता हू की इस पाठयक्रम कि अवधि मे किसी भी अन्य निजी क्षेत्र के संस्थान / औद्योगिक समुह / किसी भी कार्यालय मे पुर्णकालिक रुप से कार्यरत नही था |

दिनांक -

हस्ताक्षर शपथगृहिता

Signed Before Me

Mrs. P.D. BHAVSAR
Notary Public, Amalner (M.S.)

AFFIDAVIT

Solemnly affirmed before me
by Nikhil Dilip Kasar
who is identified before me
by Dilip Motiram Kasar
to whom I know personally
Date 4 / 1 /2018

Mrs. P.D. BHAVSAR
ADVCCATE NOTARY

NOTARY Mrs. P.D. Bhavsar Amalner Taluka Dist. Jalgaon Reg.No. 1116 GOVT. OF MAHARASHTRA

NOTARIAL NOTARIAL NOTARIAL NOTARIAL NOTARIAL

महाराष्ट्र MAHARASHTRA ◑ 2017 ◑ SE 612018

क्रमांक 2545 तारीख 07/09/17 रुपये 100

नांव निखिल दिलीप कासार रा. अमळनेर

कस्ते स्वतः

मनोहर प्रसाद गुंजाल
मुद्रांक वेंडर, अमळनेर.
ला नं १/२००३

29 DEC 2017

उप कोषागार अधिकारी
अमळनेर जि.जळगांव

गाईड एवं संचालक / प्राचार्य व्दारा सत्यापित किया जावे

सत्यापित करते है की छात्र का नाम **निखिल दिलीप कासार** नामांकन क्रमांक - 0828CS15MT10 व्दारा उपरोक्तानुसार की गई जानकारी प्रमाणित एवं सही है |

PRINCIPAL
Patel College of Science & Technology
INDORE

संचालक / प्राचार्य

गाईड के हस्ताक्षर 08/01/2018

हस्ताक्षर / पदनाम सील सहित

दिनांक -

संस्था का नाम - पटेल कॉलेज ऑफ साइंस एंड टेक्नोलोजी इंदौर

संस्था का कोड / 0828

दुरभाष क्रमांक - (0731) 2437100

प्रपत्र

मै **निखिल कासार** पिता **दिलीप कासार** आयु– २५ वर्ष, निवासी– १५०२, चावडी सराफ बाजार अमलनेर जी .जलगांव महाराष्ट्र होकर शपथ पूर्वक कथन करता हू कि –

1. यह कि, मैने एम.टेक के विषय मे कंप्यूटर साइंस इंजीनियरिंग सत्र 2015 मे काउंसलिंग स्तर काउंसलिंग (सी.एल.सी) के माध्यम से श्रेणी सामान्य से पटेल कॉलेज ऑफ साइंस एंड टेक्नोलोजी, इंदौर संस्था मे प्रवेष लिया था।

2. मै दिनांक जुलाई 2015 मे नियमित छात्र के रूप मे स्नातकोत्तर पाठ्यक्रम मे अध्ययनरत था।

3. मै घोषणा करता हू कि इस पाठ्यक्रम कि अवधि मे किसी भी अन्य निजी क्षेत्र के संस्थान / औधोगिक समूह / किसी भी कार्यालय मे पूर्णकालिक रूप से कार्यरत नही था।

हस्ताक्षर शपथगृहिता

17/05/18

गाईड एवं संचालक / प्राचार्य द्वारा सत्यापित किया जावे

सत्यापित करते है कि छात्र का नाम निखिल कासार नामांकन कमांक **0828CS15MT10** द्वारा उपरोक्तानुसार भी गई जानकारी प्रमाणित एवं सही है।

संचालक / प्राचार्य

17/05/18

गाईड के हस्ताक्षर

Prof. K.K. Mishra
Director
Patel Group of Institutions
INDORE

हस्ताक्षर/पदनाम सील सहित दिनांक

संस्था का नाम– पटेल कॉलेज ऑफ साइंस एंड टेक्नोलोजी इंदौर

संस्था का कोड / 0828

दुरभाष कमांक (0731) 2437100

ACKNOWLEDGEMENT

I take the opportunity to express my cordial gratitude to **Prof. Abhilasha Vyas** Asst. Professor in the Department of Computer Science & Engineering, Patel College of Science and Technology, Indore (M.P.) for the valuable guidance and inspiration throughout the dissertation work. I feel thankful for his innovative ideas, which led to successful completion of this work.

I would also like to thank **Prof. K.K.Mishra,** Director, Patel College of Science and Technology, Indore (M.P.) for his continuous support in completion of my thesis.

I give special thanks to **Prof. Abhilasha Vyas,** HOD, Department of Computer Science & Engineering, Patel College of Science and Technology, Indore (M.P.) to always being willing to help find solutions to any problems I had with my work.

I would also like to thanks **Prof. Pritesh Jain** Associate Professor, Department of Computer Science & Engineering, Patel College of Science and Technology, Indore (M.P.) for providing additional guidance and insight into my research work.

I express my gratitude and thanks to all the staff members of Computer Science & Engineering department for their sincere cooperation in furnishing relevant information to complete this dissertation well in time successfully.

Lastly but not least I must express my cordial thank to my parent, family members and friends who gave me the moral support without which it was impossible to complete my project work. With this note I thank everyone for the support.

Nikhil D Kasar

Abstract

As per user expertise there square measure several application that square measure needed fingerprint recognition however there square measure to be found many distorted fingerprint in recognition and false non-match in question and guide fingerprint conjointly not determine that candidate or suspect.

Fingering fingerprints may be a major reason behind misconduct. Even though this affects all fingerprint markers, it's harmful to negative markers like viewer and repeating. During this thesis, malicious users could by design blink their eyes to avoid distinguishing them. During this thesis, recommend new novel algorithms to appear up and proper the harm to the theme supported identical fingerprints. Detection of distortion, seen as a haul for classification into 2 categories, operate vectors exploitation registering cards of orientation and maturity Ridge, map of the fingerprints and managers square measure trained SVM to perform the task of this assortment. Correction of distortion (or bowed equivalent of field distortion) is taken into account a regression downside within the input impaired fingerprint distortion and result field distortion. To unravel this downside, offline steps produce a information (referenced database) of multiple fingerprints and a corresponding field of distortion, then the nearest terminus on internet of the input finger is found within the reference information and also the corresponding distortion field is employed to alter the input footprint to traditional. 3 in outcomes within the wrong fingerprint information - FVC2004 DB1, Tsinghua's wrong finger information and information with SD27 federal agency fingerprints.

Planned novel algorithmic program for the observe the distortion within the inferiority image of fingerprint and live fingerprint map conjointly the assorted form of the fingerprint distortion detected and spot that distortion fingerprint image equally the orientation map and skeleton of fingerprint image conjointly shown exploitation this algorithmic program conjointly spot out nearest neighboring purpose from their terminus even the finger square measure of the form whorl, curl, oval.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLE

LIST OF GRAPH

ABBREVIATIONS

PCA	Principal Component Analysis
SVM	Support Vector Machine
CLR	Common Language Cycle
XML	Extensible Markup Language
SDK	Software Development Kit
GUI	Graphical User Interface
NFIQ	Normal Fingerprint Image Quality
TPS	Thin Spline Model
IL	Intermediate Interpretation Low Level
ROC	Receiver Operating Characteristics Curve
UIDAI	Unique Identification Development Authority of India

CHAPTER 1

INTRODUCTION

This chapter provides the understanding about the basic overview of the proposed work and their involved background technology. In order to improved that the distortion detection more accurately in fingerprint using this research.

1.1 Overview

1.1.1 Fingerprint

Their narrow fingerprints are the impressions left by the edges of the human fingers. Fingerprint recovery is an important method of legal remedies. Dactyloscopic fingerprints are placed on appropriate surfaces (such as glass, metal, or polysaccharides) by releasing the mucus from the esophagus that is found in the membrane. Sometimes they are called "Attractive Attraction".

Wider use of the unique code of a person or other animal in each part of the friction is an interest in the preliminary steps. The palms of the palm can also leave a feeling of friction on the mountain range. The fingerprints can be made up of ink or other substances that have been transferred from frictional to glossy surfaces such as fingerprints. Fingerprint records usually have fingerprints on finger and thumb links, though fingerprints usually record parts of the lower graft.

People's fingerprints are virtually identical, difficult to change, and lasts for a lifetime, making them suitable as a long-term identifier of human identity. They can be hired by police or other authorities to identify those who want to hide their identities or to identify those who are disabled or dead and therefore unable to be identified because of natural disasters. Fingerprint analysis used in the early 20th century has led to a number of criminal cases. This means that many criminals believe gloves are important. By 2015, gender identity has been reported using fingerprints.

1.1.2 Types of Fingerprint

The calculation is used in the fingerprint system, a large storage. Classification system, or fingers of conventional lid models (for example, round models based on the presence or absence of). He rubbing the ridge pattern and a large collection of documents based on the restoration. The most popular systems used to create the key (a number) for viewing each pattern of pattern of each finger in a filing system. The classification system includes the Rochester system, the Juan Wukitich

system and the Henry classification system. Rochester system was developed in Germany, as well as Germany and Japan; The Wuketich system (Croatian-born, developed by a police officer in Buenos Aires, Argentina) was developed in India and South America, and Henry systems are fully developed in most English-speaking countries, and Henry's system has three main fingerprint patterns: Loop fingerprints at all, 60-65%, 30-35% and 5% of wave and bow respectively. It is also a more complex classification system which breaks the pattern even further, in the plain arches or the taunt arches, and in the rings which can be radial or velour, toward the tail point on the side of the hand. Ulmer loop starts from the pinky side of the finger, and is close to the larynx, the lower arm bone begins with the edge of the thumb of the finger, closer to the radius on the finger. Wenge and a small classification group, including the Pacific Day dress, the wrists, the double-wrapped carnations, and the holder of a common and central pocket loop can be quays. Another common pattern fingerprint arch, normal hill and central pocket cycle.

The system is used by the vast majority of experts, however, like the secret of the system, Henry comes down with his finger, he is in order, M, L, middle finger, finger ring, and R shield, which consists of five parts and several manual b (kutre).

The following are as follows:

(Re / RT + RR / RM + Lt / RP + Lm / Li + LP / LR)

The numbers assigned to each print are based on whether they are vertical or not. In the first fraction, a curve is given a 16, the other one is 8, the third one is 4, the fourth one 2, and the last fraction is given 0. Arches and loops have been assigned the values of 0. Finally, using this scheme, numeric and numbers are added to each number:

(RE + RR + LT + Lm + LP) / (RT + RM + RP + LE + LR)

And 1 is added in both the top and bottom to exclude any possibility of division from zero. For example, if the right ring and strand of the index finger in the index finger, the distinction will look like this:

0/0 + 8/0 0 0 + 0/2 + 0/0 + 1/1, and calculation: (0 + 8 + 0 + 0 + 0 + 1) / (0 + 0 + 0 + 2 + 0 + 1) = 9/3 = 3

Using this system reduces the number of prints, which can be compared to the print according to the question. For example, the above set of prints is required to compare the other set of fingerprints with the value.

(a)Whorl fingerprint (b) Arch fingerprint

Figure 1.1-Types of Fingerprint

1.2 Motivation for Research

Although fingerprint authentication technology has evolved rapidly in the last 40 years, there are still some research issues such as lower print quality recognition. Matrix fingerprints are very sensitive to image quality, as seen in FVC2006, where the accuracy of the algorithms changes sharply across different datasets due to image quality changes. The difference between the authenticity of fingerprint, messaging and messaging is even bigger as observed in the NIST technology.

The consequences of low-quality printing depends on the type of fingerprint recognition system. A fingerprint recognition system can be classified as a positive or negative system. In a system of positive recognition such as physical access control systems, users are expected to collaborate and wish to be identified. In the case of a negative recognition system, such as identifying individuals in the watch list and looking for multiple subscriptions under different names, interested users (eg criminals) are presumably unwanted or unidentified. With poor quality recognition systems, it is likely to lead to legitimate user refusal and will lead to disruption. However, adverse health consequences for negative recognition systems are even worse when malicious users may reduce fingerprint quality to prevent fingerprinting. In fact, law enforcement officials encountered cases where criminals tried to avoid identifying the damage or changing the implants of their fingerprints.

Therefore, it is of paramount importance for fingerprint recognition systems to detect poor print quality and improve their quality so fingerprint systems are not destroyed by malicious users.

Decomposition of fingerprint quality can be formulas or geometries. Image degradation can be due to non-elastic skin condition, contaminated surfaces, and complex background images (especially fingerprints are updated). Decomposition of the geometry is caused by deformity of the skin. Image degradation has been widely investigated, and some algorithms for quality assessment and resolution of algorithms have been proposed. In contrast, decomposition of the geometry due to skin disorders has not received adequate attention, though important. This is a problem the thesis is trying to address. Note that in a fingerprint recognition system, its security level is lower than the weakest. So it is urgent to develop an algorithm for browse and repair

Echo blocking is recommended because of the flexibility of fingerprints to retrieve fingerprints based on relationships and lateral forces or torque. Skin irritation increases the degree of variation (the difference between fingerprints from the same finger) and thus leads to misinterpretation due to the limited capability of the existing fingerprints for recognizing the deformed fingerprints. In Figure 1, two left are normal fingerprints and one part is seriously damaged. According to the Veri-Finger 6.2 SDK, the game between both left is higher than the result of the two right-hand games. The big difference is that the distortion is not to overlap. Although it is possible for matching algorithms to suffer from large format corruption, it will result in more fake matching, and it will slow down the match.

This novel gives the algorithm to solve the problem of fingerprint error. For given fingerprints, distortion detection was first performed. If it is determined to be distorted, the correction is performed to change the input footprint to normal. Flexible fingerprints are similar to those with expressions that affect the accuracy of the matching of the familiar face system. Broken fingerprints on normal fingerprints are similar to the change in a person with a neutral expression that can increase face recognition. However, the density of the rug is not limited to the finger and do not fix the finger. In fact, there are many researchers reported the accuracy of matching accuracy by inclusion Information on the density of ridge in mathematical material. Simply the density of the fingerprints of all fingers will losing sensitive information in fingerprints and can improve the results of betrayal games. Besides, Validation of the voucher this method can create fingerprints with fixed carpet but odd Cards are oriented. Compare to the first challenge Restrictions are even more dangerous because it will reduce the reality Match results. These limits were not found in since the algorithm has only been tested on an existing database with six fingers and finger rotations not considered.

Our approach shares the benefits of Super Bowl and Bolle Method over other methods, meanwhile, receive a portion of its limits. Our approach is based on statistical data studied by Google Definitely distorted fingerprints, not impractical Assumption for the uniformity of the carpet. Distorted because finger rotation can be processed by our method. In fact, the suggested method is to handle different types the change in the nature of such abuse exists Training set. In addition, extensive experiments have been carried out to validate the suggested method. Currently Work is a major update of our previous studies, which detects distortion based on a simple hand-generated feature And no removal function.

1.2.1 Distortion Detection Based On Special Hardware

It's a tendency for automatic distortion during buying fingerprints, so incorrect fingerprints can be denied. Many researchers have suggested that they find irregular energy using specially designed devices. Bolle et al. To look for strength and torque that expose using force coil. They have shown that buying fingerprints has led to improvements. Fujii has proposed to find distortions by looking for the differences of films that are seamlessly connected to the sensor area. Dorai et al. Requested to detect distortion by fingerprint scanning. However, the methods described above have the following limitations:

- They require special force sensors or fingerprints that capture video.
- Can not find the fingerprints in the existing fingerprint database; And
- No distorted fingerprints were detected before the sensor was pressed.

1.2.2 Distortion-Tolerant Matching

The most popular way to deal with this distortion is to make the fingerprint accuracy tolerate distortion. In other words, they deal with distortions on a case-by-case basis, me. For each fingerprint, compare. The most widely used method based on minutia fingerprints has been approved as follows three types of strategies for dealing with Distortion:

- Accepting a Global Box Hard Transformation and being used with constant tolerance or size, coordinated size to compensate for distortion;
- Exemplifying the thin spline (TPS) resize model;
- Restricting local distortions. Multiple methods for the distortion process of overlapping are also used in a matrix on the basis of the image or the matrix of the baseline. However, allowing more distorting matches inevitably leads to high rates of false games.

For example, if you increase the border area around a few vanes will be a little unrelated, the chance is paired with. Additionally, allowing more volatility in the tournament will also slow down.

1.2.3 Distortion Rectification Based on Finger-Specific Statistics

Learn the difference from the set Image Exercises on the same finger and changing the template with the average variation. They show that this leads to accuracy of minimum matching. However, this method has the following limitations:

- Purchase many of the images on the same finger are awkward some programs and existing fingerprints are common only one finger. And
- Though many Fingerprints are available, this is not required enough to cover various skin damage.

1.2.4 Distortion Rectification Based on General Statistics

Senior Manager and Bolle have developed an interesting approach Remove the distortion before that step. This method is based on the assumption that the ridge is in the fingerprints Located permanently. So they deal with distortions Make normal compact size on fingerprints fixed price. Because they did not find distortions Algorithms, they apply polarizing algorithms

Of each fingerprint. Compared to other approaches that are considered high above and the Bolle method has the following advantages:

- It does Do not require special hardware.
- can solve a problem Insert fingerprints and
- Do not need a set of Image training of the same finger.

1.3 Objective

The main prime focus of this study is to improve the accuracy of the system which are existing.

A) EXISTING SYSTEM:

- ❖ Fingerprint scanning is very sensitive to image quality, which is observed when the accuracy of the same algorithm differs significantly in different data sets due to image quality changes. A fingerprint recognition system can be classified as a positive or negative system. In a system of positive recognition such as physical access control systems, users are expected to collaborate and wish to be identified. The negative recognition system by individual setting on the checklist and found many items under different names, users of interest (eg, criminals) have shown that it is irrelevant and does not want to be named.
- ❖ In existing systems, an existing algorithm for quality fingerprints designed to verify that the image is encompassed (for example, classification) matches, they determine the ability to determine whether the image is natural or the fingerprints of the fingerprint. Deleted fingerprints can avoid fingerprint quality apps based on damaged areas. If the affected finger area is small, the existing quality fingerprint quality may fail to detect that it is a modified fingerprint.

DISADVANTAGES OF EXISTING SYSTEM:

1. Correction of distortion (or simulation of the same field) is considered a regression problem where the input is a broken fingerprint and the result is a torch field.
2. They need special sensors or fingerprints with video recording capability
3. They cannot find the fingerprints in the existing fingerprint database.

1.3Research Work

B) PROPOSED SYSTEM:

- The requested system is evaluated in two levels, ie finger level and subject level. At the finger level we estimate the effect of the split between the fingerprints and the fingerprints. At the subject level, we evaluate the effect of the difference between the topic of the natural fingerprints and the fingerprints.
- Describe new algorithms for fingerprint detection and recycling. For the detection of registry flaw distortion and fingerprint tricks as vector entries are used, and SVM classmates are trained to classify fingerprints as "destructive" or "normal".
- The approximate neighbor's approximate approach is used to predict corrections from the embedded fingerprints, and then opposite the control field, which is used to convert broken fingerprints.

ADVANTAGES OF PROPOSED SYSTEM:

- Offline fingerprints with offline platforms and online scenes. Fingerprint dummy databases are created at an offline stage by changing fingerprints, referring to some simple references of different fields, derived from the dummy field.
- The requested biasing algorithm works fine by experimenting on different databases.
- The requested algorithm may increase the level of fingerprint recognition..

1.5 Background

Image manipulation is a method to carry out some image operations to get better images or to extract useful information from it. This is the kind of CPU processing that enters into the image, and the result can be a picture or feature / feature associated with the image. Today photography is one of the fastest growing technologies. It forms an important research area in the field of engineering and computer science.

Image processing includes the following three steps:

- Importing images using image capture devices
- Scan and organize images
- The result can be changed to a picture or report based on image analysis. There are two types of methods used for image processing:
- Analogue processing
- Digital processing.

The analog image processing can be used for paper copies, such as printing and photography. Image analysts use the basics of other translations when using these visual techniques. Digital imaging software helps with digital image manipulation using a computer. The three simple steps that all types of data have to go through when using digital technology are pre-processing and displaying of information.

In this lesson, we will talk about some basic definitions, such as digital images, digital image processing. Different sources of digital images will be discussed and examples of each source will be provided. This tutorial will include continuous image processing to the PC vision. Finally, we will talk about obtaining images and different types of image sensor.

1.6 Document Organization

The remaining document is organized in such order to find the optimum solution and that is described as follows.

Chapter 1:- The introduction to the thesis is given in this chapter. This section describes the objectives, motivation and justification.

Chapter 2:- This chapter gives a brief review of numerous existing and emerging technologies that are related to the work presented in this thesis under the title literature survey.

Chapter 3:- In the section, simply discuss briefly that the architectural design and proposed methodology of system development also discuss algorithms to implement system.

Chapter 4:- This chapter describes the various requirement specification of the project including the technology used as well as hardware & software specification.

Chapter 5:-In this chapter we are analyses that of the result with their accuracy, time and space complexity rate.

Chapter 6:-In this last section we discuss that the conclusion which we are receive at last and also discuss that the future scope for that research of project.

Finally, in the last we provided the annotated bibliography. This section is a complete list of the journals and research papers referred to during the preparation of the thesis.

CHAPTER 2

LITERATURE SURVEY

Literature research is the most important step in the program development process. Before creating this device it is necessary to determine the company's economic, time, and strengths. Once these things have been done, the next step is to define the operating system and languages that can be used to develop the device. When developers start working with devices, developers need more external help. This support is available from high-end developers from books or from the web. Before formulating this system, the above focus should be taken into consideration when designing the proposed system.

A key part of the project development sector is to fully examine all the necessary requirements for project development. For each project, literature studies are the most important areas in the program development process. Before setting up the equipment and the design involved, it is necessary to identify and investigate the timing, demand, resources, human resources, economy, and strength of the company. When these things are satisfied and fully explored, the next step is to identify the software features in the system, such as the operating system, what the project is going to be, and what are all the essential software programs to continue with the next step as developing the tools and operations involved.

2.1 Look for fingerprints from an image - X. Si - 2012

The friction of friction on the skin is a challenge in fingerprint monitoring. Because the existing fingerprinting system cannot match the badly damaged fingerprints, criminals can distort fingerprints to avoid identifying. Technology Detecting existing distortion requires specialized hardware or fingerprints that restrict their use of real-world applications. In this article, we investigated fingerprint distortions and developed algorithms to detect fingerprints of images that were captured by traditional techniques for recognizing fingerprints. This sensor is based on analysis of duration and orientation info. The result of the promise is obtained in a soft fingerprint public fingerprint database.

2.2 Manual for fingerprint recognition - Maltoni, D.-2009

With its clarity and consistency in the past, fingerprints continue to be a feature of anatomy that is widely used in a system that identifies humans automatically. This highly improved second edition provides comprehensive coverage of the latest achievements and fingerprint recognition practices. The reader will seek a comprehensive and comprehensive coverage of key concepts, themes and key systems and security issues related to the fingerprint marking system. With the same first-generation success formula, this unique reference only includes the latest technology for tracking and covering the fingerprints of sensor technology, performance ratings, international standards, and security of the system.

2.3 Use fingerprint quality to improve Visitor Identification in the United States and Immigration Status Indicators - L. M. Wein - 2015

Motivated by the difficulty of biometric system to compare the fingerprints of poor image quality, we have prepared and handled the creation theory of the problem of identifying the two terms are: to apply for a visa to the United States to be checked against the list of visa holders to detect fraud and visa to enter the United States to be monitored Check the list of criminals and suspected terrorists. For the three types of decision-making biometrics, in which the US government chose the parameter value of the best strategy, to increase the probability of the finding, provided that the limitations of the time visitors processed biomass secondary process, then the bombers select the image quality to minimize the probability of the discovery. At the current level of staff, our sampling inspections portal predicts that one strategy depends on quality, with two fingers determining the probability of detection of 0.733 to 0.526 in comparison to the quality strategy, regardless of the two fingers currently in operation at the US border. Increasing the inspection staff provides a slight increase in the probability of these two strategic findings. Using more than two fingers to match poor image quality visitors, allow discovery for 0949 at the current level of staff, but may require significant changes in the current biomass program in the United States. The visa number is about 11-22% lower than the entrance for the three strategies, but the same quality conclusions.

2.4 Fingerprint changes: Analysis and discovery - S. Yoon - 2012

The presence of an automatic fingerprint identification system (AFIS) vulnerability in law enforcement and border controls strengthens the need to ensure that the system is not compromised. While discovering a number of issues related to the safety of the fingerprints, including the use of fake fingerprints to hide identity, the problem with fingerprints or outbreaks has received little attention. The dimmed fingerprints refer to this change intentionally in the pattern of the fingerprints of an individual whose identity is unknown. Many cases of fingerprints were reported in the media. The program to evaluate image quality of the fingerprint (e.g., NFIQ) cannot be changed. The fingerprints are completely image-quality, since the change cannot change dramatically.

The main contributions of this paper are:

- A compilation of case studies of events is established that a person has changed in order to avoid their fingerprints AFIS,
- Examine the effects of climatic fingerprints on the accuracy of fingerprint Matrix
- In three major categories and a proposal for the possible countermeasures,
- The development of techniques for Fingerprint detection change based on the analysis of the field and distribute the minutes to automatically estimate and
- Evaluation and suggested tools and algorithms NFIQ in a large database of fingerprints evolve executive agency. Experimental results demonstrate the possibility of proposed approaches to detecting this change, fingerprints and stress needs to address further the problem.

2.5 Image quality of fingerprints - E. Tabaci- 2014

The internal biosynthetic features of the biosynthesis can be used to determine its own suitability for the extraction of the biometric system or to evaluate its compliance with pre-established standards. The biometric signal quality is the numerical value (or vector) that measures the existing attribute. Quality Score is a demonstration of the quantity of electronic device samples or forecasts in a comparative environment. This means the image quality, fingertip estimates should match the false and false games observed compliance with the rule of non-mod.

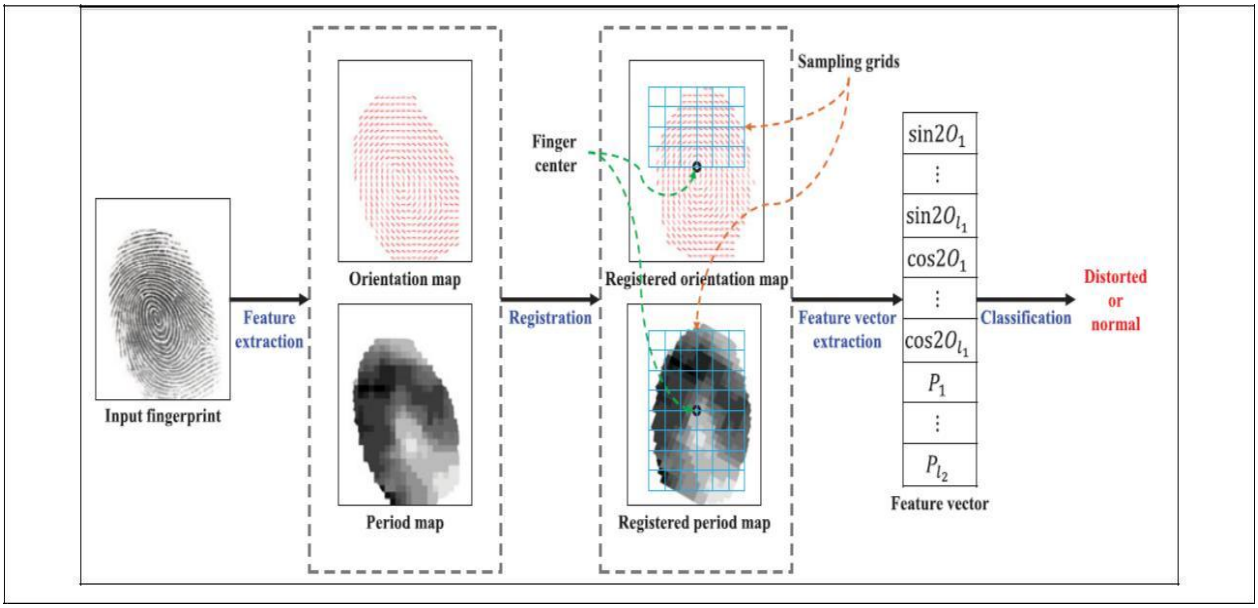


Figure 2.1 Orientation & Period Map Of fingerprint

The most popular way to handle distortion is to make the fingerprint matcher tolerant to distortion. In other words, they deal with distortion on a case by case basis, i.e., for every pair of fingerprints to be compared. For the most widely used minutiae-based fingerprint matching method, the following three types of strategies have been adopted to handle distortion:

- assume a global rigid transformation and use a tolerant box of fixed size or adaptive size to compensate for distortion;
- Explicitly model the spatial transformation by thin plate spline (TPS) model;
- Enforce constraint on distortion locally.

Various methods for handling distortion during matching have also been used in image-based matcher or skeleton-based matcher. However, allowing larger distortion in matching

will inevitably result in higher false match rate. For example, if we increased the bounding zone around a minutia, many non-mated minutiae will have a chance to get paired. In addition, allowing larger distortion in matching will also slow down the matching speed.

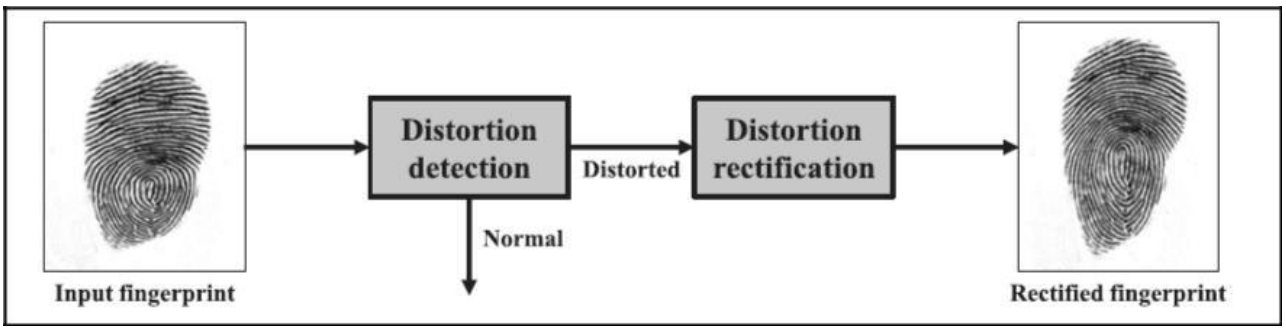


Figure 2.2 –System Architecture Design

2.6 Fingerprint Distortion Detection

Finding a fingerprint distinction can be considered two factor, the problem of division. We used a registered nest the map of the direction and map of the vector period of the function, which is classified by SVM classifier.

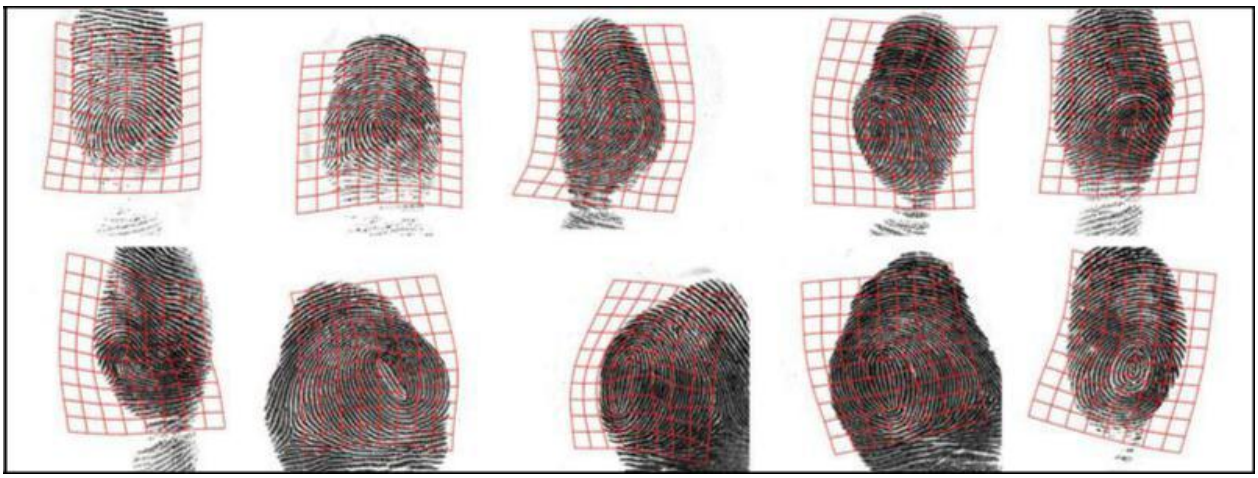


Fig 2.3 Fingerprint with orientation map

2.7 Flow Chart of Implementation

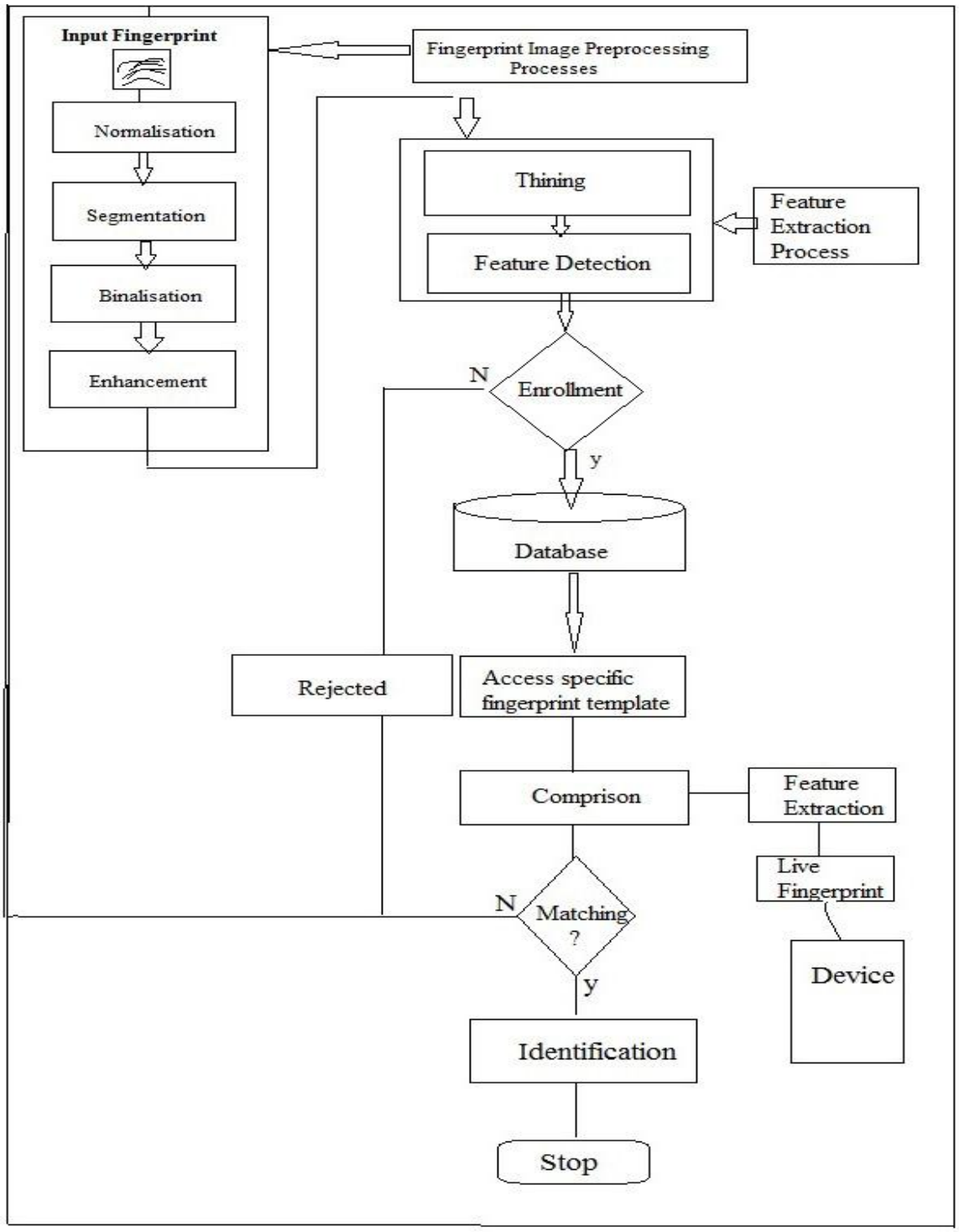


Figure 2.4- Flow Chart of System

CHAPTER 3
PROPOSED METHODOLOGY

3.1. Existing System

Echo blocking is recommended because of the flexibility of fingerprints to retrieve fingerprints based on relationships and lateral forces or torque. Skin irritation increases the degree of variation (the difference between fingerprints from the same finger) and thus leads to misinterpretation due to the limited capability of the existing fingerprints for recognizing the deformed fingerprints. In Figure 1, two left are normal fingerprints and one part is seriously damaged. According to Veri-Finger 6.2 SDK, the game between two left players is higher than the game between two players. The big difference is that the distortion is not to overlap. Although it is possible for matching algorithms to suffer from large format corruption, it will result in more fake matching, and it will slow down the match.

3.2. Proposed System

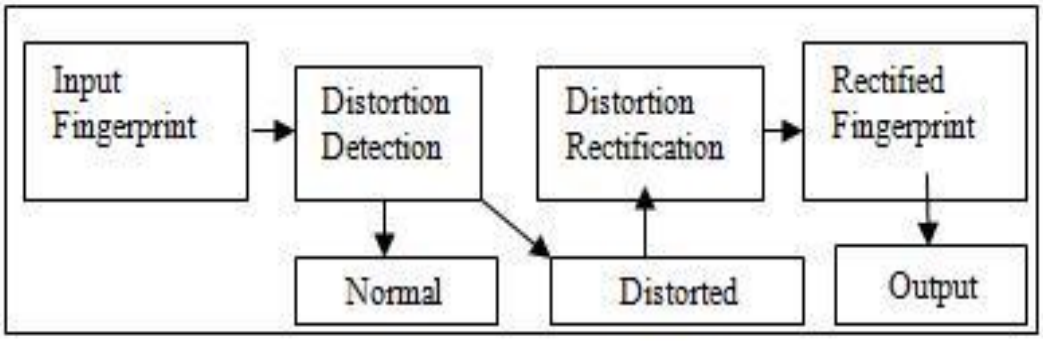


Figure 3.1.The framework of Identify and rectify of distorted Fingerprint

In this system, detection is seen as a problem for classification into two classes, function vectors using Registered Card Calculations and Ridge Matches, and SVM Authorized Officers are trained to perform the task of this assignee. Correction of distortion (or curved equivalent of field distortion) is considered a regression problem in the input impaired fingerprint distortion and result field distortion. To solve this problem, the offline stage creates a database of fingerprints, multiple references, and corresponding fields of distortion, which is then the nearest

Neighbor's ringing ring field is in the Fingerprint Database, References, and the corresponding Distort field is used to retrieve the fingerprints.

The main features of the proposed system are that it does not require the change of existing fingerprint sensors and fingerprint recognition procedures. Such assets are essential for an easy integration of existing fingerprint recognition systems. The requested system is evaluated in three FVC2004 DB1 databases, which are strongly affected, with distortion, Tsinghua, curved fingerprint and wrong video fingerprint, NIST SD27 hidden fingerprints. Experimental results show that the proposed algorithm can actually improve the accuracy of this distorted fingerprint match.

This thesis suggests new algorithms for dealing with fingerprint error. Consider the entrance Fingerprints, the detection of distortion is performed above all. If it is determined to be distorted, the correction of the variation Execute to change the input footprint input normally. In this article, the detection of confinement is seen as two classes Issues, calendars, map sorting, and the duration of fingerprints are implemented as a feature. Vector and, moreover, SVM classmates have been trained and used to perform classification tasks. Correct the distortion is regarded as a regression problem where the input is the pattern of the broken fingerprints and the result is Destruction of fields. To resolve this issue, the Database contains different editions and corresponding editions outbound fields generate more distorted fields on the scene on the nearest neighbor of fingerprints. Search in a database containing erroneous arrows and conversion fields to adjust the insert fingerprint. The main features of the system are that it does not need to be changed Existing fingerprint sensors and existing fingerprints can be used. Such wealth is important to handle fingerprint recognition. In this project, the detection of distortion is considered Issues of classification of two classes, registered orientation maps, and duration of imprinting are used as a vector element and SVM sort are trained to pass the class assignment. Corrections of distortion are considered regression problems in which inputs are thought to be distorted Fingerprints and exits are taken into the torch field. To solve this problem, we have created many databases Snow fingerprints and their flexible field behavior at the out-of-network stage.

The scene nearest to you Neighborhood fingerprints are found in a database with reference arrows. Best of all, Each Distort field is used to correct footprint. An important dimension of our proposal the system is that it does not need to change existing fingerprint sensors and fingerprints. A new method for creating fingerprints that match the result is suggested using the parameter containing the space between them Minimum score. Requirements

to solve random problems that arise due to the orientation and size of the image Variations are the main motivation behind this rule. Algorithms take advantage of that fact though the destination image flow for the given image size, the distance between the base points of the special point of the character is established Not change. The point where the gradient is zero is the core of maximum rotation. A and B are highlighted the point of maximum rotation of the top structures in these two images. Here are the points in them the supplied field has a complete redirection.

In this system that proposed in thesis work has involved the different stages such as explained below one by one:-

3.3 FINGERPRINT DISTORTION DETECTION

Finding abnormal fingerprints can be seen as a two class classification problem of division. We used an Orientation map and Period maps during a Vector feature, which is classified by SVM classifier.

1. **Fingerprint Registration**: - To remove a vector that contains the meaning of an element, fingerprints must register in a fixed coordinate system. For this Tasks, we provide fingerprint registration based on several references Method. Below we describe how to use references Dactyloscopic printing is done offline and How to register landfills on the Internet.

2. **Reference Fingerprint**: - To study the actual fingerprints, we gather a fingerprint base called Tsinghua Fingerprint base. FTIR Fingerprint Scanner Video capture functionality is used for data Collection. Each participant must put his finger Scanner in the normal way and then rotate your finger Applying force or torque and gradually increasing Strength. A total of 320 videos (with frames of 10 FPS) are Get 185 different fingers. Every finger creates 1 to 10 videos, and each video contains one of ten different videos as shown on the image the first frame is a simple fingerprints and has the last frame the greatest distortion.

   The duration of each video is About 10 seconds. For the purpose of training and testing The collected database is divided into two sections The video ¼ 200 is used as training data and nest ¼ 120 videos Use as test data. Only one frame in the first frame (Regular fingerprints) and last frames (deformed fingerprints) Used for training and testing. Pay attention to all fingerprints there is a 500 ppi resolution. We use 500

fingerprints as reference fingerprints there are 100 regular fingerprints from FVC2002 DB1_A, 200 pairs of normal fingerprints and distortions from Set of Tsinghua DF database training. Remember not Simple fingerprints between training data and testing. Numerous references are used to make it right Register fingerprints of different types of samples while you are distorted Fingerprints are also used as reference New debris that may have been deformed may be properly registered. The fingerprints are recorded on their fingers Center and destination. For fingerprints that are important can be found correctly using algorithms based on the Poincare index The benchmark is used as the center of the finger. For fingerprints and fingerprints, which the above main points are not properly detected, we manually calculate the center. The finger direction is defined is vertically to the finger and is manually tagged for all reference fingerprints. As the reference fingerprints were recorded offline, manual intervention is acceptable. Fig shows the center of the finger and direction for two reference fingerprints.

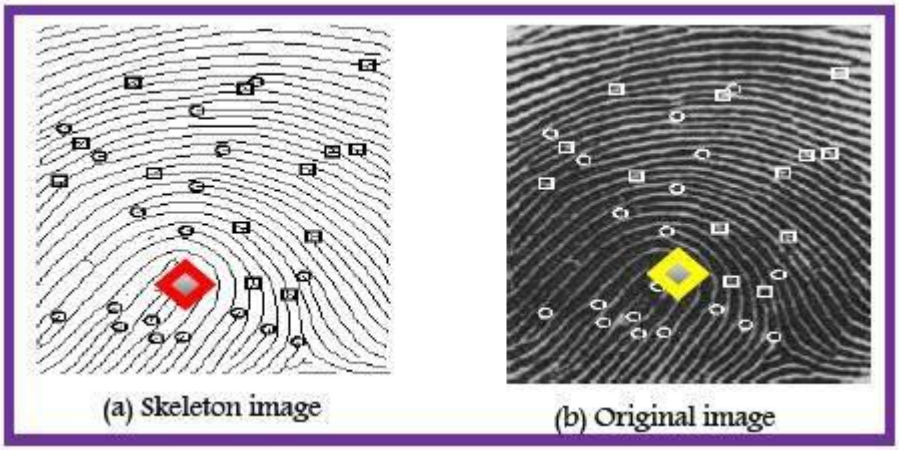


Figure 3.2-Feature points for skeleton and original images

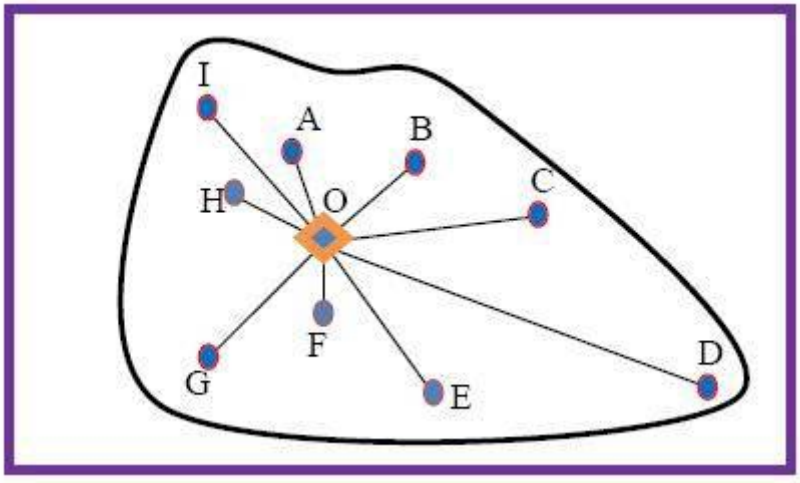


Figure 3.3-Interconnecting lines between feature and the core points

3.4 Algorithm

3.4.1 Proposed Algorithm

Procedures are provided at the bottom of the proposed algorithm:

I. Separate fingerprint I in block N x N.

II. Calculates the approximate approximation of A pixel (i, j) for each block.

III. Calculate the sine components in the radar of homogeneous (A (i, j)).

An absolute horizontal beam has a sinus part of 0, whereas the vertical tube contains a component of sin1. Due to the unstoppable wealth, the value of the necessary component always changes immediately from 0 to 1 or the opposite the main point. With this in mind, the following additional operations are executed:

I. Set the two-dimensional array B (i, j) and set all the records to 0.

II. You must scan for the necessary components that are taken from the top to the bottom and left-to-right maps.

Indicators such as FNMR, False Beta (FMR) and Average Time (AMT) Measure. We have chosen these metrics because they are among the measures we use measure the effectiveness of ID card system

FNMR is defined as the speed of

- Presence of two fingerprint scenarios that do not conform (matches below Level). Conversely, FMR is defined as the rate of occurrence of two fingerprint on scenarios from the difference Finger matching to match (results exceeding threshold level). FNMR is measured by all matching Fingerprint finger identical when FMR is measured by matching the fingerprints of each finger with all Fingerprints from all other fingers. The results obtained indicate that some factors influence the indicators. For example, the nature and quality of the image affects the result of fake betting and faked games.

3.4.2 Support Vector Machine (SVM)

I. Find the best portal that separates all points of the class from another classroom Data type.

II.For SVM, the best polyphonic search means choosing the largest margin between the two classes.

III. The margin is set to the maximum width of the hole, which is a parameter that does not have internal data. Score.

IV. In decision-making, SVM uses a subset of coaching.

V. Proximity vectors are the closest data points to high flight segregation; here are the points is on the edge of the slab.

CHAPTER 4

REQUIREMENT SPECIFICATION & IMPLEMENTATION

The proposed model for classifying the text according to their sentiments are prepared, in this chapter the implementation of the proposed system is described.

4.1 System Level Design

This is a system of Fingerprint Sensor Recognition, Extractor Extras and Matcher,

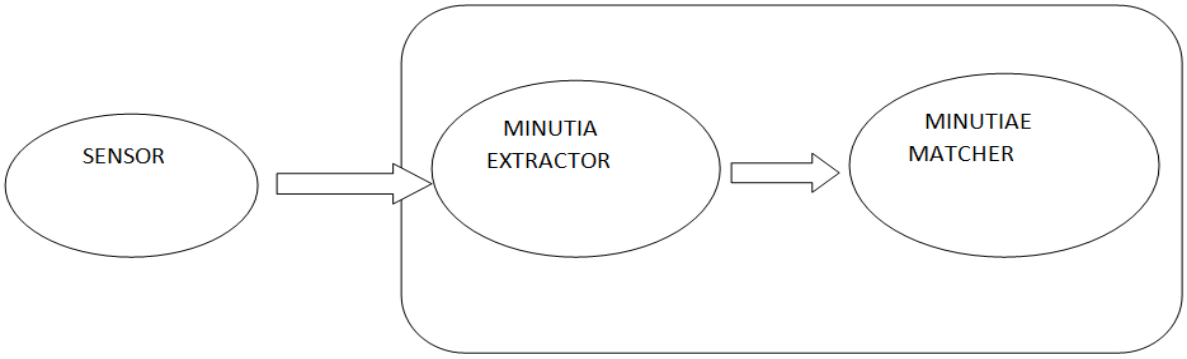


Figure 4.1 Fingerprint System Identification System

A mostly Optical and semi-behavioral fingerprint sensor system is used. If both of these sensors, the user dirty or dry, except some very good accuracy and is very effective.

To use as a trifle three-step approach:

Stage I) Pre-processing step

Stage II) restoration trifles

Stage III) Post-processing step.

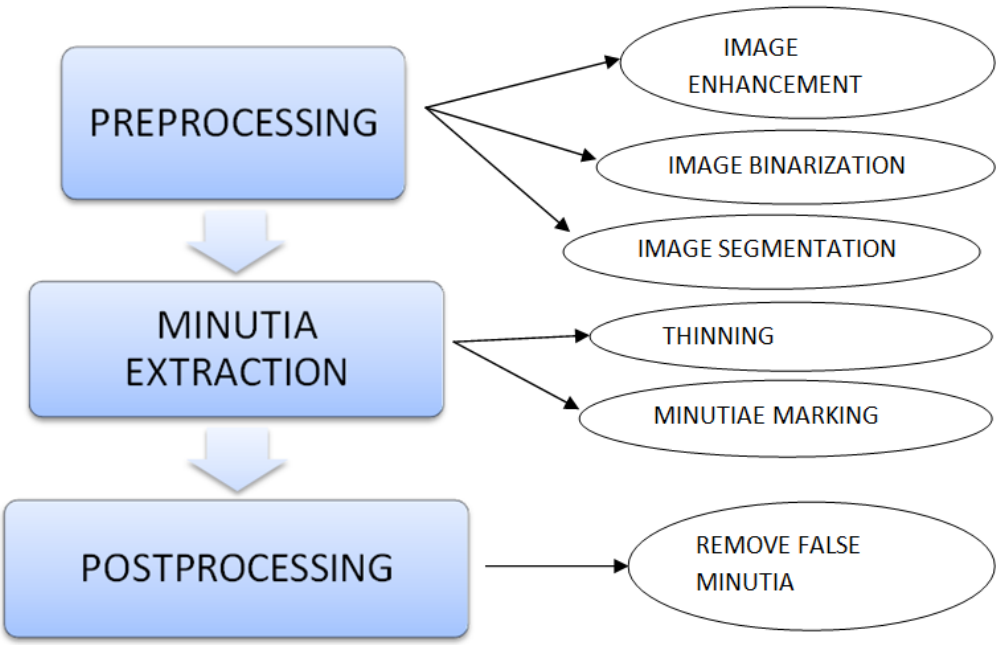


Figure 4.2 [Minutia extractor]

4.1.1 Preprocessing Step:

Another first stage is divided into three under the keys, such as:

I) Image Enlargement.

II) Binary Image

III) Segmentation of the image.

In order to improve the image of the two methods, we use: - the alignment of the histogram, as we are transformed into Fourier. After improving the image of our method, a flexible line should be used for a binary image.

Such as image segmentation, as we have more than a three-step approach:

I) Assessment of the direction of the block

II) The direction of segmentation intensity

III) In some parts of the area of interest (Roy) and extraction.

4.1.2 Minutia Extraction: -

Droplets stage extraction is divided into two sub-stages, such as:

(I) The fingerprint ridge and pruning mark

(II) Minutia marking

We use field phase extraction algorithm used for sorting. Ridge pruning varies with one pixel width ranges for use to prevent unnecessary pixels being used. Signal trifles is a very simple task. This is where the concept of a number of professions (CN).

4.1.3 Post-processing phase:

For the next processing stage, there is only one intermediate stage: removing fake trifles. As well as a representative for branching new terminations, and it is recommended to combine both.

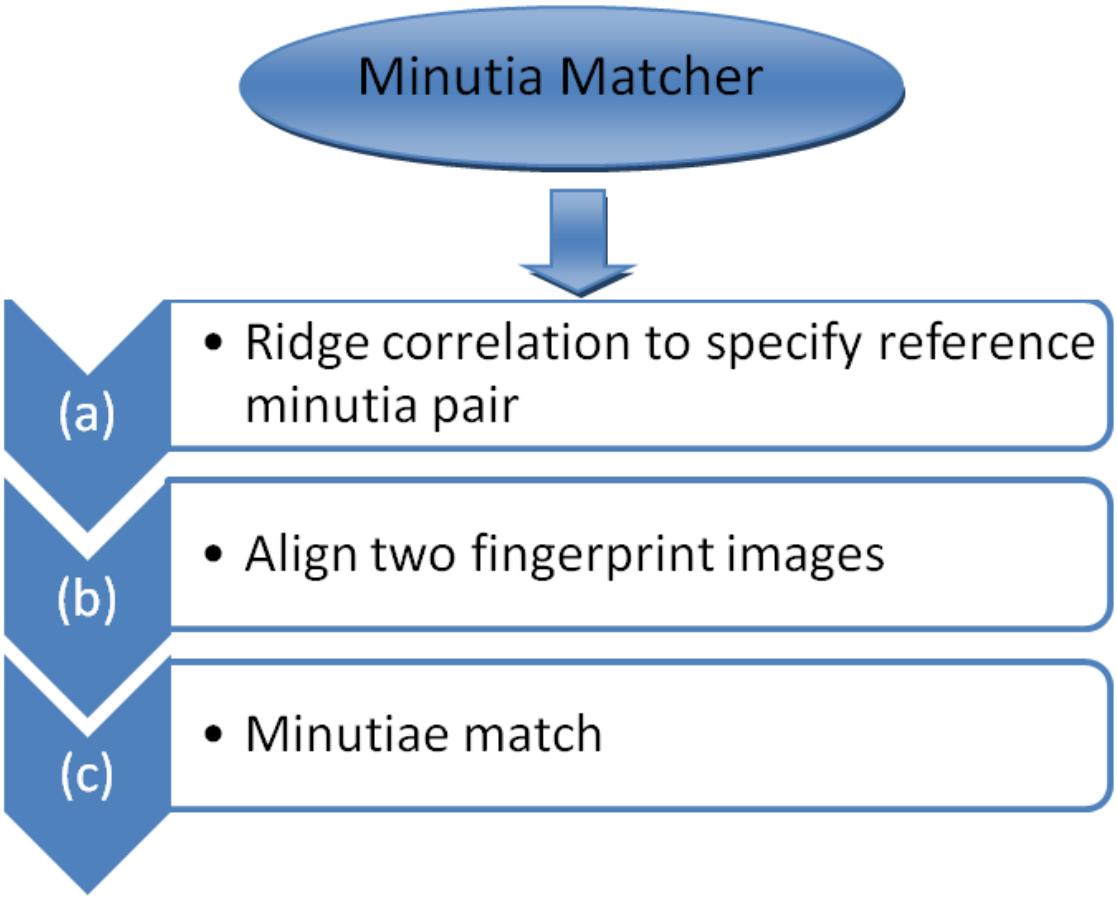


Figure 4.3 Matcher

Trifles, trifles set to determine whether or not by hand. If you want to mountain ranges, as well as pictures of two fingerprints and the fit is done for all other trifles.

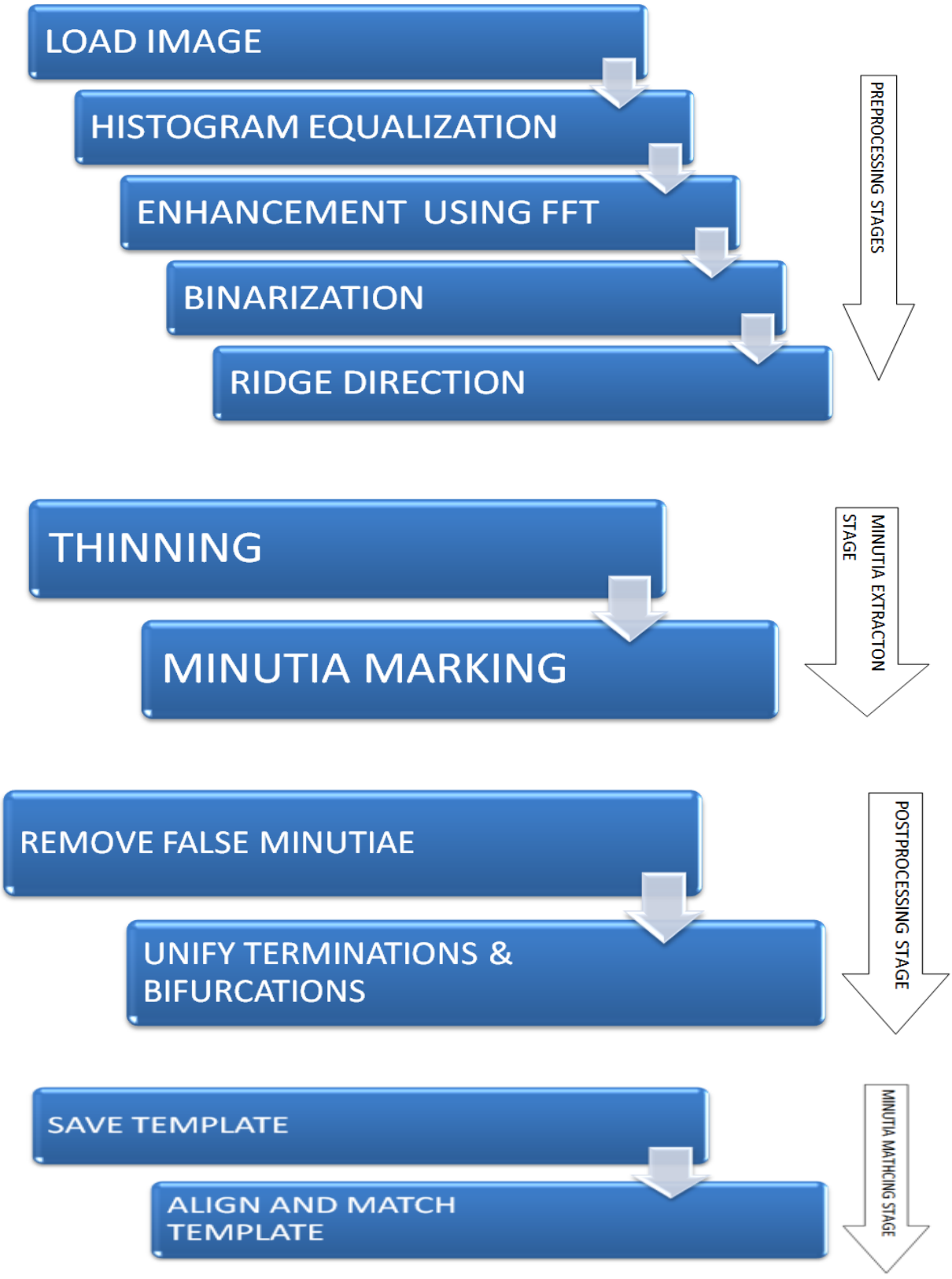


Figure 4.4: - fingerprint recognition algorithm involved in one step

4.2 IMPLEMENTATION MODULES

4.2.1 Detection of Fingerprint Differences

This can be seen as a two-class problem. We have used the registered mountain map the periodic map is the function of the vector that is sorted by an SVM splitter.

4.2.2 Fingerprint registration

We record fingerprints in a secure coordinate system to get vector elements. Multicast Based on the fingerprints, in which we describe how the fingerprints are Offline training and how to register your fingerprints on the Internet.

4.2.3 Fingerprint Reference

To get realistic fingerprint statistics, we create a different fingerprint database Biometric scanner. Each participant must put his finger on the scanner in the normal way and then Application of lateral force or torque and increase the force of the fingerprint to be distorted. In the online scenes Fingerprint registration online is done by taking fingerprints, we perform registration w.r.t. Registered Fingerprints.

4.2.4 Sample displays the statistics of Distorted Fields

The field of distortion between fingerprints can be calculated on the basis of each of the two letters Fingerprints. Undoubtedly, due to the sharp distortion between fingerprints, the existing mathematician for the preparation can not to meet a trusted brand. So we downloaded Michaela's in the first frame using Verifier. Because Movements between neighboring countries are small, with this method of trusting between individuals the frames and the final border.

4.2.5 Fingerprint removal

Broken fingerprints can be created by applying some strange fields to distort normal fingerprints. If we have Being able to calculate the "d" scaling of the fingerprints provided, we can easily correct this error. Fingerprints in normal fingerprints, by contrast with D to the deformed fingerprints. So we are encouraged to turn into a very severe regression problem due to the large size of the flexible field. We Use the nearest contiguous regression method to this job.

4.2.6 Curved base of fingerprints

The flexible field is led by the attempt to encounter sub-zones covered by two mains the main component. 11 points are drawn equally in the range for each base. For visual purposes only a fingerprint (fingerprints placed at the origin of the coordinate system) are used to create Reference Fingerprint Database References and five points for each Base. In fact, many references Fingerprints are used to achieve better performance.

4.2.7 Compute rectification fields from neighbor's neighbor searches

Finding the nearest neighbor of all invalid publications is equal to the estimated disability. Best of all, Alternatives in a similar way are measured based on Level 1, fingerprints, Videlicet Ridge imagery, and Map. We assume that detection, distortion and correction of human experts depend on these functions instead of very small.

4.3 GUI Development

This section provides an insight into the generated graphical user interface and navigation options. That is why the main tables are inserted in this section with their function view. Figure 4.5 shows the requested startup window as a Multiple Interface Document (MDI) implementation to organize all files in one place. The graphical interface also contains menu navigatio1n options for project documents.

4.3.1 SCREEN SHOTS LISTING

Administrator Login Window

In the below screenshot will be the first window open in front of the user where actually to start the system we have to first train that the system simply first register the suspect or candidate with their data such as name, address, mobile number, country etc. for that we required to login system using admin login such as Username Admin and password Admin.

Figure 4.3.1:- Administrator Login Window

Home Screen of System

The Window shown below is the basic home screen where in the menu bar shows the option User Detail, Summary, Fingerprint Strategy and close option .Where after login using login credential this basic home window appear

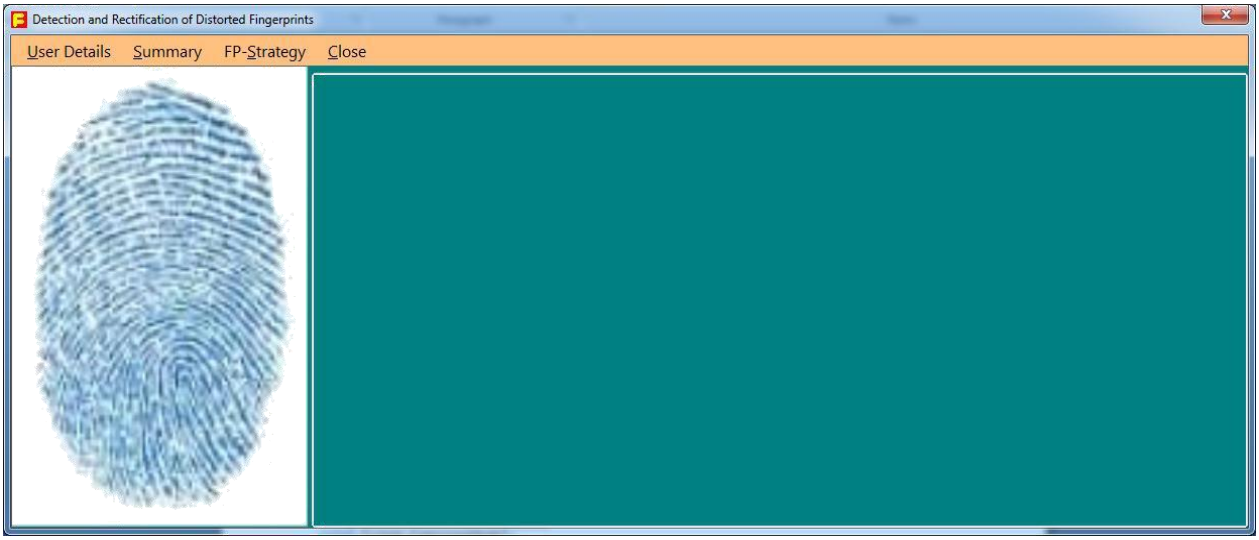


Figure 4.3.2:- Home Screen for User Registration

User Registration Form

In the user registration form that open after the login window and home screen there is the register that the user complete information with User name ,middle name Age of candidate or user , Gender of User ,Address ,Mobile number ,State ,Nationality etc. information with their own live fingerprint image in jpg ,img ,tif format using the database then click on submit button and record saved successfully message box shown Also by using the back button you can navigate from home screen window to user registration window.

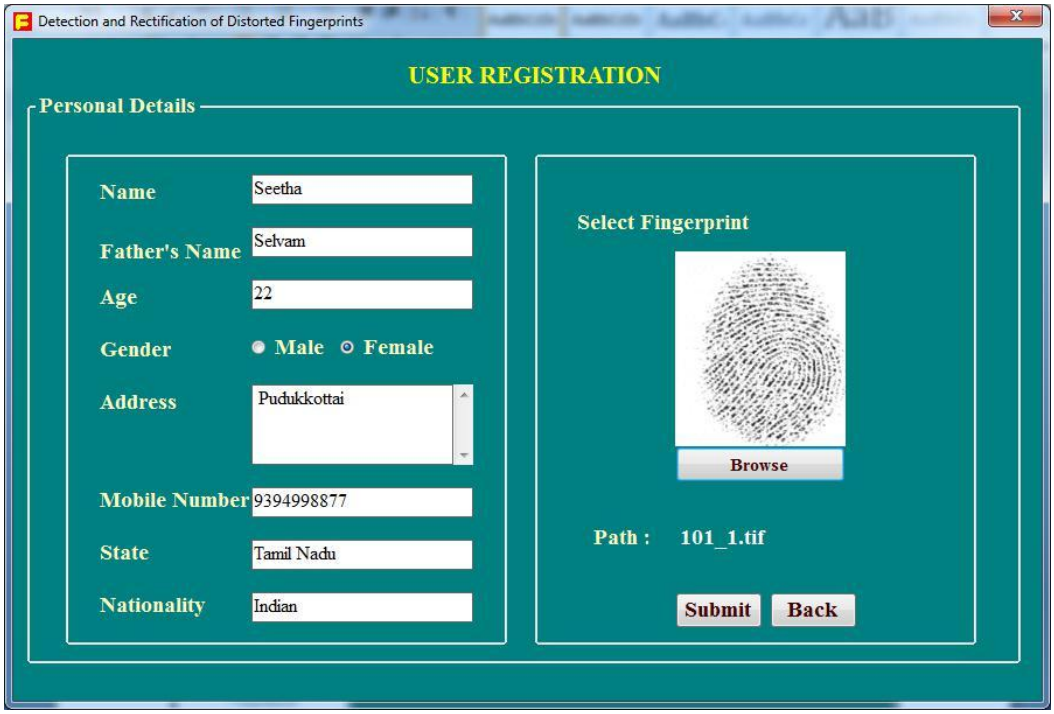


Figure 4.3.3:- User Registration Form

Display User Entry Record Detail

This following snapshot shows that the record maintain in the database with original attributes that were entered in the user registration form we to go in the summary tab of menu bar of system and the detail of all record shown directly .

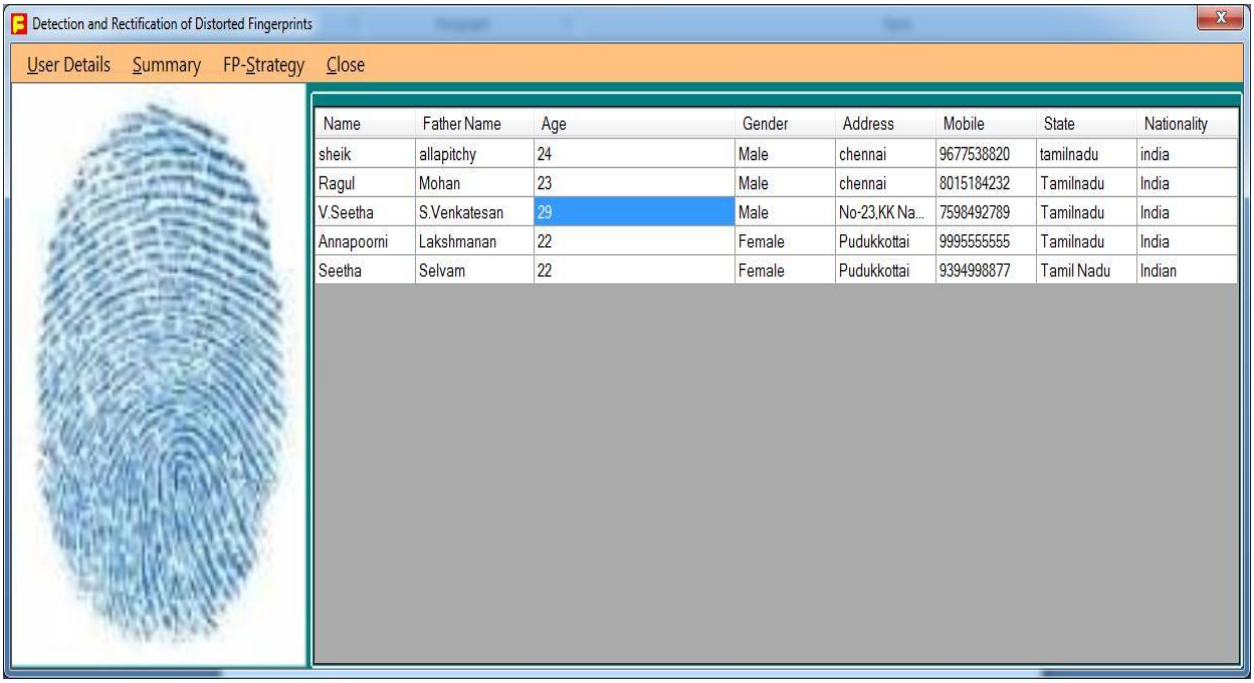


Figure 4.3.4:- Display User Entry Detail

Fingerprint Feature Extraction Form

In this snapshot there is the we extract the feature of the fingerprint that was registered earlier in the system through the user registration form and then we have to load the fingerprint and extract feature one by one using the Ratha1992MinutieExtrator class and using the extraction algorithm here we have to display that the minutiae display then finding the nearest neighbor point from core point then obtain the orientation map and draw skeleton of the fingerprint image by clicking on the show button one by one display the desired result .

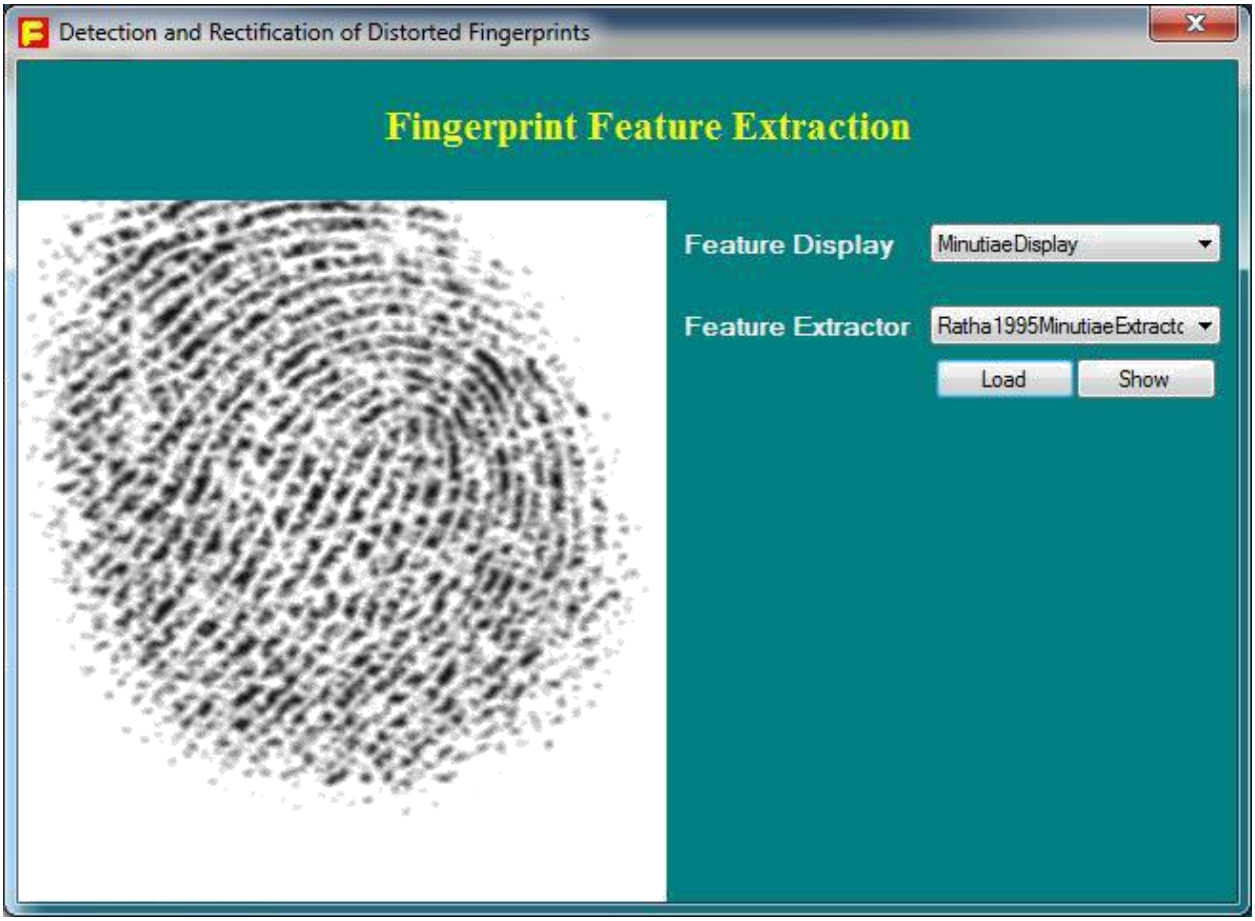


Figure 4.3.5:- Fingerprint feature extraction window

Minutiae Display feature of Fingerprint

Using the feature extraction algorithm there is the feature of the fingerprint extracted here below snapshot shows that of the ridges gap which cannot trace by scanner due to less friction skin of fingerprint which are to be shown by that of the red color circle and intersecting lines which shows reconstruction of the ridges on fingerprint and identify the shape of the fingerprint

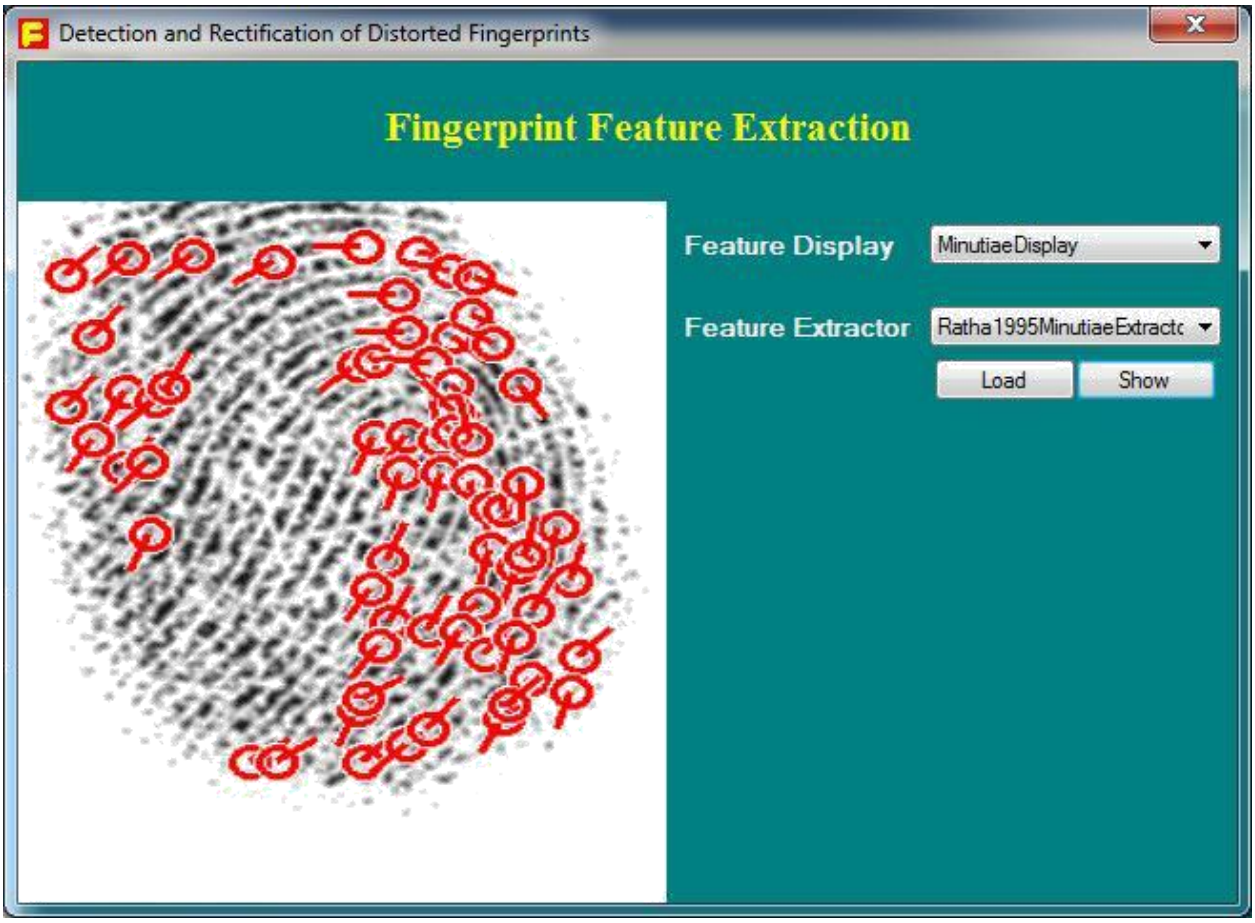


Figure 4.3.6:- Minutiae Display feature of Fingerprint

Feature Matching Experimenter Window

In the experiment window admin or any user login to system simply using above login credential and then shows the Fingerprint Matching Experimenter windows shown in front of the user where that the choose database of fingerprint which are to be distorted and wait for loading after complete loading 100% shows at the below section of window then we have to set the experiment parameter one by one i.e. FVC2000DB1 ,Image orientation parameter Extractor from the given dropdown list then choose matcher strategies ,minutiae extractor method ,Skeleton image extractor set to ratha1995SkelmgExtractor and set last parameter Feature Provider.

Figure 4.3.7:- Feature Matching Experimenter Window

Visual Fingerprint Matching Schema

After the feature extraction there is to click on visual matching scheme new window open in front of user who use the system this window in which chooses that the query fingerprint in one side and then chooses Template Fingerprint generated during Feature extraction procedure load them separately and run that system simply just by click on button tab written on it is Fingerprint Matching Scheme and run the system until it shows the pop up window on it or showing message box. After successful run that system it will shows one case result among two cases such as mentioned below :-

- Found Matching with highest similarity digit and display the actual candidate information ,
- Not found matching in both fingerprint

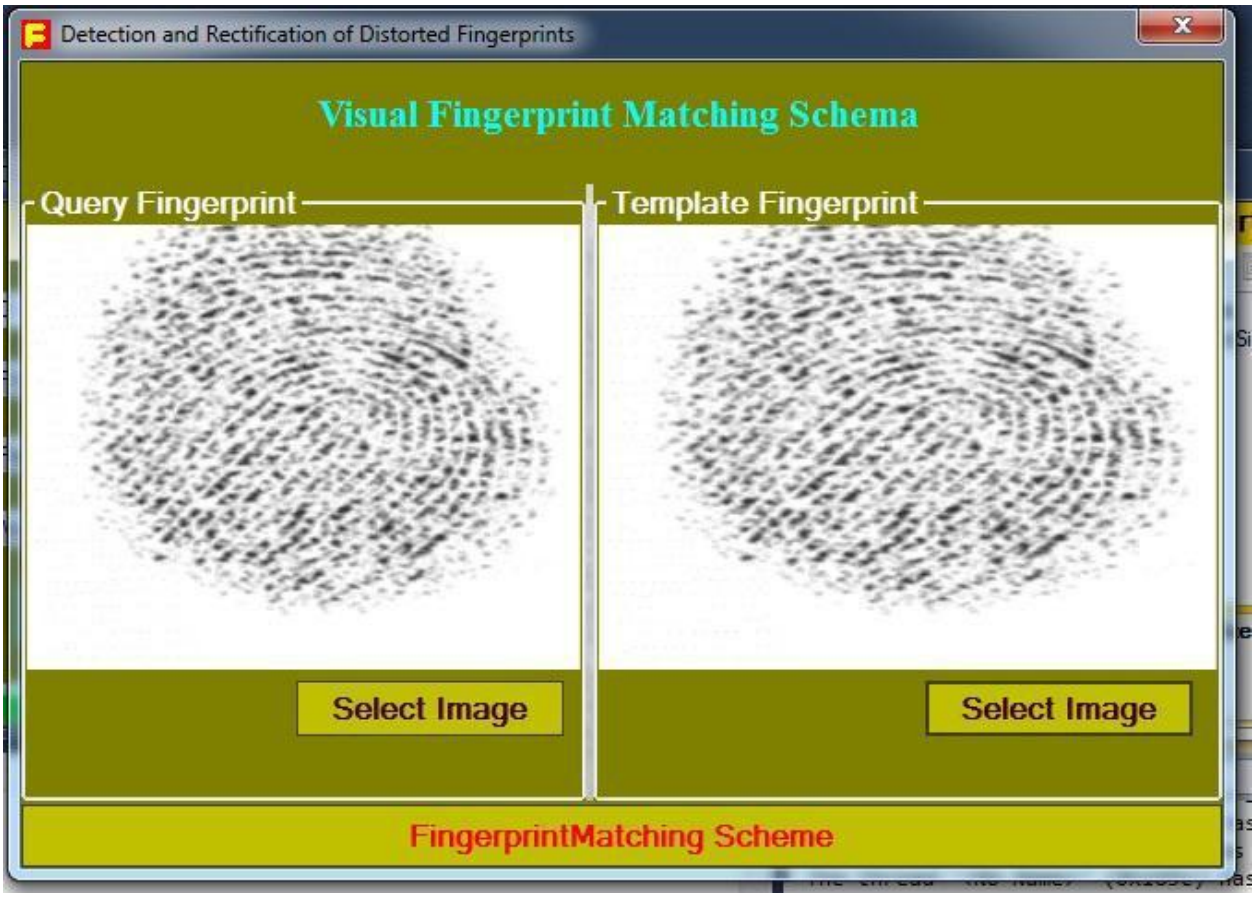


Figure 4.3.8:-Visual Fingerprint Matching Schema

Matching Found between Query & Template Fingerprint with proper parameter value

There is in below snapshot shows that the Matching Minutiae score 61 and similarity in between query and Template fingerprint 100 so it shows that there is found match in between fingerprint then it shows the candidate or user or suspect registration detail.

Figure 4.3.9:-Matching Found between Query & Template Fingerprint with proper parameter value

Figure 4.3.10:- Shows Suspect or User Detail

Matching perform Using Minutiae Extraction

In below screenshot there is the on left side is query fingerprint while on right is the template fingerprint then using that of the matching algorithms perform minutiae extraction where it detect the ridges construction and gaps between it is identify and then evaluate matching score .and if there is not found desired required matching score then it simply not found matching between fingerprint and simply display that the fingerprint not match or fingerprint not registered shown in below screenshot.

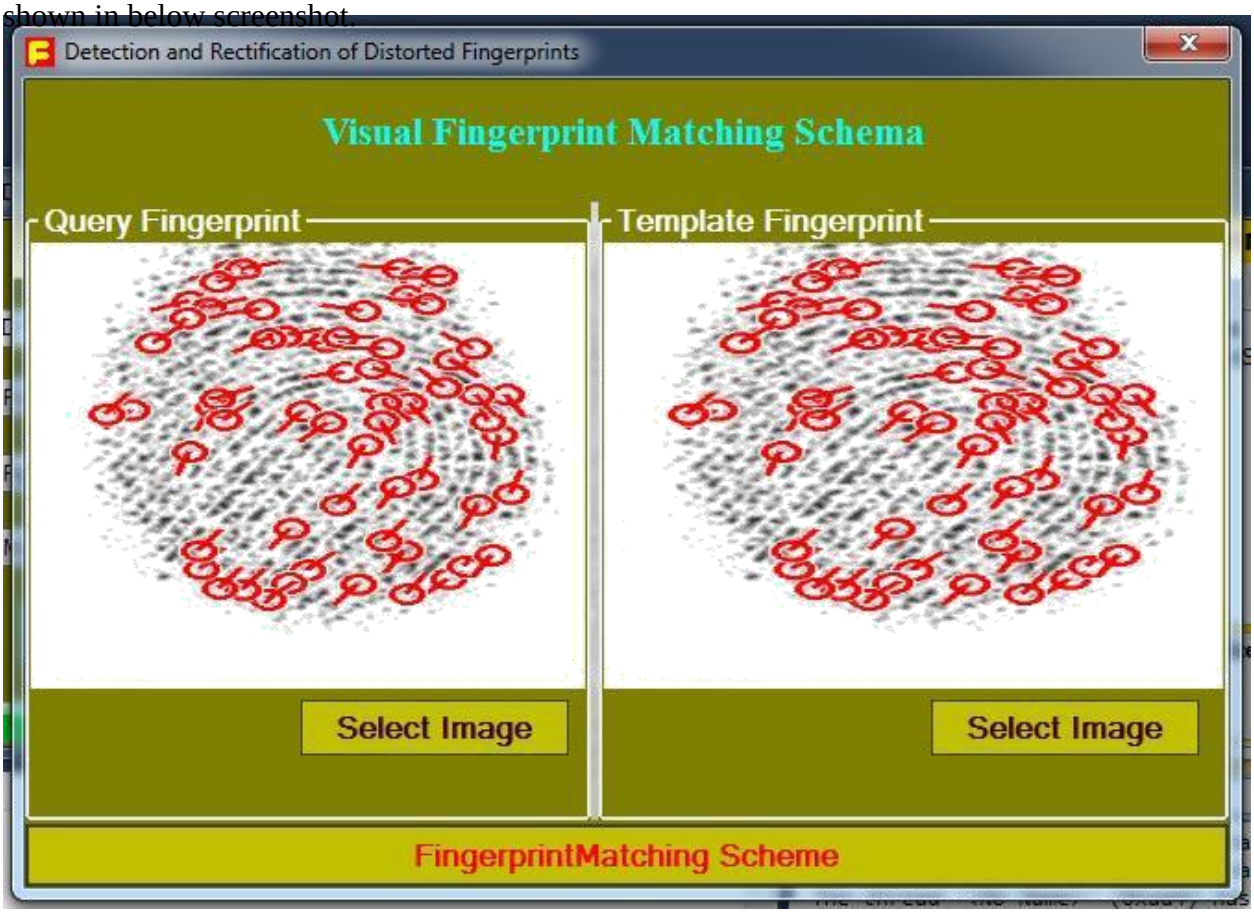


Figure 4.3.11:- Matching perform Using Minutiae Extraction

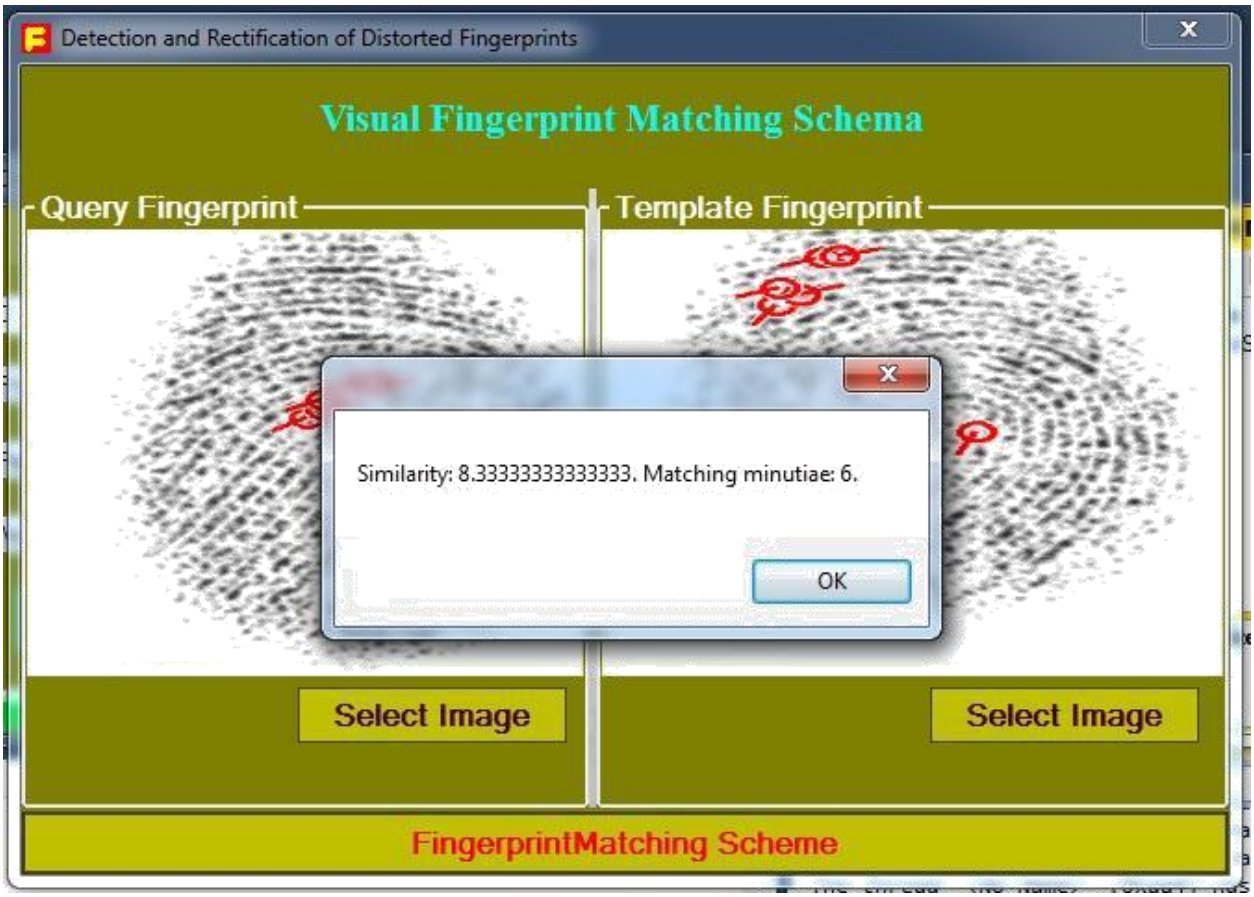


Figure 4.3.12:- Parameter Not Match

Figure 4.3.13:- Fingerprint Not Match or Suspect Not Register.

CHAPTER 5

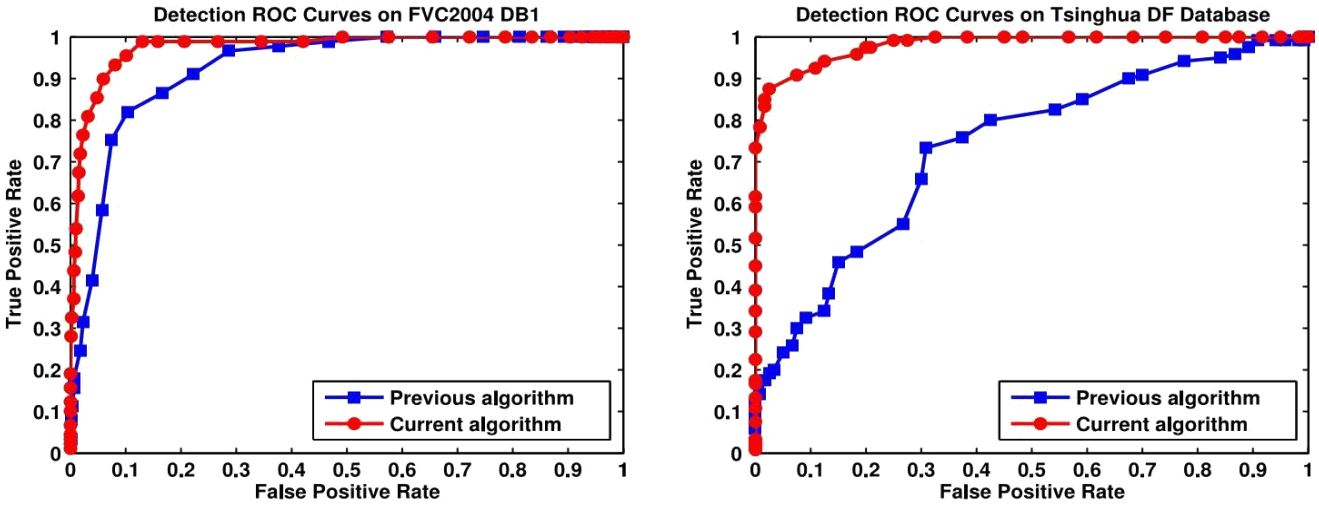
RESULT ANALYSIS

The chapter provides detailed information for assessing the performance of fingerprint identification and fingerprint algorithms. Therefore, this chapter includes different performance parameters and description based on our benchmark and proposed model.

5.1 ACCURACY RATE

Table 5.1 Database Description & Purpose

DATABASE	DESCRIPTION	PURPOSE
FVC2002 DB1_A	100 normal fingerprints	reference fingerprints
FVC2004 DB1	880 fingerprints	algorithm evaluation
FVC2006 DB2_A 1	680 fingerprints scaled to 500 ppi	algorithm evaluation
Tsinghua DF 320	Tsinghua DF 320	training and algorithm Evaluation
NIST SD27	258 pairs of latent & rolled fingerprints	algorithm evaluation
NIST SD14	27,000 fingerprints	background database



(a) (b)

Graph 5.1 Accuracy Rate &ROC curve of detection and rectification algorithm of previous and current algorithm.

The accuracy and ROC line for detecting and correcting algorithms from previous algorithms and the graphs above (a) and (b) show that the level of false signals against the false signals from two different existing FVC2004, Qinghua database, DF show. ROC curves both the current and the previous algorithm.

In this comparative table above shows that different versions of the database that describes its different versions and aims to show that FVC DB, FVC2002 DB1, FVC 2004, FVC2006 DB1A and NIST SD 14, NIST SD27. Here is an algorithm for the damage found and corrected correctly.

5.2 Error Rate in Detection and Rectification

Detection error

Table 5.2 Error Rate of Detection

	Slight distortion	Low quality	Small area	Non-frontal Pose
FVC 2004 DB1	9/89	26/791	16/791	6/791
Tsinghua DF	7/120	5/120	0/120	8/120

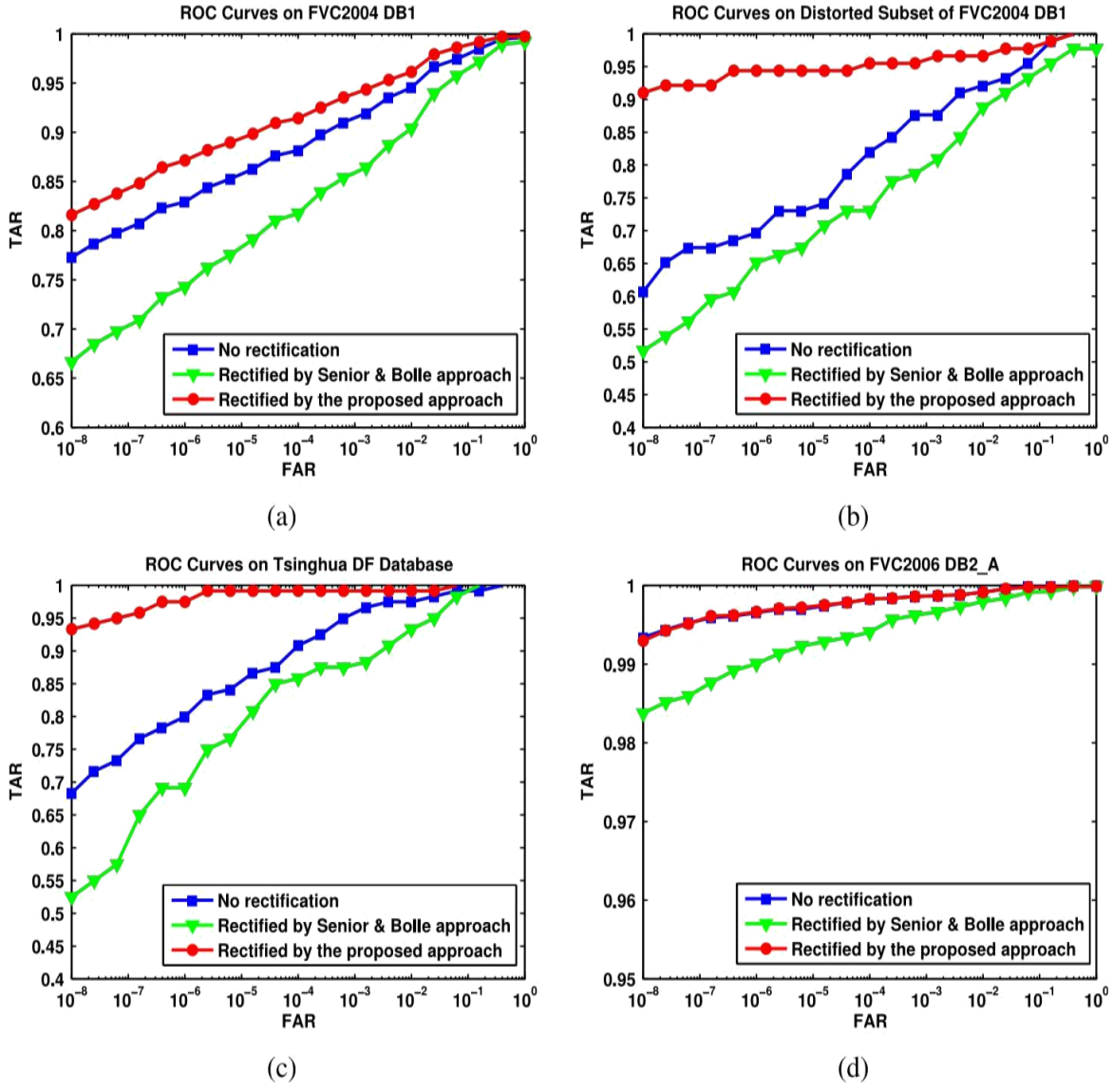
Rectification error

Table 5.3 Rectification Error

	False positive	Low Quality	Small area	Non-frontal Pose
Distorted subset of FVC 2004 DB1	0/89	7/89	5/89	0 / 89
Tsinghua DF	10/120	4/120	0/120	5/120

Impressions was considered a positive example and a negative sample of conventional fingerprints. If fingerprint damage is classified as a positive role model, a positive location.If fingerprints are usually classified as positive role models, false positive results may occur. By

changing the decision-making level, we can get the current curve (ROC) ROC curves of the proposed algorithm and our algorithm in Wikipedia FVC2004 DB1 and the standard dataset Tsinghua DF. One set of tests Tsinghua database of DF-120 pairs of normal and pathological fingerprints.FVC2004 DB1 Damaged Fingerprints are considered as a positive example and fingerprints usually a negative sample. If fingerprint damage is classified as a positive role model, a positive location. If fingerprints are usually classified as positive role models, false positive results may occur.By changing the decision-making level, we can obtain the receiver's current curve (ROC) curve. Figure 10 shows the ROC curve of the proposed algorithm and our previous algorithm of FVC2004 DB1 and a standard Qinghua DF data set. One set of tests Tsinghua database of DF-120 pairs of normal and pathological fingerprints.



Graph 5.2 Error Rate &ROC curve of FVC2004 DB1 and Tsinghua

For example, as shown in the image conversion adjustment for a conventional fingerprint matching, it can reduce the dots. We mean all the errors found on the DB1 database and the Qinhua DF database reasonably and categorized into four categories. The results are shown in Table 2. Note that this classification is not exclusive, and an example can be set for different reasons. The weak and ROC lines of the FVC2004 DB1 and Tsinghua experimental fingerprint matching in the database of four of the following:

(a) FVC2004 DB1,

(b) One subgroup of Figure 14:

The ROC curves of the three fingerprints match the experiments of each of the following four: database: (a) FVC2004 DB1, (b) one subgroup of FVC2004 DB1 skew, (c) Tsinghua DF database, and (d) FVC2006 DB2_A. Photos included checking exam 3 is the original fingerprint matching footprint corrected by old ways and Bolle fingerprints [28] and corrected by the suggested method.

5.3 Speed of Distortion Detection and Rectification Algorithm

Table 5.4 Time consumption & speed of detection &rectification fingerprints

Algorithm	FVC2004 DB1		Tsinghua DF		NIST SD27	
	Time(sec)	Percentage	Time(Sec)	Percentage	Time(sec)	Percentage
Detection with center Point	1.2	89.43%	1.4	96.25%	-	-
Detection without center point	15.3	10.57%	16.8	3.75%	-	-
Rectification with center point	63.9	86.07%	64.6	97.62%	65.3	75.97%
Rectification without center point	67.1	13.93%	66.3	2.38%	67.3	24.03%

The above table shows the detection and repair speed in a fingerprint algorithm. This table shows that for detecting and correcting fingerprints, indirectly speeding up the detection and correction time from the point of view of the three databases used.

CHAPTER 6

CONCLUSION & FUTURE WORK

6.1 Conclusion

The fake rate of matching fingerprints is extremely high in case of damage to fingerprints. This can be used by unauthorized person, with an automatic fingerprint recognition system creating a security hole. For this reason, it is essential to create an algorithm for detecting and processing fingerprint errors to fill the slot. This article describes new algorithms, distortions for fingerprint detection and processing. For the detection of registry flaw distortion and fingerprint tricks as vector entries are used, and SVM classmates are trained to classify fingerprints as "destructive" or "normal". Correlation (or curvature of the field) is used the nearest regression method the neighbor to predict the distortion of the input impedance of the fingerprint field, and then the contrast of the field distortion is used to change the wrong fingerprints normally. The experimental results of FVC2004 DB1, the Tsinghua DF database and the NIST SD27 database indicate that the proposed algorithm may increase the degree of corrupt fingerprint recognition. The main determinant of current methods is efficiency. Both the detection and correction of step steps can be greatly accelerated if proper and accurate fingerprints can be made. Another obstacle is that the current method does not support fingerprints. It's hard to concentrate a lot of printed fingerprints with sorts of distortions and, at the same time, to get specific areas of distortion to learn a sample of statistical distortion. Our ongoing work is to address these limitations.

6.2 Future Work

The key aim of the work is to design and implement an identification and rectification of distorted fingerprint is accomplished successfully .in near future the following extensions are considered for the work.

- Implementation of the project with by using the mobile fingerprint scanner also by using mobile phone sensor to improve the accuracy.
- Also to integrate that code with UIDAI Database.
- And for in future to develop the mechanism to access that user feedback or review of user.

REFERENCES

[1] X. Si, J. Feng, and J. Zhou, "Detecting fingerprint distortion from a single image," in Proc. IEEE Int. Workshop Inf. Forensics Security, 2012, pp. 1–6.

[2] D. Maltoni, D. Maio, A. K. Jain, and S. Prabhakar, Handbook of Fingerprint Recognition, 2nd ed. Berlin, Germany: Springer-Verlag, 2009.

[3] FVC2006: The fourth international fingerprint verification competition. (2006). [Online]. Available: http://bias.csr.unibo.it/fvc2006/

[4] V. N. Dvornychenko, and M. D. Garris, "Summary of NIST latent fingerprint testing workshop," Nat. Inst. Standards Technol., Gaithersburg, MD, USA, Tech. Rep. NISTIR 7377,

[5] Neurotechnology Inc., VeriFinger. (2009). [Online]. Available: http://www.neurotechnology.com

[6] L. M. Wein and M. Baveja, "Using fingerprint image quality to improve the identification performance of the U.S. visitor and immigrant status indicator technology program," Proc. Nat. Acad. Sci. USA, vol. 102, no. 21, pp. 7772–7775, 2005.

[7] S. Yoon, J. Feng, and A. K. Jain, "Altered fingerprints: Analysis and detection," IEEE Trans. Pattern Anal. Mach. Intell., vol. 34, no. 3, pp. 451–464, Mar. 2012.

[8] E. Tabassi, C. Wilson, and C. Watson, "Fingerprint image quality," Nat. Inst. Standards Technol., Gaithersburg, MD, USA, Tech. Rep. NISTIR 7151, Aug. 2004.

[9] F. Alonso-Fernandez, J. Fierrez-Aguilar, J. Ortega-Garcia, J. Gonzalez-Rodriguez, H. Fronthaler, K. Kollreider, and J. Big€un, "A comparative study of fingerprint image-quality estimation methods," IEEE Trans. Inf. Forensics Security, vol. 2, no. 4, pp. 734–743, Dec. 2007.

[10] J. Fierrez-Aguilar, Y. Chen, J. Ortega-Garcia, and A. K. Jain, "Incorporating image quality in multi-algorithm fingerprint verification," in Proc. Int. Conf. Biometrics, 2006, pp. 213–220.

[11] L. Hong, Y. Wan, and A. K. Jain, "Fingerprint image enhancement: Algorithm and performance evaluation," IEEE Trans. Pattern Anal. Mach. Intell., vol. 20, no. 8, pp. 777–789, Aug. 1998.

[12] S. Chikkerur, A. N. Cartwright, and V. Govindaraju, "Fingerprint enhancement using STFT analysis," Pattern Recognit., vol. 40, no. 1, pp. 198–211, 2007.

[13] F. Turroni, R. Cappelli, and D. Maltoni, "Fingerprint enhancement using contextual iterative filtering," in Proc. Int. Conf. Biometrics, 2012, pp. 152–157.

[14] J. Feng, J. Zhou, and A. K. Jain, "Orientation field estimation for latent fingerprint enhancement," IEEE Trans. Pattern Anal. Mach. Intell., vol. 35, no. 4, pp. 925–940, Apr. 2013.

[15] X. Yang, J. Feng, and J. Zhou, "Localized dictionaries based orientation field estimation for latent fingerprints," IEEE Trans. Pattern Anal. Mach. Intell., vol. 36, no. 5, pp. 955–969, May 2014.

[16] "http://finance.surinadmin.com/Help/Files/index.htm?redirect=e4be0a81-8e2b-aa43-8eaa-31757168eb05.htm"

[17] R. M. Bolle, R. S. Germain, R. L. Garwin, J. L. Levine, S. U. Pankanti, N. K. Ratha, and M. A. Schappert, "System and method for distortion control in live-scan inkless fingerprint images," U.S. Patent No. 6 064 753, May 16, 2000.

[18] J. Dai, J. Feng, and J. Zhou, “Robust and efficient ridge-based palmprint matching,” IEEE Trans. Pattern Anal. Mach. Intell., vol. 34, no. 8, pp. 1618–1632, Aug. 2012.

[19]N. Ratha and R. Bolle, “Effect of controlled image acquisition on fingerprint matching,” in Int. Conf. Pattern Recognit., 1998, vol. 2, pp. 1659–1661.

[18] Y. Fujii, “Detection of fingerprint distortion by deformation of elastic film or displacement of transparent board,” U.S. Patent No. 7 660 447, Feb. 9, 2010.

[19] C. Dorai, N. K. Ratha, and R. M. Bolle, “Dynamic behavior analysis in compressed fingerprint videos,” IEEE Trans. Circuits Syst. Video Technol., vol. 14, no. 1, pp. 58–73, Jan. 2004.

[20] N. K. Ratha, K. Karu, S. Chen, and A. K. Jain, “A real-time matching system for large fingerprint databases,” IEEE Trans. Pattern Anal. Mach. Intell., vol. 18, no. 8, pp. 799–813, Aug. 1996.

[21] X. Chen, J. Tian, and X. Yang, “A new algorithm for distorted fingerprints matching based on normalized fuzzy similarity measure,” IEEE Trans. Image Process., vol. 15, no. 3, pp. 767–776, Mar. 2006.

[22] A. M. Bazen, and S. H. Gerez, “Fingerprint matching by thin-plate spline modelling of elastic deformations,” Pattern Recognit., vol. 36, no. 8, pp. 1859–1867, Aug. 2003.

[23] L. R. Thebaud, “Systems and methods with identity verification by comparison and interpretation of skin patterns such as fingerprints,” U.S. Patent No. 5 909 501, Jun. 1, 1999.

[24] Z. M. Kov_acs-Vajna, “A fingerprint verification system based on triangular matching and dynamic time warping,” IEEE Trans. Pattern Anal. Mach. Intell., vol. 22, no. 11, pp. 1266–1276, Nov. 2000.

[25] J. Feng, Z. Ouyang, and A. Cai, “Fingerprint matching using ridges,” Pattern Recognition., vol. 39, no. 11, pp. 2131–2140, 2006.

[26] A. Ross, S. C. Dass, and A. K. Jain, “A deformable model for fingerprint matching,” Pattern Recognition., vol. 38, no. 1, pp. 95–103, 2005.

[27] A. Ross, S. C. Dass, and A. K. Jain, “Fingerprint warping using ridge curve correspondences,” IEEE Trans. Pattern Anal. Mach. Intell., vol. 28, no. 1, pp. 19–30, Jan. 2006. [28] A. Senior, and R. Bolle, “Improved fingerprint matching by distortion removal,” IEICE Trans. Inf. Syst., vol. 84, no. 7, pp. 825–831,

[28] D. Wan, and J. Zhou, “Fingerprint recognition using model-based density map,” IEEE Trans. Image Process., vol. 15, no. 6, pp. 1690

[29] J. Feng, “Combining minutiae descriptors for fingerprint matching,” Pattern Recognit., vol. 41, no. 1, pp. 342–352, 2008.

[30] A. M. Bazen, and S. H. Gerez, “Systematic methods for the computation of the directional fields and singular points of fingerprints,” IEEE Trans. Pattern Anal. Mach. Intell., vol. 24, no. 7, pp. 905–919, Jul. 2002.

[31] C.-C. Chang, and C.-J. Lin, “LIBSVB: A Library for support vector machines,” ACM Trans. Intell. Syst. Technol., vol. 2, pp. 27:1–27:27,2011.

[32] F. L. Bookstein, “Principal warps: Thin plate splines and the decomposition of deformations,” IEEE Trans. Pattern Anal. Mach. Intell., vol. 11, no. 6, pp. 567–585, Jun. 1989.

[33] S. Novikov and O. Ushmaev, “Principal deformations of fingerprints,” in Audio and Video Based Biometric Person Authentication. Berlin, Germany: Springer-Verlag, 2005, pp. 250–259.

[34] D. Rueckert, A. F. Frangi, and J. A. Schnabel, “Automatic construction of 3-D statistical deformation models of the brain using nonrigid registration,” IEEE Trans. Med. Imag., vol. 22, no. 8, pp. 1014–1025, Aug. 2003.

[35] S. Tang, Y. Fan, G. Wu, M. Kim, and D. Shen, "RABBIT: Rapid alignment of brains by building intermediate templates," Neuroimage, vol. 47, no. 4, pp. 1277–1287, 2009.

[36] D. H. Ballard, "Generalizing the Hough transform to detect arbitrary shapes," Pattern Recognition., vol. 13, no. 2, pp. 111–122, 1981.

PUBLICATION

[1] **Nikhil D Kasar, Abhilasha Vyas,** "Identity and Rectify Algorithm for Distorted Fingerprints", International Journal for Scientific Research and Development (Online) : 2321-0613, Vol 5 Issue 10 Dec 2017.

[2] **Nikhil D Kasar, Abhilasha Vyas, "**Identification and Rectification Algorithm for Distorted Fingerprints". International Journal for Science and Advance Research in Technology, Paper Reference ID: IJSARTV3I219314.

Plagiarism Checker X Originality Report

Plagiarism Quantity: 25% Duplicate

Date	Wednesday, April 18, 2018
Words	737 Plagiarized Words / Total 2956 Words
Sources	More than 115 Sources Identified.
Remarks	Medium Plagiarism Detected - Your Document needs Selective Improvement.

This chapter provides the understanding about the basic overview of the proposed work and their involved background technology. In order to improved that the distortion detection more accurately in fingerprint using this research. 1.1 Overview 1.1.1 Fingerprint Their narrow fingerprints are the impressions left by the edges of the human fingers. Fingerprint recovery is an important method of legal remedies. Dactyloscopic fingerprints are placed on appropriate surfaces (such as glass, metal, or polysaccharides) by releasing the mucus from the esophagus that is found in the membrane. Sometimes they are called "Attractive Attraction".

Wider use of the unique code of a person or other animal in each part of the friction is an interest in the preliminary steps. The palms of the palm can also leave a feeling of friction on the mountain range. The fingerprints can be made up of ink or other substances that have been transferred from frictional to glossy surfaces such as fingerprints. Fingerprint records usually have fingerprints on finger and thumb links, though fingerprints usually record parts of the lower graft.

People's fingerprints are virtually identical, difficult to change, and lasts for a lifetime, making them suitable as a long-term identifier of human identity. They can be hired by police or other authorities to identify those who want to hide their identities or to identify those who are disabled or dead and therefore unable to be identified because of natural disasters. Fingerprint analysis used in the early 20th century has led to a number of criminal cases. This means that many criminals believe gloves are important. By 2015, gender identity has been reported using fingerprints. 1.1.2

Types of Fingerprint The calculation is used in the fingerprint system, a large storage. Classification system, or fingers of conventional lid models (for example, round models based on the presence or absence of). He rubbing the ridge pattern and a large collection of documents based on the restoration. The most popular systems used to create the key (a number) for viewing each pattern of pattern of each finger in a filing system.

The classification system includes the Rochester system, the Juan Wukitich system and the Henry classification system. Rochester system was developed in Germany, as well as Germany and Japan; The Wuketich system (Croatian-born, developed by a police officer in Buenos Aires, Argentina) was developed in India and South America, and Henry systems are fully developed in most English-speaking countries, and Henry's system has three main fingerprint patterns: Loop fingerprints at all, 60-65%, 30-35% and 5% of wave and bow respectively.

It is also a more complex classification system which breaks the pattern even further, in the plain arches or the taunt arches, and in the rings which can be radial or velour, toward the tail point on the side of the hand. Ulmer

Sources found:

Click on the highlighted sentence to see sources.

Internet Pages

- 0% http://siteresources.worldbank.org/DEC/R
- 0% http://ws680.nist.gov/publication/get_pd
- 0% http://yogavibetenerife.com/there-is-a-b
- 0% https://quizlet.com/7560697/wgu-inc1-fla
- 0% http://astarbiology.com/ib/1-4-membranes
- 0% https://en.wikipedia.org/wiki/Fingerprin
- 0% https://morningchores.com/best-tactical-
- 0% http://www.csitechblog.com/latent-finger
- 0% Empty
- 0% https://issuu.com/thepsychologist/docs/m
- 0% http://www.dailymail.co.uk/news/article-
- 0% https://ipadtablet.com/review-ljryubu_lg
- 0% https://quizlet.com/134479439/csi-the-sc
- 0% https://en.wikipedia.org/wiki/Drilling_r
- 0% http://www.jesus-is-savior.com/False%20D
- 0% https://www.slideshare.net/KUL2700/ch-10
- 0% https://en.wikipedia.org/wiki/Whorl_(fin
- 0% https://2475432.r.bat.bing.com/?ld=d3GEt
- 0% http://www.edinformatics.com/forensic/sc
- 0% http://www.imiinfinity.com/fingerprints
- 0% http://www.course-notes.org/book/export/
- 0% https://www.ebay.com/b/Velour-Party-Cock
- 0% https://www.arthritis.org/about-arthriti
- 0% https://en.wikipedia.org/wiki/F.B.I.
- 0% https://www.slideshare.net/bhaumikamber/
- 0% http://www.losbanosusd.k12.ca.us/downloa
- 0% http://scientificadvances.co.in/admin/im
- 0% https://1846718.r.bat.bing.com/?ld=d3nvV
- 0% https://www.upcscavenger.com/wiki/finger
- 1% http://qa.answers.com/Q/How_does_DNA_fin
- 0% https://docs.oracle.com/cd/E24628_01/doc

Plagiarism Checker X Originality Report

Plagiarism Quantity: 19% Duplicate

Date	Wednesday, April 18, 2018
Words	301 Plagiarized Words / Total 1594 Words
Sources	More than 63 Sources Identified.
Remarks	Low Plagiarism Detected - Your Document needs Optional Improvement.

3.1. Existing System Echo blocking is recommended because of the flexibility of fingerprints to retrieve fingerprints based on relationships and lateral forces or torque. Skin irritation increases the degree of variation (the difference between fingerprints from the same finger) and thus leads to misinterpretation due to the limited capability of the existing fingerprints for recognizing the deformed fingerprints. In Figure 1, two left are normal fingerprints and one part is seriously damaged.

According to Veri-Finger 6.2 SDK, the game between two left players is higher than the game between two players. The big difference is that the distortion is not to overlap. Although it is possible for matching algorithms to suffer from large format corruption, it will result in more fake matching, and it will slow down the match. 3.2. Proposed System Figure 3.1.The framework of Identify and rectify of distorted Fingerprint In this system, detection is seen as a problem for classification into two classes, function vectors using Registered Card Calculations and Ridge Matches, and SVM Authorized Officers are trained to perform the task of this assignee.

Correction of distortion (or curved equivalent of field distortion) is considered a regression problem in the input impaired fingerprint distortion and result field distortion. To solve this problem, the offline stage creates a database of fingerprints, multiple references, and corresponding fields of distortion, which is then the nearestNeighbor's ringing ring field is in the Fingerprint Database, References, and the corresponding Distort field is used to retrieve the fingerprints.

The main features of the proposed system are that it does not require the change of existing fingerprint sensors and fingerprint recognition procedures. Such assets are essential for an easy integration of existing fingerprint recognition systems. The requested system is evaluated in three FVC2004 DB1 databases, which are strongly affected, with distortion, Tsinghua, curved fingerprint and wrong video fingerprint, NIST SD27 hidden fingerprints. Experimental results show that the proposed algorithm can actually improve the accuracy of this distorted fingerprint match.

This thesis suggests new algorithms for dealing with fingerprint error. Consider the entrance Fingerprints, the detection of distortion is performed above all. If it is determined to be distorted, the correction of the variation Execute to change the input footprint input normally. In this article, the detection of confinement is seen as two classes Issues, calendars, map sorting, and the duration of fingerprints are implemented as a feature. Vector and, moreover, SVM classmates have been trained and used to perform classification tasks.

Correct the distortion is regarded as a regression problem where the input is the pattern of the broken

Sources found:

Click on the highlighted sentence to see sources.

Internet Pages

0% Empty
1% http://ivg.au.tsinghua.edu.cn/~jfeng/pub
0% http://www.rroij.com/open-access/pdfdown
0% https://en.m.wikipedia.org/wiki/Android_
0% https://uk.answers.yahoo.com/question/in
0% https://en.wikipedia.org/wiki/ZFS
1% https://ops.fhwa.dot.gov/publications/fh
0% http://www.academia.edu/31604631/Fake_Bi
0% https://www.vendorportal.ecms.va.gov/FBO
0% https://ijirset.com/upload/2016/march/15
0% http://www.jncet.org/Manuscripts/Volume-
1% http://www.ijarcsms.com/docs/paper/volum
0% http://ijarcsse.com/Before_August_2017/d
0% https://www.researchgate.net/profile/Mut
0% https://ijmter.com/papers/volume-2/issue
0% https://people.sc.fsu.edu/~jburkardt/m_s
0% https://www.andrews.edu/~calkins/math/ed
0% https://www.scribd.com/document/17439720
0% https://patents.google.com/patent/US5418
0% https://download.microsoft.com/download/
0% https://dl.acm.org/citation.cfm?id=25712
0% http://vb6awards.blogspot.com/2018/02/ht
0% http://www.about.hsbc.am/-/media/armenia
0% http://www.essay.uk.com/free-essays/engi
0% http://www.searchanddiscovery.com/docume
0% https://link.springer.com/article/10.100
0% https://www.google.com/patents/US6700990
0% https://patents.google.com/patent/US9733
0% http://tech.snmjournals.org/content/35/3
0% https://developer.apple.com/videos/play/
0% https://www.google.com/patents/US8306328

Plagiarism Checker X Originality Report

Plagiarism Quantity: 14% Duplicate

Date	Wednesday, April 18, 2018
Words	244 Plagiarized Words / Total 1713 Words
Sources	More than 61 Sources Identified.
Remarks	Low Plagiarism Detected - Your Document needs Optional Improvement.

The proposed model for classifying the text according to their sentiments are prepared, in this chapter the implementation of the proposed system is described. 4.1 System Level Design This is a system of Fingerprint Sensor Recognition, Extractor Extras and Matcher, Figure 4.1 Fingerprint System Identification System A mostly Optical and semi-behavioral fingerprint sensor system is used. If both of these sensors, the user dirty or dry, except some very good accuracy and is very effective.

To use as a trifle three-step approach: Stage I) Pre-processing step Stage II) restoration trifles Stage III) Post-processing step. Figure 4.2 [Minutia extractor] 4.1.1 Preprocessing Step: Another first stage is divided into three under the keys, such as: I) Image Enlargement. II) Binary Image III) Segmentation of the image. In order to improve the image of the two methods, we use: - the alignment of the histogram, as we are transformed into Fourier.

After improving the image of our method, a flexible line should be used for a binary image. Such as image segmentation, as we have more than a three-step approach: I) Assessment of the direction of the block II) The direction of segmentation intensity III) In some parts of the area of ??interest (Roy) and extraction. 4.1.2 Minutia Extraction: - Droplets stage extraction is divided into two sub-stages, such as: (I) The fingerprint ridge and pruning mark (II) Minutia marking We use field phase extraction algorithm used for sorting. Ridge pruning varies with one pixel width ranges for use to prevent unnecessary pixels being used.

Signal trifles is a very simple task. This is where the concept of a number of professions (CN). 4.1.3 Post-processing phase: For the next processing stage, there is only one intermediate stage: removing fake trifles. As well as a representative for branching new terminations, and it is recommended to combine both. Figure 4.3 Matcher Trifles, trifles set to determine whether or not by hand.

If you want to mountain ranges, as well as pictures of two fingerprints and the fit is done for all other trifles. Figure 4.4: - fingerprint recognition algorithm involved in one step 4.2 IMPLEMENTATION MODULES 4.2.1 Detection of Fingerprint Differences This can be seen as a two-class problem. We have used the registered mountain map the periodic map is the function of the vector that is sorted by an SVM splitter. 4.2.2 Fingerprint registration We record fingerprints in a secure coordinate system to get vector elements.

Multicast Based on the fingerprints, in which we describe how the fingerprints are Offline training and how to register your fingerprints on the Internet. 4.2.3 Fingerprint Reference To get realistic fingerprint statistics, we create a different fingerprint database Biometric scanner. Each participant must put his finger on the scanner in the normal way and then Application of lateral force or torque and increase the force of the fingerprint to be

Sources found:

Click on the highlighted sentence to see sources.

Internet Pages

0% http://www.enggjournals.com/ijet/docs/IJ
0% https://0.r.bat.bing.com/?ld=d3BINcR_Zr1
0% https://en.wikipedia.org/wiki/Fingerprin
0% http://www.allaboutvision.com/askdoc/mis
0% Empty
0% https://www.sciencedirect.com/science/ar
0% https://aapm.onlinelibrary.wiley.com/doi
0% http://www.mdpi.com/2313-433X/3/2/16/htm
0% http://ijiset.com/v1s3/IJISET_V1_I3_88.p
0% https://www.irs.gov/irm/part4/irm_04-004
0% http://www.academia.edu/8994977/On_match
0% https://web.cn.edu/kwheeler/lit_terms_P.
0% https://patents.google.com/patent/US5757
0% http://www.ibiblio.org/kuphaldt/electric
0% https://journals.lib.unb.ca/index.php/tr
0% https://issuu.com/degrau2/docs/black_and
0% https://www.researchgate.net/publication
0% https://www.scribd.com/document/35532222
0% https://www.irjet.net/archives/V2/i9/IRJ
0% https://www.rbi.org.in/scripts/Publicati
1% https://www.slideshare.net/shakastechnol
0% https://www.slideshare.net/PraveenKumar4
0% https://link.springer.com/article/10.100
0% https://booksfb2.com/book52/403839.fb2
0% https://147000428.r.bat.bing.com/?ld=d3P
0% https://link.springer.com/article/10.100
0% https://www.scribd.com/document/22576073
0% http://www.rdkit.org/docs/GettingStarted
0% https://ocw.mit.edu/courses/economics/14
0% https://towardsdatascience.com/supervise
0% https://patents.google.com/patent/US8588

Plagiarism Checker X Originality Report

Plagiarism Quantity: 25% Duplicate

Date	Wednesday, April 18, 2018
Words	168 Plagiarized Words / Total 678 Words
Sources	More than 18 Sources Identified.
Remarks	Medium Plagiarism Detected - Your Document needs Selective Improvement.

The chapter provides detailed information for assessing the performance of fingerprint identification and fingerprint algorithms. Therefore, this chapter includes different performance parameters and description based on our benchmark and proposed model. 5.1 ACCURACY RATE Table 5.1 Database Description & Purpose DATABASE DESCRIPTION PURPOSE FVC2002 DB1_A 100 normal fingerprints reference fingerprints FVC2004 DB1 880 fingerprints algorithm evaluation FVC2006 DB2_A 1 680 fingerprints scaled to 500 ppi algorithm evaluation Tsinghua DF 320 Tsinghua DF 320 training and algorithm Evaluation NIST SD27 258 pairs of latent & rolled fingerprints algorithm evaluation NIST SD14 27,000 fingerprints background database Graph 5.1

Accuracy Rate &ROC curve of detection and rectification algorithm of previous and current algorithm. The accuracy and ROC line for detecting and correcting algorithms from previous algorithms and the graphs above (a) and (b) show that the level of false signals against the false signals from two different existing FVC2004, Qinghua database, DF show. ROC curves both the current and the previous algorithm. In this comparative table above shows that different versions of the database that describes its different versions and aims to show that FVC DB, FVC2002 DB1, FVC 2004, FVC2006 DB1A and NIST SD 14, NIST SD27. Here is an algorithm for the damage found and corrected correctly. 5.2

Error Rate in Detection and Rectification Detection error Table 5.2 Error Rate of Detection Slight distortion Low quality Small area Non-frontal Pose FVC 2004 DB1 9/89 26/791 16/791 6/791 Tsinghua DF 7/120 5/120 0/120 8/120 Rectification error Table 5.3 Rectification Error False positive Low Small area Non-frontal Quality Pose Distorted subset of FVC 2004 DB1 0/89 7/89 5/89 0 / 89 Tsinghua DF 10/120 4/120 0/120 5/120 Impressions was considered a positive example and a negative sample of conventional fingerprints.

If fingerprint damage is classified as a positive role model, a positive location.If fingerprints are usually classified as positive role models, false positive results may occur. By changing the decision-making level, we can get the current curve (ROC) ROC curves of the proposed algorithm and our algorithm in Wikipedia FVC2004 DB1 and the standard dataset Tsinghua DF. One set of tests Tsinghua database of DF-120 pairs of normal and pathological fingerprints.FVC2004 DB1 Damaged Fingerprints are considered as a positive example and fingerprints usually a negative sample.

If fingerprint damage is classified as a positive role model, a positive location. If fingerprints are usually classified as positive role models, false positive results may occur.By changing the decision-making level, we can obtain the receiver's current curve (ROC) curve. Figure 10 shows the ROC curve of the proposed algorithm and our previous algorithm of FVC2004 DB1 and a standard Qinghua DF data set.

Sources found:

Click on the highlighted sentence to see sources.

Internet Pages

1% https://www.innovatrics.com/awards/

0% http://uca.edu/psychology/files/2013/08/

0% Empty

8% https://www.slideshare.net/errajaram/det

0% https://www.microsoft.com/en-us/research

0% http://biometrics.cse.msu.edu/Publicatio

2% http://coldregionsresearch.tpub.com/rsmn

1% https://job-descriptions.mightyrecruiter

1% https://quizlet.com/55010901/forens-test

0% http://www.visigrapp.org/Abstracts/2008/

1% http://ijitech.org/uploads/162354IJIT120

1% https://www.applitrack.com/d303/onlineap

1% http://tandfonline.com/doi/pdf/10.1080/0

1% https://www.stata.com/manuals13/rlroc.pd

1% http://www.verticale.net/a-medium-resolu

1% https://www.w3.org/TR/html401/struct/tab

1% https://www.scribd.com/document/36362377

1% https://patents.google.com/patent/US2009

Plagiarism Checker X Originality Report

Plagiarism Quantity: 18% Duplicate

Date	Wednesday, April 18, 2018
Words	59 Plagiarized Words / Total 319 Words
Sources	More than 15 Sources Identified.
Remarks	Low Plagiarism Detected - Your Document needs Optional Improvement.

The fake rate of matching fingerprints is extremely high in case of damage to fingerprints. This can be used by unauthorized person, with an automatic fingerprint recognition system creating a security hole. For this reason, it is essential to create an algorithm for detecting and processing fingerprint errors to fill the slot. This article describes new algorithms, distortions for fingerprint detection and processing.

For the detection of registry flaw distortion and fingerprint tricks as vector entries are used, and SVM classmates are trained to classify fingerprints as "destructive" or "normal". Correlation (or curvature of the field) is used the nearest regression method the neighbor to predict the distortion of the input impedance of the fingerprint field, and then the contrast of the field distortion is used to change the wrong fingerprints normally.

The experimental results of FVC2004 DB1, the Tsinghua DF database and the NIST SD27 database indicate that the proposed algorithm may increase the degree of corrupt fingerprint recognition. The main determinant of current methods is efficiency. Both the detection and correction of step steps can be greatly accelerated if proper and accurate fingerprints can be made. Another obstacle is that the current method does not support fingerprints.

It's hard to concentrate a lot of printed fingerprints with sorts of distortions and, at the same time, to get specific areas of distortion to learn a sample of statistical distortion. Our ongoing work is to address these limitations. 6.2 Future Work The key aim of the work is to design and implement an identification and rectification of distorted fingerprint is accomplished successfully .in near future the following extensions are considered for the work.

? Implementation of the project with by using the mobile fingerprint scanner also by using mobile phone sensor to improve the accuracy. ? Also to integrate that code with UIDAI Database. ? And for in future to develop the mechanism to access that user feedback or review of user.

Sources found:

Click on the highlighted sentence to see sources.

Internet Pages

1% https://www.researchgate.net/profile/Ale
1% http://www.ijstr.org/final-print/dec2015
1% https://www.cs.uic.edu/~jbell/CourseNote
2% https://en.wikipedia.org/wiki/Fingerprin
0% Empty
1% https://patents.google.com/patent/US7574
1% https://www.researchgate.net/profile/She
2% https://www.slideshare.net/editorijiritcc
1% https://www.repairfaq.org/sam/cdfaq.htm
2% https://developer.apple.com/documentatio
1% https://www.nap.edu/read/10940/chapter/6
1% https://gss.civilservice.gov.uk/wp-conte
1% https://www.sciencedirect.com/science/ar
1% https://pdfs.semanticscholar.org/4054/2f
1% http://ibbi.gov.in/webadmin/pdf/whatsnew

Examination Form [0828CS15MT10]

Examination Session - April-2018, Semester - 4 Status - Regular

Student Personal Details

Name	NIKHEEL DILIP KASAR	**Father's Name**	DILIP MOTIRAM KASAR
Degree	M.Tech.	**Branch**	[CS] Computer Science & Engg.
Sex	Male		
Address I	1502 NEAR OLD CHAWDISARAF BAZAR AMALNER DIST-JALGAON		
City	Jalgaon	**State**	Maharashtra
Pincode	425401		
Phone	9102587225259	**Mobile**	9403244740

Regular Subjects

Appearing in Year : All T- Theory / P-Practical / TS-Theory Sessional / PS-Practical Sessional

Paper Code	Paper Name	Paper Type
MCSE401	Dissertation Part-II	Practical Quiz ☐ Theory Quiz ☐ Minor II ☐ Minor I ☐ T ☐ TS ☐ Tutorials/Problem Solving: ☐ Quiz ☐ P ☐ PS ☐ Assignments:

Note:- If you find any discrepancy in the subjects, please contact institute or university.

Examination Fee Submitted

Fee(In Rs.)	University Development Fees	Student Welfare Fees	Late Fee(In Rs.)	Forward Fee (In Rs.)	Total Fee (In Rs.)
3200	0	0	0	0	3200

भारत सरकार
GOVERNMENT OF INDIA

निखिल दिलीप कासार
Nikhil Dilip Kasar
जन्म तारीख/ DOB:
18/11/1992
पुरुष / MALE

5906 8852 6106

आधार-सामान्य माणसाचा अधिकार

भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

पत्ता:
C/O निखिल दिलीप
कासार, जुनी चावडी जवळ,
सराफ बाझार, अमळनेर,
जळगाव,
महाराष्ट्र - 425401

Address:
C/O Nikhil Dilip Kasar, Near Juni
Chavdi, Saraf Bazar, Amalner,
Jalgaon,
Maharashtra - 425401

5906 8852 6106

Aadhaar-Aam Admi ka Adhikar

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

NIKHEEL DILIP KASAR

DILIP MOTIRAM KASAR

18/11/1992

Permanent Account Number
BOZPK2011R

Signature

13072011

इस कार्ड के खोने / पाने पर कृपया सूचित करें / लौटाएं :
आयकर पैन सेवा इकाई, एन एस डी एल
तीसरी मंज़ील, सफायर चैंबर्स,
बानेर टेलिफोन एक्स्चेंज के नजदीक,
बानेर, पुना - 411 045.

If this card is lost / someone's lost card is found, please inform / return to :
Income Tax PAN Services Unit, NSDL
3rd Floor, Sapphire Chambers,
Near Baner Telephone Exchange,
Baner, Pune - 411 045.

Tel: 91-20-2721 8080, Fax: 91-20-2721 8081
e-mail: tininfo@nsdl.co.in