

FINGERPRINT RECOGNITION



COMPILED AND PRESENTED

BY

MANGALISO SIPAMLA

SUPERVISOR

: MR A ISMAIL

INTRODUCTION



Produce a fingerprint recognition system to be used by the University of the Western Cape

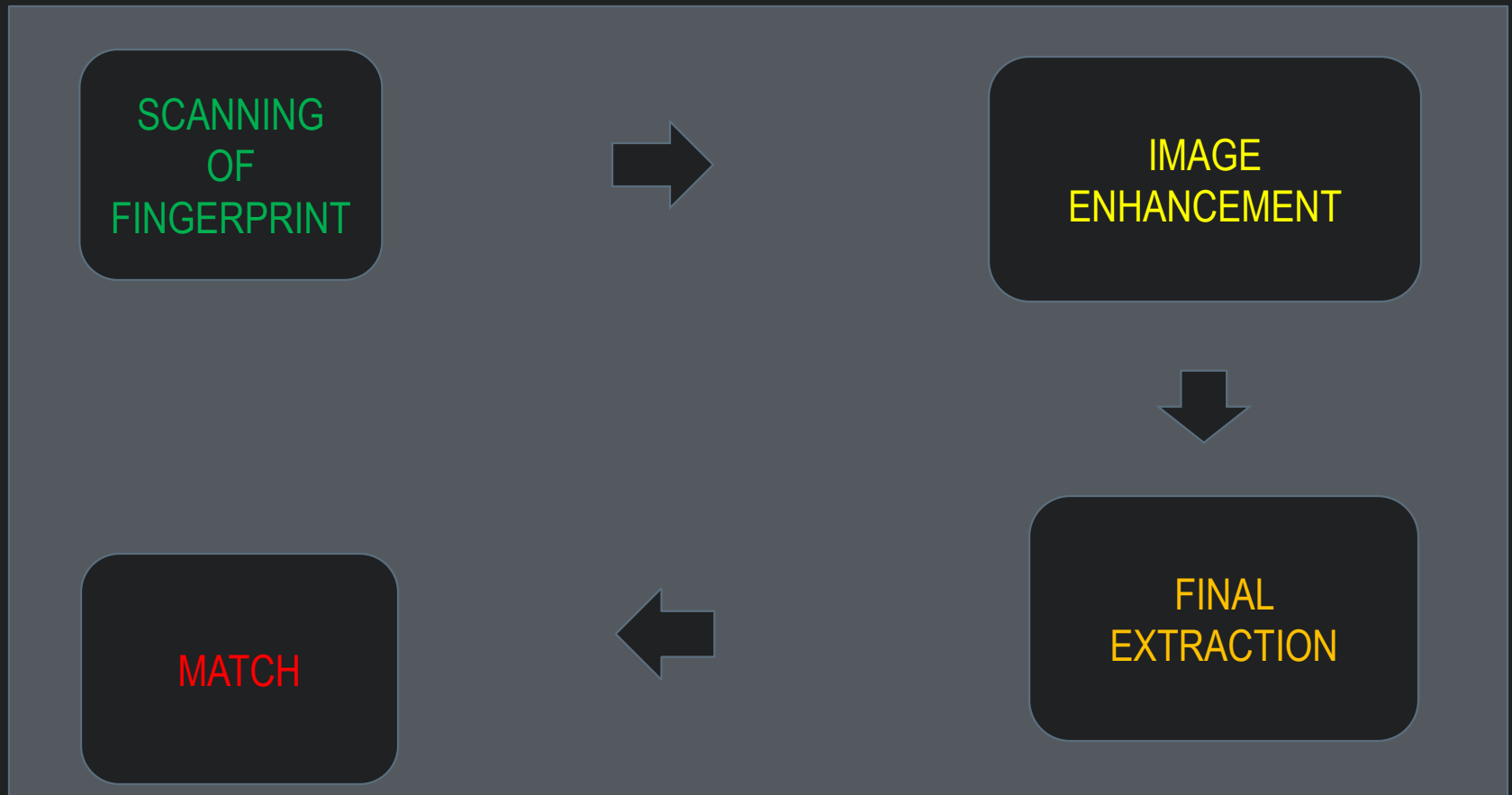
- Current system



- Proposed System



PROPOSED METHODOLOGY



TOOLS USED

- Java for programming.



- Terminal

- Fingerprint Scanner



APPROACH FOR THE PROJECT

- Code for the image processing
 - Grey scaling
 - Histogram Equalization
 - Binarization
 - Edge detection
 - Thinning
 - Bifurcation Detection and distance calculations
 - Angles calculation between bifurcations
 - Ridge Endings Detection and distance calculation
 - Comparison of fingerprint distances for granting access
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DATA OF THE DATABASE AND MATCHING

Bifurcations	Distances and angles	
	Ridge endings	Angles
2.3	1	1.23
6.76	12.23	1.2
56	122.1	12
56	32.3	1.4
56	23.23	1.4
3	34.3	2.5
1.12	34	4.5
0.12	32	45.6
12.3	98	1.8
13.34	45	2.7
122.1 5,6		8.9
12	4.7	7.6
12	5	45

Sorted Bifurcations	Distances and angles	
	Ridge endings	Angles
0.12	1	1.2
1.12	4.7	1.23
2.3	5	1.4
3	5.6	1.4
6.76	12.23	1.8
12	23.23	2.5
12	32	2.7
12.3	32.3	4.5
13.34	34	7.6
56	34.3	8.9
56	45	12
56	98	45
122.1	122.1	45.6

- The distances between Bifurcations as well as ridge endings and angles are stored for matching
- Ascending orders for saving time when doing the matching



CONCLUSION





REFERENCES

- [1] Davide Maltoni, Dario Maio, Anil K. Jain, Salil Prabhakar Handbook of Fingerprint Recognition" (ISBN: 1848822537)
- [2] Lin Hong. "Automatic Personal Identification Using Fingerprints", Ph.D. Thesis, 1998.
- [3] Maio D. and D. Maltoni —Direct Gray Scale Minutiae Detection in Fingerprints—,IEEE. Trans. On Patt. Analysis and Machine Intell. Vol.19, No.1, 1997. 13.
- [4] WUZHILI. Fingerprint Recognition, B.S. Thesis,. Hong Kong Baptist University, April 19, 2002.
- [5] Fingerprint database - FVC2002 (Fingerprint Verification Competition 2002)
- [6] Sangram Bana, et al. / (IJAEST) INTERNATIONAL JOURNAL OF ADVANCED ENGINEERING SCIENCES AND TECHNOLOGIES Vol No. 5, Issue No. 1, 012 – 023 Fingerprint Recognition using Image Segmentation