Qiris
A System to Convert Iris to Qrcode

Vinay Amin[1]; Kruti Dugade[2]; Mahek Lokwane[3]
[1-3]B.E. Students
Department of Computer Engineering,
K.C. College of Engineering & Management studies & Research,
Kopri,Thane(E)-400 603, India.

Abstract--Iris recognition is considered more secured as everyone has a unique iris. Even the two eyes of a individual has distinguished iris. There are 200 unique spots in every iris that can be distinctly identified. Here iris is stored in form of QR code in the database. The data retrieved from the image is encrypted and converted to QR code. During matching the QR codes are matched and not the templates. This security system is one for society that maintains two list in database, a resident list and a guest list. These list are referred to each other by a relational schema.

I. INTRODUCTION:

A. Biometrics Technology:

Biometric systems are the systems that make use of human body parts to identify individuals be it palm, finger, iris, sclera, pupil, face etc. Biometrics is to be traced in 14th century China, where merchants used children's palm and footprints to distinguish them from one another. In 1936, ophthalmologist Frank Burch proposed the concept of using iris patterns as a method to recognize an individual. Biometric security systems are the ones that make human part a key to the lock. This gives a sense of secured environment and the measure of fraud is the lowest in this system.

B.Human Eye:

The visible part of human eye can be distinguished into Pupil, Iris, Sclera and Eyelids. Pupil is the darkest innermost circle of the eye. Iris, our region of interest, is the circulardiaphragm around the pupil. Sclera is the white part in simpler terms that is in contrast with the iris. Eyelid can be called as the cover of the human eye that acts as protection of the eye.
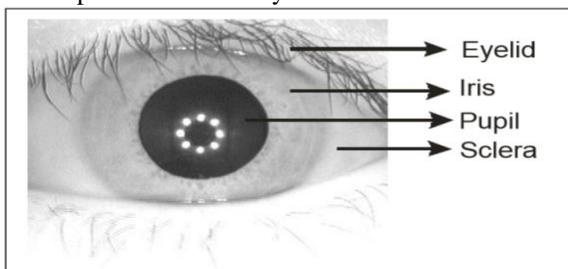
C.Iris Recognition:

Iris recognition is an automated method of biometric identification that uses mathematical pattern-recognition techniques on video images. Image processing techniques can be used for extraction of unique iris pattern

which can be further encoded into biometric template. This biometric template is mathematical representation of iris. The data retrieved from template can be further encrypted into 2D barcode format. This includes various mathematical calculations and encryption methods. The recognition of iris is done in following stages:
1. Segmentation
2. Localization

II. LITERATURE SURVEY:

Almost in all the papers that use Iris Biometric technology iris is scanned in normal fashion but in one paper it is scanned in reverse form just to make sure that the eye scanned is real. We are making a security system for society and so reverse scanning isn't required. The technique used for segmentation and localization is also Daugman than one in which segmentation is done by Canny edge Detection. Normalization is optional, used in few papers and not in others depending on applications. Unlike all the other papers the iris will be stored in QR code form and not normal template. Also a paper includes use of the iris image database from internet.

III.WORKING:

A.Segmentation & Localization:

Segmentation and localization go hand in hand. Segmentation can be done with Hough Transform and Localization with Daugman'sIntegro-Differential Operator. In this Daugman has made use of integro differential operation for location of iris, pupil and upper and lower eyelids. Later Gaussian function is used for the smoothening of iris in order to attain localization. Eyelash and noise are the ones that intervene the iris image and so this has to be detected. The two types of eyelashes, one that are isolated in the image and other that are bunched together, has to be taken care of.

B. Clipping:

Clipping is the process of removing the unwanted background in an iris image and using only the iris for processing.

Special Issue - 2015

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
ICONECT-2015 Conference Proceedings

C.Data Retrieval:

The 2D normalized image is split into two 1D signals which are managed by 1D Gabor filters. The Gabor filters develop real response and imaginary response for the signals. These responses are phase quantized and accordingly the binary digits are noted down. The template generated is in matrix form. The rows corresponds to the circular ring of the iris whereas the columns correspond to angular direction than radial one.

D.QR Code Generation:

For QRcode generation the proposed systemuses the matlab library. The Clipped iris image will be converted into binary form. And then this binary code will be used for generating the QR code with the help of inbuilt functionality in matlab.

1)Algorithm:
a) Locating the iris

We are going to locate where the exact iris is in the entire image. Detecting the outer and inner boundaries will be our first task.

b) Clip the background

With help of Grey level slicing we aim to clip he background and highlight the iris. We will be executing this with help of matlab.

c) Jpeg to binary

This image will be there stored in form of binary format. A binary matrix will be concluded from jpeg image
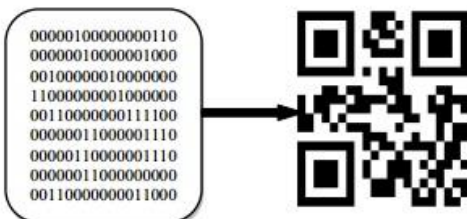

Fig !. QR with embedded iris code

d) Binary to QR code

Entire binary data is encrypted in the form of QR code. QR library will be considered for the generation of QR codes.

e) Matching

As QR code will be matched with QR code so we will look for functions that match QR code.

2)Coding:

The code for the first module just converts the iris image into binary form. In the code we first import the iris jpeg image and covert into binary data form. Post conversion we save the binary data into text file at the specified location. The coversion is done pixel by pixel. Each pixel is represented in 8bit binary form. If the intensity is high or low accordingly padding is done.
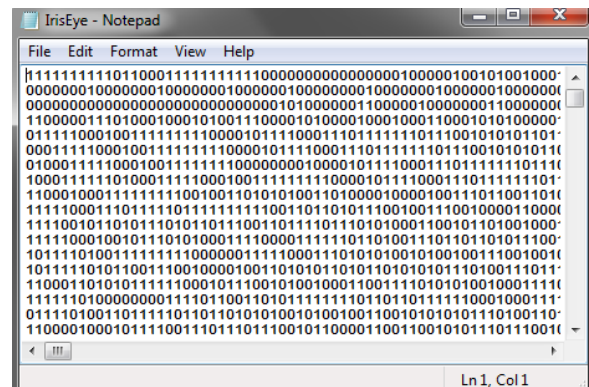

Fig 2. Iris Image

Fig 3. Binary equivalent for iris image

E. Implementation

This are few front end forms we have made in Vb.net Studio Express. We have established a basic connection with database using Mysql. These screenshots show simple implementation of the same later we will collaborate the data entries with the Qr code of iris

Form 1 shows the possibility post matching. If the iris is not found in database, we are asked if the iris should be registered.

Fig 4. Matching output

Special Issue - 2015

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
ICONECT-2015 Conference Proceedings

Form 2 asks for our details if we wish to register the iris this entry is then fed to database.

Fig 5. Registration

Form 3 just displays the successful register of iris in database

Fig 6. Assurance

F. Matching:

Matching will be done by Hamming Distance method. We going to make use of AND, OR, XOR etc logical expressions for matching. Hamming distance algorithm includes masking of noise so that only calculation of significant bits is done. The significant bits are tallied with the new ones and once XOR'ed if we get the result zero we have found the match.

III.   CONCLUSION

The proposed system takes an image of the eye, detects the iris and extracts it. Then a binary image of the extracted iris is created in order to form an equivalent QRcode. Similarly QRcode is matched with the reference QRcodes in the database. Representation of iris as a QRcode provides an efficient and encrypted way for storing the iris data and provides one more level of security. Thus, the system has its application in various areas like national border controls: the iris can be used as a living passport, cell phone and other wireless-device-based authentication, secure access to bank accounts at cash machines, premises access control, credit-card authentication, Internet security, Biometric-Key Cryptography, etc.

Further we are left to do flowing of data through platforms. JN Bridge will be used to let the jpeg image flow from matlab to java. Further the data flow from java to vb.net. then formation and matching of QR Code will be our goal to accomplish.

REFERENCES

[1] Iris Recognition in Less Constrained Environment Pradeep ManikraoPatil, July 2013
[2] A Phase-Based Iris Recognition Algorithm Kazuyuki Miyazawa1, Koichi Ito1, Takafumi Aoki1, Koji Kobayashi2, and Hiroshi Nakajima2 2005
[3] Generation of Iris Template for recognition of Iris in Efficient Manner Ruchika Gupta Harish Saini 2011
[4] Iris Segmentation using an Improved Hough Transform. AmitBendale, Aditya Nigam, Surya Prakash and P. Gupta 2012
[5] Iris Recognition: An Entropy-Based Coding Strategy Robust to Noisy Imaging Environments Hugo Proenc¸a and Lu´ıs A. Alexandre, 2007
[6] A novel approach for iris encryption Shrinivasrao B. KulkarniRavindra S. HegadiUmakantKulkarni 2012 TCET
[7] Security system based on iris recognition SheebaJeya Sophia S. and Veluchamy S. March 2013
[8] Iris based human recognition MansiJhambVinod Kumar Khera 2011
[9] On the inversion of biometric template Vanessa Testoni and Darko Kirovski14-19 March 2010
[10] SLIC: short   length   iris   codes   Gentile,   J.E. Ratha, N. Connell, J. 28-30 Sept. 2009