

IRIS Recognition using QR Code for Finding Duplicate Certificate

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Abstract: Today world security for document is become more and more important. Biometric is the method of identifying a person or verifying a person based on physiological. In earlier we don't have any certification verification. Due to this method so many mistakes are done in certificate verification. So we propose the iris based QR Code generation for verifying certificates. QR Code generation using bitmap algorithm Student details are collected and also student iris database also will be stored. After storing details the corresponding QR Code will be generated for that particular users. For certificate verification QR Code will be recognized for that each and every users also user can retrieve that particular Iris images.

Keywords:- Biometric, QR Code generation, Bitmap algorithm

INTRODUCTION

In earlier days we don't have any certificate verification. Only the checking of marks in the mark sheet. We propose the iris based certificate verification. Biometrics is an automated method of identifying a person or verifying the identity of a person based on a physiological or behavioural characteristic. Physiological characteristics are derived from the measurement of the part of a person's anatomy. Examples of physiological characteristics are hand, finger images, facial characteristics, and iris recognition. Behavioural characteristics are traits which can be learned or acquired. Dynamic signatures verification, speaker verification, and keystroke dynamics are examples of behavioural characteristics. First student details are collected after collecting student profile information. Iris image will be recorded. After recording Irish image QR Code will be generated for the current document. Then the QR code is scanned it will displays user informations about that particular users. The Corresponding user academic informations are retrieved from the iris QR Code. Iris recognition is a biometric recognition technology that utilizes pattern recognition techniques on the basis of iris high quality images. Since in comparison with other features utilized in biometric systems, iris patterns are more stable and reliable, iris recognition is known as one of the most outstanding biometric technologies. Iris images could be taken from humans eyes free from such limitations as frontal image acquisition and special illumination circumstances.

A QR code is a 2D barcode that can encode information like numbers, letters and binary codes. QR code holds a considerably greater volume of information than a 1D barcode. QR code contains information both in

vertical and horizontal direction. Maximum storage capacity of QR code is 4296 characters. There are 40 versions of QR codes and are used in a variety of applications, such as post information to social networks, accessing websites, download personal card information. An important issue in QR codes is the square shapes and limited colour tolerance. This challenge has generated great interest for algorithms capable of hiding information in QR codes and embedding QR codes into images without losing decoding robustness.

RELATED WORKS:

SummiyaFathima et al: Iris being one of unique feature to identify human, thus iris recognition has become one of the most authenticated and reliable system in the field of security. New algorithm is proposed to recognize deformed iris by utilizing simultaneously both geometric and photometric features contained in low pass and band pass regions. Non sub sampled contour let transform (NSCT), is used to eliminate noise and integrate the directional boundary information in different band pass sub bands, using SURF features in maxima image (created using 16 band pass sub bands) and ordinal features in low pass sub bands, matching score is generated. Deformed iris image is converted into normalized iris image using Daugman's rubber sheet model and then non subsampled contourlet transform (NSCT) is implemented to decompose normalized iris images for its multi-scale, multi-direction and shift invariant properties.

Akshara Gaikwad et al: an automatic method to hide information using QR codes and to embed QR codes into colour images with bounded probability of detection error. The technique has been used to distribute the modified pixels of the QR code image and to minimize the amount changes in the luminance of the colour image so that it should not be visible through naked eye. The embedding of halftones into QR codes was proposed in where the location of binary pixels in the QR modules was optimized to maximize visual quality and decoding robustness. In order to increase the complexity of detecting the QR code image to color image and increasing the security in hiding the information using QR code, allowing to automatically generate embedding of QR code with limited probability of detection error.

S.Brindha et al: Quick response codes are two dimensional barcodes which can hold more data and can be fastly readable by Personal computers and Handheld

devices like mobile phones, smart phones and tablet PCs. Biometrics though noted for their accuracy suffer from the innate disadvantage of time consumption during enrolment and verification process. Gabor filter is used for extraction of vein pattern from the segmented sclera region and enhanced. The enhanced vein patterns are thresholded using an adaptive threshold method to emphasize and binarize the sclera vein pattern, and thinned to a pixel wide skeleton using morphological operations. The proposed model has improved the security of the system as verified using FAR and FRR.

Mahmoud Mahlouji et al: Applying linear hough transform, localization of boundaries between upper and lower eyelids occluding iris has been performed. In comparison with available iris segmentation methods, not only has the proposed method a relatively higher precision, but also compares with popular available methods in terms of processing time. Experimental results on images available in casia database show that the proposed method has an accuracy rate of 97.50%. The boundaries were localized with high precision, and with particular attention to the issue of low variations of illumination intensity in iris outer boundary compared with other sections was achieved a fine accuracy rate for this proposed method.

Revathi M et al: Our system consists of QR reader and Biometrics finger print readers which are used to verify the certificate originality in order to eradicate fraudulent certificate. The procedure involved in this paper is getting the QR code the certificate and finger print of the person during the run time. Then the fingerprint is verified with that of the stored one, if it matches then the approved mark statement will be provided. As a result of completing the above procedure the security if identification document is increased.

Gaobo Yang et al: In order to lower the consumed threshold, a practical image preprocessing method was proposed for Quick Response (QR) barcode recognition. It could increase the speed of recognition by this decoder so as to embed this algorithm into mobile terminals. Instead of using the traditional methods such as edge detection and line detection, the encode characteristic of QR had been used, thus the influence by background noise and geometric distortion was minimized. A practical image preprocessing method was proposed for QR barcode recognition.

Florence ROSSANT et al: A new eyelid localization algorithm based on a parabolic curve fitting. To deal with eyelashes, low contrast or false detection due to iris texture, we propose a two steps algorithm. First, possible edge candidates are selected by applying edge detection on a restricted area inside the iris. Then, a gradient maximization is applied along every parabola, on a larger area, to refine parameters and select the best one.. The performance evaluation is carried out by comparing the segmented images obtained by the proposed method with the manual segmentation. A new eyelid localization algorithm has been proposed. To this end, an edge detection method is performed on a restricted image area, leading to a set of possible boundary candidates.

Iman A. Saad et al: Contrast stretching (normalization) technique is used for handling the variations in contrast and illumination in an iris image by stretching the range of intensity values. Next, the local integration is applied on the enhanced image, this process will enhance the contrast level between the existing white and black areas of the image; this will be useful to compute the optimal threshold value required to perform a successful image binarization for the purpose of isolation of the pupil region, the seed fill algorithm is used as region growing method to segment the binary image and allocate the pupil as a circular black segment with the biggest area of approximate pupil center is detected then for removing the specular reflection, the pupil is filled with black color using a simple filling method. Finally a circle fitting algorithm is used for precisely allocating the circular pupil region by the fact that richer iris textures are not closer to the pupil boundary.

A.V.G.S.Sastry et al: iris image capture to keep the segmentation time within limits. This paper presents an enhanced iris segmentation method that allows iris recognition systems to be implemented in real-time applications. Reduced iris segmentation time further allows high resolution iris images to be used thereby enhancing recognition accuracy. In reduced segmentation time, even high resolution images can be considered during image acquisition thereby further improving the accuracy of recognition process.

Mayank Vatsa et al: Different enhancement algorithms are concurrently applied on the segmented iris image to produce multiple enhanced versions of the iris image. A support-vector-machine-based learning algorithm selects locally enhanced regions from each globally enhanced image and combines these good-quality regions to create a single high-quality iris image.

PROPOSED SYSTEM:

We propose the iris based certificate verification. First student details are collected after collecting student profile information. Irish image will be recorded. After recording Iris image QR Code will be generated for the current document. Existing system is the manual process. So many mistakes happen in manual checking system. Also if certificate will be lost cannot recover it. Very less security. Time consumption is also high. QR Code is generated using bitmap algorithm. A bitmap defines a display space and the color for each pixel or "bit" in the display space. A representation consisting of rows and columns of dots, of a graphics image in computer memory or A bitmap is a digital image composed of a matrix of dots.

Then the QR code is scanned it will display user information about that particular user. The corresponding user academic information is retrieved from the iris QR Code content. Iris recognition is the method in the biometric authentication. QR Code has high capacity encoding of data, its maximum symbol can encode 7089 characters.

Data	QR Code Capacity
Numeric only	Max 7,089 characters
Alphanumeric	Max 4,296 characters
Binary(8 bits)	Max 2,953 bytes

Iris recognition is an automated method of biometric identification that uses mathematical pattern-recognition techniques on video images of one or both of the irises of an individual's eyes, whose complex random patterns are unique, stable, and can be seen from some distance. Here student iris are stored in the database then the content of iris features are stored in the QR Code.

The information is encoded in square black and white modules of several pixels. Finder patterns play a central role in the speed and success of decoding and are located in three corners of the symbol.

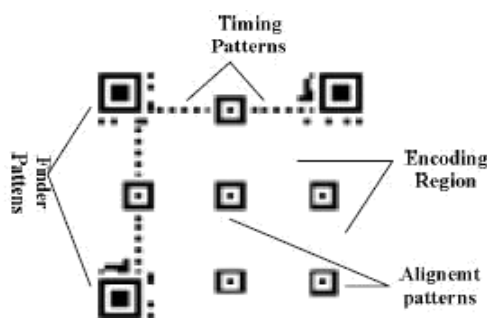


Figure.1

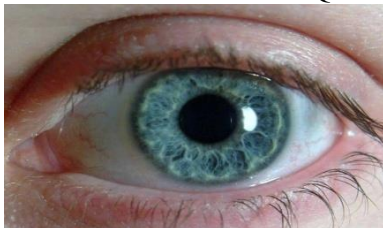
Student Profile Information:

In this module student information are collected. After collecting students information related to that users academic information. Users academic information are entered by the authorized administrator who can store the information and record iris image of the users. If the user can retrieve that information for all about that users.

Iris Recognition:

Iris recognition is the method in the biometric authentication. Iris recognition is an automated method of biometric identification that uses mathematical pattern-recognition techniques on video images of one or both of the irises of an individual's eyes, whose complex random patterns are unique, stable, and can be seen from some distance.

Here student iris are stored in the database then the content of iris features are stored in the QR Code.



QR Code Generation:

QR Code is a matrix two-dimensional bar code; It can be readable from any direction from 360 degree. But the stack two-dimensional bar code, for example PDF417, is very difficult to realize the readable. The QR Code image consists of all the certificate details. The details embedded in the QR Code using the Alpha Numeric encoding techniques. Up to 7,089 characters can be encoded in one symbol. The name of the person, date of birth, register number, marks and fingerprint string are used for generate the QR Code.

Certificate Verification:

The certificate validation is the important process of verifying the certificates. If the users are verified by the iris values then QR Codes are generated. The QR code will be scanned and then the user information are retrieved from the hidden QR Code content. It will be a more secure method of storing and retrieving information in the QR code content. For detecting fake certificates, this method will be really helpful by iris authentication.

CONCLUSION:

The concept of this project increases the security of identity documents. Because of this technique, there is no cheating on the certificate possible. So this verification method is more effective than the earlier method, and we are identifying the person using the biometric techniques. Because of this technique, the correct person is also identified. This solution must be recovering the problem of certificate duplication. This research has thrown up many questions in need of further investigation. Further work needs to be done to establish the methods of verification based on the future technology development.

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