Accurate Detection of Impersonation In Online Examination System

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Abstract- *A key component to any online examination in iris recognition system is a server to store the iris records on and to process the authentication. Iris recognition has very high recognition accuracy in the comparison with many other biometric features. Paper purpose of in iris recognition algorithm in which a set of iris image of given eye are fused to generate template using the most consistent features data. Features consistency weight matrix determined according to the whole level presented in considered image. A new matrix measure formula using hamming distance in purpose. Such as algorithm has capability to reducing the amount of data storage and accelerate to machine process. Simulation studies are made to test the validity to purpose algorithm. The result obtained superior performance of such algorithm over any other.*

Keywords- Accurate Detection, Iris Recognition, Gabor Filter, 2-D Gabor Filter

I. INTRODUCTION

Authentication systems requires the user perform the some task of memorizing numerous passwords, personal identification numbers ,pass-phrase in order to access various databases and systems.

Many users choose passwords to be part of their names, phone numbers, or something which can be guessed. Moreover, to handle the hard task of remembering so many passwords, conspicuous places such as desk calendars, which exposes chances of security violation. Biometric accurate authentication comes in to deal with these difficulties with traditional password systems.

The human eye image located between the Scalera and Pupil, has a complex pattern determined by the chaotic morphogenetic processes during embryonic development. The iris generated pattern is unique to each person and to each eye, and is essentially stable during an entire lifespan .Compared with other biometric features, personal authentication based on the image iris recognition can obtain high accuracy due to the rich texture of iris patterns

II. LITERATURE SURVEY

Poulami Das1, Debnath Bhattacharyya1, Samir Kumar Bandyopadhyay2, and Tai-hoon Kim3: we propose a new biometric-based Iris feature extraction system. The system automatically acquires the biometric data in numerical format (Iris Images) by using a set of properly located sensors. We are considering camera as a high quality sensor. Iris Images are typically colour images that are processed to gray scale images. Then the Feature extraction algorithm is used to detect IRIS Effective Region (IER) and then extract features from IRIS Effective Region (IER) that are numerical characterization of the underlying biometrics

W. W. Boles and B. Boashash, IEEE Transaction on Signal Processing, VOL. 46, NO. 4, APRIL 1998 1185: A new approach for recognizing the iris of the human eye is presented. Zero-crossings of the wavelet transform at various resolution levels are calculated over concentric circles on the iris, and the resulting one-dimensional (1-D) signals are compared with model features using different dissimilarity functions. A new algorithm for recognizing the iris of the human eye based on the wavelet transform is presented. The algorithm is translation, rotation, and scale invariant. It is also insensitive to variations in the lighting conditions and noise levels.

Dr. Shadily Jain, Associate Professor, Chit Kara University Bade (HP), India for her guidance and support, International Journal of Advance Research in Computer Science and Management Studies: iris recognition uses the approach of computer vision and image processing. These methods contain different stages like image segmentation, the iris segmentation step, localization of the iris region in the image will be done. For many algorithms and assuming near-frontal representation of the pupil, the iris boundaries are shown as two circles.

III. PROBLEM DEFINITION

Among the Five stages in Iris recognition system that are: Acquisition, Segmentation, Normalization, Feature extraction or Feature comparison and Matching. Iris

segmentation is one of the most significant steps in iris recognition system. Most of the existing iris segmentation algorithms rely on parametric models of the circle and ellipse to localize the iris.

4. Proposed System

The modern computerized system is developed with the aim to overcome the drawbacks of existing system. Recognize people identity becomes an essential problem, Iris based biometric system provides accurate personal identification. Feature encoding and pattern matching are major task in the iris recognition. In our proposed system gives how to set a model to extract the feature of different eye images and match them is especially important for it determines the results of the whole system directly.

Gabor filter algorithm are able to provide best conjoint representation of a spatial frequency and signal in space. A Gabor filter is constructed by modulating a sine/cosine wave with a Gaussian. Feature Encoding was implemented by convolving the normalised iris pattern with 1-D Gabor filters. For Matching hamming distance will be calculated and accurate recognition was achieved.

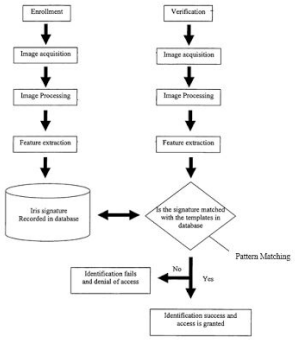

Fig. Flowchart for Authentication of Online Examination System

4.1. Image Acquisition

Automated iris recognition is to capture a high-quality image of the eye while remaining non-invasive to the human operator. It is desirable to acquire images of the iris with sufficient resolution and sharpness to support recognition. It is important to have good contrast in the internal eye image pattern without resorting to a level of illuminous that annoys the operator. These images must be well framed without unduly constraining the operator (i.e., preferably without requiring the operator to employ an eye piece, chin rest, or other contact positioning that would be invasive).

4.2. Segmentation

A segmentation algorithm should involve two procedures: iris localization and noise reduction. The iris localization process takes the acquired image and find both the boundary between the pupil and iris, and the boundary between the iris and the sclera. The noise reduction process refers to localizing the iris from the noise in the image. These noises include the pupil, sclera, eyelids, eyelashes, and artifacts.2 the blind certificate generator (i.e. the organiser) is responsible for the certificate generation and both the pseudonym and the corresponding private key are blind to the organiser.

4.3. Normalization

Normalization is used to transform the iris region so that it has fixed dimensions in order to allow comparisons.

4.3.1. Gabor Filter

The feature extraction based Gabor filter have been widely used in iris and fingerprint recognition. A multichannel Gabor wavelet is a set of filter banks with different orientations and different scales, which is used to extract texture features of various densities and piece them together for a formation of an iris image texture feature coding.

4.3.2. 2-D Gabor Filter

Gabor filter algorithm are able to provide optimum conjoint representation of a signal in space and special frequency. A Gabor filter is made up by modulating a sine/cosine wave with a Gaussian filter. Iris image is able to provide the optimum conjoint localization in both space and frequency since a sine wave is perfectly denoted in frequency but not denoted in space. Modulation of the sine with a Gaussian provides localisation in space though with loss of localisation in frequency. Eye image decompose of a signal is modified using a quadrature pair of Gabor filters with a real part specified by a cosine modulated by a Gaussian, and an imaginary part specified by a sine modulated by a Gaussian. The real and imaginary filters are also known as the even symmetric and odd symmetric components respectively. Iris of centre frequency of the filter is specified by the frequency of the sine/cosine wave and the bandwidth of the filter is modulated by the width of the Gaussian. Dogman makes uses of a 2D version of Gabor filters in order to encode iris pattern data. A 2D Gabor filter over the image domain(x, y) is represented as where (yo-yo) specify position in the image (α, I) specify the effective width and length, and (novo) specify modulation which has special frequency. It can be regarded as a complex valued bit whose real and imaginary components

are dependent on the sign of the 2D integral and is the raw iris image in a dimensionless polar coordinate system I (θ, ρ).
In this section describes the extraction of textural features from the pre-processed image using log Gabor filter. The template generated by encoding the textural features is called the iris template. We propose the use of 2D log Gabor filter for iris texture template polar coordinates but unlike the frequency dependence on a linear graduation the dependency is realized by logarithmic frequency scale. Therefore, the functional form of 2D log-Gabor filter is given by,

$$G(x,y,\theta,f) = exp - \left\{\frac{1}{2}\left[\frac{x^2}{\delta_x^2} + \frac{\delta_y^2}{\delta_y^2}\right]\right\}\cos(2\pi f_x)$$
$$x = x\cos\theta + y\sin\theta$$
$$y = y\cos\theta - x\sin\theta$$

4.4. Feature Extraction

Iris provides abundant texture information. Iris recognition of feature vector is in formed of the ordered sequence of features extracted from the various representation of the iris images.

4.5. Matching

The goal of matching is to evaluate the similarity of two iris representations. Created templates are compared using the Hamming distance or Euclidean distance. The normalized Hamming distance used by Gabor Filter measures the fraction of bits for which two iris codes disagree. A low normalized Hamming distance (HD) implies strong similarity of the iris codes. If parts of the irises are occluded, the normalized Hamming distance is the fraction of bits that disagree in the areas that are not occluded on either image. To account for rotation, comparison between a pair of images involves computing the normalized Hamming distance for several different orientations that correspond to circular permutations of the code in the angular coordinate. The minimum computed normalized Hamming distance is assumed to correspond to the correct alignment of the two images. With the help of Hamming distance we measure the how many bits are the same between two bit patterns. Hamming distance of two bit patterns, a decision can be made as to whether the two patterns were generated from different irises or from the same one. For the two masked binary templates A and B, HD can be calculated by

$$HD = \frac{\sum[(codeA \bigoplus codeB) \bigcap (maskA \bigcap maskB)]}{\sum(maskA \bigcap maskB)}$$

V. FUTURE SCOPE

To develop improved algorithms and data capturing sensors to reduce the level of failure to enroll and failure to acquire rate. To concern segmenting noisy irises when the lower or upper eyelids and eyelashes cover the pupil of the iris, which is currently not handled? To work on optimization of the code, so that the segmentation software can run in real time applications. To study additional type of noises like off-angle iris images may be more useful. Analysis of the proposed hybrid mechanism on noisy irises when the lower or upper eyelids and eyelashes cover the pupil of the iris.

VI. CONCLUSION

We concluded iris recognition technique that minimizes false identification rates. The properties of the iris that enhance its suitability for use in automatic identification includes Natural protection from external environment Impossibility of surgically modifying without the risk of vision. Ease of registering image at some distance. Biometrics can be used in verification and in identification model. Biometric system is used to authenticate the user's individuality. The iris images are disturbed by most common noise factors that result of no cooperative image capturing processes. Feature extraction phase, the uniqueness and discriminative level of the characteristics will determine the reliability of the recognition system. Therefore, unnecessary information must be discarded.

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