

# To enhance the Face and Irish detection and recognition system for Biometric Application

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**Abstract:- To recognize a person, the most preferred computer system used is biometric system. It actually uses the biometric information of the person such as the face ,sign ,iris, key stroke , voice, signature, etc .These are the physiological and behavioral characteristics. While talking about a typical biometric system, it generally consists of sensing, feature extraction and matching modules. In the proposed work a face and iris recognition system is going to be implemented.**

**Keywords- Recognition, Sensing , Biometric sensing, Face, Iris.**

## I. INTRODUCTION

In comparison to other animals, human beings are the most evolved ones and they have got distinct features. One such quality is ability to recognize people and other things. This is known as biometric recognition. The person can be identified with the help of computer pattern and digital image. It is a kind of biometric process called as face recognition and is used for security purpose. It is the need of the hour that we should keep the perfect information and tracking of our personal belongings. Nowadays, the crimes of credit card fraud, computer break in's by hackers, or security breaches in a company, government building are increasing at a faster rate. In the year 1998, sophisticated cyber crooks caused were about US \$100 million which had caused a huge loss. The criminals are using Pin numbers and identification numbers to do the crime and they usually do not find it difficult to gather these information of a target. None of these means are really defining us. The use of ID cards has not remained so secured so far keeping in view the today's increasing crime of a rate and illegal use of other's personal information and belonging. In order to safeguard our valuable things we can biometric software. It actually keep the physical and behavioral information of a person so it help us to a very great extent to maintain our information in a secured manner

Iris is the part of the circle around eye pupil. No doubt iris has got a relatively narrow region compared with entire area of the human body, but it has got a very unique pattern, differs in each individual and the pattern remains stable. For all these reasons, iris can be used as the basis for the recognition in biometrics. The iris consists of a number of layers; the lowest is the epithelium layer, which contains dense pigmentation cells. The stromal layer lies above the epithelium layer, and contains blood vessels, pigment cells and the two iris muscles. The density of stromal pigmentation determines the color of the iris. The externally visible surface of the multi-layered iris contains two zones, which often differ in color [3]. An outer celery zone and an inner pupillary zone, and these two zones are divided by the collarets – which appears as a zigzag pattern.

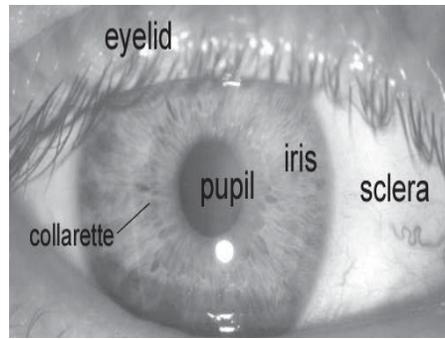


Figure 1 – A front-on view of the human eye.

## II. LITERATURE REVIEW

According to [10], Iris recognition technology is developing in a fast manner. This paper presents a complete iris recognition system. The techniques employed here are speeded up Robust Features (SURF) after enhancing the image using Contrast Limited Adaptive Histogram Equalization (CLAHE).

According to [3], a new face recognition system has been implemented in this paper which is based on an efficient and approximate design of classifier using SIFT (Scale Invariant Feature Transform) feature key point. It takes the advantage of SIFT feature which possess strong robustness to the expression, accessory, pose and illumination Variation. The performance of face recognition in some challenging databases is improved efficiently.

According to [8] the texture of the iris is commonly represented as an iris code in iris recognition systems. While several approaches have been presented for generating iris codes, relatively few comparison techniques have been proposed. In this paper, advantage of the availability of several frames from an iris video to create a single optimized iris code has been used. This is achieved by performing both row-wise and column-wise optimization of iris codes. Inconsistent bits are accurately detected and masked in the final iris code.

## III. DESIGN METHODOLOGY

Face detection and tracking is the method to find out determining whether face is present or not in an image. Face detection gives information about presence or absence of required face only which is contrary to the face recognition technique. The group of feature based face recognition techniques is the Scale Invariant Feature Transform (SIFT) proposed by Lowe. The SIFT technique and its corresponding features has many properties that make them suitable for matching different images of an object or a scene. The SIFT is a method that detects the local key points that are notable and stable for images in different resolutions and uses scale and rotation invariant descriptors to represent the key-points.

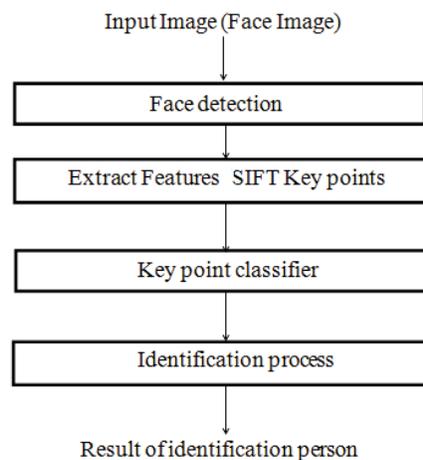


Figure 2. Proposed Work

Face recognition is done by using SIFT algorithm. The input query image first extracted the key points. If the search input image key points are close to train database than the input query image is matches with the database.



Figure 3. Result of SIFT based Face detection

#### IV. PROPOSED IRISH RECOGNITION SYSTEM

The iris is an externally visible but it is a protected organ whose unique epigenetic pattern remains stable throughout adult life. These characteristics make it very useful for a biometric purpose to identify individuals. Image processing techniques can be employed to extract the unique iris pattern from a digitized image of the eye, and encode it into a biometric template, which can be stored in a database. This biometric template contains an objective mathematical representation of the unique information stored in the iris, and allows comparisons to be made between templates. When a subject wishes to be identified by an iris recognition system, their eye is first photographed, and then a template created for their iris region. This template is then compared with the other templates stored in a database until either a matching template is found and the subject is identified, or no match is found and the subject remains unidentified.

The steps to be followed are given below

- 1) Selecting the input image in the form of eye image.
- 2) Segmenting the iris for separating iris image from its eye image.
- 3) Normalizing the iris for getting iris image which is easier to be manipulated.
- 4) Features extraction using Gabor transform.
- 5) Recognized the outcome using Hamming distance calculation.

#### V. CONCLUSION

In the area of machine learning, the auto-authorization has actually become a challenging and interesting topic. To realize person specific authorization, the face recognition and Irish has caught the attention of many researchers'. The face recognition is actually a machine learning process. That process usually is to recognize the person by classifying the feature of each person. Choosing a good feature determines the approximate efficiency of the classifiers. The face recognition can be obtained using SIFT algorithm. In the proposed work Gabor transform and hamming distance are used to perform the recognition process by taking into account iris of the person.

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