

REMEDY FOR DISEASE AFFECTED IRIS IN IRIS RECOGNITION

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Abstract

Every invention has its own drawback likewise iris also having the same problem when the disease affected iris cannot be process. To give better way of processing in iris recognition even though iris is affected, Initially the system will detect the pupil from the eye image after that only identify the outer boundary of iris as well as inner boundary of iris using the Daugman rubber sheet model convert the Cartesian form into polar form. From the iris image the proposed system partition the iris into two, both the iris partitioned image feature extraction like texture and edge should be matched with database. Another important aspect of this system for the system processing own database has been created for this process under the guideless of doctor and image samples taken from the hospital those who are willing to give there eyes for research. Efficiency of this system can be justified by the result.

1. INTRODUCTION

The dimensions differ among adults by only one or two millimeters. The vertical measure, generally less than the horizontal distance, is about 24 mm among adults, at birth about 16–17 mm. (about 0.65 inch) The eyeball grows rapidly, increasing to 22.5–23 mm (approx. 0.89 in) by the age of three years. From then to age 13, the eye attains its full size. The volume is 6.5 ml (0.4 cu. in.) and the weight is 7.5 g. (0.25 oz.). The eye is made up of three coats, enclosing three transparent structures. The outermost layer is composed of the cornea and sclera. The middle layer consists of the choroid, ciliary body, and iris. The innermost is the retina, which gets its circulation from the vessels of the choroid as well as the retinal vessels, which can be seen in an ophthalmoscope. Within these coats are the aqueous humor, the vitreous body, and the flexible lens. The aqueous humor is a clear fluid that is contained in two areas: the anterior chamber between the cornea and the iris and exposed area of the lens. The lens is suspended to the ciliary body by the suspensory ligament (Zonule of Zinn), made up of fine transparent fibers. The vitreous body, the posterior chamber, is a clear jelly that is much larger than the aqueous humor, present behind lens and the rest, and is bordered by the sclera, zonule, and lens. They are connected via the pupil [2]. Our basic experimentation of the Daugman's Mathematical algorithms for iris processing, derived from the information found in the open literature, led us to suggest a few possible improvements.

2. PROPOSED SYSTEM

The system is having basic structure is shown below the fig. 3 initially we should acquired the image then image is process in two various flow of recognition first flow is in gray scale image at the same time second flow is in color image then finally match the result of both the color image as well as gray scale how color image is accurate. The following process is for

the gray scale image processing as well as algorithm to process and various step involved in the gray scale image iris recognition process

A. Locate the Iris in gray scale

First step in this process convert the color image into gray scale then convert into standard size format 256 X 256 gray scale image and then segmentation process is very important to locate the inner and outer boundary of iris from the eye image and then normalization will convert the Cartesian form into polar form.

B. Feature extraction in gray scale image

After located the iris next step to extract the feature like texture, edge, shape from the image for that we can use several algorithm to locate the texture and edge detection in the image processing.

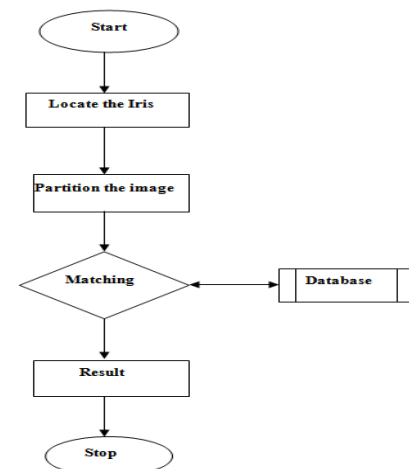


Fig. 1 Basic structure of Proposed System

C. Partitioning the image

After locating the iris using the propose algorithm partitioning the iris image into two iris image namely left side partitioned image as well as right side partitioned image with the standard size of both the partitioned image extracted from the iris image and store the partitioned iris image in separate iris database for left as well as right side partitioned image.

D. Matching with database

Fisher linear discriminant method is used match with the database if the features are matching then finally we can give the authenticated output. Fisher linear discriminant searches for projected vectors that best discriminate different classes in terms of maximizing the ratio of between-class to within class scatter.

The disease affected eyes usually several problems in eye to affected the like but iris wont affect frequently but when iritis and iridocyclitis these disease which affect the iris. The following figure shows the both normal eye and disease affected eye is shown in fig. 2 and fig. 3

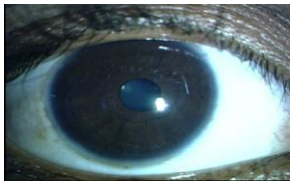


Fig2. Normal eye

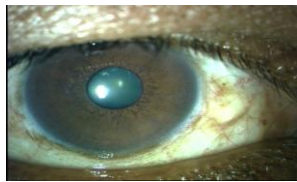


Fig3. Affected eye

The image enhancement is having jobson Et Al's Retinex [9]. These are the image enhancement technique are available. Match the partitioned iris image with the already partitioned iris image with the database with the BWP algorithm proposed technique in the matching algorithm to give better result while compare to the existing system. The matching database will contain the iris database for originally extracted iris image as well as partitioned iris image for both left as well as right side image in the proposed system to give the better performance of the proposed system result.

3. IMPLEMENTATION

The proposed system is having several advantages over the existing system. The system having totally 117 eye images of both the right as well as left eye image in gray scale. The same color image is converted into gray scale and process the above algorithm for both gray scale image as well as color image the result of both the process. The fig . 4 shows the overall collection of eye database capture from the several patients available in the hospital with the real time database as per the hospital and government rule capture the image is shown in the below figure in that database left, right with and without contact lens and normal left, right image image finally disease

affected eye image for both the left as well as right image before the disease affected image, during the disease affected image and finally after the cure of disease affected images are available in the proposed real time database.

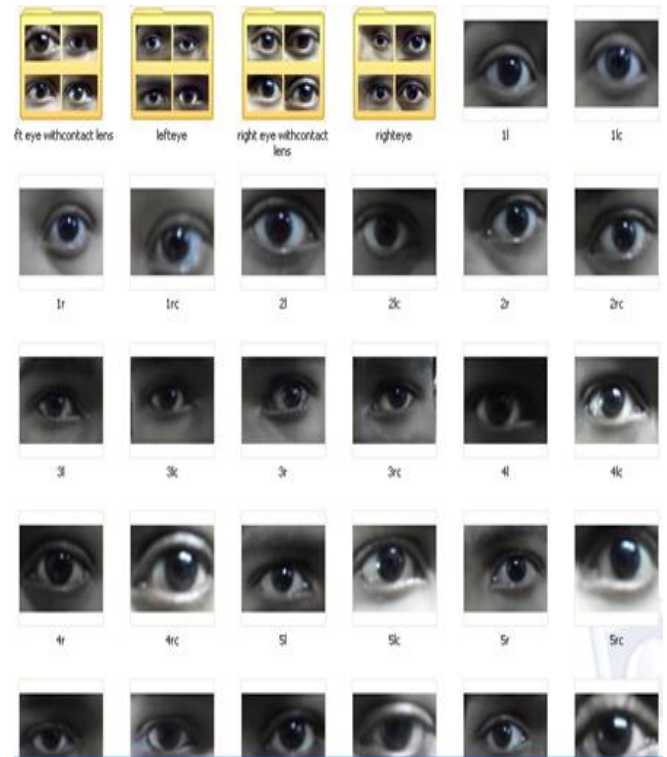


Fig4. Sample database

The fig. 5 shown how the original extracted iris database is available in the proposed system database



Fig5 Extracted Iris database

The fig. 6 shows how the iris is partitioned into two partition namely left side partition as well as right side partitioned iris image is available in the proposed system

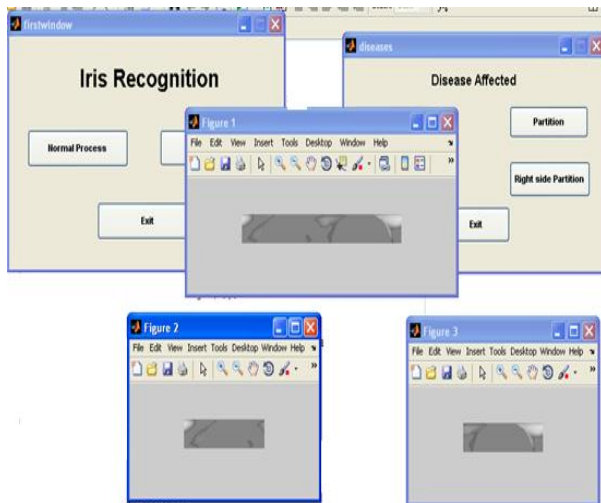


Fig. 6 partitioning the iris image

The fig. 7 shows how the left as well as right side partitioned iris image will give authentication to the proposed system

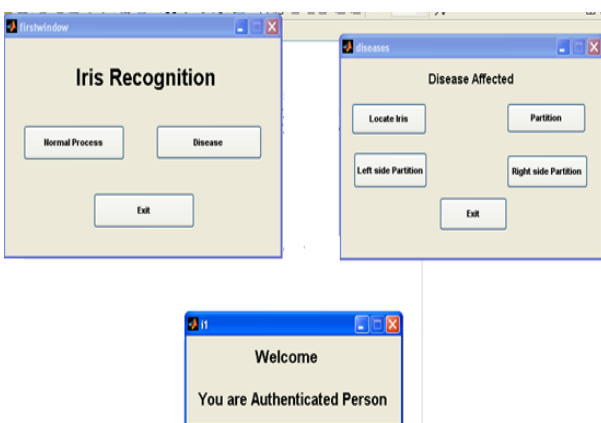


Fig. 7 Authentication in iris recognition

CONCLUSIONS

The iris recognition is one of the best security systems in present technology to give more strength to that technology using gray scale image processing in iris recognition give very effective result. When compare to the existing system if the iris has been affected by the iritis disease the system cannot process the iris recognition but in the proposed system can process the disease affected iris image and produce the better result justify from the implementation results.

FUTURE ENHANCEMENT

To make huge database and reduce the comparison time and to give simpler matching algorithm as well as do more algorithm for several iris disease affected iris image

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