

Effective Application for Detection of Diseases from Sclera Image

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ABSTRACT

In the Medical field , eye is the mirror of human health. Nowadays detection of diseases in human is important role of the doctors. We are maintaining the billions of the patient data in real time. Find out the disease with accurate diagnosis and also required the effective application to manage patient data. We have proposed the Sclera Segmentation using binary conversion and edge detection by edge detection operator sobel with popup menu.

Keywords: Biometric, Sclera Image, Sclera Segmentation, popup menu.

I. INTRODUCTION

In the medical world, diagnosis the disease and taking treatment is important to every patient to live and recover from their health problem. In the economical society 25% salary going for medical treatment because of unawareness of health. Diseases are coming by several reasons, for example food habits, environmental pollution and some of them having by heredity. So accurate diagnosis is very important to totally recover from illness. When we go for consultation to any physician , first they checking the eye only. Because eye is very sensitive organ of human. With help of eye only, we are seeing the world, like that eyes shows our health condition. We can find out the diseases from retina, blood vessels, sclera, eyebrows of both eyes,iris of eye. But here we have proposed the application for detecting the diseases from sclera. From sclera segmented image, we can find out diseases like: blood pressure, diabetic,jauntice. Cholesterol.This paper focused a effective application for detecting the diseases using sclera with popup menu system.

The paper is structured as follows: in Section II Related works, Section III Proposed system, Section IV Implementation Result and in the Section V Conclusion and Future Scope.

II. RELATED WORKS

Swenal Stany Fargose et al[2] proposed the Sclera based Biometric Recognition to identify and authrozie the person from their sclera image and compared the sclera image using adapting thresholding for feature extraction .M. Sonka, V. Hlavac, and R. Boyle[1] have proposed the Image Processing, Analysis, and Machine Vision to

handle Edge-detection approach based on the different operators. The segmented image requires clear extraction based on edges. Here we used some of edge detection operators: canny, sobel, prewitt and log. S. Athira et al[3] have proposed the effective approach for detecting sclera. They extracted the vein pattern by enhancement of segmented sclera image. Therese Yamuna Mahesh, Dr. K.L.Shunmuganathan[4] proposed the method for detection of diseases based on sclera using sobel filter and separating the left half and right half of the eye based on the iris boundaries. Anju J. S., Anju S. L[5] proposed the method for Blood Vessel Detection in Sclera using frangi filter and wavelet transform. They detected the sclera area based on Otsu's thresholding method. Yong Lin et al[6] proposed the method for identify the human based on sclera vein. Sangeetha Y et al[7] proposed the technique of detecting diabetic from sclera using k-means clustering and thresholding.

III. PROPOSED SYSTEM

In the proposed disease detector system, the captured human eye image is read from saved location in the computer system for diagnosis the diseases. The Fig 1.1 shows the system architecture of the Effective application for detection of diseases from sclera image. The System has two process 1. Segmentation of sclera 2. Detecting the diseases from segmented sclera. In Segmentation of sclera process, the captured human eye image is converted to grayscale image followed by binary image using popup menu. From binary image, edge is detected with edge detecting operators like sobel, canny, prewitt and log. Finally the sclera part is segmented into left and right region using crop method. Another one is detecting the diseases like diabetic, jauntice from segmented sclera image.

Creating popup menu:

```
uicontrol('style','text','Position',[565 453 60 20],  

    'String',  

    'Filename:');  

    'Filename:');
```

convert original image to gray image:

```
I=rgb2gray(Img);
```

Convert gray image to binary image:

```
I=im2bw(Img);
```

Edge detection using sobel:

```
imshow(~edge(B,'sobel'));
```

Cropping the sclera part:

```
c=imcrop(b,rect)
```

```
imshow(c);
```

```
imtool(c);
```

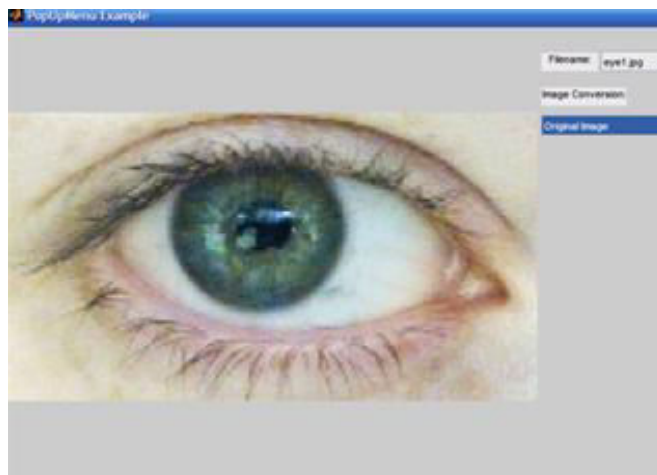


Fig. 1.2 Original eye image

When we select the option image conversion to grayscale in popup menu it shows the image as shown in the Fig 1.3. The Fig 1.4 shows the binary conversion of image, when the option is convert to binary. The Fig 1.5 shows that edge detected image using sobel. Finally the segmented image, left region and right region of sclera part of eye is displayed in the Fig 1.6 using image crop method.

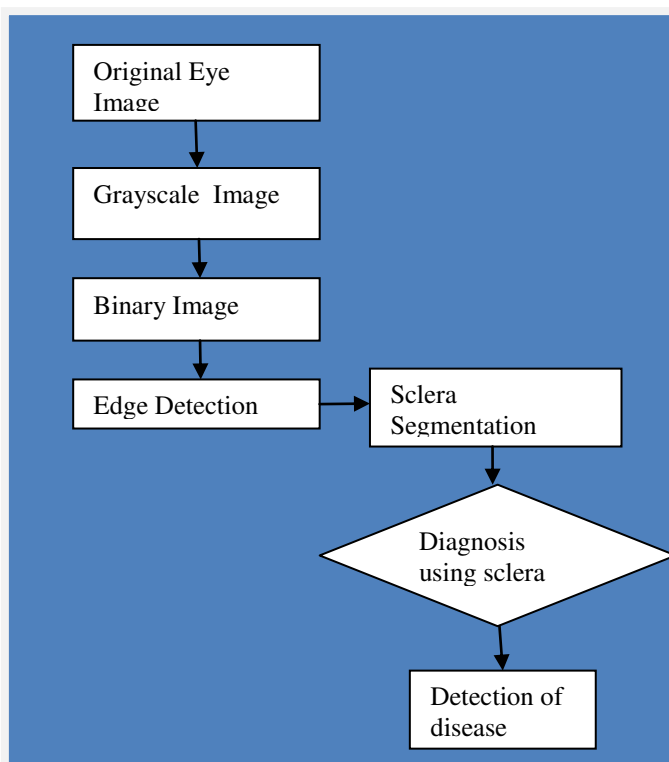


Fig.1.1 System Architecture of Effective Application for detection of diseases from sclera image

IV. IMPLEMENTATION RESULT

The implementation results are mentioned below. The Fig. 1.2 shows the original eye image of the human from the saved location of the computer system. After selecting the image, it shows the rgb image of eye using UI control and popup menu.

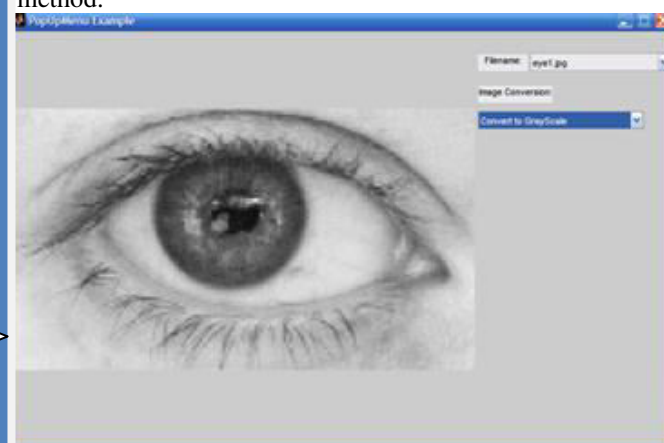


Fig 1.3 Gray scale image

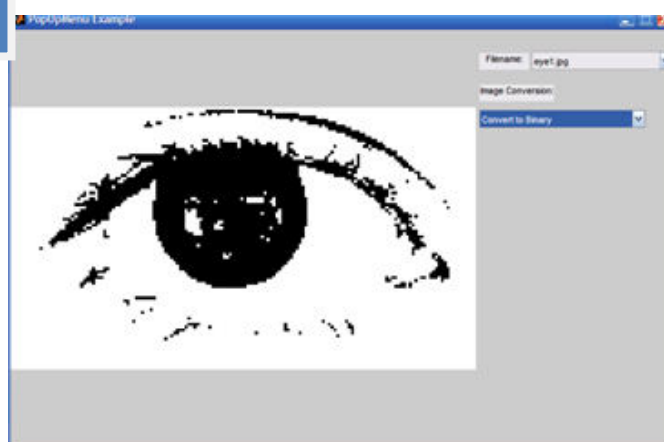


Fig 1.4 Binary image

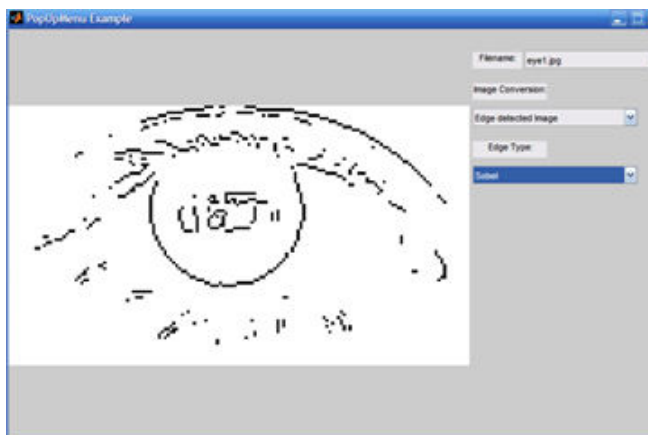


Fig. 1.5 Edge detection using sobel

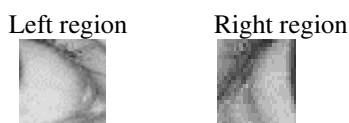


Fig 1.6 Sclera segmentation

V. CONCLUSION

Effective Application for Detection of Diseases from sclera Image using popup menu, in this sclera segmentation process is implemented. Captured human eye image is selected from saved location in the computer system. The grayscale image is converted from rgb image followed by binary image. From this binary image edge is detected using the edge detection operator sobel. Sclera part of eye is segmented using image crop. In future work, detection of diseases from sclera extraction will have to be complete, number of person should be increase and train the the automatic detection system to provide accurate diagnosis.

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