

## ANALYSIS OF HEALTH CONDITION BASED ON IRIS IMAGE

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### ABSTRACT

The iris is like a map of the body .changes in certain organs is reflected in specific parts of the iris. So in health diagnosis, Iris image play very important role. So analysis of images gives the health status of organs. Medical science require easy, less time consuming diagnosis technique .Iridodiagnosis, which is the branch of medical science full fill that requirements. With the help of Iridodiagnosis different diseases can be detected. Initially the images of eye are captured, then features are extracted then classification is carried out for finding out the presence of different diseases of different organs. Present paper focus the method for detecting the diabetes.

### INTRODUCTION

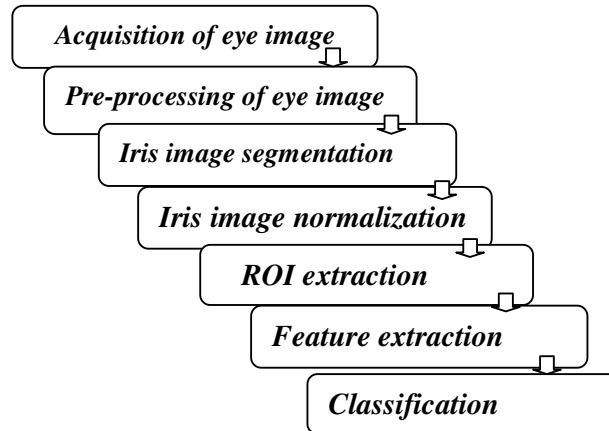
The iris is like a map of the body - changes in certain organs are reflected in specific parts of the iris. The right iris shows the condition of the right side of the body, while the left iris reflects the condition of left side of body's. The exact relationship between iris and body parts can be seen from the iris chart. Iris diagnosis is also known as iridology. In health, the iris is composed of densely structured fine, straight lines, radiating from the pupil to the outer rim. A close grain, similar to that of hardwood, indicates a strong inherited vitality and good recuperative powers in the case of temporary illness. If the fibers are loosely spread, as in softwood, the basic health is weak.

In poor health these lines become separated and distorted, forming various patterns, called markings. Very weak organs often show elliptically formed grey markings - so-called closed lesions resembling knots in wood. In poor health many of these closed lesions may be found in the iris, indicating areas in which the circulation is stagnating. If these lesions are not 'walled in', but open at one end or both, this indicates that despite a weakness the circulation in this area is good. Basically, iridolgy is the branch of science that deals with the study of iris i.e. colored part of the eye. The Iris is the greenish-yellow area surrounding the transparent pupil (showing as black). The white outer area is the sclera, the central transparent part is the cornea. The main intention of irido diagnosis is to collect some information about underlying disease. As technology have developed, there are various methods present for the diagnosis which are highly reliable and accurate. Basically, irido-diagnosis is consists on empirical science, to look into the particular area of eye for systemic health condition of the specific organ of the body[1].

Iridiagnosis is the diagnosis of medical conditions and "pre-disease states" through abnormalities of pigmentation in the iris. The location of abnormalities on the iris is associated with the location of the medical condition in the body. The iris of the eye is divided into 60 sectors; each sector is corresponding to an inner organ. The iris is associated via multiple nerve connections to the organs. Depending on the features of the iris classification is done and diabetic is detected

### METHODS AND PROCEDURES

The basic steps followed in this paper is as shown in the fig(1).



**Fig (1). Proposed approach diagram**

#### **ACQUISITION OF EYE IMAGE:**

In this process the image of eye is taken by using special camera and database is created. In that database normal as well as abnormal iris images are present. Sometimes we can use online images of iris from standard database. Captured eye image looks as shown in fig(2).



**Fig(2) captured eye image**

#### **PRE-PROCESSING OF EYE IMAGE**

In the images of eye noise is present. For getting better results we need to remove that noise by using various techniques. The integrodifferential operator is used for segmenting the iris. It finds both inner and the outer boundaries of the iris region.

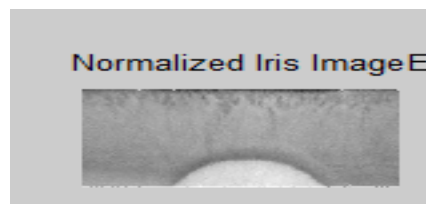
Image enhancement is done to get better quality details of images. A histogram equalization technique is used for refining the details of images. It also reduces the effect of non-uniform illumination in iris image.

#### **IRIS IMAGE SEGMENTATION**

For detecting the boundaries we have to use segmentation. Segmentation is carried out to locate inner and outer boundaries of the iris. Once the boundaries are found, the ring shaped iris is detected by using subtraction method.

#### **IRIS IMAGE NORMALIZATION**

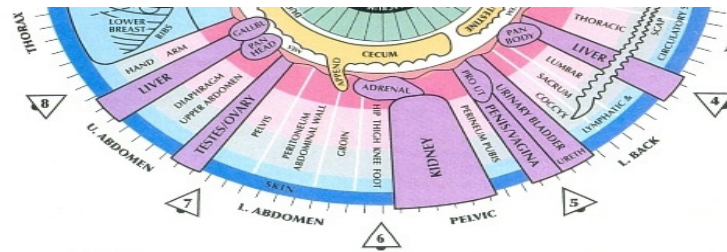
To reassign the iris pixel from Cartesian to polar coordinate system normalization is done. Once the image of iris is normalized it is converted into rectangular block of fixed size.



**Fig(3). Normalized iris Image**

**ROI EXTRACTION**

ROI extraction is the process in which we have to find out the particular part of the normalized iris image. It is done by cropping the normalized iris image. Cropping is done according to the iris chart as shown in below fig.



**Fig(4) Iris-chart**

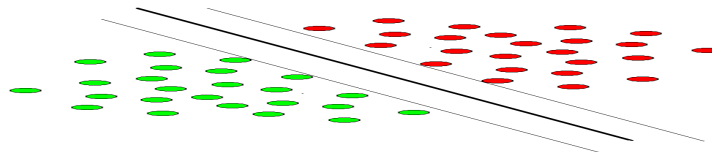
**FEATURE EXTRACTION**

Once the region of interest is find out the various features of that region are carried out. Depending on that features value we can make two different set of normal & diabetes. The different features are as listed below

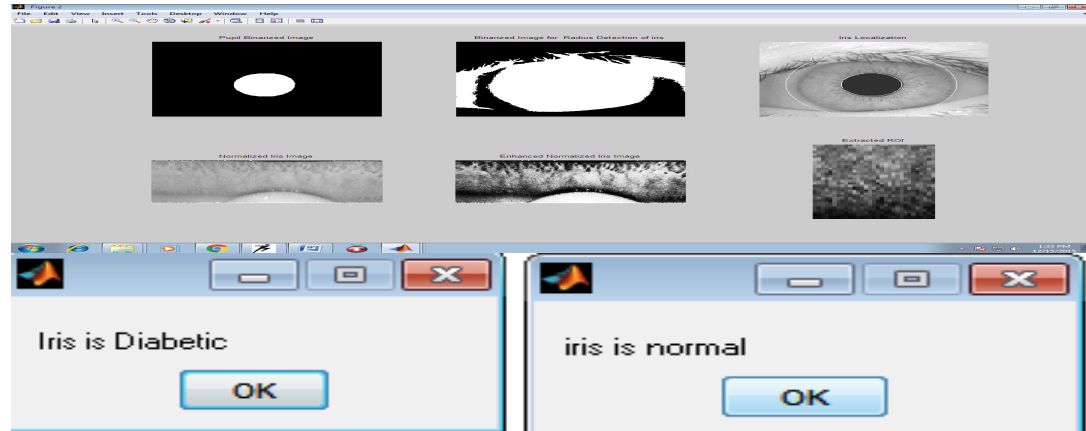
1. Mean
2. Entropy
3. Standard Deviation
4. Smoothness
5. Kurtosis
6. Variance
7. Homogeneity

**CLASSIFICATION**

Once the features are extracted the classification is done with the help of support vector machine technique .Here only to classes are made so testing image is classified as normal iris or diabetic iris.



**RESULT**



Fo

**CONCLUSION**

In this paper the efficient technique for detection of diabetes has been introduced. It is normally based on the image processing technique on Iris images. The present method reduces the time along with complications in method of detecting the diabetes.

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- [13] Fig 2.: IrisChart , <https://www.google.co.in/search?q=irido+chart>