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Diabete Mithrr

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Abstract

The advancing technology gives us various chances for diagnosis and treatment of the ailments. As an electronics engineer, it is our prime duty to device a technique or an instrument to diagnose these ailments without any adverse effects. The diseases can be categorized as of acute and chronic. Many valuable lives are lost as the onset of the disease cannot be identified at an earlier stage. Once identified, periodical monitoring is essential for many diseases. Here we came with a solution for the diagnosis of Diabetes Mellitus.

Keywords; *Diabetes Mellitus, Image analysis, Non-invasive method, Retinal distortion.*

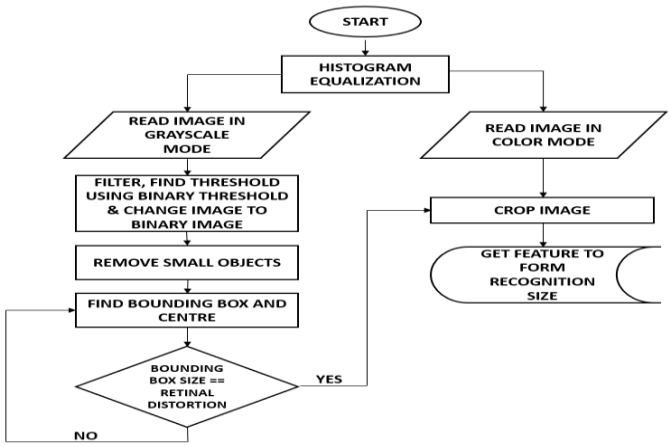
I. INTRODUCTION

The major problem faced in today's world is the lack of instruments and equipment for the non-invasive analysis of Diabetes. Every time the patient goes to a doctor, his/her finger tips are pricked with a needle for the collection of the blood samples. This is not advisable in many cases as the cuts, wounds and pricks take too long to heal for a diabetic patient. To avoid these complexities, doctors and medical practitioners approached some pioneer scientists for finding a non-invasive method of analysis. However, the eminent scientists failed to prove the accuracy of the proposed methodologies. Those techniques were based on the physiological changes that occur commonly in people once they get affected with diabetes, which are not similar in all individuals. They came to a conclusion that some characteristic changes can be analyzed for the accurate prediction. Those characteristic changes include skin tone change, aged appearance, retinal distortion and diminished eye sight.

Proposed System

DiabeteMithrr is the system which can be used for the non-invasive method of analysis of the Diabetes. In DiabeteMithrr, we analyze the degree of Retinal distortion. Retinal distortion is the term used to describe the metamorphopsia, a symptom of many macular diseases. Anything that affects the macula can cause distortion in epiretinal membranes, macular holes, macular edema, diabetic retinopathy and macular degeneration. The macula is a place in the retina, the functional center. Here the macula forms a series of white spots, central and branch vein occlusions, woolly fissures and edema. These features are compared using Image comparison technique. These features are extracted from the image of the retina and compared with the pre-existing database. Thus, the degree of distortion is calculated and the acuteness of the disease can also be predicted.

II. ALGORITHM



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III. IMAGE ANALYSIS

Before beginning a picture characterization system, usually accommodating to produce shading composites of different mixes of groups. A rocket (Landsat, SPOT, and so on.) gathers numerous groups of pictures in highly contrasting, not in shading. A mediator must have the capacity to recognize 10 and 20 shades of dark; be that as it may, he or she might have the capacity to recognize numerous more hues. Shading composites help to distinguish different highlights and make understanding less demanding. In showing a shading composite picture on the screen, PCs utilize the light of three essential hues (red, green, and blue), simply like shading TVs.

The three-shading lights can be consolidated in different extents with the end goal to deliver different hues. A shading composite picture is produced by allotting every essential shading to a different ghostly band. Contingent upon how well the hues in the picture composites coordinate with hues we find in nature; we may create false and genuine/common shading composites. A typical type of false shading composite is created by anticipating a green band picture through the blue shading firearm, a red band through the green shading weapon, and a close IR picture through the red shading firearm.

A false shading composite is significant to decipher vegetation. Vegetation shows up in various shades of red because of its high reflectance in the close IR band, and the shades differ with the sorts and states of the vegetation (Liew, 2001). In a genuine or characteristic shading composite picture, hues take after an obvious shading photo, that is, vegetation in green, water in blue, soil in dark colored, etcetera. A genuine/common shading picture can be produced by anticipating blue, green, and red phantom groups through the blue, green, and red shading firearms, individually.

Numerous different types of false and characteristic shading composites through different mixes of groups and shading lights may convey out or point out individual scene includes that are typically present in more unobtrusive articulations. Besides, proportion pictures can likewise be utilized to produce shading composites by consolidating three high contrast proportion pictures. This kind of shading composite favors consolidating in excess of three groups and encourages the elucidation of unpretentious ghostly contrasts. Also, usually to shape a shading composite utilizing three of the resultant key part pictures.

IV. STEPS INVOLVED IN IMAGE CLASSIFICATION

STEP-1: Downloading the dataset from online repositories.

STEP-2: Importing the libraries.

STEP-3: Importing the dataset into the program using libraries

STEP-4: Training the convolution Neural Network.

STEP-5: Testing using a random image and obtaining the output.

Machine Learning

Machine learning is the science of getting computers to act without being explicitly programmed. Images have present everywhere in a variety of fields as so many people and systems extract vast amounts of information from imagery. Information that is important in areas like robotics, hospitals, self-driving cars, surveillance, building 3D representations of objects. While each of the applications differ by numerous factors, they share the common process of correctly annotating an image with one or a probability of labels that correlates to a series of classes or categories. This procedure is known as image classification and combined with machine learning it has become an important research topic in the field.

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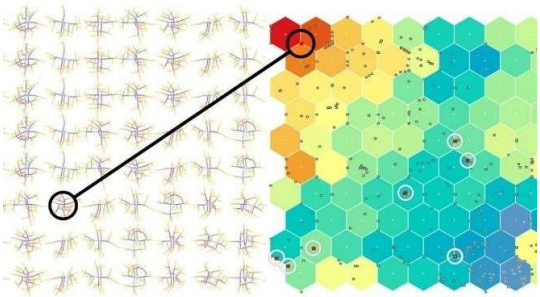


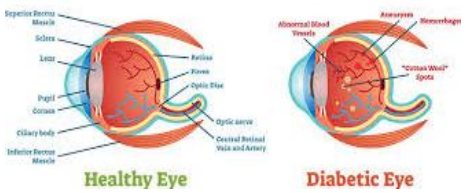
Fig-01. IMAGE ANALYSIS

V. PROCEDURE

- Retinal distortion is the major factor which aids in the non-invasive methods of detection of Diabetes mellitus.
- The amount of distortion in the retina can be used to predict the severity of the diabetes.
- The diabetic patient's retina has many distortions such as foam like layers, fissure vents and so on.
- These can be captured using an Image sensor.
- The database contains the images of retina under various affected levels and under various pressure.
- Using Image Processing methodologies, we could detect the affected retina and hence the acuteness of the disease can be calculated.
- Once detected, the data is sent to a medical practitioner and the person is contacted for prescriptions.
- The data is stored in the cloud which provides the periodical alert for checkup.

CONCLUSION

"DiabeteMithrr" proves be useful for all the medical practitioners and is user friendly. This is completely free of cost to the end user. The efficiency is high. This do not require any skills to operate, since this is a mobile application, which works on the basis of a cloud data base. This does not cause any harm to the environment. This helps to make the process on time and also accuracy is high. The device proves to be completely non-invasive and thence the goal is obtained.



REFERENCES

[1] Stallkamp, J.; Schlipsing, M.; Salmen, J.; Igel, C. Man vs. Computer: Benchmarking machine learning algorithms for retinal distortion recognition. Neural Netw. 2012, 32, 323–332. [CrossRef] [PubMed]

[2] Wei, L.; Chen, X.; Duan, B.; Hui, D.; Pengyu, F.; Yuan, H.; Zhao, H. A system for retinal distortion detection, recognition and tracking based on multi-cues hybrid. In Proceedings of the 2009 IEEE Advancement in Medical Technology Symposium, Xi'an, China, 3–5 June 2009; pp. 562–567.

[3] H. Gomez-Moreno, S. Maldonado-Bascon, P. Gil-Jimenez, and S. Lafuente- Arroyo, "Goal Evaluation of Segmentation Algorithms for oedema detection and recognition", IEEE Transactions on, vol. 11, no. 4, pp. 917–930, dec. 2010.

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