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Disease Prediction By Articulatory Analysis Using Deep Learning

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Abstract

Tongue diagnosis can be an effectual and intrusive method, allowing additional diagnosis to meet the global requirements of the medical system anytime and anywhere. With the help of image processing, voice-based disease prediction can be performed, It extracts features of tongue and classify it. The neural network convolution algorithm can be used to predict the disease. This structure can link speech diagnosis with the forthcoming healthcare system.

Keywords – image processing, neural network , disease prediction, feature extraction, healthcare.

1 INTRODUCTION

Tongue is a powerful tool for dealing our understanding of personality**.** Current high-Tech medical professionals can correctly diagnose disease by connecting one body part to another. The rotating tongue is the various active relationships and connections in the body**.** Tongue snapshots require a specific method for medical imaging and malady analysis. Tongue diagnosis is important to carry out because it requires understanding of the tongue, however tongue image process isn't a simple step to proceed. Our project focuses on the threshold of tongue signs for disease diagnosing diseases. Every sign has its own character reflections and issues, such as irregular tongue shape, color overlapping, secretion on cracks, pimples, and so on. This sign problem is divided into several stages, including quantitative texture measures for tongue image acquisition via image processing and crack segmentation. During this project implement the image process techniques that embody options extraction and classification techniques to predict the tongue diseases. In feature extraction includes gray level co-occurrence matrix to extract color and form features. Finally, classify the diseases' exploitation Convolutional neural network algorithm.

2 RELATED WORKS

Wang Xingzheng and DavidZhang [1] proposed an boosted hue rectifying plan, which rectifies voice snapshots recorded in distinct tint areas which relates the gadget to a target tint area which is independent of the device. The rectified functionality in this plan is brought about by differentiating many common rectifying plan(i.e. comb reverting, vector reverting support and mapping neural network algorithms). He experimented the execution of the proposed plan by calculating the color difference between the estimated value and destination. The experimental outcome upon the color tester displays the hue contrast is not more than 5, the experimental results of the image displayed in real language show that the distorted voice image (recorded in different color spaces according to the device)

becomes More consistent. In reality, the mean hue contrast between the two is significantly decreased by beyond 95%.

Bob Zhang [2] proposed a detailed inspection of the analytical color spread features of person speech, which is a numerically chronicled language tint area used to extract pinpointing features. In this article, three predictable speech hue area are studied thoroughly, namely the speech tint range that explains the hue gamut and shades. When using a digital camera to develop a non-contact colorimetric image, an innovative boundary descriptor for the color gamut is used to adjust the voice color gamut to the CIE chromatic diagram obtains typical characteristics of the tongue, such as red spots and petechial, to establish the association amidst the tint of the tongue with the shade distribution of numerous voice attributes. Based on the acquired language shade area, a modern approach of tint attribute eradication for identifying category was proposed, and the experimental results confirmed its effectiveness.

3 EXISTING SYSTEM

Tongue pictures are the elementary options for identification numerous diseases. For the benefit of the diagnosis, the tongue images ought to be processed clearly and properly. Therefore it's troublesome to urge a good diagnosis of diseases while not an effective tongue image process methods. The most features that are used for diagnosing the tongue embody form, color, pimples, cracks and texture of the tongue. Tongue segmentation is one amongst the foremost necessity steps in automatic tongue diagnosis system and is extremely exhausting because of the complexes of chronic tongue, difference of tongue form and infringement. Thus, a variety of researches are disbursed for to seek out sensible remedy for the matter related to the tongue segmentation. The process of tongue image could be a complicated task, owing to the inaccessibility of specific methodizing strategies. Variety of approach are developed to potency method the tongue image. Since the necessity of correct and well-equipped tongue processing method comes a lot of frequently. Many methods have been projected for the analysis of tongue image segmentation and each method performed good by its own algorithms and functions. Although researchers have created important advancement within the evenness and density of tongue identification, there are serene key issues added to the prevailing.

4 PROPOSED METHODOLOGY

Medical pictures are crucial components for recognizing and examining completely different body structures and therefore the diseases disconcerting them. The task cited on top of needs correct examination and process of the medical images. Tongue image processing wants requires special consideration in the field of image processing and illness analysis because of the tongue's irregular shape, color and so on. However, one vital quandary in tongue diagnosis is that, its apply is subjective, qualitative and complex in automated diagnosis. The tongue characteristics are primarily targeted in its edges, therefore the size and form of the tongue ought to be a very important attention to process the image. Hence, for the analysis of tongue image, we have a tendency to have to examine the form feature, color feature and texture feature of the tongue image separately. The form extraction is for distinguishing the characteristics of various formed tongues, and color identification is for identifying completely different diseases touching the human body. Texture identification provides a transparent process of the tongue image. We will extract the options such as color, texture and form victimization gray Level Co-occurrence matrix. Finally, classify

the diseases' victimization using Convolutional neural network algorithm. Many study features are required to clarify the tooth-marked region that leads us to look for assistance from the CNN. A CNN can gain an understanding from the snapshots and therefore it delivers sturdy attributes.

5 FUNCTION MODULES

- Image Acquisition
- Preprocessing
- Features Extraction
- Classification
- Disease Prediction

IMAGE ACQUISITION:

The diagnosis of the tongue is one of the most important area for diagnosing most diseases, and the diagnosis of the tongue has become more and more important in this field. In this module, we can load the tongue image dataset. It can be divided into two phases, one is training phase and other is testing phase.

PREPROCESSING:

In this module, the RGB image is changed into a grayscale image. The color of tongue is always pink and white, and the reliability of the various atmosphere changes due to the color properties is poor. Then use median filtering technology to remove the noise in the image. This module converts RGB images to grayscale images. Tongue color are always shades of pink and white, and various atmospheric changes due to color properties have low reliability. Then use median filtering technology to remove the noise in the image.

FEATURES EXTRACTION:

Gray Level co-occurrence matrix(GLCM) is the analytical approach for analyzing the appearance that consider the graphic courting of pixels. The GLCM capabilities symbolize the sense of image through scheming the frequent set of pixels with unique values with a particular graphic courting that found in a photo, form GLCM.

CLASSIFICATION:

The last step in the system is classification. Later the structural analysis, every part will be estimated individually to determine likelihood for a truly positive result. The convolution algorithm used for neural networks is a linear learning algorithm. This is a supervised algorithm. CNN is divided into three stages; input layer, hidden layer and output layer.

DISEASE PREDICTION:

Based on the classification of CNN, we can predict language-related diseases. CNN algorithm can improve the accuracy of disease prediction

5 ARCHITECTURE OF PROPOSED SYSTEM

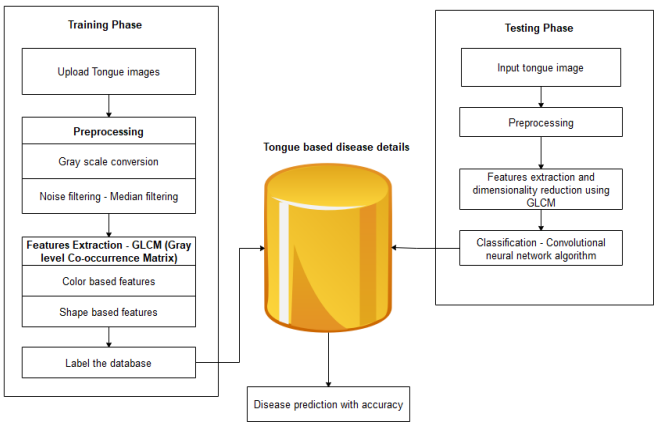

FIGURE 1ARCHITECTURE OF PROPOSED SYSTEM

6 ADVANTAGES OF PROPOSED SYSTEM

•Reduce the tangential features
•Predict the diseases efficiently
•False positive rate is low
•Computational and time complexity is less

7 CONCLUSION AND FUTURE ENHNCEMENT

The tongue snapshot division is vital analysis within the discipline of tongue form process so, therefore completely distinct ways are initiated for the effectual methodizing of tongue snapshots. However with additional drawback in refining, new methods became vital. So, in our approach we've introduces a formative approach during which each steps happens in a bit by bit manner. We have provided methods to observe the form, tint, cracks, pimple, and texture of the tongue in our method. The analysis of the results reveled that each method we proposed yielded the best results. and it adds that the planned approach is similar temperament for the tongue image. Further, sweetening to the system may be done by improving the localized intensity ways and edge detection algorithm.

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