TONGUE REGION BASED DISEASE PREDICTION USING DEEP LEARNING

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ABSTRACT

Now a days there is a problem and risk in detecting the tongue region based disease. The detecting of tongue region becomes is being a major and difficult tasks. The region of tongue should be separated and used to detect the disease. There is a error in detecting the disease and while separating the tongue region. In the existing system it is a difficult one to separate the mark region of the tongue. To overcome the issue, In proposed system CNN is used to diagnose disease without any issues or problem in diagnosing. Here the tongue region is separated from the tooth based region and masked tongue used to diagnose the disease. It promises in helping humans to new effective concepts of medical facilitate and reduces the risks in medical field or diagnoses.

KEYWORDS: CNN, Artificial Intelligence, ANN, Deep Learning

I. INTRODUCTION

Tongue plays a vital role, It is the essential one which is used to articulate speech and it is the organ which is used to provide the taste, It is made of many muscles which is used to swallow and chew the food. It is used to keep the teeth been and healthy. Healthy tongue is free from pain, stringing ,burning .If a sense of tongue is lost that is it lost the taste bud or its state it is very difficult for us to remain healthy. To overcome this tongue diagnosis were designed. Our main aim is to detect the region of the tongue whether it is affected or not. To diagnose the region of the tongue from facial region by the extraction of tongue from the tooth marked region. Here we include CNN to predict the region of tongue to minimize the unwanted information and to maximize the required information. After this process the detected region and the tongue landmarks.

Figure 1 Architecture
DEEP LEARNING
Deep learning is a function that imitate the activity of the human brain used for the various purposes such as detection of objects, translating languages. It is the subset of machine learning.

IMAGE ACQUISITION
Image acquisition or digital imaging is used to represent the visual characteristics of an object. It is used to represent the innermost layer of an object. It requires processing, compression, storage, printing and displaying images.

IMAGE DIFFERENTIATION
The name signifies that it is an image processing techniques used to differentiate the changes between the images. The result is obtained by finding the difference in pixel value of each image. It is used to produce accurate value.

SYSTEM OVERVIEW
A technical specification of specifications for hardware products is called a requirements specification. It is the first step in the requirements analysis process, and it enumerates the functional, performance, and safety requirements for a specific hardware device. User and operating scenarios are also presented in the specifications. The aim of the hardware specifications is to provide a comprehensive description of the hardware project, its conditions, and its objectives. It outlines the project’s and as well as the user interface, hardware and software specifications.

![Block Diagram](image)

**Figure 2.** Block Diagram

In this architecture diagram the object is capture by camera module, will be send to the python opencv to do the image processing. From that tongue separation will be detected depend upon that object detecting will be adjust.
In this process the person is captured by a camera and Image Acquisition technique is used to obtain the internal region or part of the tongue. By obtaining the image of the tongue region the detection of the disease is predicted.

II. PROPOSED SYSTEM

The proposed system is to deals as with the existing system is used to detect the tongue region. Overcoming the disadvantage that the region of tongue is captured from the face and separation Of tongue from the tooth marked region by using some pigments therapy. The proposed system includes daily monitoring, normal webcam and the detection of region of the Pigments and tongue is more accurate. It is simpler than the former one.

- HARDWARE REQUIREMENTS

Laptop
Camera

- SOFTWARE REQUIREMENTS

Software : python
Library files : open CV
Programming language : python

SOFTWARE

Python
Python is an interpreted, high level programming language. It is very simpler than any other languages. Python is an language that aim the writer to construct the programs with both smaller and larger codes.

Open CV
Open CV is the abbreviation of open Computer Vision source. It is a machine learning software library, which consisting of machine learning algorithms. It consists of large number of optimized programs. It has C++, Python, Java interfaces. It depends mostly on real time applications.

RESULT

![Figure 3 Output image of color code](image1)

![Figure 4 Output image of tongue segmentation](image2)
To determine and to exhibit the result, we took a sample of more than sixty images and performed the diagnosis. The tongue images are classified into tooth marked and non tooth marked region. The images of the tongue is diagnosed by obtaining it in gray scale images. The region of the tongue is marked and separated and used for diagnosis and the result is obtained.

III. CONCLUSION AND FUTURE SCOPE

In this work, we design a tongue images constitution recognition framework, including images acquisition, detection, calibration and classification to achieve accurate, fast and efficient constitution recognition. We introduce Complexity Perception method that divides data into two subsets according to their complexity at individual level and then processes them separately. The effectiveness of the proposed Complexity Perception is evaluated using tongue image datasets and feature extraction methods. The experimental results demonstrate that, compared to the baseline, our proposed method can effectively improve the performance of tongue images constitution recognition. To the best of our knowledge, this is the first attempt in applying computer-aid tongue diagnosis to recognize constitution types. The results show that the best classification accuracy our method obtained, which can be acceptable by many doctors in hospital. Our proposed framework and method can provide important support for doctor’s diagnosis.

In the future, we plan to further explore the performance of our proposed method, e.g., for different complexity of the samples, using different feature extraction methods or using different pre-process methods. The project work this video stream will be updated to the cloud storage, so that user can get the information about data’s via mobile application.

REFERENCE: