PLANT LEAF DISEASE DETECTION USING IMAGE PROCESSING

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Abstract:

As we all know that agriculture is the backbone of India. Agriculture plays a vital role in the human life. Without agriculture there is no human life but this agriculture was decreasing from year to year due to the loss caused by many diseases. To overcome this problem upto an extent we are proposing this project. This project is used to detect the diseases which occur to a plant at the time of cultivation. By using this project we can identify the disease of the leaf by using the image of the leaf. After identifying the disease we can take the necessary steps to prevent the disease by using this method the farmers can prevent their loss of their crop upto an extent. Tensor flow makes it easy for beginners and experts to create machine models. Deep learning is a branch of machine learning which is completely based on artificial neural network.

Introduction: This project is used to detect the plant leaf disease based on the image processing .By using this project the user can predict the leaf disease by using the tensor flow concept. In this project the image is uploaded to detect the disease of the leaf which is done by using image processing techniques. The project mainly runs on any browser using the pycharm software

MODULES:

Image Acquisition: First we need to select the plant which is affected by the disease and then collect the leaf of the plant and take a snapshot of leaf and load the leaf image into the system.

Image Segmentation: It is observed mainly in the cool wet weather. The affected plants first appear darker green and they are prevented from growing properly. The leaves become yellowish and they drop off. The leaf margins wilt then turned yellow to brown, moving inward as shown in Figure 3. The important feature of disease is that solid brown

discolorations over the woody part of the stem and the tap root of seedlings and mature plants occur.

Image Cropping Module: After calculating the mean values of Red, Blue and Green components, The values are to be compared with each other in order to find the maximum value of the components. For e.g., if the value of Red component is High than the rest of the two, then we can conclude that the respective image is Red Intensity oriented image and which can be

Clustered into Red Group of Images. Whenever the query image is given, calculate the RGB

components average values. Then compare this with the stored values.

Image Clustering Module: The image is converted from RGB to HSV color space and all connected components in the image having number of pixels less than 100 are removed. The image dilation and erosion is performed using disk shaped structuring element by keeping the value of radius to two. The snake segmentation is carried out by selecting the number of snake points to 500 and number of iterations to 15000.
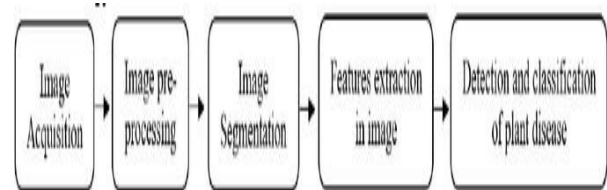

CONCLUSION:

This study summarizes major image processing used for identification of leaf diseases are k-means clustering, SVM. This approach can significantly support an accurate detection of leaf disease. There are five steps for the leaf disease identification which are said to be image acquisition, image pre-processing, segmentation, feature extraction, classification. By computing amount of disease

present in the leaf, we can use sufficient amount of pesticides to effectively control the pests in turn the crop yield will be increased. We can extend this approach by using different algorithms for segmentation, classification.

By using this concept the disease identification is done for all kinds of leafs and also the user can know the affected area of leaf in percentage by identifying the disease properly the user can rectify the problem very easy and with less cost.
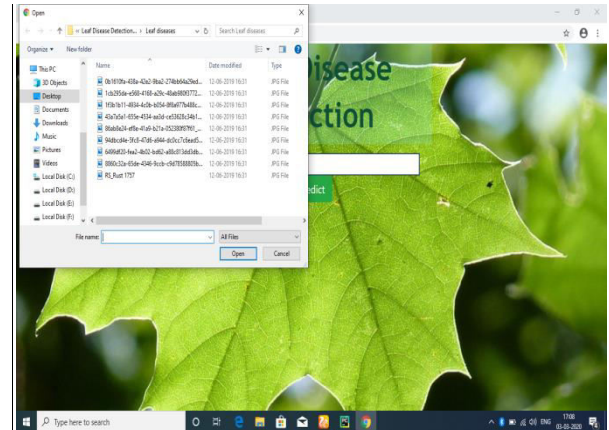
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