Literature Survey
Fertilizer Recommendation System for Disease Prediction

Introduction:

Detection and recognition of plant diseases using machine learning are very efficient in providing symptoms of identifying diseases at its earliest. Plant pathologists can analyze the digital images using digital image processing for diagnosis of plant diseases. Application of computer vision and image processing strategies simply assist farmers in all of the regions of agriculture.Generally the plant diseases are caused by the abnormal physiological functionalities of plants. Therefore, the characteristic symptoms are generated based on the differentiation between normal physiological functionalities and abnormal physiological functionalities of the plants. Mostly, the plant leaf diseases are caused by Pathogens which are positioned on the stems of the plants. These different symptoms and diseases of leaves are predicted by different methods in image processing. These different methods include different fundamental processes like segmentation, feature extraction and classification and so on. Mostly, the prediction and diagnosis of leaf diseases are depending on the segmentation such as segmenting the healthy tissues from diseased tissues of leaves.

Literature Review:

[1] The current work examines and describes image processing strategies for identifying plant diseases in numerous plant species. BPNN, SVM, K-means clustering, and SGDM are the most common approaches used to identify plant diseases. Disadvantages : Some of the issues in these approaches include the impact of background data on the final picture, optimization of the methodology for a specific plant leaf disease, and automation of the technique for continuous automated monitoring of plant leaf diseases in real-world field circumstances

[2] This method used datasets to find diseased and healthy plant leaves. we introduced a deep convolutional neural network to identify crop series and diseases that may not be present in the plant tissue. The model trained on the test set has an accuracy of 99.35%. This process is enabled by deep learning, machine learning and digital epidemiologyA neural network associate's images of diseased plants and crops as a pair. A neural network node is a mathematical function that receives numerical inputs from input edges and provides numerical outputs as output edges. We analyze 54,306 images of plant leaves that have been assigned a variance of 38 class labels. We resize the images to 256x256 pixels and perform both model optimization and prediction on these reduced images.

[3] The author proposes a method which helps us predict crop yield by suggesting the best crops. It also focuses on soil types in order to identify which crop should be planted in the field to increase productivity. In terms of crop yield, soil types are vital. By incorporating the weather details of the previous year into the equation, soil informationcan be obtained.

Advantages :

It allows us to predict which crops would be appropriate for a given climate. Using the weather and disease related data sets, the crop quality can also be improved. Prediction algorithms help us to classify the data based on the disease, and data extracted from the classifier is used to predict soil and crop

[4] The proposed method uses SVM to classify tree leaves, identify the disease and suggest the fertilizer. The proposed method is compared with the existing CNN based leaf disease prediction. The proposed SVM technique gives a better result when compared to existing CNN. For the same set of images, F-Measure for CNN is 0.7and
0.8 for SVM, the accuracy of identification of leaf disease of CNN is 0.6 and SVM is 0.8.

Advantages :

The prediction and diagnosing of leaf diseases are depending on the segmentation such as segmenting the healthy tissues from diseased tissues of leaves.

Disadvantages :

This further research is implementing the proposed algorithm with the existing public datasets. Also, various segmentation algorithms can be implemented to improve accuracy. The proposed algorithm can be modified further to identify the disease that affects the various plant organs such as stems and fruits.

[5] This proposed system explains about the water needs of plants vary from place to place due to changes in soil content, texture, climatic factors, and more. In addition to water requirements, plant diseases can also cause plants not to grow properly. In this article, we proposed a new intelligent irrigation system that can automatically control irrigation using an Android mobile application. In addition, photos of plant leaves are captured and sent to the cloud server. This is further processed and compared with images of diseased plant leaves in the cloud database. Based on the comparison, a list of suspected plant diseases is displayed to the user via an Android mobile application.

[6] In our country agriculture is the main occupation. Most of the people lead their life from the agriculture field, they are fully relying on agricultural products. If any plant is enduring disease, then it causes reduction in both quality and quantity of agriculture crops. Hence it is necessary to detect and analyze disease. Authentic exposure and recognition of crop disease plays an important role in adequately regulating and inhibiting disease for feasible agriculture and food preservation. Thus detection and diagnosis of disease at the right time is essential to the farmer. This proposed system offers a candid and computationally resourceful manner which is useful in the leaf disease detection and selection of fertilizers using artificial neural networks.

[7] Recent developments in machine learning approaches in the agriculture sector are up-and-coming. They have been receiving significant interest from academia, industries, and governments. This section reviews some of the existing work supporting the detection of crop diseases using different machine learning approaches. Since plant diseases cause significant crop production losses worldwide, tremendous research efforts have been conducted to make crop monitoring and disease diagnosis processes more efficient.

[8] The proposed method makes use of soil and PH samples as input and helps predict plants that can be recommended for soil and fertilizer that can be suitable. Information on the ground is collected by sensors and the data is transmitted from the Arduino via Zigbee and WSN (Wireless Sensor Network) to MATLAB. Analysis and processing of soil data are performed using ANN (Artificial Neural Neural Networks) and crop recommendations are carried out using SVMs (SupportVectorMachines)

References:

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