

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 Survey:

1.Detection of Leaf Diseases and Classification using Digital Image Processing International Conference on Innovations in Information, Embedded and Communication Systems(ICIIIECS), IEEE, 2017.

Advantages: The system detects the diseases on citrus leaves with 90% accuracy.

Disadvantages: System only able to detect the disease from citrus leaves.

The main objective of this paper is image analysis & classification techniques for detection of leaf diseases and classification. The leaf image is firstly preprocessed and then does the further work. K-Means Clustering used for image segmentation and then system extract the GLCM features from disease detected images. The disease classification done through the SVM classifier.

Algorithm used: Gray-Level Co-Occurrence Matrix (GLCM) features, SVM, K-Means Clustering .

2.Semi-automatic leaf disease detection and classification system for soybean culture IET Image Processing, 2018.

Advantages: The system helps to compute the disease severity.

Disadvantages: The system uses leaf images taken from an online dataset, so cannot implement in real time.

This paper mainly focuses on the detecting and classifying the leaf disease of soybean plant. Using SVM the proposed system classifies the leaf disease in 3 classes like i.e. downy mildew, frog eye,

reported and septoria leaf blight etc. The proposed system gives maximum average classification accuracy is ~90% using a big dataset of 4775 images.

Algorithm used: SVM.

3.Cloud Based Automated Irrigation And Plant Leaf Disease Detection System Using An Android Application. International Conference on Electronics, Communication and Aerospace Technology, ICECA 2017.

Advantages: It is simple and cost effective system for plant leaf disease detection.

Disadvantages: Any H/w failures may affect the system performance.

The current paper proposes an android application for irrigation and plant leaf disease detection with cloud and IoT. For monitoring irrigation system they use soil moisture and temperature sensor and sensor data send to the cloud. The user can also detect the plant leaf disease. K-means clustering used for feature extraction.

Algorithm used: K-means clustering, Other than this there are some other levels which can be used for sentimental analysis these are- document level, sentence level, entity and aspect level to study positive and negative, interrogative, sarcastic, good and bad functionality, sentiment without sentiment, conditional sentence and author and reader understanding points.