Fertilizer Recommendation System for Disease Prediction

Introduction

Agriculture is the most important sector in today's life. Most plants are affected by a wide variety of bacterial and fungal diseases. Diseases on plants placed a major constraint on the production and a major threat to food security. Hence, early and accurate identification of plant diseases is essential to ensure high quantity and best quality. In recent years, the number of diseases on plants and the degree of harm caused has increased due to the variation in pathogen varieties, changes in cultivation methods, and inadequate plant protection techniques.
An automated system is introduced to identify different diseases on plants by checking the symptoms shown on the leaves of the plant. Deep learning techniques are used to identify the diseases and suggest the precautions that can be taken for those diseases.

Literature Review

[1] Crop prediction and disease detection system, 2022 - Sambhav Bhansali, Punit Shah, Jinay Shah, Priyal Vyas, Poonam Thakre.

Based on the crop and region Vector of farming we will recommend the fertilizer and its uses to boost the Neural yield productivity for farmers. Sometimes due to unwanted excess of rainfall or the pest attack can cause disease to crops. We will use the image classification technique where the user can upload the picture of the affected plant/crop and the system will figure out the type of disease which will be done using Support Vector Machine (SVM) or using the neural network techniques. And this disease detection will suggest that how that plant/crop can be cure or prevent.

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

Disadvantage: 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.

Algorithm used: Support Vector Machine (SVM) or Neural Networks.

[2] Fertilizers Recommendation System For Disease Prediction In Tree Leaves, 2020 - R.Neela, P.Nithya.

Many people lead their life Algorithm from agriculture field, which gives fully related to agricultural products. Plant disease, especially on leaves, is one of the major factors of reductions in both quality and quantity of the food crops. In agricultural aspects, if the plant is affected by leaf disease, then it reduce the growth of the agricultural level. Finding the leaf disease is an important role of agriculture preservation. After pre-processing using a median filter, segmentation is done by Guided Active Contour method and finally, the leaf disease is identified by using Support Vector Machine. The disease-based similarity measure is used for fertilizer recommendation.

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

Disadvantages: System only able to detect the disease from a single leaf.

Algorithm used: Graph cut algorithm

[3] Soil based fertilizer recommendation system for crop disease prediction,2021- Dr.P.Pandiselvi, P.Poornima.

The proposed system was able to analyse the soil nutrient type efficiently, kind of leaf disease present disease prediction in the crop and predict the fertilizer in a proficient manner. The approach was flexible, and can be extended to the needs of the users in a better manner.

Advantages: The system helps to compute the disease severity and recommend suitable fertilizer.

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

Algorithm used: Long or short term memory algorithm

References

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- http://www.ijstr.org/final-print/nov2019/Fertilizers-Recommendation-System-For-Disease-PredictionIn-Tree-Leave.pdf.