Fertilizer Recommendation System For Disease Prediction

Team ID : PNT2022TMID13366

Team Members:

S Sruthi (621319104056)
P Subashini (621319104057)
R Sundharadharshini (621319104058)
K Vijayakirubagiri (621319104064)
A Arullakshmi (621319104302)

Mentor:

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Abstract

Agriculture is the main aspect of country development. Many people lead their life 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 reduces the growth of the agricultural level.

Cont…

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.

Introduction

From ancient period, agriculture is considered as the main and the foremost culture practiced in India.

Ancient people cultivate the crops in their own land and so they have been accommodated to their needs. Since the invention of new innovative technologies and techniques in the agriculture field is slowly degrading.

Due to these, abundant invention people are been concentrated on cultivating artificial products that is hybrid products where there leads to an unhealthy life.

SI No	Author & Year of publication	Journal	Title of the paper	Algorithm	Advantage	Limitation
1	Mayuri Pawar, Geetha Chillarge , 2018	IEEE	Soil toxicity prediction and recommendatio-n system using data mining in precision agriculture.	The system can help farmers by making them aware about soil conditions. Farmers can maximize crops yield by knowing proportion of nutrients present in the soil.	Thus the system recommends the farmer about the crop, fertility of soil, level of toxicity and water supply	This system can not be utilized effectively by the soil testing laboratories.

2	K.Saranya , Deena Dhayalan , R.Prasanth ,M. Sathish , 2022	IEEE	Agriculture Based Recommendation System with Image Processing.	The major problem that a farmer faces is the disease and pest that affect the plant. which are aware only in later stages. For that to predict the disease and suggest pesticides.	This system which recommends the most suitable crop by considering parameters like weather and soil based on live location.	The First and foremost limitation in Image classification is gathering the proper quality data as the Image background may contain elements that may present in multiple samples
3	Oviya kumari, HJ Bharath , Jaisal Srivastava, JY manvith, Anusha Preetham, 2022	IEEE	Improved Plant Disease Detection Techniqe Using CNN	If the plant is unhealthy then the cause of the disease is also identified via taking two inputs such as plant leaves and soil sample from where the diseased plant is present.	The result will further be accompanied by recommending the required fertilizer or pesticide to tackle the problem and reducing loss in production.	Images were taken in various weather conditions, at different angles, and daylight hours with an inconsistent background mimicking practical situations.

4	V.Suma , R.Amog Shetty, Sunku Rohan, 2019	IEEE	CNN based leaf disease identification and remedy recommendation system.	The devices are smart enough to recognize and detect plant diseases. Recognizing illness can prompt faster treatment in order to lessen the negative impacts on harvest.	It is focus upon plant disease detection using image processing approach. This work utilizes an open dataset of 5000 pictures of unhealthy and solid plants.	Time manage-ment is an issue in this method.
5	Dr.P. Pandi Selvi , P.Poornima , 2021	IEEE	Soil Based Fertilizer Recommend ati-on System for Crop Disease Prediction System	The soil type, fertilizer recommendation, diseases in plants and leaves. All these features need to be considered.	It is one of the major factors that reduce the yield in both quality and quantity of the food crops. Finding the leaf disease is an important role to preserve agriculture	Does not work for diverse varieties of crops cultivated

6	Ji-chun Zhao and Jian Jianxin Guo , 2018	IEEE	Big Data Analysis Technology Application in Agricultural Intelligence Decision System	The knowledge acquisition system obtains knowledge for the decision system and establishes an effective knowledge base to solve the problem. The paper uses various Hadoop modules for the purpose of feature extraction.	It considers various modules like users, knowledge engineer, domain expert, man-machine interface, inference engine and knowledge base.	The data was just presented for wheat crop and other crops were not considered.
7	Miftahul Jannat Mokarrama ,2017	IEEE	RSF: A recommendation System for Farmers	A recommendation system for famers which considers a location detection module, data analysis and storage module, crop growing database, physiographic database.	The similar location detection module identifies the locations which are similar to the user’s locations and checks the similar crops that are planted in those locations.	The system does not get user feedback to improve the process.

8	S.Pudumalar , E.Ramanujam , 2016	IEEE	Crop Recommendation System for Precision Agriculture	The methods used are Random Trees, KNN, CHAID and Naïve Bayes for ensemble so that even if one method predicts incorrectly, the other models are likely to make correct predictions.	Authors uses an ensemble technique called majority Voting Technique which combines the power of multiple models to achieve greater prediction accuracy	The accuracy obtained is 88% using the ensemble model.
9	Yogesh Gandge,Sandhya , 2017	IEEE	A Study on Various Data Mining Techniques for Crop Yield Prediction	Decision tree using ID3 algorithm was considered for soybean crop and the recommendations were generated.	It was observed that Multiple Linear Regression gave an accuracy of 90-95% for rice yield.	The algorithm needs to be increased efficiency to provide more accurate accuracy

10	Sambhav Bhansali , Punit Shah , Jinay Shah , 2022	IEEE	Crop Prediction and Disease Detection System.	Basis on the region of farming to recommend the fertilizer and its uses to boost the yield productivity for farmers. Sometimes due to unwanted excess of rainfall or the pest attack can cause disease to crops.	The user can upload the image of the affected plant/crop and the system will figure out the type of disease. And this disease detection will suggest that how plant/crop can be cure	The First and foremost limitation in Image classification is gathering the proper quality data as the Image background may contain elements that may disturb the training process, especially if those elements are present in multiple samples

Reference

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2019 10th International Conference on Computing, Communication and Networking Technologies, “Low-cost iot+ml design for smart farming with multiple applications”, Fahad Kamraan Syed, Agniswar Paul, Ajay Kumar, Jaideep Cherukuri.

2018 International Conference On Advances in Communication and Computing Technology (ICACCT) “Plant disease detector”, Jagadish Kashinath Kamble.