FERTILIZER RECOMMENDATION SYSTEM FOR DISEASE PREDICTION

LITERATURE SURVEY

DOMAIN NAME : ARTIFICIAL INTELLIGENCE
TEAM ID : PNT2022TMID29439
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PAPER 1: Fertilizers Recommendation System For Disease Prediction In Tree Leave

Published year : 2019
Author : R. Neela, P. Nithya
Journal Name : International Journal Of Scientific & Technology Research

Summary : 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. 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.

PAPER 2: Plant Leaf Disease Detection and Classification Based on CNN with LVQ Algorithm

Published year : 2018
Author : Melike Sardogan,Adem Tuncer,Yunus Ozen
Journal Name : IEEE XPLORE.

Summary : The early detection of diseases is important in agriculture for an efficient crop yield. The bacterial spot, late blight, septoria leaf spot and yellow curved leaf diseases affect the crop quality of tomatoes. Automatic methods for classification of plant diseases also help taking action after detecting the symptoms of leaf diseases. This paper presents a Convolutional Neural Network (CNN) model and Learning Vector Quantization (LVQ) algorithm based method for tomato leaf disease detection and classification. The dataset contains 500 images of tomato leaves with four symptoms of diseases. We have modeled a CNN for automatic feature extraction and classification. Color information is actively used for plant leaf disease researches. In our model, the filters are applied to three channels based on RGB components. The LVQ has been fed with the output feature vector of convolution part for training the network. The experimental results validate that the proposed method effectively recognizes four different types of tomato leaf disease.

PAPER 3: Soil Based Fertilizer Recommendation System for Crop Disease Prediction System

Published year : 2021
Author : Dr.P. Pandi Selvi , P. Poornima
Journal Name : International Journal of Engineering Trends and Applications (IJETA)

Summary : Agriculture is the main aspect for the economic development of a country. Agriculture is the heart and life of most Indians. But in recent days, the field was going down due to various natural calamities. In order to overcome the problem, various issues in this field need to be addressed. The soil type, fertilizer recommendation, diseases in plants and leaves. All these features need to be considered. Our proposed system was organized in such a way, to analyze the soil type, diseases in the leaves and finally to recommend the appropriate fertilizer to the farmers, that may be of great help to them. Plant disease, especially on leaves, 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. Smart analysis and Comprehensive prediction model in agriculture helps the farmer to yield right crop at the right time. The main benefits of the proposed system are as follows: Yield right crop at the right time, Balancing the crop production, control plant disease, Economic growth, and planning to reduce the crop scarcity. Hence to Detect and recognize the plant diseases and to recommend fertilizer it is necessary to provide symptoms in identifying the disease at its earliest. Hence the authors proposed and implemented new fertilizers Recommendation System for crop disease prediction.

PAPER 4: Prediction Of Crop Yield And Fertilizers Recommendation Using Machine Learning Algorithms

Published year : 2019
Author : Devdatta A. Bondre, Mr. Santosh Mahagaonkar
Journal Name : International Journal of Engineering Applied Sciences and Technology

Summary: Machine learning is an emerging research field in crop yield analysis. Yield prediction is a very important issue in agriculture. Any farmer is interested in knowing how much yield he is about to expect. In the past, yield prediction was performed by considering farmer's experience on particular field and crop. The yield prediction is a major issue that remains to be solved based on available data. Machine learning techniques are the better choice for this purpose. Different Machine learning techniques are used and evaluated in agriculture for estimating the future year's crop production. This paper proposes and implements a system to predict crop yield from previous data. This is achieved by applying machine learning algorithms like Support Vector Machine and Random Forest on agriculture data and recommends fertilizer suitable for every particular crop. The paper focuses on creation of a prediction model which may be used for future prediction of crop yield. It presents a brief analysis of crop yield prediction using machine learning techniques.

PAPER 5: A Study Based on Plant Disease Prediction System Using Machine Leaning

Published year : 2021
Author : Arvind Kumar Shukla, Rajdeep Singh,C.K Dixit
Journal Name : Turkish Online Journal of Qualitative Inquiry (TOJQI)

Summary: The Agricultural field plays an important role for the growth any country. Most of Indian populations are depend for their livelihood on the agriculture/crops. Presently, the Indian agriculture is facing a number of hurdles because of the change of climate, water pollution/ shortages, lack of fertilizers, old methods/technologies, different plant’s diseases and many more. These factors are not good for better food production to fulfill the public demand on time. The crops may be ruined by the infections in the plants, it may harm to our food security. To detect the diseases within the plants is not easy. DFS (Disease forecasting System) for Potato crops using ML (machine learning) is the best method to predict the plant’s diseases for necessary solution to prevent it, timely.

PAPER 6: A Recommended System for Crop Disease Detection and Yield Prediction Using Machine Learning Approach

Published year : 2020
Author : Pooja Akulwar
Journal Name : Research Gate

Summary: Agriculture is the mainstay of a rising economy in India. Traditionally farmers followed ancestral farming patterns and norms. However, a single farmer cannot be expected to take into account all innumerable factors that contribute to crop growth. A single misguided or imprudent decision by the farmer can have undesirable ramifications. With the advancements in various domains, intelligent agricultural system is needed for upliftment of Indian economy. The collaboration of recommender system with machine learning will lead to Intelligent Agriculture System that helps the farmer community in their decision making of farm management and agribusiness activities such as i) Predicting agriculture commodity market price before cultivation, ii) Determining best cultivars to plant iii) Determine optimum cultivation date v) Evaluate demand and supply risk vi) Investment Prioritizing. It also helps farmer to perform the activities like crop management including applications on yield prediction, disease detection, weed detection, crop quality, and growth prediction etc. This chapter describes the case study on "Crop Disease Detection and Yield prediction". The study includes identification of crop condition, disease detection, prediction about specific crop and recommendation using machine learning algorithms. It gives an idea about how recommender system is used in agriculture for disease detection and prediction.

PAPER 7: Prediction Model for Automated Leaf Disease Detection & Analysis

Published year : 2018
Author : Nikita Goel,Dhruv Jain,Adwitiya Sinha
Journal Name : IEEE XPLORE.

Summary : Owing to changing climatic conditions, crops often get affected, as a result of which agricultural yield decreases drastically. If the condition gets worse, crops may get vulnerable towards infections caused by fungal, bacterial, virus, etc. diseases causing agents. The method that can be adopted to prevent plant loss can be carried out by real-time identification of plant diseases. Our proposed model provides an automatic method to determine leaf disease in a plant using a trained dataset of pomegranate leaf images. The test set is used to check whether an image entered into the system contains disease or not. If not, it is considered to be healthy, otherwise the disease if that leaf is predicted and the prevention of plant disease is proposed automatically. Further, the rodent causing disease is also identified with image analysis performed on the image certified by biologists and scientists. This model provides an accuracy of the results generated using different cluster sizes, optimized experimentally, with image segmentation. Our model provides useful estimation and prediction of disease causing agent with necessary precautions.

PAPER 8: Crop-Yield Prediction And Crop Recommendation System

Published year : 2018
Author : Dishant Israni,Kevin Masalia, Tanvi Khasgiwal
Journal Name : IEEE XPLORE.

Summary : Agroecology is one of the oldest and noblest professions in India. Farmers face a lot of hardships while using traditional methods of farming in today's technologically centric world. Precision farming is a modern approach in comparison to traditional cultivation techniques. We are predicting the right crop using parameters like district, rainfall, temperature, area, a crop which would help the farmer to predict the

crop yield prior to making the decision to cultivate their final crop. This method can provide the farmer with valuable insights and assist them. In this paper we are using various techniques like XGB Regressor, Ridge Regression and LGBM Classifier. We have used Hyperparameter Tuning on these models to get a better accuracy. We have also planned to combine both the models and also notify the farmers using SMS or E-mail

PAPER 9: Plant Disease Detection Using Deep Learning-Fertilizer Suggestion

Published year : 2022
Author : N.Srirekha, R.Angelin Preethi
Journal Name : International Journal of Research Publication and Reviews

Summary : India is an Agriculture based economy whose most of the GDP comes from farming. The motivation of this project comes from the increasing suicide rates in farmers which may be due to low harvest in crops. Climate and other environmental changes have become a major threat in the agriculture field. Machine learning is an essential approach for achieving practical and effective solutions for this problem. Predicting yield of the crop from historical available data like weather, soil, rainfall parameters and historic crop yield. We achieved this using the machine learning algorithm. We did a comparative study of various machine learning algorithms, i.e., ANN, K Nearest Neighbour, Random Forest, SVM and Linear Regression and chose Random Forest Algorithm which gave an accuracy of 95%.In this project a mobile application has been developed which predicts the crop yield in general and also for a particular crop. Along with that, it also suggests the user if it is the right time touse the fertilizer or not.

PAPER 10: A Comprehensive Survey On Plant Diseases Detection

Published year : 2022
Author : Mr. Kathan Gohil, Prof. Amita Tailor, Prof. Anjali Solanki
Journal Name : International Journal For Research in Applied Science and Engineering Technology

Summary : India is an agricultural country. The life and economy of a farmer depends on agriculture. If any disease occurs in his crop, his entire crop goes into loss. Therefore, timely identification and diagnosis of the disease in the crop is very important. With this idea, we have created this product. So that the farmer can know whether the plant is diseased or not by inputting the photo of the leaf in this software. And if so, he can get information about the disease. This whole process he can do from his home just through a Smartphone.