FERTILIZERS RECOMMENTATION SYSTEM FOR DISEASE PREDICTION

LITERATURE SURVEY

A literature survey entails a thorough and comprehensive examination of all forms of existing literature in addition to additional sources, notably dissertation, to identify quite so many articles as necessary that are applicable to a certain topic.Predicting nutrients for plant diseases is extremely essential in agriculture. It aids in boosting net product, improved planning, and profit maximization. Thus many research articles were reviewed connected to our project issue in order to attain better outcomes.

- **"*Big Data Analysis Technology Application in Agricultural IntelligenceDecision System.*"**

Authors: Ji-chun Zhao, Jian-xin Guo.

Publication: 3rd IEEE International Conference on Cloud Computing and Big Data Analysis,2018.

This research looks at the big data and makes inferences from it. It considers a wide range of modules, including users, expertise engineers, subject matter professionals, man-machine user interfaces, reasoning engines, and information banks. The knowledge - based system gathers information for such prediction model and creates an effective knowledge and understanding to address the problem. For feature extraction, the article employs a number of Hadoop modules. It takes unorganized data and analyzes it with NoSQL, Hive, and Mahout before storing it in HDFS.

Methodology Adopted: Inference engine,Domain expertise,Knowledge base.

- ***"Cloud Based Automated Irrigation And Plant Leaf Disease Detection SystemUsing An Android Application."***

Authors: Ranjith, Saheer Anas, Ibrahim Badhusha, O.T. Zaheema, K Faseela,Minnuja Shelly.

Publication: International Conference on Electronics, Communication and Aero-spaceTechnology, ICECA 2017.

The major goal of this study is to provide imaging techniques and classification techniques for recognising and categorising leaf diseases. The leaf picture is first pre- processed before being further processed. K-Means Clustering is employed to segment the pictures, and the system retrieves the GLCM features first from images that include illness detection. Disease categorization via the SVM classifier. The system predicts and identifies illnesses on citrus leaves with a maximum of 90% accuracy; however, the system can only identify diseases on citrus leaves.

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

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 proposesan android application for irrigation and plant leaf disease detec tion with cloud and IoT. For monitoring irrigation system they use soil moisture and temper ature sensor and sensor data send to the cloud. The user can also detect the plant leaf disease.

- ***"Crop Recommendation System for Precision Agriculture."***

Authors: S.Pudumalar, E.Ramanujam, R.Harine Rajashreen, C.Kavyan, T.Kiruthikan, J.Nishan.

Publication: IEEE Eighth International Conference on Advanced Computing(ICoAC) 2016.

The method reported in the study incorporates the Majority Voting Strategy, an ensemble technique that harnesses the power of many models to increase prediction accuracy. For ensemble, numerous algorithms are used, such that even though one technique makes an incorrect prediction, the other ways are expected to forecast correctly, and the accuracy rate is correct since the majority voting mechanism is used. If-then rules are the fundamental components used in the prediction phase. The ensemble model has an 88% accuracy.

Algorithm used: Random tree forest,KNN,Naive Bayes.

- ***"Use of Data Mining in Crop Yield Prediction."***

Authors: Shruti Mishra, Priyanka Paygude, Snehal Chaudhary, Sonali Idate. **Publication:** Proceedings of the Second International Conference on InventiveSystems and Control (ICISC) 2018.

The data set employed in this work was obtained from Kaggle.com. Theauthor used the WEKA tool to analyse the data for the algorithms LWL, J48, LAD Tree, and IBK. Specificity, sensitivity, accuracy were used to calculate accuracy. To get the correctly detected cases for each classifier, a confusion matrix was employed. The conclusion was that trimming can improve accuracy.

Algorithm used: J48,LAD tree,LWL,IBK algorithm.

- **"*A Study on Various Data Mining Techniques for Crop Yield Prediction.*"**

Authors: Yogesh Gandge, Sandhya.

Publication: International Conference on Electrical, Electronics, Communication, Computer and Optimization Techniques (ICEECCOT) 2017.

Multiple Linear Regression was shown to have an efficiency of 90-95% for rice productivity in this study. For the soybean crop, a decision tree with the ID3 algorithm was analyzed, and suggestions were created. The third approach was SVM, which was employed on all crops and provided high accuracy while requiring little processing effort. On corn data, a neural network was utilised to attain 95% accuracy. The result was that further work is needed to increase the algorithms' accuracy.

Algorithm used: Multiple Linear Regression,Decision Tree, SVM, Neural Networks.

- **"Fertilizers *Recommendation System For Disease Prediction In Tree Leave.*"**

Authors: R. Neela, P.Nithya.

Publication: International Journal Of Scientific & Technology Research Volume 8,Issue 11, November 2019.

By recommending the best crops, this proposal aids in our ability to estimate crop productivity. In order to determine what crop should be put in the field to enhance productivity, it also concentrates on soil types. Soil types are crucial for crop yield. Information about the soil can be acquired by factoring in the weather information from the previous year. It enables us to foresee which crops might thrive in a specific climate.

Algorithms for prediction assist us in categorizing the data according to the disease, and information extrapolated out from classifier is utilized toforecast soil and crop. However, this approach is unable to anticipate exact outcomes because of the fluctuating climatic conditions.

Algorithm used: SVM
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. Pre diction algorithms help us to classify the data based on the disease, and data extracted from the classifier is used to predict soil and crop.
Disadvantages: Due to the changing climatic conditions, accurate results cannot be predicted by this system.

- ***"Design of Intelligent Agriculture Management Information System Based onIOT."***

Authors: Duan Yane.

Publication: IEEE,4th, Fourth International reference on Intelligent Computation Technology and Automation, 2011.

The current paper suggests an Android mobile application for cloud and IoT- based irrigation and plant detecting leaf diseases. They utilize soil moisture content, temperature sensors, and sensor data sent to the cloud to monitor irrigation systems. K-means clustering is used to extract features.The system's simplicity and affordability make it a good choice for detecting plant leaf diseases. However, any hardware or design flaws could impair the system's performance.

Algorithm used: SVM
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.

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