FERTILIZERS RECOMMENTATION SYSTEM FOR DISEASE PREDICTION

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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.

[1] ***"Agriculture Decision Support System Using Data Mining."***

Authors: Prof. Rakesh Shirsath; Neha Khadke; Divya More.

Publication: International Conference on I2C2,2017.

This suggested technology supports users in deciding which crop to cultivate. The method employed is a subscription-based system with individualized information for each farmer who has enrolled. A module in the system maintains information about previous agricultural crops from diverse sources as well as presents a comparable crop that could be cultivated. The entire operation is carried out with the assistance of man-made neutral networks. The benefits are that in the conclusion, a feedback mechanism is offered so that the designer may make any necessary modifications if the farmer encounters any difficulties when employing the system or if any faults in the equipment and design may impair system performance.

Methodology Adopted: Subscription Based System,ANN,Android Application.

[2] "*Big Data Analysis Technology Application in Agricultural Intelligence Decision 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.

[3] *"Cloud Based Automated Irrigation And Plant Leaf Disease Detection System Using An Android Application."*

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

Publication: International Conference on Electronics, Communication and Aero-space Technology, 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.

[4] *"RSF: A Recommendation System for Farmers*."

Authors: Miftahul Jannat Mokarrama,Mohammad Shamsul Arefin.

Publication: IEEE Region 10 Humanitarian Technology Conference,2018.

This farmer recommendation system takes into account a geolocation system, analysis techniques and storage module,crop growth and yield database, and physio-graphic database. The comparable site identification module finds regions that are similar to that same customer's regions and compares the crops grown in those areas. The location detection approach makes use out of Google Application Services that determine the user's present location in order to find comparable locations. However, the system does not really collect user feedback in order to improve the operation.

Methodology Adopted: Location Detection,Data analysis and storage.

[5] *"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.

[6] *"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 Inventive Systems and Control (ICISC) 2018.

The data set employed in this work was obtained from Kaggle.com. The author 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.

[7] "*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.

[8] "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 to forecast soil and crop. However, this approach is unable to anticipate exact outcomes because of the fluctuating climatic conditions.

Algorithm used: SVM

[9] *"Design of Intelligent Agriculture Management Information System Based on IOT."*

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

[10] "Healthy Farm: Leaf Disease Estimation and Fertilizer Recommendation System using Machine Learning."

Authors: Swapnil Jori, Rutuja Bhalshankar, Dipali Dhamale, Sulochana Sonkamble

Publication: International Journal of All Research Education and Scientific Methods (IJARESM) 2021.

The current paper examines and describes image processing strategies for detecting plant diseases in diverse plant species. BPNN, SVM, K-means clustering, and SGDM are some of the most common algorithms for diagnosing plant diseases. Some of the issues with these systems include the influence of background knowledge on the final picture, methodology refinement for a specific plant's leaf disease, and automating the technique for continuous automated monitoring of plant leaf disease in actual field circumstances.

Algorithm used: BPNN, SVM, K-means clustering, and SGDM

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[8] R. Neela, P.Nithya Fertilizers Recommendation System For Disease Prediction In Tree Leave International Journal of Scientific & Technology Research Volume 8, Issue 11, November 2019.

[9] Duan Yane, Design of Intelligent Agriculture Management Information System Based on IOT, IEEE,4th, Fourth International reference on Intelligent Computation Technology and Automation, 2011.

[10] Swapnil Jori, Rutuja Bhalshankar, Dipali Dhamale, Sulochana Sonkamble , Healthy Farm: Leaf Disease Estimation and Fertilizer Recommendation System using Machine Learning,International Journal of All Research Education and Scientific Methods (IJARESM),2021.