LITERATURE SURVEY

FERTILIZERS RECOMMENDATION SYSTEM FOR DISEASE PREDICTION

S.NO	TITLE & AUTHOR	YEAR	TECHNIQUE	PROPOSED SYSTEM
1	Leaf Identification Using Feature Extraction and Neural Network Satnam Singh, M. S. Bhamrah	2015	Artificial Neural Network, MATLAB	In this paper, a method is proposed for the extraction of shape features from leaf images. A classifier named as an Artificial Neural Network (ANN) is trained to identify the exact leaf class. It is done to attain high efficiency with less computational complexity. This work has been tested for the accuracy of network with different combination of image features. The results are tested on 80 leaf images. It is revealed that this method gives 98.8% accuracy with a minimum of seven input features. This approach is more promising for leaf identification systems that have minimum input and demand less computation time. Neural Network also developed and trained to classify and recognize plants from leaf images. This work is implemented using the image processing and neural network toolboxes in MATLAB.
2	IOT based Crop Recommendation, Crop Disease Prediction, and Its Solution - Rani Holambe, Pooja Patil, Padmaja	2020	Crop recommendation system, crop disease prediction, Internet of	The ML and IoT based suggestions will significantly educate the farmer and help them minimize costs and make strategic decisions by replacing intuition and passed-down knowledge with far more reliable data-driven ML models.

	Pawar, Hrushikesh Joshi, Saurabh Salunkhe		Things, Machine Learning	
3	Farmer's Assistant: A Machine Learning Based Application for Agricultural Solutions- Shloka Gupta, Aparna Bhonde, Akshay Chopade, Nishit Jain	2022	Image Analysis, Deep Learning, Machine Learning	A user-friendly web application system based on machine learning and web-scraping called the 'Farmer's Assistant'. With our system, we are successfully able to provide several features - crop recommendation using Random Forest algorithm, fertilizer recommendation using a rule-based classification system, and crop disease detection using Efficient Net model on leaf images.
4	Soil Based Fertilizer Recommendation System for Crop Disease Prediction System - P. Pandi Selvi, P. Poornima	2021	Long- or Short-Term Memory algorithm.	The proposed system was able to analyse the soil nutrient type efficiently, kind of leaf disease present 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.
5	Classification of lady's finger plant leaf using deep learning	2020	Deep Learning	A custom CNN architecture is proposed in this article to classify ladies finger plant leaf image into three categories namely healthy, disease and leaf burn. The dataset contains 1088 samples of lady's finger plant leaf images, among which 457 images are identified as healthy (non-disease) leaves, 509 images as disease and pest infected and 122 images as leaf burn due to fertilizer overdose. The images were

	L. Selvam, P. Kavitha			taken directly from the agriculture farms of different villages of Tiruvannamalai district, Tamil Nadu, India. The proposed CNN architecture achieved 96% classification accuracy.
6	Plant Leaf Disease Recognition Using FastAI Image Classification Aditya Chakraborty, Debarun Kumer, K. V. Deeba	2021	FastAI Image Classification	The motivation of this paper therefore is to solve all these issues by building a light-weight and cost-efficient deep learning architecture with the proposed DenseNet-121 model that classifies leaf images from a dataset called 'PlantDoc' across 28 classes with 1874 training images and 468 validation images. A separate test dataset is held out only for checking model performance on unknown data. Implementation is done using Fastai framework, because of its faster computational power, easy workflow, and unique data cleaning functionalities. Overall, the classification accuracy achieved is 92.5%.
7	Corn Leaf Diseases Diagnosis Based on K-Means Clustering and Deep Learning Helong Yu, Jiawen Liu, Chengcheng Chen, Ali Asghar Heidari, Qian Zhang, Huiling Chen, Majdi M. Mafarja, H. Turabieh	2021	K-means clustering and an improved deep learning model	This paper proposes a method based on K-means clustering and an improved deep learning model for accurately diagnosing three common diseases of corn leaves: grey spot, leaf spot, and rust. First, to diagnose three diseases, use the K-means algorithm to cluster sample images and then feed them into the improved deep learning model. This paper investigates the impact of various k values (2, 4, 8, 16, 32, and 64) and models (VGG-16, ResNet18, Inception v3, VGG-19, and the improved deep learning model) on corn disease diagnosis. The experiment results indicate that the method has the most significant identification effect on 32-means samples, and the diagnostic recall of leaf spot, rust, and gray spot disease is 89.24 %, 100 %, and 90.95 %, respectively. Similarly, VGG-16 and ResNet18 also achieve the best diagnostic results on 32-means samples, and their average diagnostic accuracy is 84.42% and 83.75%. In addition, Inception v3 (83.05%) and VGG-19 (82.63%) perform best on the 64-means samples. For the three corn diseases, the approach cited in this paper has an average diagnostic accuracy of

				93%. It has a more significant diagnostic effect than the other four approaches and can be applied to the agricultural field to protect crops.
8	Detecting Turmeric Taphrina Maculans Disease using Machine Learning Algorithms C. Vanitha, S. Malathy, P. Shenbagavalli, S. Krishna, K. Kavin	2022	Machine Learning Algorithm	The sample images are collected and dataset of the turmeric leaf is prepared. It is an image processing technique. The conversion of image is done by analysing the image. Plant illness ID is the main area in farming. The ID of plant sicknesses require close observing, and subsequently this paper embraces advances to oversee turmeric plant infections brought about by organisms to empower creation of top-notch crop yields. Different picture handling and ML methods are utilized to recognize and arrange the illnesses in turmeric leaf. The leaf pictures of various classes are pre-handled and sectioned to advance productive component extraction. ML calculations like k-implies calculation are utilized.
9	Plant Disease Prediction and classification using Deep Learning ConvNets A. Lakshmanarao, M. Babu, T. Kiran	2021	Deep Learning ConvNets	In this paper, we applied "Convnets" for plant disease detection and classification. We collected a Plant Village dataset from Kaggle. It contains images of 15 different classes of plant leaves of three different plants potato, pepper, tomato. We divided the dataset into three datasets and applied Convnets on three datasets. We achieved an accuracy of 98.3%,98.5%,95% for potato plant disease detection, pepper plant disease detection, tomato plant disease detection. Experimental results have shown that our model achieved a good accuracy rate for plant leaf disease detection and classification.
10	Multi-Level Deep Learning Model for Potato Leaf Disease Recognition	2021	Deep Learning	In this research, a multi-level deep learning model for potato leaf disease recognition has developed. At the first level, it extracts the potato leaves from the potato plant image using the YOLOv5 image segmentation technique. At the second level, a novel deep learning technique has been developed using a convolutional neural network to detect the early blight and late blight potato diseases from potato leaf images. The proposed potato leaf disease detection model

	Javed Rashid, I. Khan, Ghulam Ali, Sultan H. Almotiri, Mohammed A. Alghamdi, Khalid Masood			was trained and tested on a potato leaf disease dataset. The potato leaf disease dataset contains 4062 images collected from the Central Punjab region of Pakistan. The proposed deep learning technique achieved 99.75% accuracy on the potato leaf disease dataset. The performance of the proposed techniques was also evaluated on the Plant Village dataset. The proposed technique is also compared with the state-of-the-art models and achieved significantly concerning the accuracy and computational cost.

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