Literature Review on "IOT Based Plant Disease Detection"

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Abstract: This paper presents a secure IOT-plant disease detection system which identifies the plant disease and provides remedies that can be used as a defense mechanism against the disease. The database obtained from the Internet is properly segregated and the different plant species are identified and are renamed to form a proper database then obtain test-database which consists of various plant diseases that are used for checking the accuracy and confidence level of the project. Then using training data, we will train our classifier and then output will be predicted with optimum accuracy. We use Convolution Neural Network (CNN) which comprises of different layers which are used for prediction.

Keywords: Convolution Neural Network (CNN).

I. INTRODUCTION

The primary occupation in India is agriculture. India ranks second in the agricultural output worldwide. Here in India, farmers cultivate a great diversity of crops. Various factors such as climatic conditions, soil conditions, various disease, etc affect the production of the crops. The existing method for plants disease detection is simply naked eye observation which requires more man labour, properly equipped laboratories, expensive devices, etc. And improper disease detection may lead to inexperienced pesticide usage that can cause development of long term resistance of the pathogens, reducing the ability of the crop to fight back. The production is decreasing day by day with various factors and one of them is diseases on Leaf which are not detected early stage. Identifying the disease at an early stage and suggesting the solution so that maximum harm can be avoided to increase the crop yield. The plant disease detection can be done by observing the spot on the leaves of the affected plant. The method we are adopting to detect plant diseases is image-processing using Convolution neural network (CNN).

II. LITERATURE SURVEY

[1] Management of leaf spot disease of tree: The proposed project is about detection of disease done by calculating leaf area through pixel number statistics. The method studied is for increasing throughput and reducing subjective arising from human experts in detecting the leaf disease. Leaf spots can be indicative of crop diseases, where leaf batches are examined manually and subjected to expert opinion. In this paper an Image Processing system is developed to automate the inspection of these leaf spot.

[**2] Detection of Potato Diseases Using Image Segmentation and Multiclass Support Vector Machine:** The proposed project is about Segmentation process which is carried out to extract interested portions of the leaf. For Segmentation process, K-means clustering algorithm is used. After segmenting, feature extraction process is carried out. In feature extraction, statistical feature of the leaves are extracted using GLCM (Grey Level-Co-occurrence Matrix). Classification is done using Multiclass SVM. Classification is based on trained dataset and testing dataset. By comparing the classes of data set the disease is identification.

[3] A framework for detection and classification of plant and stem diseases: This project provides an Android application that helps farmers for identifying plant disease by uploading a leaf image to the system. The system has a set of algorithms which can identify the type of disease. Input image given by the user undergoes several processing steps to detect the disease and results are returned back to the user via android application.

[4] Leaf Disease Detection and gardening using computer vision Technology & fuzzy logic: The proposed system presents image processing techniques used for the early detection of different Plants diseases by different authors with different techniques. The main focus of our work is on the critical analysis of different plants disease segmentation techniques. This project provides description of leaf disease detection using image processing that can recognize problems in crops from images, based on colour, texture and shape to automatically detect diseases and give the fast and accurate solutions to the frame.

[5] Rice Disease Identification using Pattern Recognition: The purpose of this project is to increase the yield by preventing diseases and detection of diseases place major role in agriculture domain. By using Improved and

customized DCNN model and trained plant doc and plant village datasets. Mainly we used rice plat. They have experimented on plant image data set both healthy and diseased ones. Experimental results are compared with state of the architectures like Mobile Net, Dark Net-19, ResNet-101and proposed model out Performs in location and detection of plant diseases.

[6] Leaf Disease Detection and Selection of Pesticides using Artificial Neural Network: The proposed system involves different concepts related to image processing such as image acquisition, image pre-processing, feature extraction, artificial neural network-based training, classification, diagnosis and treatment by using artificial neural network. In this performance, database is a accumulation of different texture features of some leaves. In this paper it is possible to get the disease name and also, we can get the fertilizer which is precise for that disease.

[7] Monitoring Soybean Disease and Insect Infection Patterns in Nebraska: The project designed for online tracking system to help Nebraska farmers to make the right decisions on their daily agricultural practices, such as choosing the right planting date and applying the right pesticide to minimize plant damage and maximize yield potential. We use a Zope web server, a My SQL relational database, and a graphic rendering product, ZGD Chart to build this data visualization system which completely automates data gathering and storage processes and enables users to observe a graphical representation of plant disease infection patterns during the growing season in Nebraska under different management and environmental.

[8] Models of the Response of Foliar Parasites to the Combined Effects of Temperature and Duration of Wetness: The development of nonlinear models of effects of wetness duration and the temperature that incorporate prior information regarding the each of the two constituent processes the response. Due to the temperature is proposed. The relationship between the proposed and previous models of the response to wetness duration and temperature is analyzed.

III.   PROPOSED WORK

We planned to design the module so that a person with no knowledge about programming can also be able to use and get the information about the plants disease. It proposed system to predicting leaf diseases. It explains about the experimental analysis of our methodology. Since digital image processing is used in this project to detect diseases in plants, it eliminates the traditional methods which are used in olden days and also it removes human error. This method needs a digital computer, to detect diseases in plants. So it is a suitable method to adapt for this project. Samples of images are collected that are comprised of different plant diseases like Tomato, Grape, Apple and Healthy Leaves. Different number of images is collected for each disease that was classified into database images and input images. The primary attributes of the image are based upon the shape and texture oriented features.

IV.   CONCLUSION

It focused how image from given dataset (trained dataset) in field and past data set used predict the pattern of plant diseases using CNN model. This brings some of the following insights about plant leaf disease prediction. As maximum types of plant leaves will be covered under this system, farmer may get to know about the leaf which may never have been cultivated and lists out all possible plant leaves, it helps the farmer in decision making of which crop to cultivate. Also, this system takes into consideration the past production of data which will help the farmer get insight into the demand and the cost of various plants in market.

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