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Leaf Analysis and Prediction

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Abstract *- Although professional agricultural engineers are responsible for identifying plant diseases, clever systems can be used for their early detection. The professional programs suggested in the literature for this purpose are often based on user-defined facts or image processing of plant images in visuals, infrared, lighting, etc. Diagnosis can be based on symptoms such as sores or spots on various parts of the plant. The color, location, and the number of these areas can be very specific to a disease that has killed a plant. Expensive molecular analysis can follow if necessary. This app can be easily expanded with various plant diseases and different smartphone platforms. Graphic processing is a divisive area where research and development are taking on geometric advances in the agricultural sector. Various studies are underway on the development of plant diseases. Identification of plant diseases can not only increase productivity but also support a variety of agricultural practices. This paper proposes a process for diagnosing and diagnosing diseases with the help of machine learning techniques and imaging tools. This paper provides research into a variety of page diagnostic techniques using the image processing method and classifies them according to the type of analysis and use tool.*

Keywords: Leaf Disease Detection, Graphic Processing, Intelligent System, Analyzes, Plant Diseases, Smart Phone.

I. INTRODUCTION

Agriculture has been around for years and there are many advances and changes taking place. Agriculture is a key element of the food supply, and it is an ever-growing organization. Agriculture is considered one of the key activities and on the other hand helps to improve the country's economy. The economic growth of a farmer depends on the quality of the products they grow, which depends on the growth of the crop and the yield. Plants are exposed to the external environment and are more prone to plant disease which also affects the environment of the farmer. Plants are the main victims of plant diseases.

The backbone of the agricultural economy in many developing countries, especially India. The quantity of crop production and quality depends on the growth of the plant. Usually, the grower identifies the disease by looking at the color and shape of the leaves. This approach requires a lot of experience and a lot of general effort. This is almost impossible with large fields.

Plants are attacked by many types of diseases that affect different parts of the plant body such as the leaf, stem, seeds, fruit, and so on. Diseases are specific to certain parts of the plant body. The leaves can be considered as the main part of the plant, only with the help of the leaves a course of photosynthesis can be done. Various methods of machine learning have recently been proposed to identify and classify plant diseases in plant images. These automated methods have provided a solution to the problem, but the biggest challenge facing them is the accuracy and robustness of the results obtained. In this paper, we use imaging techniques and machine learning techniques to diagnose plant diseases. Various diseases that occur in different parts of the plant can be detected by looking at changes in signs, spots, color, etc. Spending and self-sufficiency is a major requirement for agriculture to improve crop production.

II. LITERATURE SURVEY

The rate of crop production is the same as healthy plants. Proper diagnosis and treatment of plant diseases is an important first step in the process of crop production. A farmer's misdiagnosis of plant diseases causes pesticides to be sprayed improperly. Various imaging techniques are widely used to detect plant growth and diagnostics. Plant diseases occur in different parts of the plant. In general, the leaves of diseased plants change their color, shape, size, texture, etc. Therefore, diagnosis and appropriate treatment recommendations for plant diseases can be determined using imaging techniques.

Many imaging techniques have been described in the literature to diagnose and treat epilepsy. In the process of image acquisition, unhealthy and healthy leaves are processed initially. This healthy and healthy leaf database is called a training database. Pictures of leaf trains are stored in a black box to avoid variations in light intensity or placed in a white box with a light source at 45 degrees. Reducing reflection and better lighting. Once the training data has been processed, then insert a photo of the test leaf. Continuous image analysis of the appropriate display, the image enhancement process is used.

Audio can be imported during the image capture process or electronically transmitted. Sound image converts real pixel values affect real image intensity Various sound reduction techniques are available in books to remove unwanted leaf noise. Pictures of soundless leaves are separated to make the process easier and easier. In the process of image classification, it leaves images separated into many smaller segments or pixel sets. The size of the classification depends on the picture of the problem and the classification should be stopped if the image you want is

unique. The next step is to remove the features from the split image. The feature removal process reduces image data by measuring certain features such as color, size, shape, texture, etc. These extracted elements are fed to the separator, which separates the leaf particles according to the type and severity of the disease. After that, the process of diagnosing the disease identifies the disease and provides expert recommendations to overcome the disease.

Automatic image classification of algorithms divided by processes and techniques for diagnosing plant leaf diseases with very little calculation effort. This method can identify plant diseases at an early stage. The Artificial Neural Network, the Bayes division, Fuzzy Logic, and hybrid algorithms can also be used to increase visibility in programming processes.

Various classification strategies such as K-Nearest Neighbor Classifier (KNN), Probabilistic Neural Network (PNN), Genetic Algorithm, Support Vector Machine (SVM) and Principal Component Analysis, Artificial neural network (ANN)), logic Fuzzy. Appropriate management strategies can control the spread of leaf diseases using early harvest information. Compared to the performance of various machine learning methods for automatic disease analysis. A combination of discrete cosine transform (DCT), discrete wavelet transform (DWT), and Texture output extraction techniques provide excellent results in classification. The proposed method of integrating DCT + DWT features with the Support Vector Machine (SVM) provides maximum accuracy of 94.45%. Major plant disease detection strategies are the backpropagation neural network (BPNN), Support Vector Machine (SVM), the closest neighbor to K (KNN), and the Spatial Gray-level Dependence Matrices (SGDM). These methods are used to analyze healthy and diseased plant leaves.

III. PROPOSED SYSTEM

Although qualified agricultural engineers are responsible for diagnosing plant diseases, clever programs can be used for their early detection. An image processing method that can act as a smartphone program for diagnosing plant diseases.

Our aim is providing the design of this system is that with the help of a leaf image we need to identify the disease and suggest that pesticides take over the disease. Data mining is one of the most exciting concepts that can be used to predict the disease and to make training data reset. Using an Android app with a good camera and enough RAM it is used to take a picture of a leaf of a plant. Preliminary processing can be done to remove the audio data from the image found in the leaf image. After discovering all the common GLCM features associated with plant disease they are used to predict the disease. Given the results of our experiments to test a larger model for predicting plant diseases.

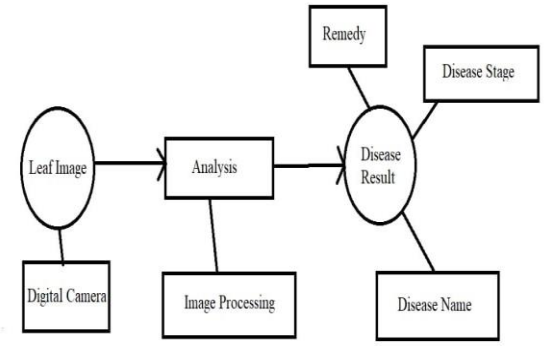
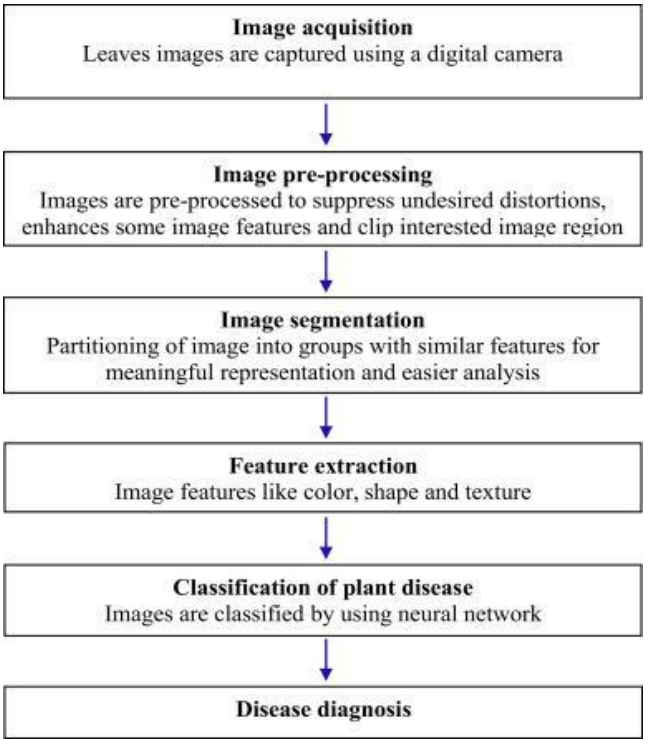


Fig. Data Flow diagram

The image feature has been removed which means to first convert this image to a gray image and then point to the pattern of points present in the leaf. Find the leaf edges that can be found using the split algorithm. Apply the Support Vector Machine algorithm to the features released to create plant disease predictions.



Fig, Generalized steps for diagnosing images

The training database also contains various pesticides. There are many pesticides for the same disease, these different pests have different costs so we will recommend pesticides in terms of cost. The user must select any single pesticide here and apply it to his plant.

IV. SUMMARY

In agriculture, leaf detection is a challenging task that is used to prevent major outbreaks. An inclusive review was found in the literature to detect leaf infection using the extraction factor process. The use of a variety of debugging techniques and stable, adequate data set-ups have helped to achieve satisfactory results. Scope development of hybrid algorithms such as classifiers, Support Vector Machines (SVM), genetic algorithms, cuckoo optimization, particle swarm optimization, and ant colony, etc. to increase the level of recognition of the final classification process. Photo Detection Capable camera nodes take leaf pictures and process them to separate the diseased part. The camera is triggered only when a color change in the leaf is detected thus reducing memory and energy consumption. In some cases, photographs are taken from time to time. The image is processed before the splitting process to improve image quality. Photo Detection Capable camera nodes take leaf pictures and process them to separate the diseased part. The camera is triggered only when a color change in the leaf is detected thus reducing memory and energy consumption. In some cases, photographs are taken from time to time. The image is processed before the splitting process to improve image quality.

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