Identification Of Plant Disease Using Image Processing Technique

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Abstract- *Agriculture has become far more than simply a method to feed ever growing populations. It's important wherever in additional than seventieth population of an Asian country is depends on agriculture. Which means it feeds nice range of individuals. The foremost necessary consider less amount crop of quality because of disease. Detecting disease may be a key to stop agricultural losses. The aim of this project is to develop a software system answer that Mechanically find and classify disease. The step like loading an image, pre-Processing, Segmentation, extraction and classification are involves illness detection. The leaves pictures are used for detecting the plant diseases And suggest medicine. Therefore use of image process technique to find and classify diseases in agricultural applications is useful.*

Keywords- Image Processing, Random Forest Classifier, plant disease, Segmentation, Extraction, Medicine.

I. INTRODUCTION

India is aagricultural country and farmer have large number of difference to select suitable crops. Such crops get affected by fungi, bacterial strip,Target Spot, viruses. Management of diseases is a challenging task. Hugs the Numbers of diseases are on leafs or stems of plant. To detect the accurate value of these visually observed diseases has not been study yet because of the intricate of visual pattern. The existing method for plant disease detection is simply naked eye observation by experts through which identification and detection of plant diseases is done. For doing so, a large team of experts as well as continuous monitoring of experts is required, which costs very high when farms are large. At the same time, in some countries, farmers don't have proper facilities or even idea that they can contact to experts. Due to which consulting experts even cost high as well as time consuming too. In such condition the suggested technique proves to be beneficial in monitoring large fields of crops. And automatic detection of the diseases by just seeing the symptoms on the plant leaves makes it easier as well as cheaper. This was proved by ShenWeizheng, Wu Yachun,Chenzhanliang and Wei Hongda in their IEEE paper Grading Method of Leaf Spot Disease Based on Image

Processing that the digital image processing provides the accurate result in the detection of plant disease. Plant disease identification by visual way is more laborious task and at the same time less accurate and can be done only in limited areas. Whereas if automatic detection technique is used it will take less efforts, less time and more accurately. In plants, some general diseases are brown and yellow spots, or early and late scorch, and other are fungal, viral and bacterial diseases. Image processing is the technique which is used for measuring affected area of disease, and to determine the difference in the color of the affected area. On reading various IEEE papers, international conference papers and international journal papers, we came to know that there are various methods for detecting the plant diseases but no project provides the remedy for curing the plant diseases. Hence we thought of making such a project that will detect as well as provide the remedy for curing the plant disease . We will be creating a database which will consist of plant diseases and the remedy for curing the plant disease. For knowing the remedy for the plant disease, the farmer can send the image through whats app or if it is possible to have leaf in real time then we can capture the image using external camera, this will be provided to our database and after comparison the pesticide for curing the plant disease will be send to the farmers' mobile through GSM.

II. RELATED WORKS

We are going to give a solution with less time and lead you throughout the project. The architecture of the planned work is shown in below Fig. 3. The steadily planned method consists of leaf picture information assortment, pre-processing of these pictures; segment of these pictures using k-means cluster methodology, GLCM is used to extracting the feature and at last the random forest algorithmic used for coaching of method

Imaging sensor & capability to digitize the signal collected by the sensor

- Video camera
- Digital camera

- Conventional camera &analog-to-digital converter

III. PROBLEM STATEMENT

The plant disease detect to using various method then identify the plant disease pesticides to detect disease. The disease pesticides name send to farmer using GSM module

IV. LITERATURE SURVEY

Guiling Sun ,XinglongJia , and TianyuGeng**"Plant Diseases Recognition Based on Image Processing Technology"**. [1] Significantly, there square measure variety of innovations in image segmentation and recognition system. In image segmentation, an improved bar chart segmentation technique that can calculate threshold mechanically and accurately is planned. Meanwhile, the regional growth technique and true color image processing square measure combined with this technique to boost the accuracy and intelligence. While making the popularity system, multiple linear regression and image feature extraction square measure used. Once evaluating the results of various image training libraries, the system is evidenced to own effective image recognition ability and prediction.

M.N. Abu Bakar, A.H. Abdullah, N. Abdul Rahim, H. Yazid, S.N. Misman and M.J. Masnan.**"Rice leaf Blast illness detection mistreatment Multi level Color Image Thresholding"**[2] Infection stage, spreading stage and worst stage are the result of RLB (Rice Leaf Blast) illness is classed. The isn't appropriate technique for detection of different diseases which can have similar options.
Sujatha R, Y Sravan Kumar and Garine Uma Akhil**"Leaf Disease Detection using Image Processing"**[3] summarizes major image processing used for identification of leaf diseases are k-means clustering, SVM. This approach can considerably support an correct detection of plant disease. There are 5 steps for the plant disease identification that are same to be image acquisition, image pre-processing, segmentation, feature extraction, classification. By using this idea the illness identification is completed for all types of leafs and additionally the user can recognize the affected space of leaf in share by distinctive the illness properly the user will rectify the matter terribly straightforward and with less price.

S. Megha, R C. Niveditha, N. SowmyaShree, K. Vidhya " **Image Processing System for Plant Disease Identification by Using FCM Clustering Technique"**[4] The authors introduced FCM Clustering Technique for Segmentation. SVM used for Classification of Plant diseases. Sickness level of the accuracy with the help of this approach,

it supply varied bar technique, the extent of destruction and helps to visualize whether or not the sickness spreads or not.
SandeshRaut ,AmitFulsunge**"Plant Disease Detection in Image Processing Using MATLAB"**[5] The authors introduced plant disease Detection in Image processing mistreatment MATLAB. leaf& fruit pictures are segmental mistreatment k-means clustering methodology to make clusters. Options are extracted mistreatment GLCM methodology. Apply K-means and SVM formula for coaching and prediction

Hindawi**"Plant Disease Severity Estimation Using Deep Learning"** [6] Automatic and correct estimation of illness severity is important for food security, illness management, and yield loss prediction. Deep learning, the most recent breakthrough in computer vision, is promising for fine-grained illness severity classification, because the methodology avoids the effortful feature engineering and threshold-based segmentation. Exploitation the apple plant disease pictures within the Plant Village dataset that are additional annotated by botanists with four severity stages as ground truth, a continuous of deep convolution neural networks are trained to diagnose the extremity of the illness.

V. IMPLIMENTATION

A. Using ANN:-

After feature extraction is done, the learning database images are classified by using neural network. These feature vectors are considered as neurons in ANN . The output of the neuron is the function of weighted sum of the inputs. The back propagation algorithm, modified SOM; Multiclass Support vector machines can be used.
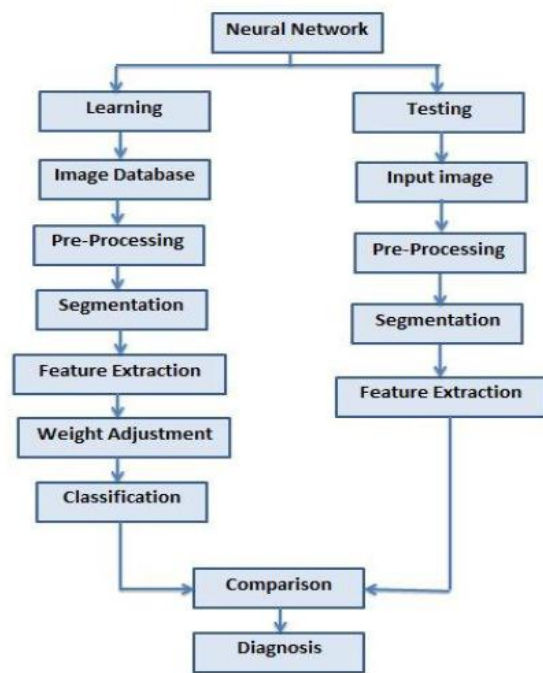
Fig:- 1 . Working principle of ANN
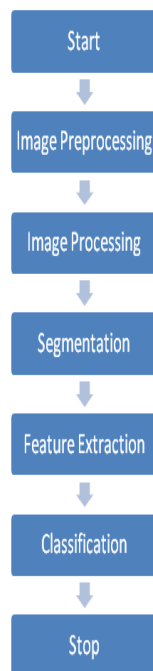
B. System Flowchart

Fig.2 Flowchart for system

VI. CONCLUSION

On referring various international and national papers we observe that most of the authors used RGB module, pepper salt noise method and ANN but these systems just detect the disease but does not provide remedy for curing the disease. So we are making such a project which will detect and provide remedy. Thus we are trying to make a project named plant disease detection using image processing and GSM for detection of plant disease and providing the remedy for curing it .We are making a database having the list of disease and the pesticides and the solution for plant diseases will be transmitted to the farmers mobile

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