Detection of Plant Diseases Using Image Processing Tools -A Overview

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ABSTRACT

Analysis of plants disease is main goal for increase productivity of grain, fruits, vegetable.
Detection of proper disease of plants using image processing is possible by different steps of it. Like image
Acquisition, image enhancement, segmentation, feature extraction, and classification. RGB image is acquire and
translate for processing and diagnosis of plant disease by CR-Network. Segmentation is used for which and how
many areas are affected by disease using k-clustering. Future extraction by HOG algorithm, SOFM
Classification is used for healthy and unhealthy plants

Keywords: Image Acquisition, RGB image, CR-Network, HOG algorithm, SOFM Classification

I. INTRODUCTION

India is fast growing population country and ratio of food grain production is as compare to
low. India has over 210 million acres of farm land [7]. In India many people working in the agriculture
sector. The agricultural sector plays crucial role in rural area development. It means need of research in
agriculture field is very important now a day in fast speed. Indian researcher is fastly growing in this
field. Plant diseases situation is dilemma for farmer. Plant disease is harmful for plant and production of
food grain. Farmers identify disease symptoms by naked eyes, it is very difficult and need continuous
observing of that plants. It very difficult practically for every farmer. In this paper there are some
researchers who define problem as well as their solution in different way. If detection of Plant
disease is earlier then treatment is also hastily taken or may take prevention better. Detection of plant
disease is challenging work for researcher. Causes are different namely enviroment, global warming,
pollution, number of viruses and bacteria, fungi’s and so many. Now a day farmer need consult about
crop diseases, advance pesticide and environmental changes with agriculture experts. Plant has different
types of diseases related to leaf, stem, fruit. Identify proper disease and its causes is important research for
researcher

II. LITERATURE SURVEY

Jagadees[1] proposed system focused on early detection and classification of fungal disease on different agriculture plants fruit crop, vegetable
crop and some commercial crop by using techniques of image processing segmentation, feature extraction,
classification. Fungal diseases symptom of plant namely anthracose, powdery mildew, downey
mildew affected on mango, pomegranate ,grape are
categorized into partially, moderately ,severally
affected.

Jundare Manisha [2] her proposed system based on two aspect client side and server side. To
identification of infected area of plant leaves image is capture by camera and send server side using CR-
Network algorithm HOG algorithm. After uploading image server identify, classify disease of plant and
suggest appropriate treatment provided using SVM (Support Vector Machine) and arrangement
Algorithm, Otsu Threshold Algorithm. This research method is fastest and effective in detection of
diseases of plants.

Suvarna [3] in her research method image sampling is done by image acquisition and after
getting images noise are removed and enhance the image. Enhance Image is convert into binary image
and extract its color features, hence affected area is estimated. Then classification and grading is done.
The final result consists of numerical values of total number of red pixels, total number of pixels covered
by the chilli fruit, Total area affected by the disease.

Smita Naikwadi [4]The author of this paper finding the disease of plant by various image
processing methods namely image acquisition, image transformation, clustering, thresholding
feature extraction ,texture analysis and histogram. Sample RGB image is transform into HIS color
image. Using different algorithm and matlab function calculate the histogram of images. Histrogram is generating sample image and testing
image. Both images are comparing using classification. Using GUI see the process of result.

K. Jagan Mohan [5] his proposed system works on paddy plants diseases detection. He also uses various
image processing techniques like image capturing by camera or mobile, image pre-processing for affected
area is manually cropped. Feature extraction is done
by HOG algorithm and for classification it used SVM machine. Overall work is applicable for paddy plant diseases namely Brown spot, Leaf blast and Bacterial blight. Sujeet Varshney [6] in his proposed work he used Support Vector machine SVM algorithm. RGB image is capture and infected part is identify dataset values. self-organising feature map (SOFM) of neural network and pattern classification are detecting the diseases of plants.

III. CONCLUSION

In above discussion gather all information about diseases of plants so I conclude that image processing is one of the important tools for disease detection of plants. Some algorithms are give efficient result for treatment of pesticide and preserve from major attack of viruses, bacteria, and others. All proposed method help to next researcher to advance finding of diseases for prevention.

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