

# DETECTION OF UNHEALTHY PLANT LEAVES USING GENETIC ALGORITHM

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**Abstract—** The identification of disease on the plant is a very important key to prevent a heavy loss of yield and the quantity of agricultural product. The symptoms can be recognized on the parts of the plants such as leaf, stems, lesions and fruits. The leaf shows the symptoms by uncertain colour, showing the spots on it. This identification of the disease is done by manual observation and virus detection which can consume more time and may prove costly. The aim of the project is to analyze and classify the disease accurately from the leaf images using less time. Image processing toolbox of Matlab is used for measuring affected area of disease and to determine the difference in the color of the disease affected area. The steps required in the process are Preprocessing, Training and Identification. The disease examined are Powdery Mildew, Downey Mildew which can cause heavy loss to Grape fruit. For recognition of disease features of leaf such as major axis, minor axis etc. are extracted from leaf and given to classifier for classification.

**Keywords:** Image processing, Genetic algorithm, Powdery Mildew, Downey Mildew.

## I. INTRODUCTION

Digital image process is the use of computer algorithms to perform image process on digital images. It privilege a far wider vary of algorithms to be applied to the computer file and might avoid issues like the expand of noise and signal distortion throughout process. Digital image process has terribly important role in agriculture field. it's widely addicted to observe the crop disease with high accuracy. Detection and recognition of diseases in plants

Plant pathologists will analyze the digital pictures mistreatment digital image process for diagnosing of crop diseases. Computer Systems area unit developed for agricultural applications, like detection of leaf diseases, fruits diseases etc. altogether these techniques, digital pictures are collected employing a camera and image process techniques are applied on these pictures to extract valuable data that are essential for analysis. The diseases are viral, bacterial, fungal, diseases due to insects, rust, nematodes etc. on plant. It is important assignment for farmers to find out these diseases as early as possible. Following example shows that how diseases on cotton plant reduces the productivity. Image processing techniques could be applied on various applications as follows: 1. To detect plant leaf, stem, and fruit diseases. 2. To specify affected area by disease. 3. To find the boundaries of the affected area. 4. To determine the color of the damaged area 5. To determine size & shape of fruits.

## II. LITERATURE REVIEW:

Sanjeev S Sannakki, Vijay S Rajpurohit, V B Nargund, and Pallavi Kulkarni proposed a new approach for "Diagnosis and Classification of Grape Leaf Diseases using Neural Networks". Plant diseases cause significant damage and economic losses in crops. Subsequently, reduction in plant diseases by early diagnosis results in substantial improvement in quality of the product. Erroneous diagnosis of disease and its severity leads to inappropriate use of pesticides. The goal of proposed work is to diagnose the disease using image processing and artificial intelligence techniques on images of