

DETECTION OF DISEASES IN THE LEAF BY USING IMAGE PROCESSING TECHNIQUES

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Abstract -Agricultural productivity is something on which economy highly depends. This is the reasons that disease detection in plants plays an important role in the agricultural field. Detection of plant disease through some automatic techniques which reduces a large work to detect the symptoms of that disease.In this present scenario farmers are facing situations like losing their at the time of harvesting.Here the farmers are not able to find out the disease by which the plant has been effected.So he doesn't know how to deal with the problem i.e., it takes time for the inspection officer to come near the crop and find out the disease and suggest a solution for that.In order to overcome this problem we had come with a new technique to identify the disease of the plant. This process consists of Image Segmentation and Image Enhancement techniques. It identifies the disease by examining the colour of the leaf.

KeyWords1,symptoms2,Detection,3diseas4technique,5segmentation 6Enhancement

1.INTRODUCTION

Agriculture has become much more than simply a means to feed ever growing populations. Plants have become an important source of energy, and are a fundamental piece in the puzzle to solve the problem of global warming. There are several diseases that affect plants with the potential to cause devastating economical, social and ecological losses. In this context, diagnosing diseases in an accurate and timely way is of the utmost importance.

1.1 Detection

There are several ways to detect plant pathologies. Some diseases do not have any visible symptoms associated, or those appear only when it is too late to act. In those cases, normally some kind of sophisticated analysis, usually by means of powerful

microscopes, is necessary. In other cases, the signs can only be detected in parts of the electromagnetic spectrum that are not visible to humans. A common approach in this case is the use of remote sensing techniques that explore multi and hyperspectral image captures. The methods that adopt this approach often employ digital image processing tools to achieve their goals. However, due to their many peculiarities and to the extent of the literature on the subject, they will not be treated in this paper. A large amount of information on the subject can be found in the papers by Bock et al. , Mahlein et al. and Sankaran et al.



Chart -1: leaf used in over project

1.2 Images in MATLAB and the Image Processing Toolbox

The basic data structure in MATLAB is the *array*, an ordered set of real or complex elements. This object is naturally suited to the representation of *images*, real-valued, ordered sets of color or intensity data. (MATLAB does not support complex-valued images.)MATLAB stores most images as two-dimensional arrays (i.e., matrices), in which each element of the matrix corresponds to a single *pixel* in the displayed image. (Pixel is derived from *picture element* and usually denotes a single dot on a computer display.) For example, an image composed

of 200 rows and 300 columns of different colored dots would be stored in MATLAB as a 200-by-300 matrix. Some images, such as RGB, require a three-dimensional array, where the first plane in the third dimension represents the red pixel intensities, the second plane represents the green pixel intensities, and the third plane represents the blue pixel intensities.

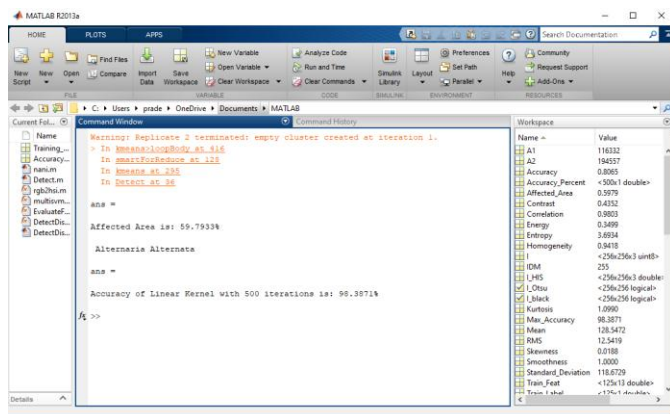


Fig -1:software used in project

Converting The Data Types of Images

If you want to perform operations that are not supported for uint8 or uint16 arrays, you can convert the data to double precision using the MATLAB function, double. For example,

$$BW3 = \text{double}(BW1) + \text{double}(BW2);$$

However, converting between data types changes the way MATLAB and the toolbox interpret the image data. If you want the resulting array to be interpreted properly as image data, you need to rescale or offset the data when you convert it. For easier conversion of data types, use one of these Toolbox functions: `im2double`, `im2uint8`, and `im2uint16`. These functions automatically handle the rescaling and offsetting of the original data. For example, this command converts a double-precision RGB image with data in the range [0,1] to a uint8 RGB image with data in the range [0,255]:

$$RGB2 = \text{im2uint8}(RGB1);$$

3. CONCLUSION

Growing technology has come with many techniques to deal with agricultural problems. This will be a revolution in agricultural industry to identify plant diseases. This process consists of Image Segmentation and Image Enhancement techniques. It identifies the disease by examining the colour of the leaf. The wide-ranging variety of applications on the subject of counting objects in digital images makes it difficult for someone to prospect all possible useful ideas present in the literature, which can cause potential solutions for problematic issues to be missed. In this context, this paper tried to present a comprehensive survey on the subject, aiming at being a starting point for those conducting research on the issue. Due to the large number of references, the descriptions are short, providing a quick overview of the ideas underlying each of the solutions. It is important to highlight that the work on the subject is not limited to what was shown here. Many papers on the subject could not be included in order to keep the paper length under control – the papers were selected as to consider the largest number of different problems as possible. Thus, if the reader wishes to attain a more complete understanding on a given application or problem, he/she can refer to the bibliographies of the respective articles

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