



GUAVA LEAF DISEASE DETECTION BY IMAGE

PROCESSING USING MATLAB

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ABSTRACT

Agribusiness is the foundation of rural India. Farmers face problems such as lack of timely availability of efficient workforce, as many have migrated from country side. Hence, to reduce the burden of farmers, image capturing in the field of farming is necessary. The main objective of this research is to detect the type of disease that has attacked the Guava crop. The normal disease that occurs in Guava leaves are canker, mummification, Rust and Dot disease etc... We use Raspberry along with MATLAB in this project. Raspberry Pi is nothing but a small size module same as small computer that works as computer. This paper concentrates more on the image processing techniques using CNN algorithm in MATLAB for finding the type of disease. A camera module is connected to the raspberry pi for capturing the image and it is sent by the raspberry pi to the registered E-mail and the received image is processed in MATLAB by image processing technique and MATLAB output displays the type of disease, remedies to cure the disease, segmented image along with input image along with the precautions to be taken by the farmer. And based on result the disease can be reduced by using particular fertilizers. And in case of low lighting cases we can use Android mobile also for image capturing purpose. So this technique reduces burden for the farmers and gives better solution for famers in avoiding the disease attack and helps in increase the production.

Keywords: Raspberry Pi,CNN.

INTRODUCTION

As our paper consists information about finding the type of disease that have attacked the Guava crop by the process of Image processing. Image processing is

nothing but processing an digital image through an algorithm in order to enhance image and extract some useful information from it. In simple in our project we take and image of Guava leaf that was effected with



disease is captured by web camera connected to the Raspberry pi through E-mail service. And the receiver receives the image from raspberry pi and we process the image in MATLAB and we use some of data sets to classify the type of disease in image processing. Finally we obtain the name of the Disease as output.

LITERATURE RIVIEW

As present generation requires more production of crops for fulfillment of their daily needs so the process of agriculture should be modernized for producing large amount of crop but occurring of disease to the crops are main problem in producing more outcome [1]. So to cure the disease quickly we need a modern technique for finding accurate disease and to know about the disease and so many techniques are made in past [2]. So this project aims to find the types of disease and prefer certain remedies to treat the disease and give some information about the disease to do this all things [3]. We are using Raspberry pi for image capturing and sending to the system and which contains MATLAB and using image processing techniques we find the disease type and able to cure the disease in less amount of time accurately [4]. So by combining this two techniques we can

obtain the type of disease occurred. This corresponds to the development of modern agriculture and increasing agriculture production. In future there is high demand for the agriculture based things. So using this techniques will be a boon for farmers [5].

EXISTING METHOD

First alternative method is we find the paddy leaf disease by observing by our nakedeye it is mostly determined by experienced farmers but they can't determine the exact name of disease and can't provide proper cure for it.

Second alternative method is by using Raspberry pi in this the image is taken and processed by the raspberry pi and tells whether the leaf has be attacked by disease or not but can't determine the name of disease this is the main drawback of this method.

PROPOSED METHOD

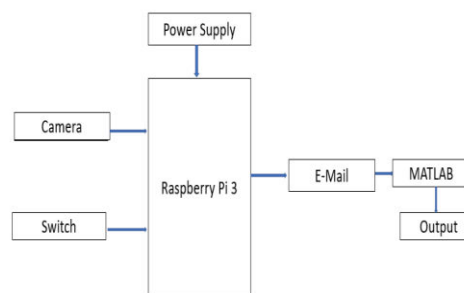


Fig.1: Block Diagram



The main aim of this paper is to find the type of Disease that had attacked the Guava. This is achieved by using Image processing with the help of MATLAB and Raspberry Pi for image capturing and image capturing purpose and sharing. The obtained image is processed and compared with the trained data sets and type of disease can be obtained as output. This paper gives information for finding four types of diseases like canker, mummification, Rust and Dot diseases etc.

METHODS OR TECHNIQUES USED

The main technique used in this paper is image processing technique it is done using MATLAB. Using the above shown image processing algorithm the type of guava leaf disease had occurred to the given input image. In first step image is obtained to the MATLAB processed if needed then in image Pre-Processing step enhancement of image is done for the process to feature extraction then in further step features like color, size, brightness etc...are extracted from the image. After that the image is segmented and then the input image is classified by comparing with the trained datasets. Finally the type of disease is obtained along with the remedies to reduce the disease. And image for processing can

be given from any source like mobiles and devices like Raspberry pi. We are using Raspberry pi along with camera module for image capturing and sending it to the system automatically via mail.

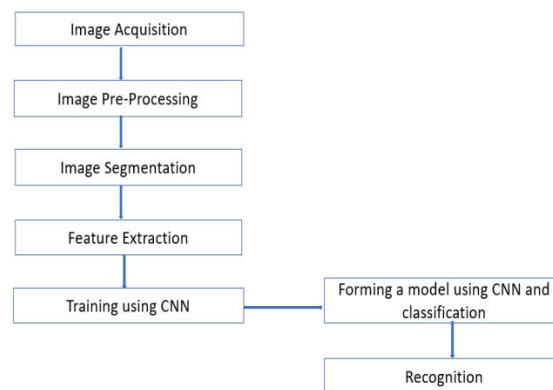
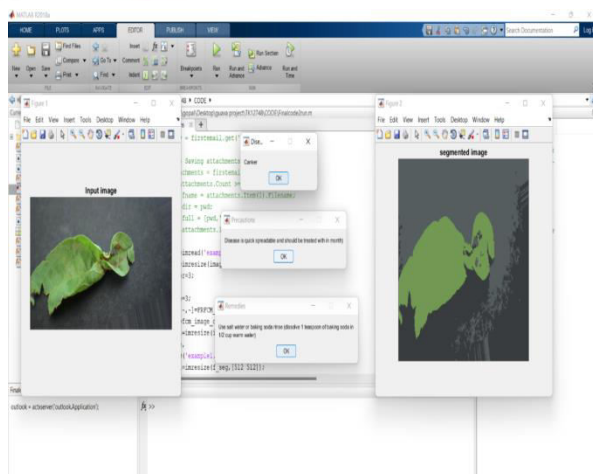


Fig.2: Framework of Image processing in MATLAB

RESULT

As a result the paper determines the type of Disease attacked to the Guava crop. By using the Raspberry pi for image capturing and data transfer. And main part of this paper is MATLAB the total image processing is done in MATLAB and type is determined along with remedies to reduce it.



ADVANTAGES

1. Type of Disease attacked the Guava crop can be detected efficiently.
2. Easy to cure the disease.
3. Helpful in farming to the farmers.
4. Increases production of crop.
5. Time Efficient and by changing datasets it can be used for other crops also.

DISADVANTAGES

1. To use this technique there should be basic knowledge to operate.
2. There should be a laptop for the user.

APPLICATIONS

1. Modern Farming
2. Agriculture

CONCLUSION

The main ideology behind this paper is image processing for finding the type of disease by using a algorithm which include the followed steps shown in the flow diagram. And we use Raspberry pi for image

capturing and sending to receiver purpose. The main part of these paper MATLAB code has the detailed information and steps about the image processing. By combining these two Ideologies detection of Guava leaf disease detection is done.

FUTURE SCOPE

The present generation modernized generation and population way increasing gradually. So simultaneously production of crops should be increased even though there are modern techniques for agriculture one of the major problem is various disease attacks of the crops normally we can't figure it out what type of disease it was so finding the disease using image processing technique it will be a boon for farmers as it tells accurately and by following the precautions we can cure the disease in less time and accurately. So finally in future there we will lots be implementation of this technique in modern farming.

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