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Leveraging the Image Processing Tools and Techniques for the Early Detection, Diagnosis and Classification of Fruit Diseases

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ABSTRACT

Because it will impact the agricultural field, early disease detection is essential. This project focuses primarily on the detection and analysis of fruit infections that can be found in plant areas, the database storage of information about agricultural fields and farmers, and the retrieval of that information using Cloud computing. Insects in the farm area, surrounding conditions, mineral levels, and other factors contribute to an increase in fruit diseases. Image processing determines and stores the plant area's detected data in the database.

INTRODUCTION

An Overview Agriculture has served as the foundation for all people. The fact that more than 70% of Indians rely on agriculture for their livelihood is crucial. Diseases typically impact the expansion of plant, crop, and fruit productivity today. The disease is a significant issue in the agricultural sector. Bacteria and viruses cause the majority of diseases in plant leaves and fruits.

To create an automated database to examine the infections using the suggested approach. The infection on the plants' leaves, fruits, and stems can be identified using this method. The data in the database about the conditions of the fruit, the disease symptoms that will be affected, and the plant's leaves.

The purpose of the mobile application is to process the data and notify the farmers. The database stores information about the fruit and the diseases found after the feature extraction. The captured image and the entire database are viewed and compared.

As a result, the database image variation also points to the fruit disease. In the respective images, the various characteristics of a few fruits were initially extracted and segmented. The various disease names are examined following a comparison with feature values, and the ideal disease for the image is determined. The disease is displayed in an alert box and can be communicated via the mobile application as a message.

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SYSTEM DESIGN

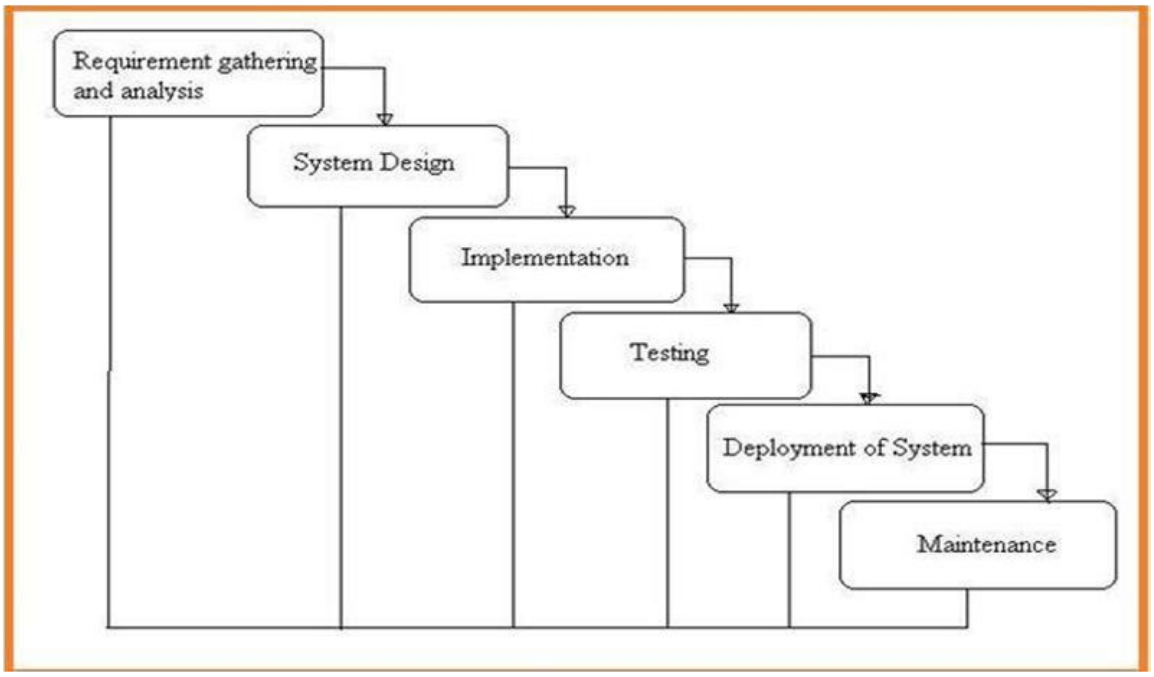


Fig 1: Project SDLC

Project Requisites Accumulating and Analysis

Application System Design

Practical Implementation

Manual Testing of My Application

Application Deployment of System

Maintenance of the Project

Requisites Accumulating And Analysis

It's the first and foremost stage of the any project as our is an academic leave for requisites amassing, we followed of IEEE Journals and Amassed so many IEEE Relegated papers and final culled a Paper designated "Individual web revisitation by setting and substance importance input and for analysis stage we took referees from the paper and did literature survey of some papers and amassed all the Requisites of the project in this stage

System Design

In System Design has divided into three types like GUI Designing, UML Designing with avails in development of project in facile way with different actor and its utilizer case by utilizer case diagram, flow of the project utilizing sequence, Class diagram gives information about different class in the project with methods that have to be utilized in the project if comes to our project our UML Will utilizable in this way The third and post import for the project in system design is Data base design where we endeavor to design data base predicated on the number of modules in our project

Implementation

The Implementation is Phase where we endeavor to give the practical output of the work done in designing stage and most of Coding in Business logic lay coms into action in this stage its main and crucial part of the project

Testing Unit Testing

It is done by the developer itself in every stage of the project and fine-tuning the bug and module predicated additionally done by the developer only here we are going to solve all the runtime errors

Manual Testing

As our Project is academic Leave, we can do any automatic testing so we follow manual testing by endeavor and error methods

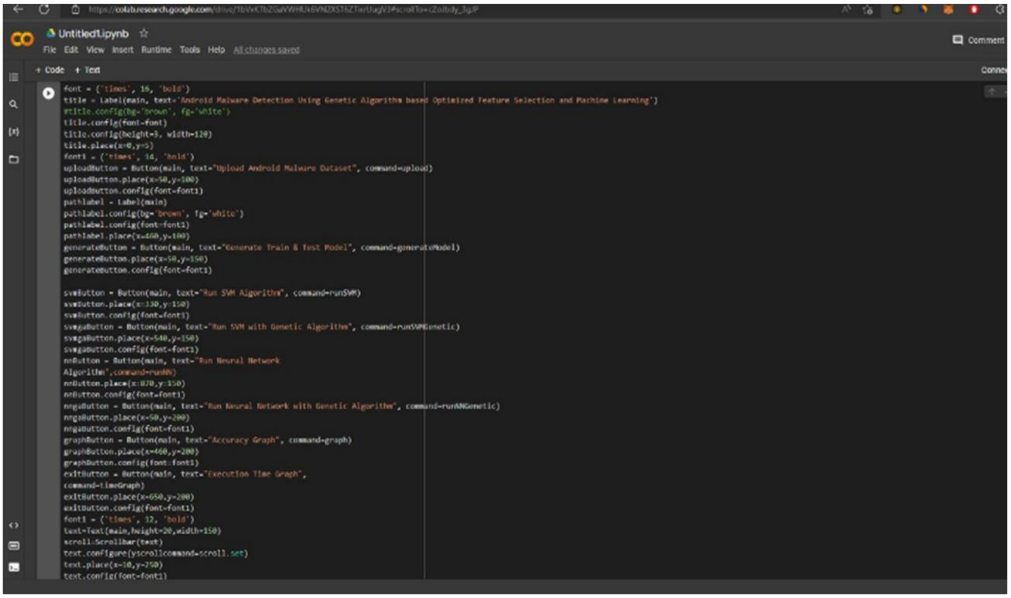
Deployment Of System And Maintenance

Once the project is total yare, we will come to deployment of client system in genuinely world as its

academic leave we did deployment i our college lab only with all need Software's with having Windows OS.

The Maintenance of our Project is one-time process only

IMPLEMENTATION



RESULT

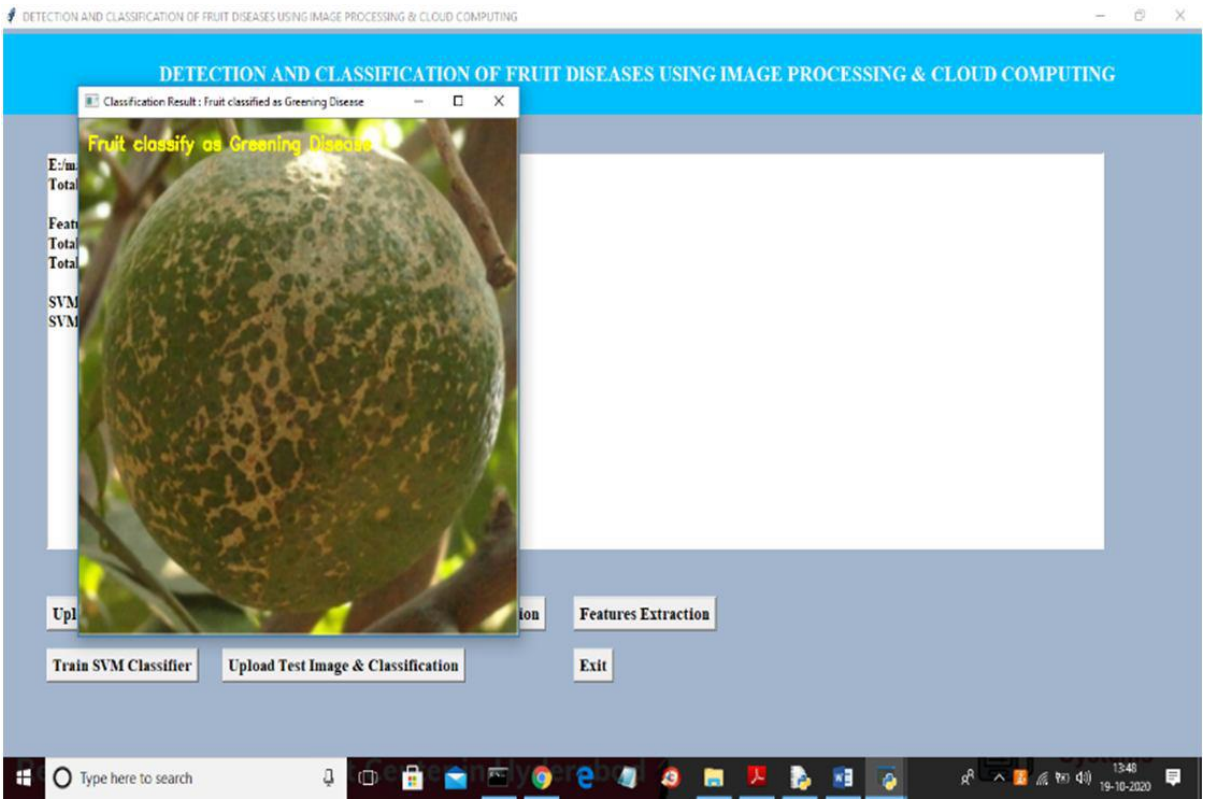


Fig 2: Greening disease

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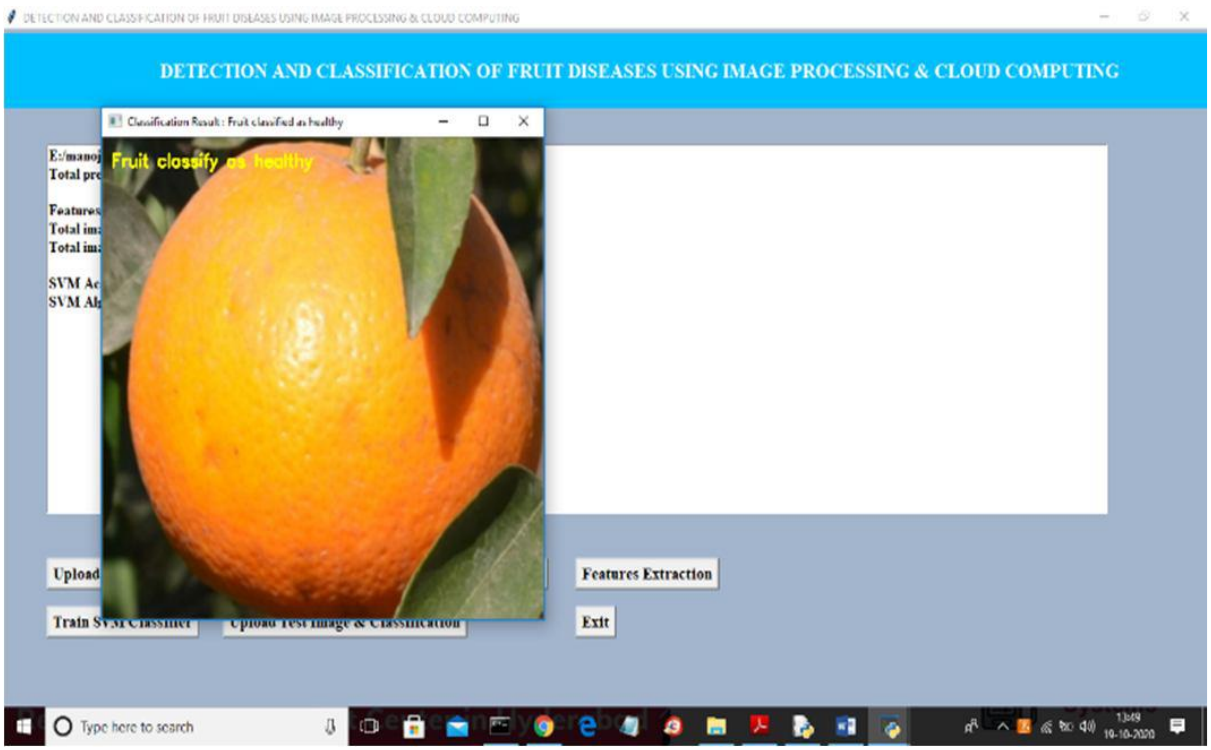

Fig 3: Future : Healthy fruit

CONCLUSION

The creation of a cloud-based program to support Indian farmers and agriculture contributes to a deeper understanding of agriculture's potential to reduce hoardings and foster a prosperous, secure, and peaceful farmer society in India. Used k-means algorithms and SVM techniques to classify and identify fruit images. Initially, individual images were created by extracting and segmenting the various characteristics of a few fruits. The various disease names are analysed following a comparison with feature values, the ideal disease for the image is determined, and the disease is displayed in the dialogue box. A mobile application can send it as a message. The all-out number of tests gave the valid and bogus position, the valid and misleading negatives, and the precision and explicitness is additionally demonstrated in an alarm box.

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