

Rice Leaf Disease Detection and Selection of Fertilizer Using IOT

Sri Devi A¹, Kaviya K², Kaviya K², Tharani S R²

¹ Associate Professor, Department of Electronics and communication Engineering, Adithya Institute of Technology, Coimbatore, Tamilnadu, India.

² Student, Department of Electronics and communication Engineering, Adithya Institute of Technology, Coimbatore, Tamilnadu, India.

Corresponding Author: kaviyakrishnan56266@gmail.com

Abstract: - The project aims to develop a system that can detect rice plant diseases and recommend suitable fertilizers using image processing techniques. The system uses MATLAB as the primary programming language to analyze images of rice plant leaves to identify any visible symptoms of diseases. Based on the identified disease, the system recommends the most appropriate fertilizer to treat the affected plant. The proposed system will provide an efficient and accurate approach to detecting and treating rice plant diseases, thus ensuring increased crop productivity and better yield.

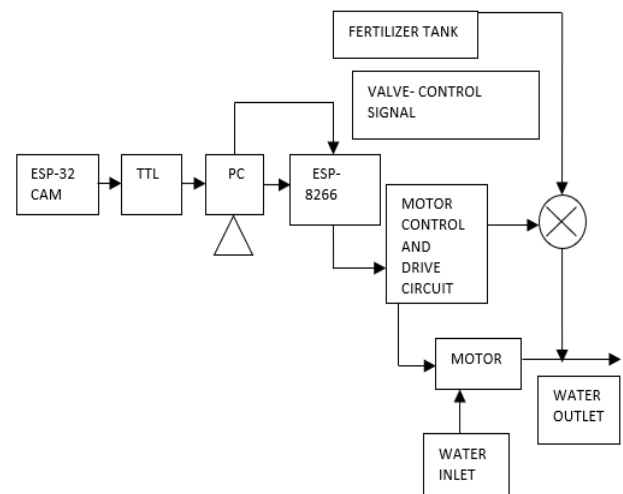
Key Words: ESP32cam, TTL connected with PC, rice leaf disease detection, fertilizer tank, flow control valve.

I. INTRODUCTION

The agriculturist in provincial regions may think that it's hard to differentiate the malady which may be available in their harvests. It is not moderate for them to go to agribusiness office and discover what the infection may be. The principal objective is to distinguish the illness introduced in a plant by watching its morphology by picture handling. It is used to train the large data sets available publicly to detect the disease present in plants in a colossal scale. The aim of research in agriculture is to improve the productivity and quality of the crop yielded with less expenditure and good yield.

The crop can be managed effectively with the timely diagnosis of the disease and implementation of the possible solution within the best possible time for effective control over the factors effecting the productivity and quality of the crop.

Diagnosing manually is a hectic task as it involves various parameters. Hence the implementation of Automated Systems is a mandate requirement to reach the farmers to help them in early detection of the diseases with improved accuracy. Plant diseases seriously affect the normal growth of plants, the yield and quality of agricultural products. In recent years, with the dramatic changes in climate, the natural environment of the plant growth has been damaged by pollution, frequent natural disasters, well as development of agricultural production.



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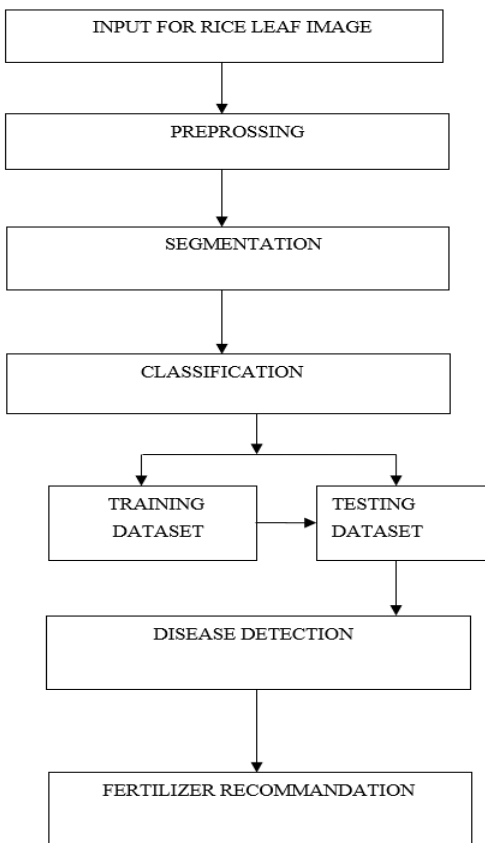
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II. PROPOSED WORK

The proposed system will provide an efficient and accurate approach to detecting and treating rice plant diseases, thus ensuring increased crop productivity and better yield. The system will also reduce the need for manual inspection and guesswork, saving time and effort.

The proposed system will use image processing techniques to analyze the images of rice plant leaves and identify any visible symptoms of diseases. The system will also use machine learning algorithms to classify the disease based on the symptoms. Once the disease is identified, the system will recommend the most suitable fertilizer based on the disease and the plant's requirements. MATLAB will be used as the primary programming language to develop the system.

In MATLAB there are five process like image acquisition, image preprocessing, image segmentation, feature extraction in image detection and classification of plant disease.



2.1 Hardware Components

- ESP-32 CAM
- ESP-8266
- Relay
- Motor Control and drive circuit
- DC motor

These are the hardware components which is required for our project,

2.2 Software and Language Requirements

- MATLAB

And from the flow chart we can see the working system, the flow chart is given below.

III. MATLAB DISEASE PREDICTION

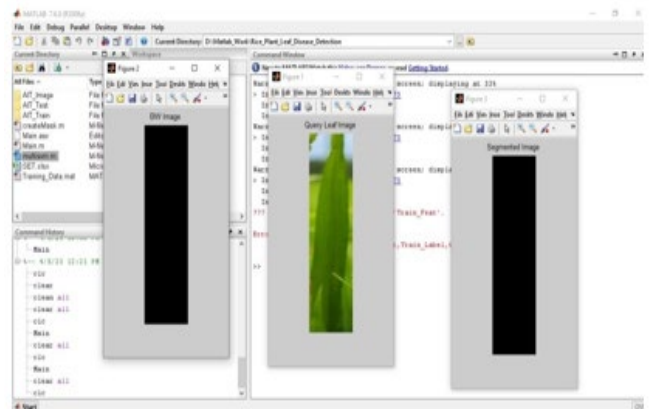


Fig.1. Results for normal images

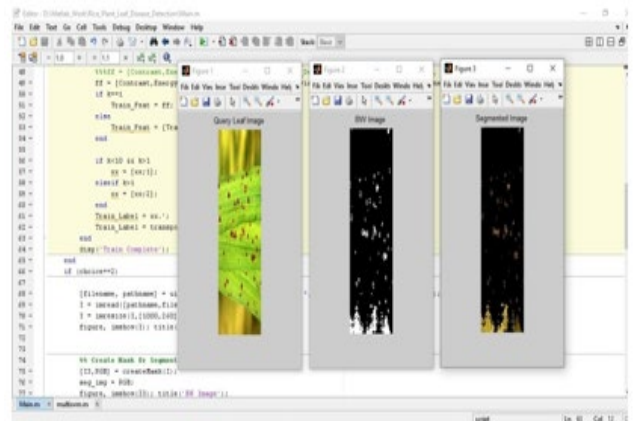
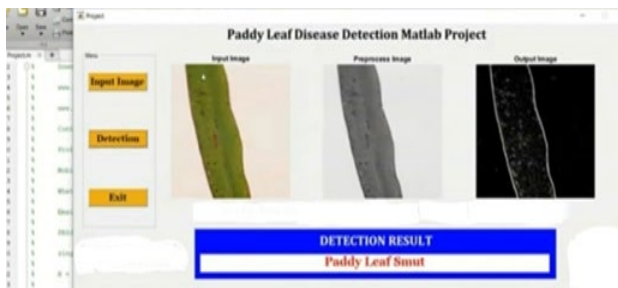


Fig.2. Results for disease image

IV. RESULT AND DISCUSSION



The Rice Plant Disease Detection and Recommending Fertilizer Using MATLAB project is a promising approach to improving rice plant health and yield. By using machine learning algorithms and image processing techniques, this project aims to detect and classify rice plant diseases accurately and recommend suitable fertilizers to the farmer based on the disease symptoms.



V. CONCLUSION

In conclusion, the proposed project aims to develop an automated system that can detect rice plant diseases and recommend suitable fertilizers for treatment. The system will use image processing techniques and machine learning algorithms, with MATLAB as the primary programming language. By automating the process, the system will save time and effort and provide an accurate and efficient approach to detecting and treating rice plant diseases. The system is expected to increase crop productivity and yield by providing farmers with the necessary information to make informed decisions about treating their crops. Overall, the project has the potential to significantly impact the agriculture industry, particularly in areas where rice is a staple crop.

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