

Software Requirements Specification (SRS)

Plant Disease Detector

1. Introduction

1.1 Purpose

The purpose of this SRS document is to describe the functional and non-functional requirements of the Plant Disease Detector System. The system analyzes images of plant leaves and identifies potential diseases using a trained machine learning model.

1.2 Scope

The system allows users to upload a plant leaf image and receive disease predictions along with recommended treatments. It aims to assist farmers, students, gardeners, and agricultural experts in identifying plant diseases quickly.

1.3 Definitions

- Machine Learning Model: A trained model capable of classifying plant leaf diseases.
- Dataset: Labeled plant leaf images used for model training.
- Prediction: Output indicating the detected disease.

2. Overall Description

2.1 Product Perspective

The system is a standalone web application composed of a frontend interface, backend logic, and an integrated ML model.

2.2 Product Features

- Upload leaf image
- Automatic preprocessing
- Disease prediction
- Disease details and suggested cures
- Simple user interface

2.3 User Characteristics

Target users include farmers, gardeners, agricultural students, and anyone who monitors plant health.

2.4 Constraints

- Accuracy depends on dataset quality
- Works only for trained diseases
- Requires stable internet/local server

2.5 Assumptions

- Users will upload clear leaf images
- Dataset is correctly labeled

3. Specific Requirements

3.1 Functional Requirements

- FR1: User can upload a plant leaf image.
- FR2: System preprocesses and resizes the image.
- FR3: ML model predicts the disease.
- FR4: System displays disease name, confidence score, and treatment.
- FR5: System handles invalid or unclear images.

4. Non-Functional Requirements

4.1 Performance Requirements

- Prediction should complete within 3 seconds.
- Website must load within 2 seconds.

4.2 Security Requirements

- Prevent harmful file uploads.
- Images are not stored permanently.

4.3 Reliability

- System should work consistently across browsers.

4.4 Usability

- Simple and intuitive interface.

4.5 Maintainability

- Code must be modular and easy to update.

5. System Flow (Simple, No Diagrams)

1. User uploads leaf image.
2. System preprocesses image.
3. ML model predicts disease.
4. System returns disease details.

6. Future Enhancements

- Support more plant species
- Add live camera detection
- Add chatbot support
- Improve accuracy with more data

7. Conclusion

This SRS outlines all major requirements of the Plant Disease Detector system. It ensures proper project structure and clarity for developers and stakeholders.