

# 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.