

## CHAPTER – 03

### SOFTWARE REQUIREMENTS SPECIFICATION

#### 1. Overall Description

In this project, the images of potato crops that are collected by farmers are the main input sources that are used to give test cases to the trained Deep Learning model and this model identifies the disease if present and produces the output accordingly. Blight is the identification portion in the image and it is further classified into Light Blight and Early Blight. The blight is present at different points on the leaf , so the model is trained in such a way that it can identify the blight and produces the output with maximum accuracy.

#### 2. Operating Environment

##### ***Software Requirements***

Operating System	:	Any updated Operating System
Language used	:	Python
Libraries	:	Tensor Flow, FastAPI
Development Kit	:	Any python supported IDE

##### ***Hardware Requirements***

Processor	:	Intel Pentium® Dual Core Processor (Min)
Speed	:	3GHz (Min)
RAM	:	4 GB (Min)
Hard Disk	:	500 GB (Min)

### **3. Functional Requirements**

- This model takes images of potato crop as the main input sources that are used to give test cases to the trained Machine Learning model and this model uses features like blight to give the output.
- In this project, we try to use computer vision, deep learning and try to recognize the blight if present.
- The process starts with a webcam feed which captures the image of potato plant leaf frame by frame and each frame is used in recognition of disease in real-time. This is done when the image is given to the trained model which tests the image and compares with the 3 classes of images of the dataset that is used to train the model to identify the blight in the image, and produces the output whether the potato plant is healthy or not.
- The dataset that is used to train the model consists of a vast collection of images that are collected from the farmers so the model can produce the result with maximum accuracy .

### **4. Non-Functional Requirements**

#### **4.1. Performance Requirements**

The performance requirements refer to static numerical requirements placed on the interaction between the users and the software.

##### **4.1.1. Response Time**

Average response time shall be less than 2 sec.

##### **4.1.2. Start-Up/Shutdown Time**

The system shall be operational within 20 seconds of starting up.

#### **4.1.3. Capacity**

The trained model can accommodate 1 hand at a time.

#### **4.1.4. Utilization of Resources**

The model is trained with the data sources available on kaggle to provide maximum accuracy .

## 4.2 Safety Requirements

-NA-

## 4.3 Security Requirements

-NA-

## 4.4 Software Quality Attributes

- ***Scalability***

The system will be designed in such a way that it will be extendable. We can train to predict disease for different crops .

- ***Availability***

The system will be available to all its users round the clock i.e., they can access the system at any time.

- ***Usability***

The interfaces of the system will be user friendly enough that every user will be able use it easily.