

## Project Design Phase-I

### Solution Architecture

Date	23 October 2023
Team ID	Team- 592756
Project Name	Potato Disease Classification
Maximum Marks	4 Marks

### Solution Architecture:

Our approach to categorising potato diseases makes use of a sophisticated architecture and deep learning techniques, particularly transfer learning and convolutional neural networks (CNNs). This programme offers a thorough approach to farmer, crop safety, and agriculture management and is created to dramatically improve the classification of potato leaves.

#### Key Components:

- 1. Deep Learning Models:** The deep learning approaches, which are trained on huge datasets containing a range of potato leaves, sizes, and environmental conditions, form the foundation of the architecture. Transfer learning speeds up the learning process by allowing us to use previously learned models and modify them for classification problems involving potato leaves.
- 2. Continuous Learning Loop:** The continuous learning loop is one of our architecture's distinguishing characteristics. The system improves its knowledge as new information becomes available, assuring its adaptability and precision in classifying potato leaves. In real-world situations, where potato leaf kinds and modifications can change over time, adaptation is essential.
- 3. Real-time Classification:** Our technology is designed for real-time classification of potato leaf disease. It quickly processes incoming sensor data and plant photos.

#### Benefits:

**Accuracy:** Deep learning models can categorise potato leaf diseases with high accuracy, allowing for early identification and accurate treatment.

**Automation:** The programme can identify and classify diseases automatically, eliminating the need for manual examination and helping farmers save valuable time.

**Scalability:** Deep learning models have the potential to scale to handle big datasets, taking into account various geographic regions and different illness kinds. Real-time disease identification is possible with the technology, enabling quick actions and halting the spread of infections.

**Cost-Efficiency:** By concentrating on the afflicted areas, it may be possible to avoid the need for substantial pesticide use, saving money and protecting the environment.

## Diagrams:



**(a)** Late Blight



**(b)** Late Blight



**(c)** Late Blight



**(d)** Early Blight



**(e)** Early Blight



**(f)** Early Blight



**(g)** Healthy



**(h)** Healthy



**(i)** Healthy

### Solution Architecture Diagram:

