

Project Design Phase-I
Proposed Solution Template

Date	8 November 2023
Team ID	Team-591844
Project Name	Project – Potato Disease Classification
Maximum Marks	2 Marks

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Accurately diagnosing crop diseases early is essential for farmers to minimize crop losses and costs. An automated, real-time plant disease prediction system is needed.
2.	Idea / Solution description	<ol style="list-style-type: none">1. Collect images of healthy and diseased potato plant leaves, labelled by disease type.2. Preprocess images and create normalized train-test splits.3. Develop and train a CNN model architecture to classify leaf images into healthy or disease categories.4. Optimize model hyperparameters for accuracy, loss, and generalization.5. Containerize model and deploy via user-friendly web application and API.6. Expand model capabilities over time with more data. Computer vision and agriculture expertise needed.
4.	Social Impact / Customer Satisfaction	By detecting diseases early, the system prevents crop losses and spread of infection, thereby promoting food security and sustainability while saving farmers costs.

5.	Business Model (Revenue Model)	<ol style="list-style-type: none"> 1. Subscription model for farmers based on acreage to access web app and API predictions. 2. Licensing model by charging other agriculture apps/solutions to integrate predictions. 3. Data collection and labelling as a service for researchers.
6.	Scalability of the Solution	<p>The system can scale by optimizing model efficiency, deploying containerized microservices, distributing training, and leveraging cloud infrastructure. However, model interpretability is vital for farmer trust.</p>