Project Initialization and Planning Phase

Date	5 July 2024
Team ID	SWTID1720076593
Project Title	Visual Diagnostics: Detecting Tomato Plant Diseases Through Leaf Image Analysis
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	**Developing a web application to Detect Tomato Plant Diseases through Leaf Image Analysis**
Scope	This project will involve growing a mobile or web software in which customers can add pix of tomato leaves. The software will use device getting to know models to analyze the pics and diagnose capability sicknesses. The scope consists of image preprocessing, version education, deployment, and person interface improvement. The venture will not cowl physical interventions or remedies for the sicknesses detected.
Problem Statement	
Description	Tomato farmers struggle to discover plant diseases accurately and right away. guide inspection is time-eating and regularly erroneous, mainly for those without get entry to expert understanding.
Impact	fixing this hassle will help farmers speedy diagnose sicknesses, main to well-timed and appropriate interventions. this may growth crop yield, lessen losses, and enhance the overall fitness of tomato flora.
Proposed Solution	

Approach	we are able to use gadget gaining knowledge of and photograph processing strategies to broaden a model that may hit upon illnesses from pix of tomato leaves. The approach consists of: • accumulating and preprocessing a large dataset of tomato leaf pictures • training a convolutional neural network (CNN) for disease category • developing a person-friendly interface for image add and end result show • imposing a backend system to address picture analysis and store outcomes
Key Features	1. Automated Disease Detection: quick examine leaf pics and stumble on diseases without guide intervention. 2. user-friendly Interface: easy and intuitive interface for customers to add pictures and think about effects. 3. specific reviews: provide certain analysis reports with disease identification and remedy tips. 4. Scalable architecture: system designed to deal with multiple customers and big datasets successfully.

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	2 x NVIDIA V100 GPUs
Memory	RAM specifications	16 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask, TensorFlow
Libraries	Additional libraries	OpenCV, Scikit-learn
Development Environment	IDE, version control	Jupyter Notebook, Git
Data		

Data	Source, size, format	Kaggle dataset, 10,000 images, PNG format