Project Initialization and Planning Phase

Date	19 June 2025
Team ID	SWTID1750170729
Project Title	Deepfruitveg: Automated Fruit And Veg Identification
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	To develop an automated, accurate, and scalable deep learning-based system for the identification and classification of fruits and vegetables, streamlining operations across agriculture and food supply chain industries.
Scope	The project will focus on designing, training, and deploying a robust computer vision model capable of distinguishing a diverse range of fruits and vegetables under varying conditions, such as lighting, background noise, occlusions, and quality degradation. The solution will be applicable to food processing plants, supermarkets, and agricultural fields.
Problem Statement	
Description	Manual identification and classification of fruits and vegetables in the agriculture and food supply chain are time-consuming, error-prone, and inefficient. Current methods rely heavily on human expertise, leading to inconsistencies, delays, and increased labor costs.
Impact	Automating this process will significantly improve operational efficiency, reduce labor costs, ensure consistent quality control, and enable early detection of crop diseases or stress, ultimately supporting scalable and sustainable food production.
Proposed Solution	

Approach	Utilize state-of-the-art deep learning techniques, including convolutional neural networks (CNNs), to analyze visual data of fruits and vegetables. The solution will involve data collection, model training, validation, and deployment for real-time identification.
Key Features	**Automated and accurate classification** of multiple fruit and vegetable types **Robust performance** under varying environmental conditions (lighting, backgrounds, occlusions) **Scalable architecture** suitable for deployment in diverse settings **User-friendly interface** for seamless integration into existing workflows

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	e.g., 2 x NVIDIA V100 GPUs
Memory	RAM specifications	e.g., 8 GB
Storage	Disk space for data, models, and logs	e.g., 1 TB SSD
Software		
Frameworks	Python frameworks	e.g., Flask
Libraries	Additional libraries	e.g., tensorflow, Keras, Pandas, Numpy, Matplotlib, Scikit-Learn
Development Environment	IDE, version control	e.g., Google Colab, Git
Data		
Data	Source, size, format	e.g., Kaggle dataset, 30 categories. Each class has more than 150 images