Project Initialization and Planning Phase

Date	8 July 2024
Team ID	SWTID1720080895
Project Title	RIPE-SENSE: MANGO QUALITY GRADING WITH IMAGE ANALYSIS AND DEEP LEARNING.
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal utilizes advanced image analysis and deep learning to develop an automated mango quality grading system, aiming to enhance efficiency and consistency in production and distribution while reducing subjective judgment. Its adaptable and scalable design ensures robust performance across diverse mango varieties, facilitating widespread adoption and optimizing profitability within the mango industry.

Project Overview	
Objective	The primary objective of the RIPE-SENSE project is to develop a mango quality grading system using image analysis and deep learning techniques. This system aims to accurately assess the quality and ripeness of mangoes, thereby enhancing the efficiency of mango production and distribution processes.
Scope	The RIPE-SENSE project focuses on developing and implementing an image analysis and deep learning-based solution for mango quality grading. It aims to enhance the accuracy and consistency of mango quality assessment by addressing challenges related to ripeness, size, and appearance variability across different mango varieties.
Problem Statement	
Description	RIPE-SENSE aims to resolve the challenge of accurately assessing mango quality and ripeness by introducing an objective grading system. Current subjective methods contribute to inconsistencies in the supply chain, hindering growers, distributors, and retailers from maintaining consistent quality standards and meeting consumer preferences.
Impact	RIPE-SENSE promises significant benefits across the mango supply chain, enhancing accuracy and efficiency in quality assessment, reducing waste and optimizing resource allocation. It enables growers to improve profitability through better harvest timing, while distributors and retailers can ensure consistent quality standards, enhancing consumer satisfaction and contributing to global mango industry sustainability and

	competitiveness.
Proposed Solution	
Approach	RIPE-SENSE employs image analysis and deep learning techniques to create an automated mango quality grading system, starting with diverse mango image dataset collection. The process includes preprocessing, model training using deep learning algorithms like CNNs, feature extraction, algorithm development, and validation to ensure optimal accuracy and efficiency.
Key Features	RIPE-SENSE integrates advanced image analysis and deep learning for precise mango quality assessment, reducing subjective judgment and streamlining grading. Its adaptable and scalable design ensures robust performance across diverse mango varieties and production scales, facilitating widespread adoption and enhancing efficiency within the mango industry.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	CPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Tensorflow, numpy, keras, matplotlib, seaborn
Development Environment	IDE, version control	Jupyter Notebook, Git
Data		
Data	Source, size, format	Kaggle dataset, 1100 images