

Project Initialization and Planning Phase

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| Date | 10 July 2024 |
| Team ID | 739713 |
| Project Title | Beansense: Precision Bean Classification For Enhanced Agricultural And Culinary Applications |
| Maximum Marks | 3 Marks |

Project Proposal (Proposed Solution) report

Develop an automated system using computer vision and spectroscopic analysis for accurate bean classification, aiming to optimize farming practices and culinary innovation globally.

| Project Overview | |
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| Objective | Develop a robust, automated classification system for beans integrating computer vision and spectroscopic analysis to enhance agricultural efficiency and culinary quality on a global scale. |
| Scope | This project aims to implement a scalable solution using advanced technologies to classify beans accurately, benefiting agricultural productivity and culinary creativity worldwide. |
| Problem Statement | |
| Description | Current methods of bean classification are inefficient and subjective, hindering agricultural productivity and limiting culinary innovation globally. |
| Impact | Improved bean classification will enhance crop yield, ensure consistent quality, and foster |

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| | culinary creativity, benefiting both agricultural economies and food industries worldwide. |
| Proposed Solution | |
| Approach | Develop a robust classification algorithm using machine learning and spectroscopic analysis to automate bean grading, aiming to improve agricultural efficiency and culinary quality globally. |
| Key Features | Utilize advanced imaging and machine learning for accurate, automated bean classification with real-time monitoring and cloud-based data access. |

Resource Requirements

| Resource Type | Description | Specification/Allocation |
|-------------------------|---|--|
| Hardware | | |
| Computing Resources | High-performance processors for running machine learning algorithms | Multi-core CPUs or GPUs (e.g., NVIDIA Tesla) |
| Memory | RAM required for data processing and algorithm execution | 32 GB to 128 GB |
| Storage | Storage for images, data, and models | 1 TB SSD for local storage, scalable cloud storage |
| Software | | |
| Frameworks | Machine learning and deep learning frameworks | TensorFlow, PyTorch |
| Libraries | Libraries for image processing, data analysis, and visualization | OpenCV, NumPy, Pandas, Matplotlib |
| Development Environment | Integrated development environment (IDE) and tools for coding and testing | Jupyter Notebook, Visual Studio Code, GitHub |
| Data | | |

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| Data | Source, size, format | Kaggle dataset, 614, csv UCI dataset, 690, csv |
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