

Ideation Phase

Brainstorm & Idea Prioritization Template

Date	31 January 2025
Team ID	LTVIP2026TMID91218
Project Name	Transferring learning for identifying rotten and fresh fruits
Maximum Marks	4 Marks

Step-1: Team Gathering, Collaboration and Select the Problem Statement

The first step of the project involved **team formation and collaborative discussion** to identify a real-world problem that could be effectively solved using machine learning techniques. All team members actively participated by sharing ideas, analyzing current challenges, and discussing the practical applications of emerging technologies.

During the brainstorming sessions, various problem domains such as healthcare, agriculture, and automation were explored. After detailed discussions and feasibility analysis, the team identified **food quality assessment** as a critical area due to increasing food wastage and the limitations of manual inspection methods.

The problem statement “**Identifying Rotten Fruits and Vegetables Using Transfer Learning**” was selected based on factors such as societal relevance, availability of image data, scope for applying deep learning, and potential real-time applications. The team collaboratively finalized the objectives, defined the project scope, and planned the overall workflow.

This step laid a strong foundation for the project by ensuring clear understanding, effective coordination, and a well-defined problem statement aligned with the project goals.



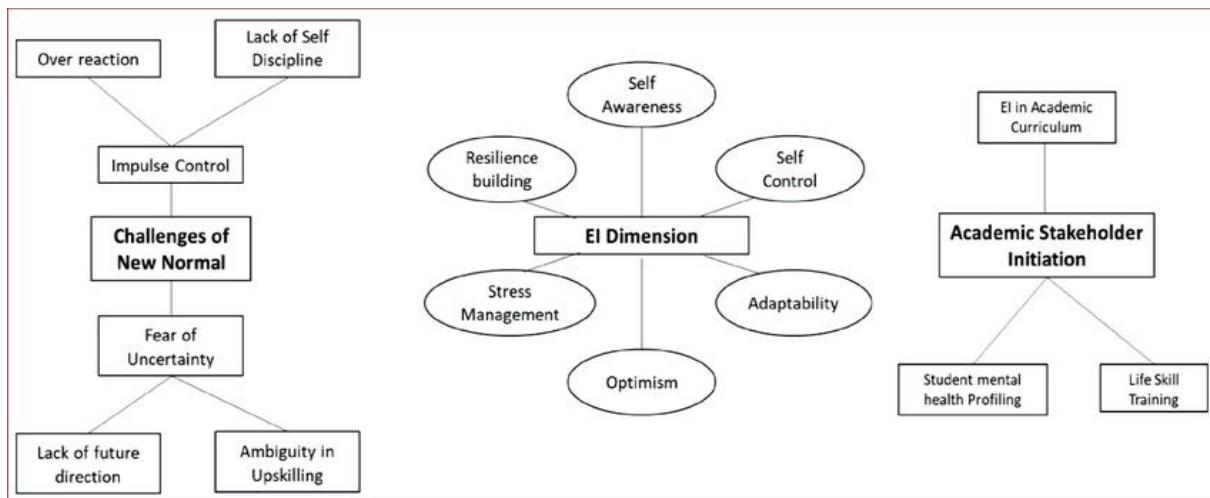
Step-2: Brainstorm, Idea Listing and Grouping

After selecting the problem statement, the second step involved brainstorming sessions to generate multiple ideas related to solving the identified problem effectively. Each team member contributed ideas based on their knowledge of machine learning, image processing, agriculture, and real-world constraints.

All ideas were listed openly without initial filtering to encourage creativity and innovation. These included approaches such as traditional image processing, machine learning classifiers, deep learning models, and the use of pre-trained neural networks. The team also discussed data sources, model feasibility, accuracy expectations, and deployment possibilities.

Once the ideas were listed, they were grouped and categorized based on similarity, complexity, and practicality. After careful comparison, transfer learning using pre-trained CNN models was identified as the most efficient and reliable approach due to its high accuracy, reduced training time, and suitability for limited datasets.

This step helped the team narrow down the best technical solution, align individual ideas into a unified approach, and create a structured plan for implementation in the next stages of the project.



Step-3: Idea Prioritization

In this step, the ideas generated during brainstorming were evaluated and prioritized to select the most suitable approach for implementation. Each idea was analyzed based on key criteria such as feasibility, accuracy, availability of data, computational requirements, time constraints, and real-world applicability.

The team compared traditional image processing techniques with machine learning and deep learning approaches. Based on this evaluation, transfer learning using pre-trained convolutional neural networks (CNNs) was given the highest priority due to its proven performance in image classification tasks and ability to work effectively with limited datasets.

A prioritization matrix was used to rank ideas according to impact versus effort, which helped the team focus on a solution that balanced efficiency and effectiveness. This systematic prioritization ensured that the selected approach aligned with project objectives and available resources.

Through this process, the team finalized transfer learning as the core methodology, establishing a clear and confident direction for subsequent stages of development and implementation.

Impact-Feasibility Matrix: Increasing business

