

## Ideation Phase

### Define the Problem Statements

Date	19 Feb 2026
Team ID	LTVIP2026TMIDS35861
Project Name	Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables
Maximum Marks	2 Marks

#### Smart Sorting – Problem Statement Template :

##### Statement:

Element	Content
<b>I am</b>	<b>A produce distributor, warehouse worker, or farmer handling bulk fruits and vegetables.</b>
<b>I'm trying to</b>	<b>Ensure that only healthy produce gets delivered to retailers and customers.</b>
<b>But</b>	<b>Manual inspection is inconsistent, labor-intensive, and delays processing.</b>
<b>Because</b>	<b>Subtle signs of spoilage are hard to detect quickly without specialized tools.</b>
<b>Which makes me feel</b>	<b>Worried about losing revenue, frustrated by inefficiency, and concerned about waste.</b>

#### PS-1 (Farmer/Distributor View)

Element	Content
<b>I am</b>	<b>A farm owner aiming to guarantee the freshness of my harvest.</b>
<b>I'm trying to</b>	<b>Rapidly separate spoiled items from good ones before shipping.</b>

Element	Content
But	Sorting by hand is slow and prone to mistakes.
Because	Rotten spots can be hidden or appear similar to minor bruises.
Which makes me feel	Stressed and anxious about customer complaints and returns.

## PS-2 (Technical Team View)

Element	Content
I am	A machine learning engineer working on solutions for agriculture.
I'm trying to	Develop a precise, reliable computer vision system for quality assessment.
But	Training models that generalize well to all fruit varieties is difficult.
Because	Images of spoilage vary in lighting, shape, and appearance across contexts.
Which makes me feel	Motivated to innovate and improve agricultural automation.

## Problem Statement:

Current sorting practices for fruits and vegetables are inefficient and prone to error, causing supply chain losses and customer dissatisfaction. There is a clear need for an advanced automated inspection tool that can accurately identify signs of spoilage across diverse produce types in real time.

## Proposed Solution:

This project applies deep learning techniques, specifically transfer learning on convolutional neural networks, to create a robust classification model. By training on

curated datasets of fresh and spoiled produce images, we will design a system capable of performing automated visual inspections during processing and packaging.