**Project Design Phase**

**Problem – Solution Fit Template**

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| --- | --- |
| Date | 22 June 2025 |
| Team ID | LTVIP2025TMID35598 |
| Project Name | Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables |
| Maximum Marks | 2 Marks |

**Problem – Solution Fit Template:**

We’ve addressed a key challenge faced by farmers, vendors, and supply chain managers: the difficulty of quickly and accurately detecting spoiled fruits and vegetables. Our AI-based solution, powered by transfer learning, automates this process—reducing waste, saving time, and boosting overall efficiency.

**Purpose:**

* **Support Key Stakeholders:**  
  Deliver an easy-to-use AI tool to help farmers, vendors, and distributors detect spoiled produce and reduce losses.
* **Ensure Accessibility:**  
  Use common devices like smartphones to enable adoption even in rural or low-tech areas.
* **Drive Trust and Adoption:**  
  Highlight benefits like reduced waste, better quality, and increased buyer confidence.

**Template:**

**6. CUSTOMER CONSTRAINTS**

* Low budget or cash flow issues
* Lack of digital literacy or AI knowledge
* Poor internet connectivity in rural areas

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**5. AVAILABLE SOLUTIONS**

* - Manual inspection by laborers
* Basic sorting machines (color/weight based)
* Chemical sensors (expensive)

### ****CUSTOMER SEGMENT(S):****

* Small-scale farmers
* Fruit/vegetable vendors
* Agricultural cooperatives

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**2. JOBS-TO-BE-DONE / PROBLEMS:**

* Reduce manual inspection time and labor costs
* Prevent mixing of fresh and rotten produce

### ****7. BEHAVIOUR****

### Manually sort and check each item visually

* Employ additional seasonal labor during harvest
* Dispose bulk quantities when spoilage is noticed late
* Use visual scales to grade fruits

### ****9. PROBLEM ROOT CAUSE:****

* Lack of affordable and accessible quality control tools
* High dependency on manual labor with low skill variance
* Supply chain delays lead to spoilage

### ****3. TRIGGERS****

High product returns due to poor quality

Customer complaints or health concerns

**4.EMOTIONS:BEFORE/AFTER:**

| **Stage** | **Emotion** |
| --- | --- |
| **Before** | **Stressed, uncertain, tired, overwhelmed, worried about loss** |
| **Ater** | **After: Relieved, confident, in control, satisfied, tech-savvy** |

### ****8. CHANNELS OF BEHAVIOUR****

#### ****8.1 ONLINE****

* Search for agricultural best practices on YouTube
* Watch training or demo videos on smart farming

#### ****8.2 OFFLINE****

* Attend farmer meetups, Krishi melas (agri fairs)
* Visit cooperative societies or agri-dealers
* Government training centers

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### ****10. YOUR SOLUTION****

### **Smart Sorting: AI-Based Detection of Rotten Fruits & Vegetables**

* Use transfer learning with MobileNetV2 to detect spoilage early
* Deploy on mobile/web app using camera capture
* Classifies items as “Fresh” or “Rotten” with confidence scores
* Easy-to-use UI for farmers/vendors

References:

1. <https://www.ideahackers.network/problem-solution-fit-canvas/>
2. <https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe>