**Title: Problem–Solution Fit Canvas 2.0**  
Team Id: LTVIP2025TMID35471  
Project ID: Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables

1. Customer Segment(s) (CS)

Households with modern smart-home setups—families who own smart refrigerators and seek to reduce food waste, save money, and improve kitchen management.

2. Jobs-to-be-done / Problems (J&P)

• Continuously monitor perishable produce for signs of spoilage  
• Avoid manual inspection of each fruit/vegetable item  
• Receive timely notifications before items go bad  
• Manage grocery consumption to reduce waste and cost

3. Triggers (TR)

• Discovering spoiled food unexpectedly  
• Rising household food-waste statistics  
• Desire to optimize grocery budgets  
• Frustration with manual checks every time the fridge is opened

4. Emotions: Before / After (EM)

Before:  
– Anxious about unseen spoilage  
– Guilty over throwing out rotten food  
– Overwhelmed by manual checks

After:  
– Confident that produce status is monitored  
– Relieved by timely smartphone alerts  
– Empowered to plan meals based on real-time freshness data

5. Available Solutions (AS)

• Manual visual inspection of contents  
• Basic “smart” reminders (calendar alerts)  
• Separate fridge-mounted humidity or temperature sensors  
• Meal-planning apps without per-item spoilage detection

6. Customer Constraints (CC)

• Budget limits for upgrading appliances  
• Privacy concerns—cameras inside the fridge  
• Technical comfort with installing and pairing new devices  
• Dependence on stable home Wi-Fi and smartphone connectivity

7. Behaviour (BE)

• Users open the fridge multiple times daily to check produce  
• They jot down or photograph items nearing spoilage  
• Rely on smell/feel tests for ripeness or rot  
• Discard food only after clear signs of decay

8. Channels of Behaviour (CH)

Online:  
– Smartphone app notifications  
– Email or smart-home assistant alerts

Offline:  
– Fridge interior display or LED indicators  
– Post-it notes on fridge doors

9. Problem Root Cause (RC)

Lack of automated, per-item spoilage detection in everyday refrigerators, forcing manual and error-prone checks that lead to overlooked rot or premature disposal.

10. Your Solution (SL)

An AI-powered smart-fridge module using transfer-learning (VGG16) on continuous image feeds:

1. Cameras inside the fridge capture periodic snapshots.
2. A lightweight CNN classifies each item as “fresh” or “rotten.”
3. Smartphone app pushes real-time alerts with confidence scores.
4. Dashboard suggests recipes for produce nearing spoilage to maximize consumption.

Conclusion

By embedding an AI classification pipeline within smart refrigerators and leveraging transfer learning for robust fruit/vegetable spoilage detection, households can automate perishables management—thereby cutting waste, easing cognitive load, and delivering tangible cost savings.