# Project Design Phase
# Proposed Solution Template

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| Date | 18 February 2025 |
| Team ID | LTVIP2026TMIDS80710 |
| Project Name | Smart Sorting: Transfer Learning for Identifying Rotten fruits and vegetables |
| Maximum Marks | 2 Marks |

**Proposed Solution Template:**

| S.No. | Parameter | Description |
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| 1. | Problem Statement (Problem to be solved) | Manual sorting of rotten fruits and vegetables in industries, supermarkets, and households is time-consuming, laborintensive, and often inaccurate. A reliable and automated solution is needed to enhance efficiency and reduce food waste. |
| 2. | Idea / Solution description | This project proposes a smart sorting system using transfer learning with the VGG16 model to identify rotten fruits and vegetables. The system uses cameras to capture images and classifies produce as fresh or rotten in real-time. It can be deployed in food industries, supermarkets, and smart homes. |
| 3. | Novelty / Uniqueness | The uniqueness lies in adapting a powerful pre-trained deep learning model (VGG16) for a specific use-case — detecting rottenness in various fruits and vegetables. Its transfer learning approach enables fast training, high accuracy, and effective deployment across different environments |
| 4. | Social Impact / Customer Satisfaction | -Helps reduce food wastage through early detection of spoilage.<br>- Increases operational efficiency in sorting processes.<br>- Ensures better quality and safety of food for consumers.<br>- Supports sustainable consumption practices. |

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| 5. | Business Model (Revenue Model) | **-B2B sales** to food processing plants and retail chains.<br>- **Subscription-based model** for smart home users.<br>- **Licensing model** for agricultural and logistics companies. |
| | | - Future potential for integration with mobile apps for real-time monitoring |
| 6. | Scalability of the Solution | The solution is modular and scalable. It can be retrained for different produce types and deployed in diverse sectors—from industrial scale processing units to home refrigerators. It supports cloud-based updates and continuous learning with minimal setup. |