**Project Design Phase**

**Solution Architecture**

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| Date | 27 June 2025 |
| Team ID | LTVIP2025TMID41465 |
| Project Name | Smart Sorting:Transfer Learning for  Identifying rotten fruits and vegetables |
| Maximum Marks | 4 Marks |

**Solution Architecture:**

* The **business problem** is the manual, time-consuming, and error-prone process of identifying and sorting rotten fruits and vegetables in agricultural, retail, and domestic environments.
* The **project uses computer vision** powered by **transfer learning with the VGG16 deep learning model**, trained on datasets of fresh and rotten fruits/vegetables to automate this identification process.
* The **system captures real-time images** of produce using camera devices installed in conveyor systems, supermarket docks, or refrigerators.
* These images are **preprocessed** and passed through a **fine-tuned VGG16 model**, which performs binary classification (Fresh vs Rotten).
* The architecture includes **data acquisition (image capture), preprocessing (resizing, normalization), model inference (VGG16), and user interaction** (through dashboard or mobile app alerts).
* Deployment is supported via **Raspberry Pi for edge devices**, **Flask for interface**, and **cloud or local deployment** depending on use-case (industrial, retail, or smart home).

.**Example - Solution Architecture Diagram and flow diagram**

