**Customer Journey Map**

This map outlines the key steps a fruit vendor, farmer, or storage handler follows while using the Smart Sorting system to identify and sort rotten fruits using image-based classification. It maps their real-world actions with how the ML model and system interact behind the scenes, ensuring seamless user experience and quality output.

| **Steps** | **Customer Action (Detailed Scenario & Intent)** | **System Interaction (ML & Classification Process)** |
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| **1** | Captures fruit images using phone or webcam. The user wants to quickly check if fruits are fresh or rotten without manual inspection. | The system accepts input images through a simple UI (e.g., upload or drag-drop). The image is preprocessed (resized, normalized) and passed to the model. |
| **2** | Submits image for analysis. The user expects a clear result with minimal wait time. | The pre-trained CNN (e.g., VGG16) processes the image and classifies it as **Fresh** or **Rotten** using transfer learning. The prediction confidence (e.g., 92%) is also returned. |
| **3** | Views classification result. The user checks whether the fruit is fresh enough to sell or store. | The system displays the output label with confidence and optionally a visual indicator (green/red badge) for clarity. |
| **4** | Decides sorting action based on result. If the result is "rotten," they remove it from the batch. | No further system interaction is needed. The prediction supports quick, confident decision-making without deep technical knowledge. |
| **5** | Repeats process for other fruits. The user wants to finish sorting quickly and consistently. | The model allows batch classification or repeated use without restart. Response time remains under 3–5 seconds per image for real-time usability. |
| **6** | Provides feedback or reports inconsistency. The user may spot misclassified items and wants to suggest improvement. | User feedback is optionally logged. Misclassified images can be saved to improve the training dataset in future iterations of the model. |
| **7** | Adopts model into regular workflow. The user builds trust and prefers using Smart Sorting regularly to reduce manual sorting. | The model remains lightweight and works on standard devices, ensuring long-term usability. Further improvements can be deployed without changing the UI. |