FreshTrack AI: Predicting Fruit Freshness in Real-Time

Submitted By – Junu Jahana

🏆 Building AI Challenge

Proud participant in the building AI application challenge.

📅 8-Day Sprint

Developed and deployed within the aggressive timeframe.

🍎 FreshTrack AI Demo

A ready-to-use AI application for fruit freshness prediction.

I'm delighted to be part of the Building AI Application Challenge and excited to share FreshTrack AI, an AI application that predicts the freshness of fruits instantly.

Addressing the Freshness Challenge

Why fruit freshness prediction is a critical problem for the supply chain, retailers, and consumers.

Traditional Methods are Inefficient

Manual checking of fruit quality is **slow, inconsistent,** and often reliant on subjective human judgment, leading to waste and inaccurate inventory.

The High Cost of Spoilage

Rotten produce results in significant financial losses for retailers and leads to increased food waste globally, impacting sustainability goals.

Consumer Demand for Quality

Customers expect optimal quality and longer shelf life, making reliable freshness assessment essential for brand trust and satisfaction.
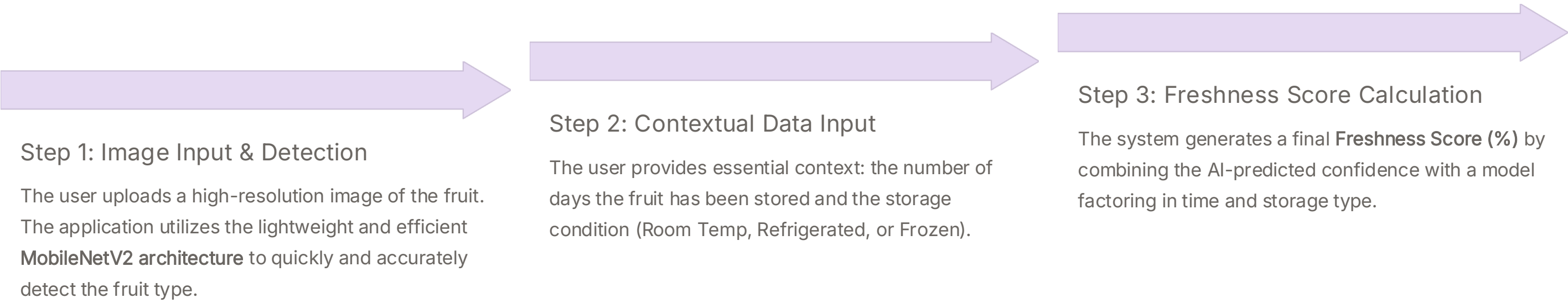
FreshTrack AI: The Automated Solution

FreshTrack AI provides a fast, automated, and user-friendly mechanism to assess fruit freshness objectively and consistently.
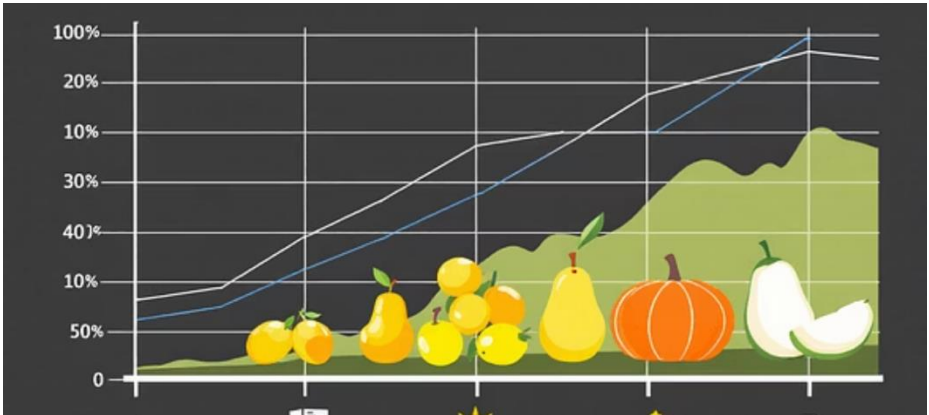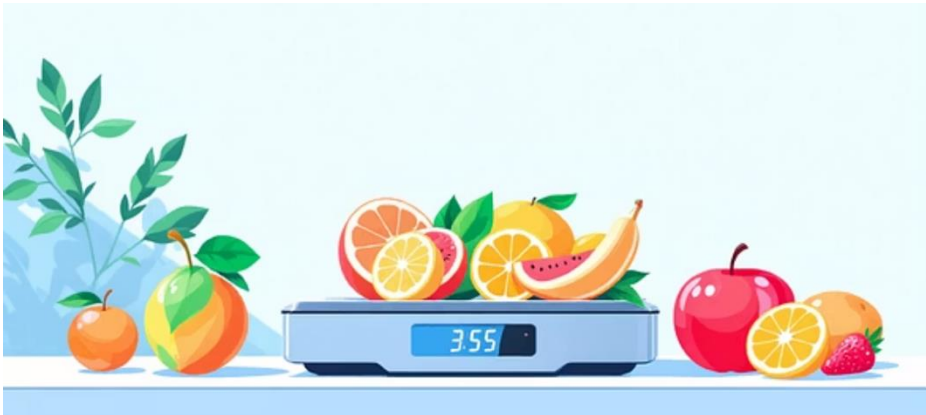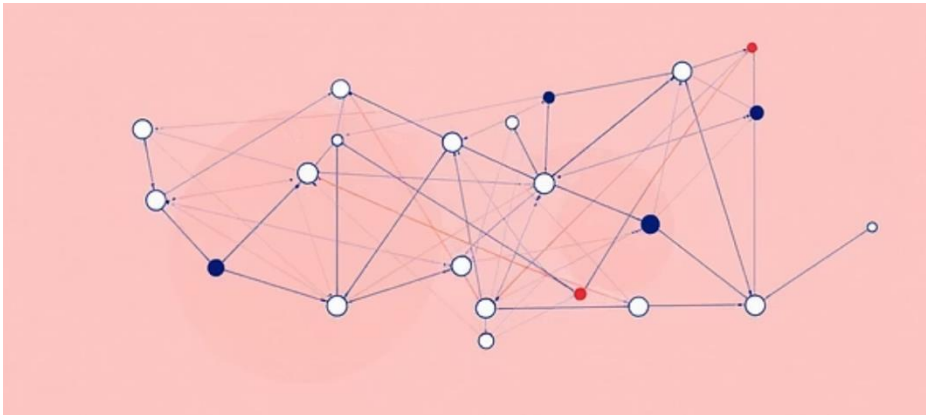
FreshTrack AI: How It Works

The application uses a hybrid approach, combining computer vision for fruit identification with user input for a nuanced freshness score.
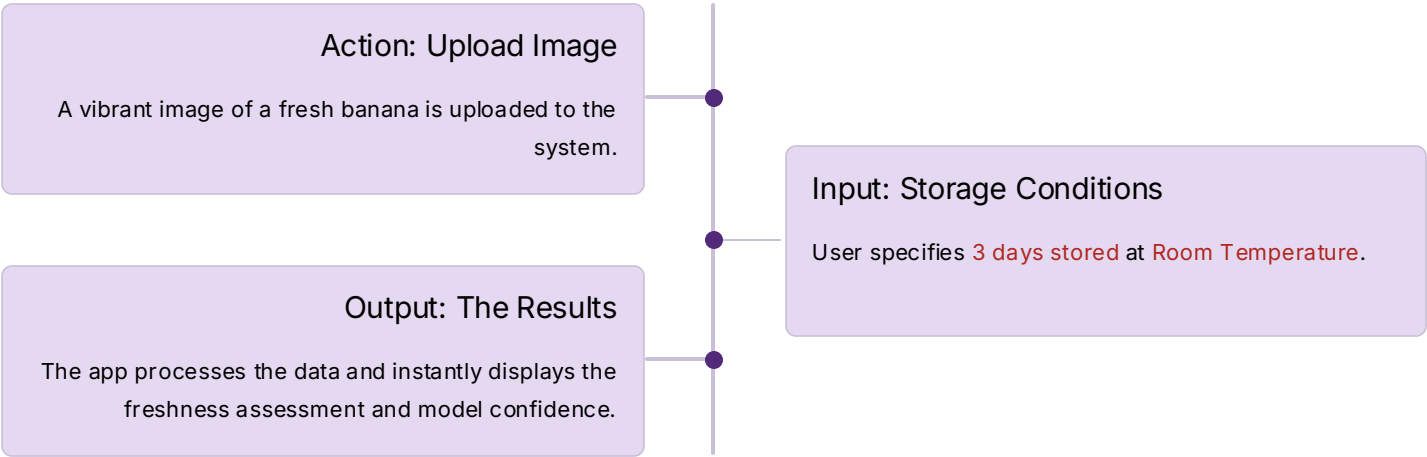
Step 1: Image Input & Detection

The user uploads a high-resolution image of the fruit. The application utilizes the lightweight and efficient **MobileNetV2 architecture** to quickly and accurately detect the fruit type.

Step 2: Contextual Data Input

The user provides essential context: the number of days the fruit has been stored and the storage condition (Room Temp, Refrigerated, or Frozen).

Step 3: Freshness Score Calculation

The system generates a final **Freshness Score (%)** by combining the AI-predicted confidence with a model factoring in time and storage type.

The result provides an instant three-part insight: the fruit type, the computer vision model's confidence in its detection, and the estimated freshness score.

Real-Time Demo Showcase: The Fresh Banana

A step-by-step walkthrough demonstrating the speed and accuracy of FreshTrack AI using a common scenario.

Action: Upload Image

A vibrant image of a fresh banana is uploaded to the system.

Input: Storage Conditions

User specifies 3 days stored at Room Temperature.

Output: The Results

The app processes the data and instantly displays the freshness assessment and model confidence.

https://huggingface.co/spaces/junujahana/FreshTrack_AI

Thank You!