IntelliCART

AI Enabled Smart Cart

Final Year Project – 1 2023

National University of Computer and Emerging Sciences Karachi Campus

Abstract

Our project, the "IntelliCART aka Smart Cart," empowers consumers with real-time freshness assessments, validated pricing, and cart location services via a mobile app. This innovative solution aims to enhance transparency, trust, and health in the fresh produce market, creating a better buying experience for all.

Introduction

In a world where the quality of our food choices matters more than ever, the " IntelliCART aka Smart Cart " project emerges as a beacon of innovation. This project addresses the challenges faced by consumers in the Fruits and Vegetables market, where transparency, trust, and health are paramount. Our mission is to revolutionize the way people buy and consume fruits and vegetables, making it an experience that's not just fresh but also fair and informed. Welcome to a new era of produce shopping.

Objective	Approach for achieving the objective
Develop a Robust Freshness Assessment Algorithm	Use computer vision to find features like colors, textures, and any signs of damage.
Integrate Cloud technology, Deep Learning and ML Algorithms	Implement cloud technology for efficient image processing; deploy deep learning and ML models for real-time freshness assessment.
Incorporate Government-Induced Price Validation	Develop feature to match displayed prices against government-regulated price data, guaranteeing transparency
Implement GPS-Based Location Services	Integrate GPS functionality into the app for identifying nearby fruit carts for each customer
Create an Mobile Application	Design a user-friendly mobile app with real-time freshness information and all above mentioned features.
Evaluate System Performance and User Satisfaction	Conduct testing to assess freshness, price validation , GPS accuracy, and take user feedback.

Proposed Scenario

The proposed mission tackles critical challenges in the modern fresh produce market. Consumers often face uncertainty about the quality and pricing of fruits and vegetables from mobile carts due to limited transparency. Traditional methods of assessing freshness rely on subjective vendor knowledge. Our system uses computer vision to provide objective assessments, considering factors like color, texture, and spoilage. Government-imposed pricing ensures fair practices. The mobile app offers real-time data on freshness and pricing, complemented by GPS guidance to nearby fruit carts. Cloud-native deep learning and machine learning algorithms enable real-time image analysis, making our system one of the most advanced and user-friendly solutions, benefiting both consumers and vendors.
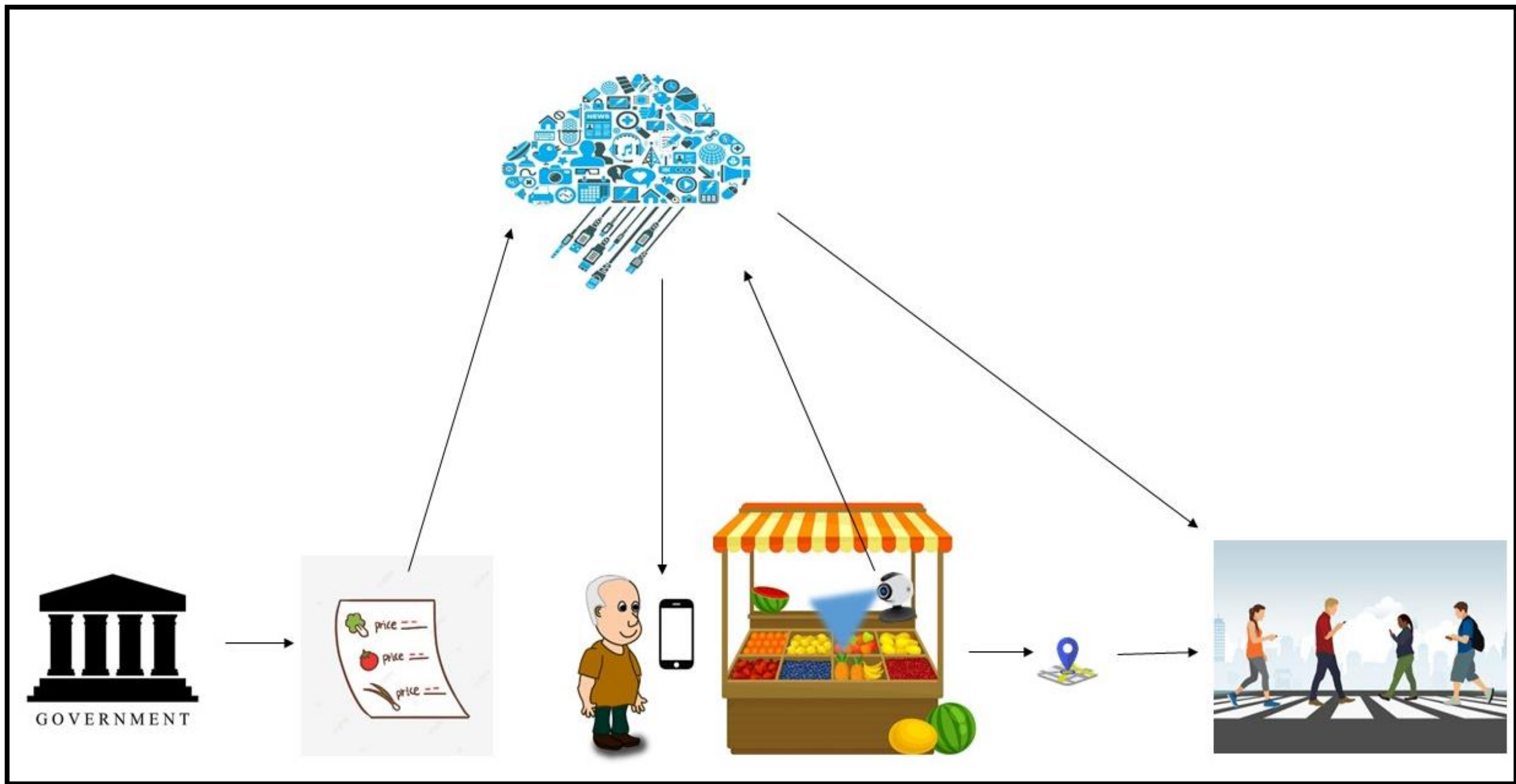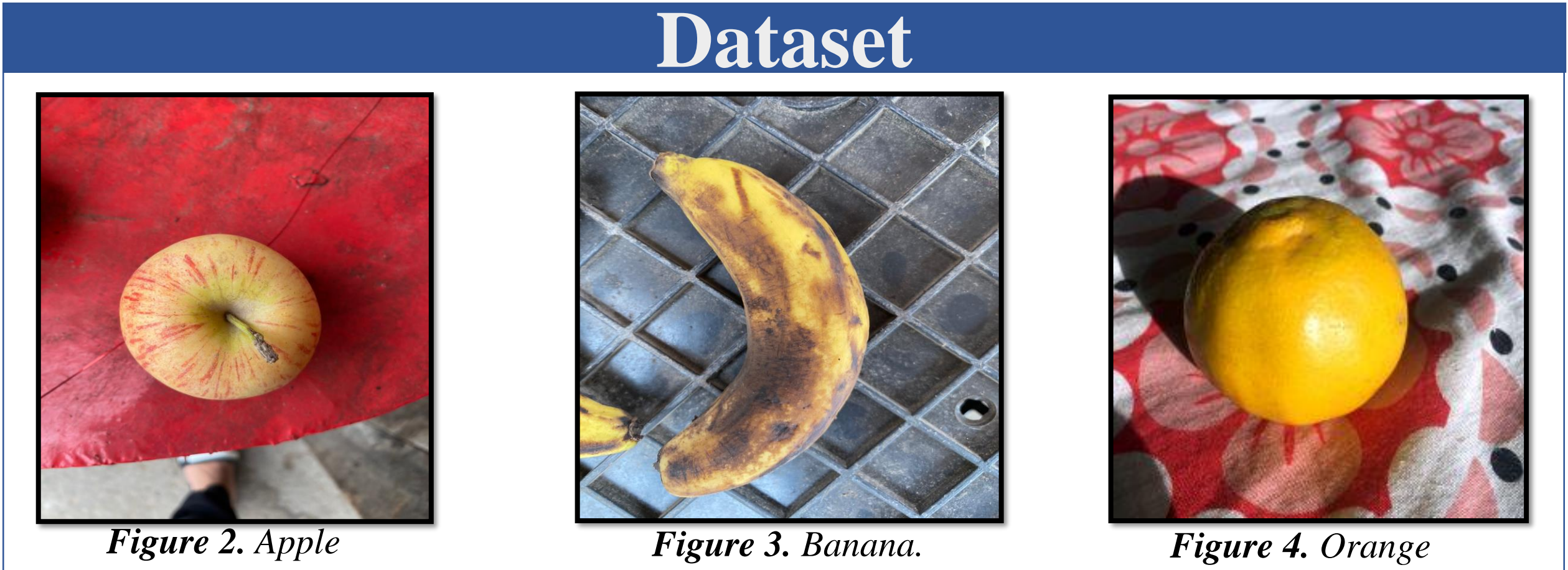
Figure 1. Scenario of Proposed Work

Dataset

Figure 2. Apple | *Figure 3. Banana.* | *Figure 4. Orange*

Conclusions

Our proposed solution is an important step towards addressing demand for fresh and healthy food with the authenticity of prices. Our solution involves modern cutting edge technologies that includes computer vision, cloud, application development, and (GPS) to provide customer with freshness and price validation transparency. All above mentioned technologies merging in single platform will result in customer vendor strong relationship build on trust and fair market competition among vendors.

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