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Apples and Plums and Tomatoes! Oh My!

How Fruit Classification Technology Will Transform the Grocery Industry

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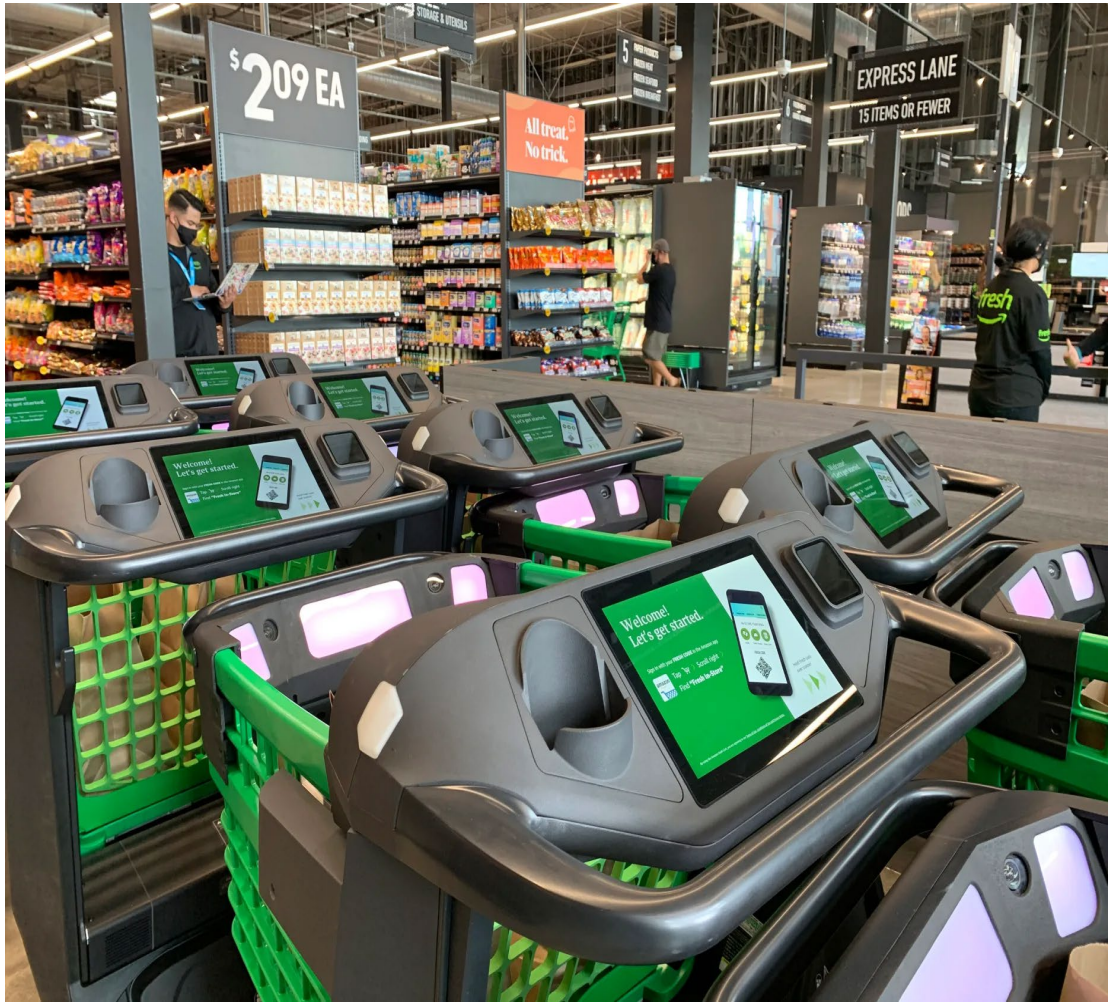
4/7/23

Business Case

Grocery stores are consistently looking for new ways to improve the shopping experience



Improved Customer Service:

- Streamlined grocery shopping experience
- Personalized coupon offers
- Suggestions based on what is already in the cart

Business Value:

- Tracking consumer trends at both the macro and personal levels
- Predictive pricing to stay ahead of volatile customer demand
- Frees employees to focus on personal interactions with customers, restocking items, and keeping store clean

Market Analysis: "Loyalty and personalization are more important than ever. Grocers are improving their share of wallet with omnichannel shoppers by expanding their capabilities in personalized promotions and product recommendations." -McKinsey

Methods & Results

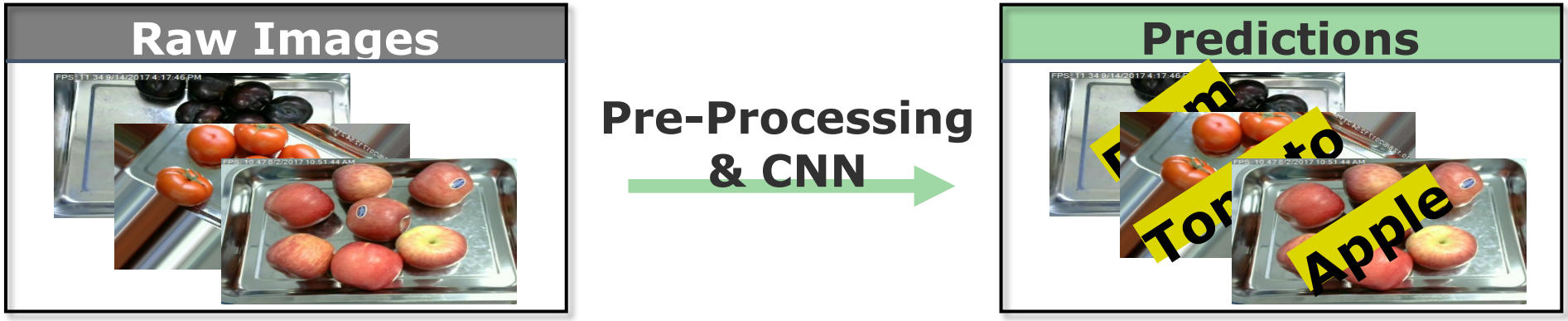
The model was constructed in three phases and produced an encouraging outcome

How the Model was Constructed:

- Imported the data from Kaggle's Fruit Image Dataset.
- Pre-Processing Stage:
  - Deleted Apple image folders "D", "E", and "F" to avoid imbalanced classes
  - Resized & normalized the images
  - Clean dataset included a total of 6915 images
- Convolutional Neural Network (CNN): A deep learning algorithm (3+ layers) that accepts images as inputs and extracts their important features to differentiate between objects.

Model Outcomes:

- Training the model on 5 epochs with 10 sets each, batch size of 50 images - took 11:16 minutes
- When checked against the test set, the model posted a ~90% accuracy rate



Recommended Next Steps

Iteration	Functional	Type Specific	Comprehensive	Connected to Pricing Structure
MVP	✓			
Iteration #1	✓	✓		
Iteration #2	✓	✓	✓	
Iteration #3	✓	✓	✓	✓