Reimagining the Customer Experience at Instacart

Instacart x TKS

EXECUTIVE SUMMARY

PROBLEM

Customer complaints root from errors made by shoppers due to lack of certain features in the **shopper's app**. The main issues faced here are incorrect and missing items, difficulty navigating the store and inability to pick correct produce.

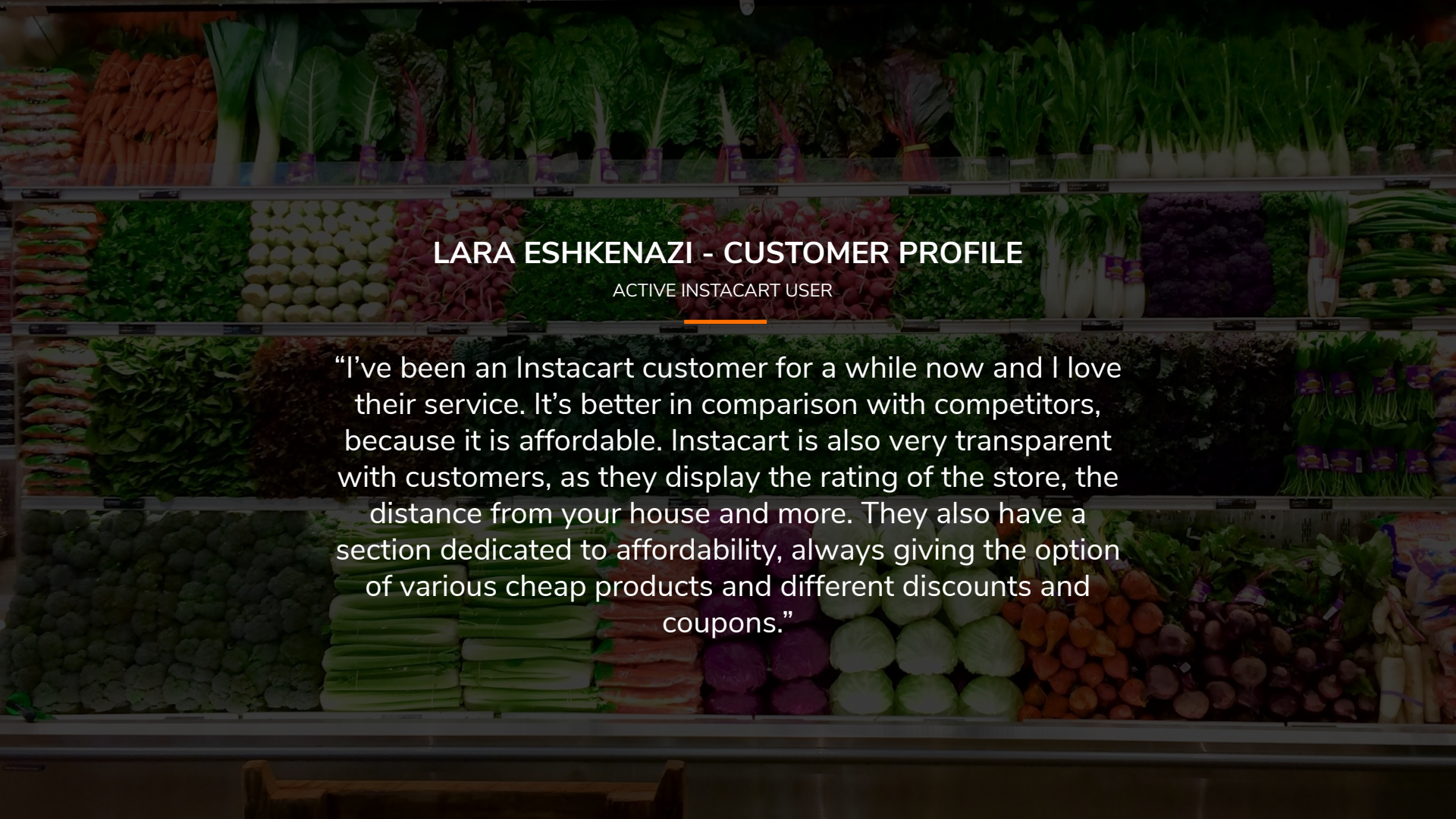
RECOMMENDATION

Improve shopper's app with **3-part plan** that is simple, but highly impactful in improving customer experience.

1. Optimization for shopper's batches
2. Enhanced system for navigating stores
3. AI system to detect ripe/unripe produce

OUTCOME

Our 3-part plan aims to reduce the likelihood of many common customer complaints and **increase customer satisfaction**. Results will include less incorrect and missing items, faster deliveries, produce fit to customer's liking and increased trust with customers.



LARA ESHKENAZI - CUSTOMER PROFILE

ACTIVE INSTACART USER

"I've been an Instacart customer for a while now and I love their service. It's better in comparison with competitors, because it is affordable. Instacart is also very transparent with customers, as they display the rating of the store, the distance from your house and more. They also have a section dedicated to affordability, always giving the option of various cheap products and different discounts and coupons."

Despite this, Lara’s experience hasn’t been perfect. Here are some issues she has encountered:

01

DELIVERY

The delivery comes late and it takes longer than usual. The time estimations are off (i.e. says that it will take 15 mins but ends up taking 45 min- 1 hr). Compared to the competitors, you should be getting faster delivery service.

02

PRODUCE

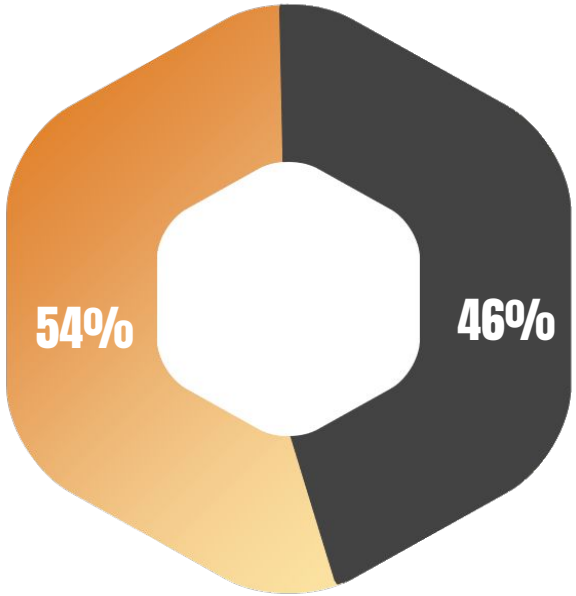
Instacart does not give the option of letting the customer choose how ripe they want their fruit. This creates an inconvenience, because it shows that the shoppers aren’t putting enough care in the quality of produce.

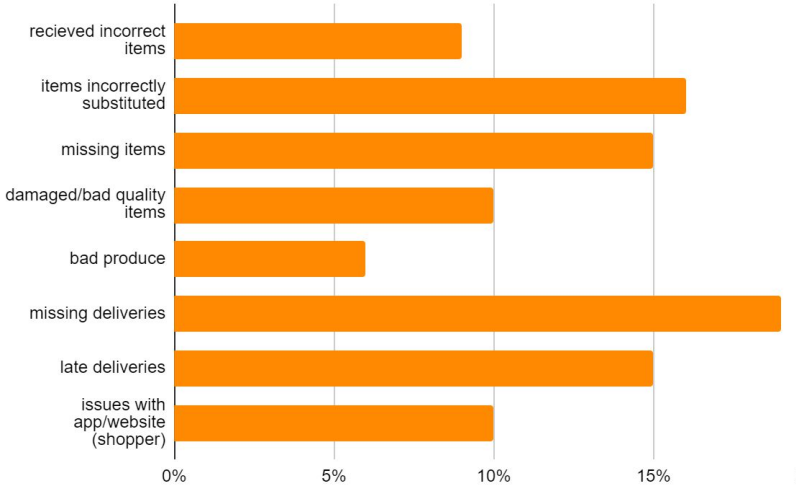
03

NAVIGATION

The customer can solely monitor the car and not when the shopper is inside. This is problematic for the customers, because the shoppers don’t know which aisle to go to.

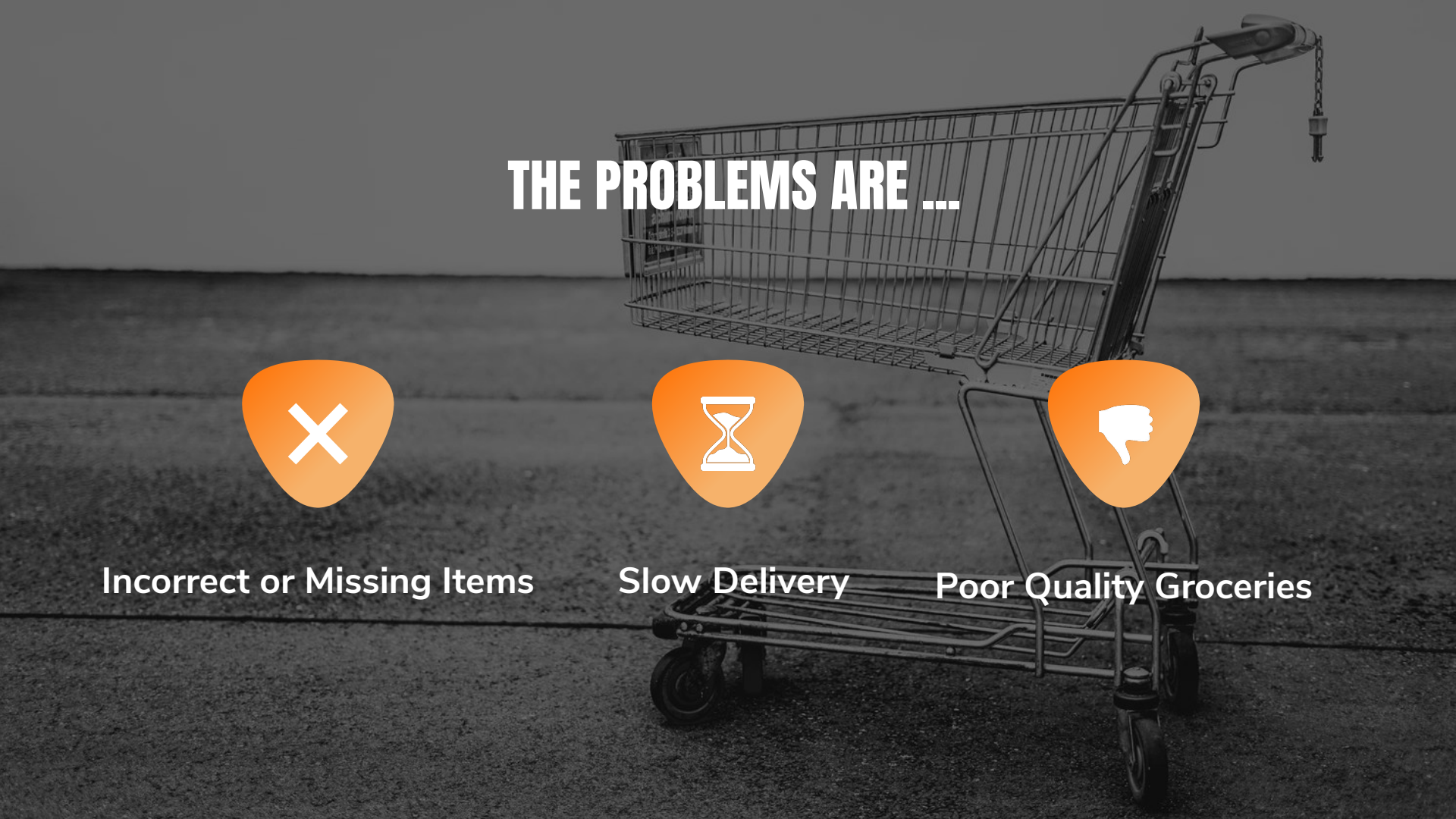
What is happening today?





Other Shopper error

Majority of these shopper error reviews are due to lack of knowledge when selecting and handling food items or late deliveries. This is the effect of an app for shoppers which doesn't provide sufficient information about specific produce/ food items, and a lack of features to make the energy intensive job of a shopper easier/more efficient.


THE PROBLEMS ARE ...
Incorrect or Missing Items
Slow Delivery
Poor Quality Groceries

Incorrect/Missing Items

?

1852 out of 5624 customer complaints surround the issue of incorrect orders which includes missing items.

33%

As a valued customer using the instacart app, the least customers would expect from this company is all of the items which they ordered.

However, due to shoppers rushing, not knowing where items are located, and opting for the easier way of substituting items without contacting customers, Instacart is losing customer trust

Slow Delivery

953 customer complaints of 5624 complaints stem from slow delivery. Instacart is distinguished from competitors such as Shipt, FreshDirect and Amazon Fresh through its reputation for fast delivery.

Many instacart customers have high expectations for when their groceries arrive and are more agitated when shoppers are slow and don't fulfill the 1- hour delivery time which Instacart is known for.

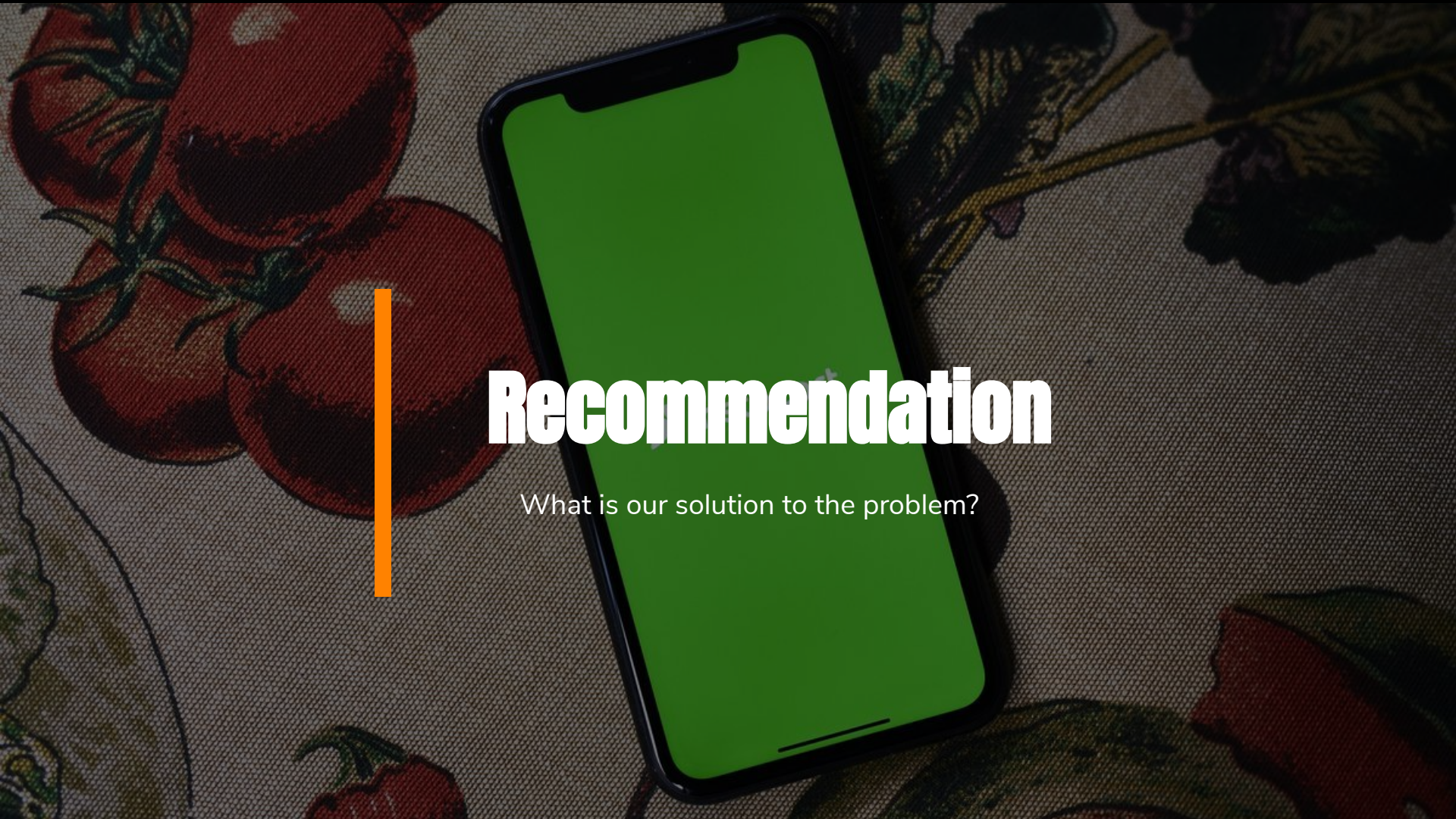
Subsequently, this task against the clock challenges shoppers resulting in slow deliveries or even deliveries that never make it to the customer's doorstep. As a result, customers either shop in person or switch to other competitors.

Poor Quality Produce

116 out of 5624 customer complaints surrounds poor quality produce and the inability of shoppers to pick the correct produce. Examples of this include rotten bananas, unripe avocados and plantains
instead of bananas.

Many customers order groceries for cooking or following recipes. If they receive unripe, rotten or just overall poor quality produce, they are paying for unusable items which may be excluded from their recipe or prevent them from making the recipe overall.

Shoppers are picking produce for customers, meaning they are being trusted and relied upon to pick good quality produce that customers are able to use and are satisfied with. Shoppers who rush through this process end up losing customer/company trust and decrease customer satisfaction.



Recommendation

What is our solution to the problem?

Shopper app.


instacart
16:32
App Store
Search Price Chopper
1
Produce
Dairy & Eggs
Frozen
Snacks
Pantry
Beverages
Shop
Explore
Savings
Your Items

An Overview

BATCH DISTRIBUTIONS

An AI system that uses a machine learning algorithm to optimize which batches are best for shoppers to take.

NAVIGATION TOOL

An indoor positioning system that allows for easy navigation in the store, which allows for faster delivery time.

PHOTOFOOD

Using hyperspectral imaging, computer vision and deep learning to ensure for quality produce.

1. Batch Distribution

So far ...

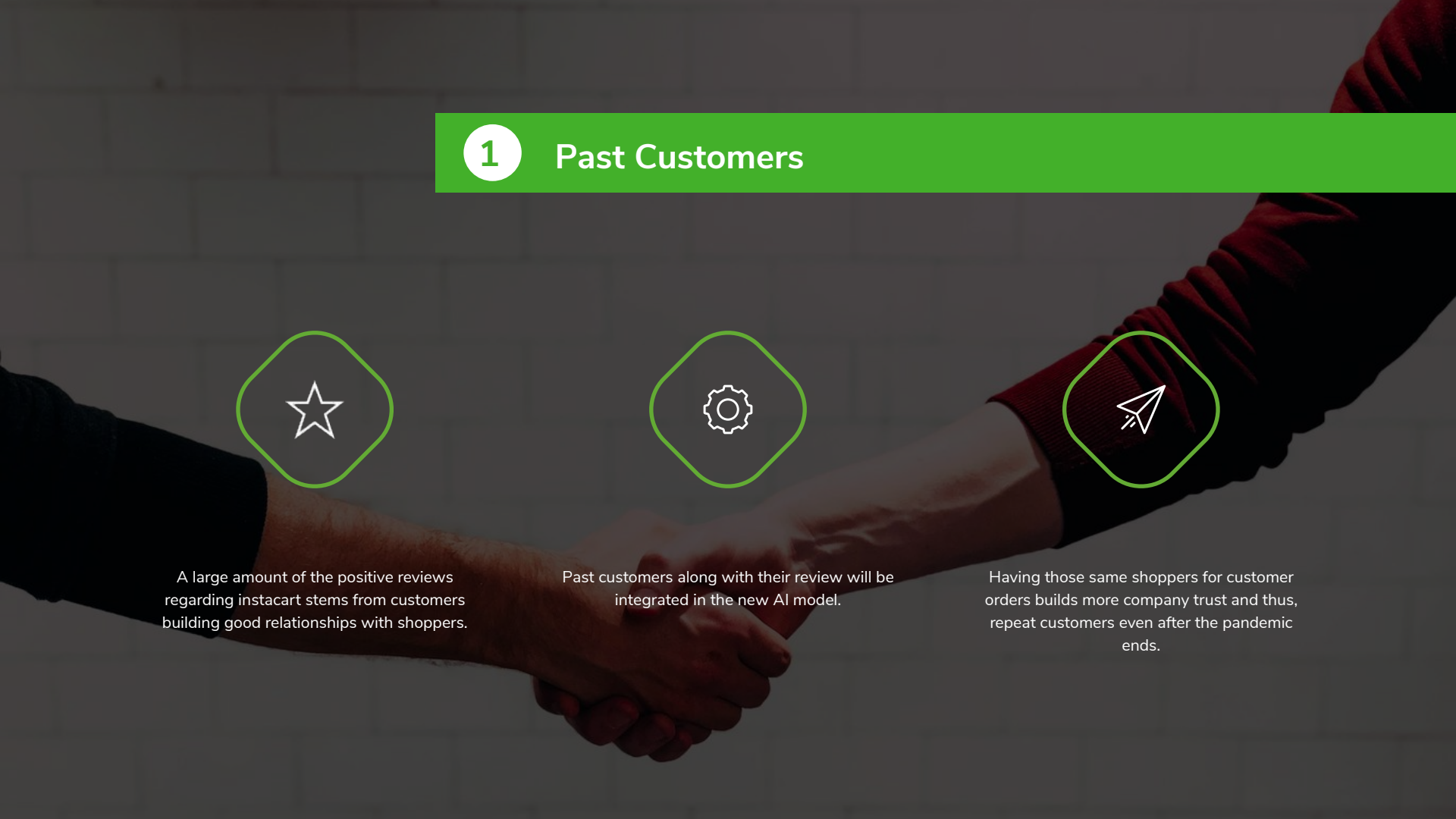
Based on the research that was conducted, it was assumed that Instacart distributes batches based on the location of the shopper and the rating of the shopper. In order to improve the current batch distributions,

Instacart can implement an AI system that uses machine learning algorithm to optimize which batches are the best for shoppers to take. This would include distance/location of the shopper, ratings and ...

1 Past Customers

2 Past Stores

1 Past Customers



A large amount of the positive reviews regarding instacart stems from customers building good relationships with shoppers.

Past customers along with their review will be integrated in the new AI model.

Having those same shoppers for customer orders builds more company trust and thus, repeat customers even after the pandemic ends.

2 Past Stores

One of the biggest things that sets Instacart from its competitors is that it delivers groceries “instantly”.

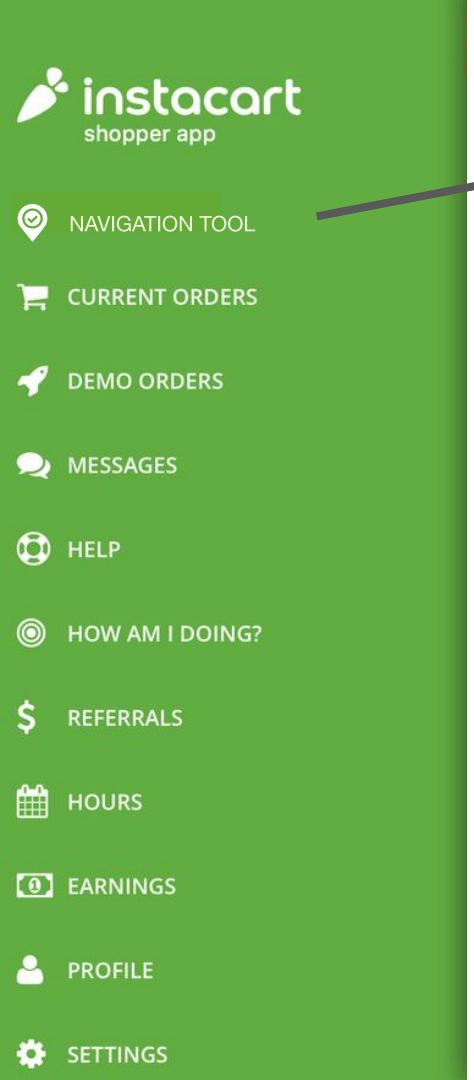
Based on the stores a shopper has shopped at often and integrate this into the machine learning model. A shopper who is more familiar of a store more often can be trusted to know the store better than other shoppers and find items quicker, therefore having a lower chance of incorrect/missing items and late deliveries.

The system can take this into account and suggest more batches from a store a shopper has shopped at often to that shopper.

Meet Anya

"I loooved this shopper the first time I had her few months ago, and I remember her name and her picture and this second time I got her she was just as thoughtful, and kind and I would love if there was an option for us to pick a specific shopper because I would totally order whenever she was shopping!"

2. Navigation Tool



NAVIGATION TOOL

GPS systems don't work inside buildings. Instead of this, indoor positioning can be used for in-store navigation for shoppers. There are 2 methods that Instacart can use for indoor positioning:

01 **BLUETOOTH LOW ENERGY (BLE) BEACONS**

02 **WIFI POSITIONING**

BLUETOOTH LOW ENERGY BEACONS

Bluetooth Low Energy (BLE) Beacons are **one of the most widely used methods of indoor positioning**. This system relies on these beacons that are placed around the area on walls, ceilings, etc. These devices are small, cheap, have a long battery life and don't require an external energy source. They additionally have a low deployment cost and can be used in many different mobile devices.

They emit radio signals up to a range of **10-30 metres** at intervals that devices in the area can detect when they are within range of each other and this helps to estimate location. The accuracy of location increases with the number of BLE beacons, as it can more accurately pinpoint specific location.

After determining that both objects are near each other, **Received Signal Strength Indicator (RSSI)** can be used to determine the distance between them. RSSI essentially measures signal strength, which determines distance as when a device is nearer to the BLE beacon, the RSSI will be stronger. These factors allow a device to estimate its location, and using this system will allow shoppers to easily and accurately navigate inside the store.

Many stores already have a BLE beacon system in their locations. For these stores, Instacart can use a BLE beacon based indoor positioning system. For stores without BLE beacons already implemented, Instacart can use Wifi Positioning to allow shoppers to navigate in stores.

Wifi Positioning

This indoor positioning system uses Wifi signals to pinpoint a device's location. It measures the RSSI of WiFi signals and based on how strong it is, the device's location is determined. WiFi access points are already located in many stores, eliminating the need to install beacons. The range is a little less than BLE beacons, at around 5 to 15 metres. This method of indoor positioning can be used in stores that don't already have BLE beacons installed.

mapsindoors Apps

Contact MapsIndoors to implement navigation system. This company has an app with an indoor positioning system that allows for easy in-store navigation. This system can be integrated into the Instacart shoppers app or Instacart can implement a similar system into the app.

3. PhotoFood

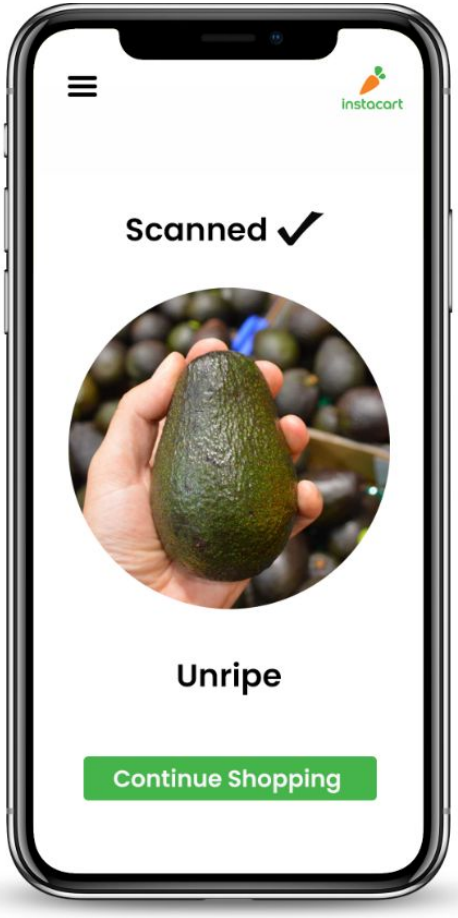
HOW IT WORKS

Photofood uses **computer vision**, **AI** and **hyperspectral imaging** to detect if food are **unripe** or **contaminated**. This technique uses hyperspectral cameras, which cover a wider spectrum that allows for it to see beyond what humans can see.

However, not everyone has hyperspectral cameras. This is where we convert RGB images to hyperspectral images using **deep learning**.

A GAN or generative adversarial network can be used to convert RGB images. This model consists of two AIs, the **generator** and the **discriminator** where the the generator tries to make hyperspectral images from an RGB photo and the discriminator has to differentiate between the actual hyperspectral image (taken with a hyperspectral image) and the converted image. As a result both models are trained.

Hyperspectral cameras can be used to detect bruises, freshness of fish, the sugar distribution in melons and more. It can also tell us the product's expected shelf-life and any contamination that may be present.



This allows for instant assessment of the quality of food, which ensures customer satisfaction.

Implementation

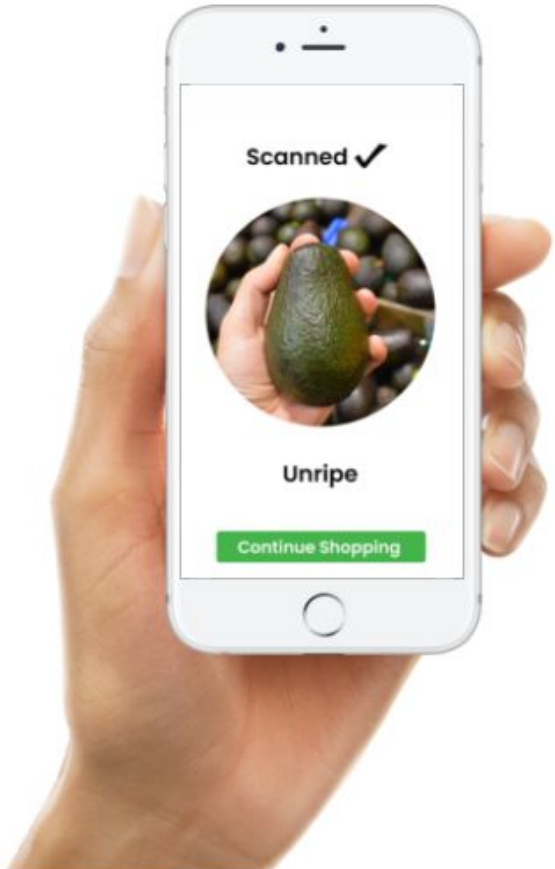


Figure out how to convert RGB to hyperspectral images.

Contact Dr. Mohamed Hefeeda for information on hyperspectral imaging conversion for PhotoFood.

Develop AI systems (one for conversion, another for identification of contaminated or unripe food)

Train the AI algorithm to convert RGB to Hyperspectral and to identify when foods are contaminated or unripe.

Launch on shopper app!

On a personal note...

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