

Grocery Shopping

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Activity Domain and Motivation

Voting on an Activity Domain

Planning camping
Planning international trips
Planning hikes
Managing pets
Menstrual cycle management +1+1+1+1
Online Shopping +1+1+1
Digital Organization
Doing makeup
Apartment Shopping
Money management (Ph.D. Students)
Time management (Ph.D. Students)
Stress Management (Ph.D. Students)
Self care management

Problem Statement:

*This project aims to understand the ways in which young people do grocery shopping - **delivery or pick up or offline - the traditional way**. In this project, we hope to bring an ethnographic eye to what has become a regular and somewhat mundane activity to most adults, but one which has a variety of ritualistic practices and information systems integrated into it. We are particular interested in young adults because as more tech-savvy individuals they are likely to approach grocery shopping in a number of different ways.*



Grocery shopping (in early adulthood --> aged 18-34)

Rationale:

- Not difficult or uncomfortable to talk about for most people, but not something that people always think about actively.
- Very informed
- Lots of compelling questions: How do people plan to go online shopping? How do people originally search for items?, how much do people trust star rankings, what other indicators denote trustworthiness?, How do people search for coupons or other ways of saving money?, Do people leave reviews? Why? How do people save digital receipts? Why? How?
- Something we have all had experience with.
- It would be interesting to understand **offline and online** grocery shopping experience among young people (e.g., trends of platform preferences, shopping behavior patterns or habits, among others).

Key Literature Review

- Consumer behavior can be considered to encompass **five core stages** of the **consumer decision-making** process: **problem recognition, search, alternative evaluation, purchase and outcomes**.
- **Pricing** in online **grocery stores** or through use of **apps** can allow for **more data availability and flexibility** for consumers.
- Online grocery shopping is on the rise all over the world and has become a **convenient** option for specific situations. People choose to **shop online** if they didn't have the **time, transportation, support and cost** to shop in person.
- Contrary to other readings, at least one paper found **online sources** were not often mentioned as factors that influence the everyday information behavior inside the grocery store, despite what other studies had found, especially among college students

Interview Protocol

- **First Block: Introduction**
 - Introduce ourselves, the work that we are doing, asking for permission
- **Second Block: Informant Introductions and High-Level Prompting about Activity**
 - Could you please introduce yourself?
 - What are you looking to shop today?
 - How often do you go grocery shopping?
- **Third Block: The Focus of the Study: The Activity (example, grocery shopping)**
 - Pre-Shopping Activity (this sub-block will be used in the examples below)
 - Do you have a list of items? How are you keeping track of everything you want to buy?
 - Shopping Activity
 - Do you make spontaneous decisions to buy products at the moment? Why did you decide to do this?
 - Post Shopping Activity
 - How do you feel after your grocery list ? Do you feel like you got everything?"
- **Fourth Block: Wrap-Up**
 - Demographic information
 - Thanking the informant for their time

Preparation Work

Following the **toolkit list** of ethnography study we created earlier this semester, we did our preparation work before "entering the field." For example, we

- Checked weather using weather apps on our phones
- Checked audio recording apps (e.g., voice memo on Apple phones)
- Printed/got ready the interview protocol
- Got note-taking materials ready (e.g., notebooks and ipad)
- Checked availabilities and transportation needs with informants



Informants' pseudonyms	Self-reported age	□	Self-identified gender	Self-reported race/ethnicity/nationality	Interviewer	When and where conducted interviews
11	35		Male	Asian/Korean	Tian	April 13, 4:40PM-5:45PM @Trader Joe's
12	35		Female	White	Noah	April 15th 12:20pm-1:30pm Safeway on Iris and 28th
13	30		Male	Indian	Noah	April 17th 4:55-6:05pm Whole Foods Pearl
14	26		Woman	Caucasian	Tian	April 17, 9:00AM-10:05AM @King Soopers
15	23		Male	Indian	Deepika	April 18, 5:30PM - 7:45PM @ King Soopers and India Bazaar
16	24		Woman	Indian	Deepika	April 13, 8:15PM - 9:45PM @ Safeway/Participant's Home and Kitchen
17	28		Woman	Vietnamese-American	Taj	April 16th, 6pm - 8pm @ Pacific Ocean Mercantile
18	30		Woman	Caucasian (Slovak)	Taj	April 15th, 1:29-3:30 @ Trader Joe's
19	22		Female	Turkish	Händle	April 17th 7:30 - 9:30 pm
110	26		Male	Bangladeshi	Händle	April 17th 3:30 to 5:15 pm

A descriptive overview of informants

Gender:

- Female (N= 6)
- Male (N = 4)

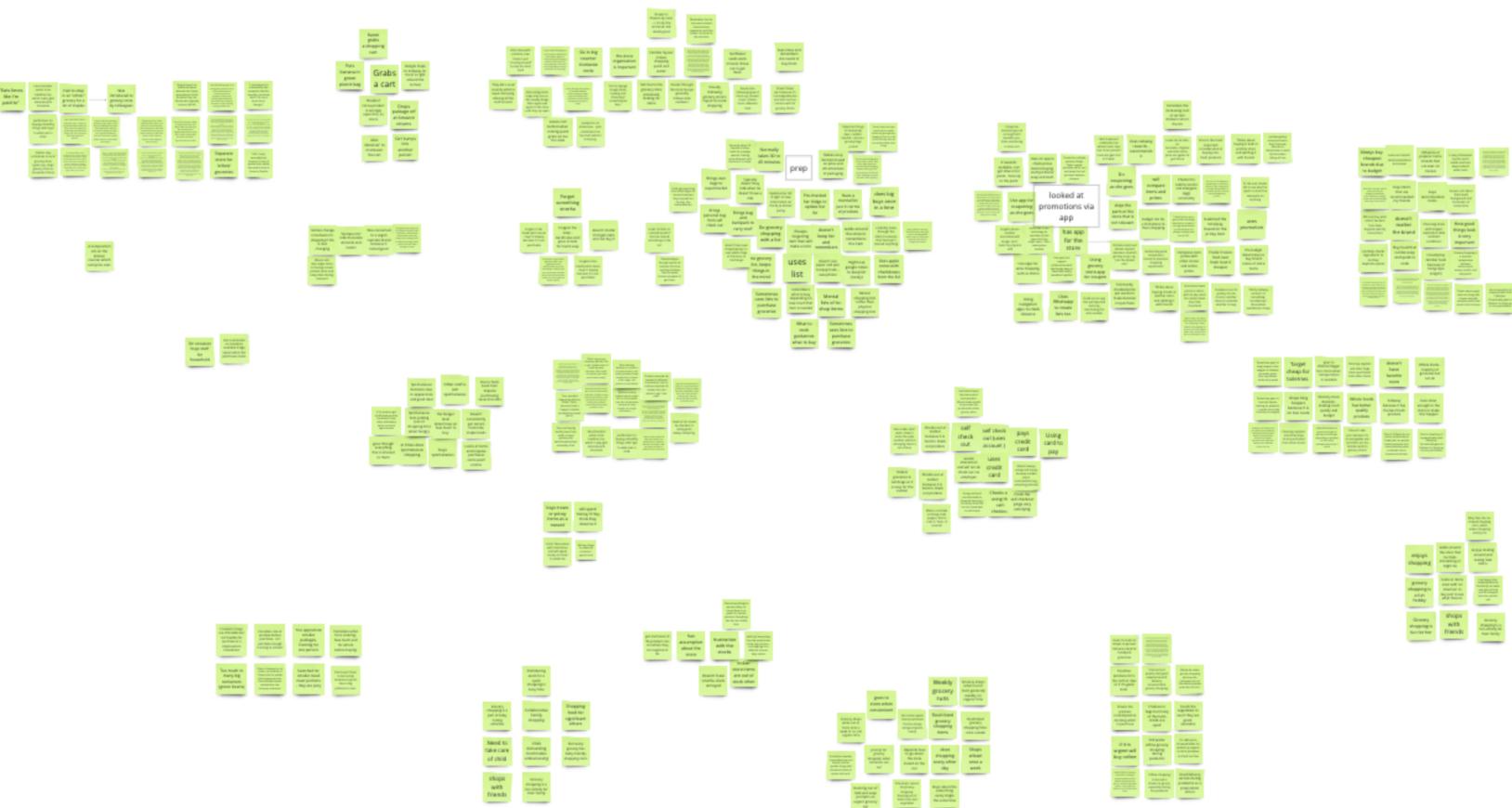
Age:

- 20-25 (N=3)
- 26-35 (N=7)

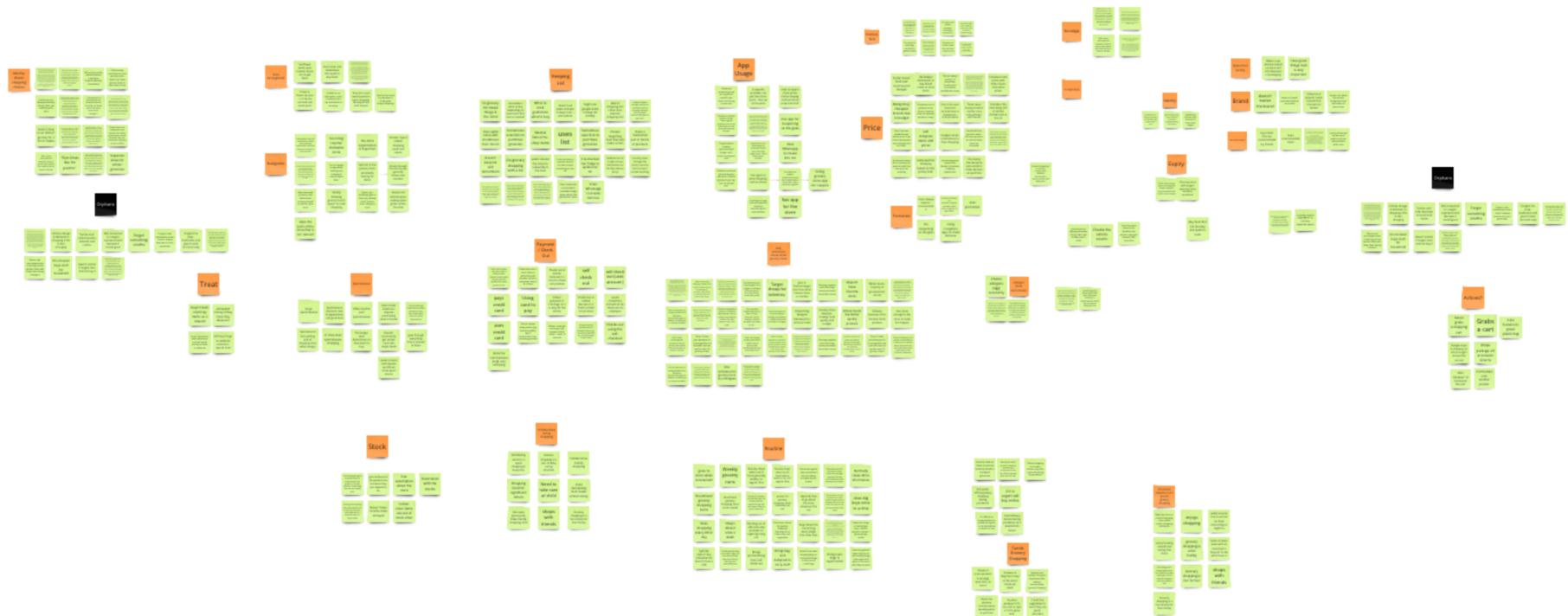
Race/Ethnicity/Nationality:

1. Bangladeshi (N=1)
2. Caucasian (N=3)
3. Indian (N=3)
4. Korean (N=1)
5. Turkish (N=1)
6. Vietnamese-American (N=1)

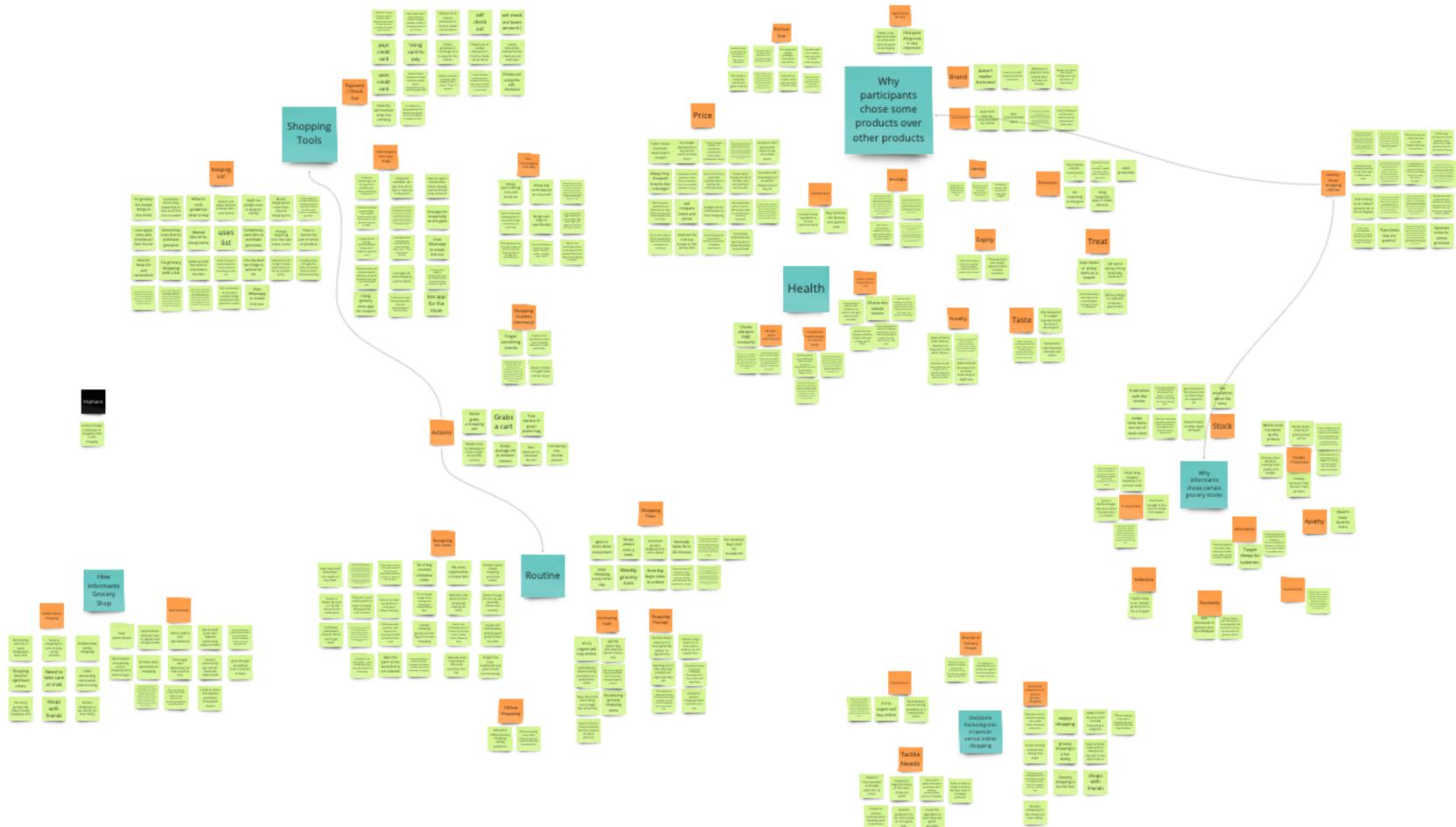
Affinity Diagramming: Open Coding --> Groups [Stage 1]



Affinity Diagramming: Open Coding --> Groups [Stage 2]



Affinity Diagramming: Open Coding --> Groups [Stage 3]



Problems:

- needing to shop at **multiple grocery stores** to get everything on list
- Hard to distribute work while **collaborative family shopping**, especially when taking care of a baby
- Things being **out of stock**
- **Navigation** throughout store when just looking for **single item** is difficult
- Trying to figure out **allergies / nutritional information** from label
- Some informants forget both to write grocery item needs down and pick them up when still in right aisle
- **Difficult/tedious to maneuver the cart** - some of them are damaged
- **Portion sizes** in the store are **too large** for single households

Workarounds

- When unable to find / reach something in-store, **informants will go to another store** (on or off-line)
- When not in possession of a list, **participants looked at items in the store to recall** items they need
- **Looking at online store / app to save time** when navigating around store for small amounts of items
- **Automating** shopping choices by **getting same items** every grocery trip
- Informants choose between **produce modality (fresh vs frozen) when needing to consider budget**

Curious Omissions:

- People often **forgot to check their fridges for produce** / didn't mention fridge until they were in store
- People didn't talk about **taste** as much as might have guessed

Delta

- Shopping behavior / preferences may change based on **changing lifestyle**
- (Individual-level) **Self-check** out increasingly allowing people to **not interact with cashiers**
- **International participants** must learn to navigate grocery shopping informatics / sites in the United States

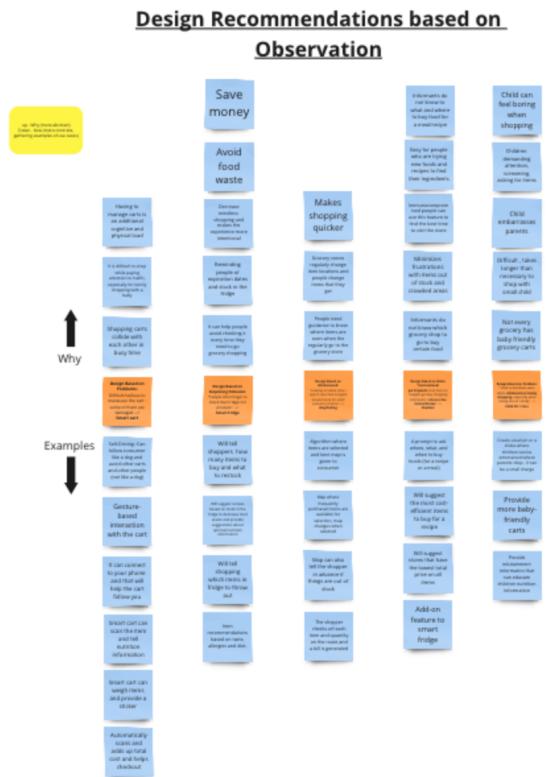
Patterns/Conclusions:

- Grocery Shopping is a **constant compromise between environment, money, health, and enjoyment.**
- Informants have certain **mental models** to help "automate" shopping work.
- Informants regularly use grocery **shopping decisions to express / engage with some aspect of their identity** (regional, ethnic, etc.,)
- People **intentional** about **re-using grocery shopping bags**
- Many informants enjoy grocery shopping to **indulge their desire for novelty and spontaneity**

The bolded words are derived from the raw data that can be seen affinity diagramming stage 3

Brainstorming Without Limits

- Smart Fridge**
 - App with individual grocery list
 - Device that records personal taste and makes recommendations based on taste
 - Subscription service
 - Free groceries
- Shortest route way finding around grocery store**
 - People can vote for new in-store products
 - App for families, busy time hour
- Baby pen play area**
 - way to meet people who share similar taste
 - grocery stores with more ethnic food
 - vegan and gluten free section
 - Better labels
 - Smart bags (continuous checkout)
 - Phone / in-store scanner
 - Better system for collaborative shopping
 - Discounts for students
 - google glass
 - VR grocery store
 - Single household portion
 - Ratings on food
- Chatbot**
 - Social robot in large grocery stores to better guide customers
 - concierge service for members who want recommendation system spontaneity,
- Smart cart**



METAPHORS, EXTREMES AND CONTRASTS

Metaphors:

- Smart shopping saves
- Grocery shopping is a window into a person's culture
- A node of infrastructure that builds and supports daily routines

Extremes:

- Take away all the carts?
- Take away all the grocery?
- Take away all the technology?

Contrasts:

- Shopping for Nostalgia vs Shopping for Utility

We tried to use metaphors, extremes and contrasts to help us derive design recommendations. This did not seem like an appropriate method for this problem so we are shelving this and not using the results further. We found that laddering offered us a better framework for us.

Short-Term Recommendations

Design Based on Problem --> Child Care



Features

- Create a cordoned off child-play or child-care area where children can be entertained when parents shop
- Provide more baby-friendly carts so that parents can take the baby along when they shop
- Provide edutainment for children - education on nutrition and other food-related information

Why?

- Children are bored when their parents shop and demand their attention
- They can create a ruckus and embarrass parents
- It is difficult to handle children and shop - it costs a lot of time and money
- Some groceries don't provide baby friendly carts

Design Based on Workaround --> Wayfinding



Features

- Algorithm where items are selected and best map is given to consumer.
- Frequently purchased items are available for selection, map changes when selected.
- Can also tell the shopper in advance if things are out of stock.
- Advanced: The shopper checks off each item and quantity on the route and a bill is generated.

Why?

- Grocery stores regularly change item locations and people change items that they get.
- People need guidance to know where items are even when they regularly go to the grocery store.
- Makes shopping quicker.

Design Based on Delta --> ChatBot



Features

- A prompt to ask where, what, and when to buy foods (for a recipe or a meal)
- Can suggest the most cost-efficient items to buy for a recipe or for nutrition purposes
- Can suggest stores that have the lowest total price on all items
- Can also be an add-on feature to smart fridges

Why?

- Informants do not know to what and where to buy food for a meal/recipe
- Easy for people who are trying new foods and recipes to find their ingredients
- Immunocompromised people can use this feature to find the best time to visit the store
- Minimizes frustrations with items out of stock and crowded areas
- Informants do not know which grocery shop to go to buy certain foods sometimes

Long-Term Recommendations

Design Based on Surprising Omission --> Smart Fridge



Features

- Will tell shoppers how many items to buy and what to restock
- Will suggest recipes based on stock in the fridge to decrease food waste and provide suggestions about optimal nutrition information
- Will tell shopping which items in fridge to throw out
- Item recommendations based on taste, allergies and diet.

Why?

- Avoid food waste and save money
- It can help people avoid checking it every time they need to go grocery shopping
- Reminding people of expiration dates and stock in the fridge
- Decrease mindless shopping and makes the experience more intentional

Design Based on Problem --> Smart Cart



Features

- Self-Driving: Can follow consumer (like a dog) and avoid other carts and other people (not like a dog).
- Gesture-based interaction with the cart.
- Can connect to your phone and that will help the cart follow you.
- Smart cart can scan the item and tell nutrition information.
- Can weigh items and provide a sticker or tally up costs.
- Automatically scans and adds up total cost and helps checkout.

Why?

- Shopping carts collide with each other in busy time.
- It is difficult to shop while paying attention to traffic, especially for family shopping with a baby.
- Having to manage carts is an additional cognitive and physical load.