CS147 - Human 2.0 Studio

Assignment 2

POVs and Experience Prototypes

Introduction

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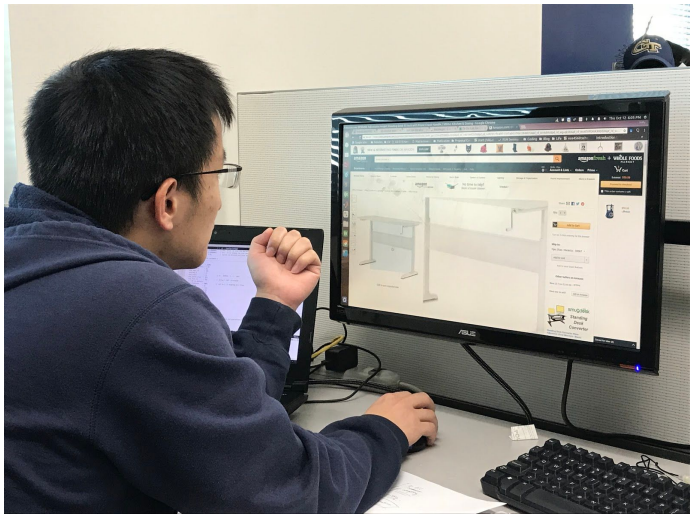
Problem Domain

Our problem domain is the intersection of **shopping and technology**. There are many common complaints about shopping that can be solved with technology relating to quality, convenience, and cost.

Initial POV

We met a housewife with two babies
We were amazed to realize shopping with babies is hard, but the mom would go in person to get good quality grocery and baby product
It would be game changing to provide quality reliable and convenient solution for everyday shopping

Additional Needfinding Results



We acquired two more in-situation interviews. We interviewed a Public Safety Department Employee from Stanford, while he was shopping at the bookstore. We met a Graduate Student from Georgia. We observed both his online shopping and grocery store shopping behaviours. We found the needs of the “bookstore problem” and “clothes size ambiguity” as discussed below.

Revised POVs, HMW statements and Prototypes

3 Revised POVs and HMW samples

POV #1

We met a man in the grocery store
We were amazed to realize shopping at grocery store is a waste of time, but online shopping quality is not reliable
It would be game changing to provide a convenient and quality reliable way to buy the everyday needs

Selected HMWs

- How might we reduce queue time for check out?
- How might we provide a way letting online shoppers see how the delivery people choose their food?
- How might we just provide items the customer has already bought in store?

POV #2

We met a customer hanging around in the bookstore
We were amazed to realize it is very hard for him to decide to buy a book
It would be game changing to make it easier to decide which books to buy in the bookstore

Selected HMWs

- How might we conveniently show the customer online info about this book?
- How might we trace customers in store behavior like online stores does?
- How might we show the sales volume for books in the bookstore?

POV #3

We met a graduate student who sometimes buys clothes online
We were amazed to realize It’s hard to choose the right size online without actually trying it on
It would be game changing to have a convenient way to pick the right clothing size.

Selected HMWs

- How might we let an algorithm know the shape of the customer and recommend the right size?
- How might we create virtual avatar of each user by entering parameters, and demonstrate the size of clothes?
- How might we show the difference between actual sizes and labeled sizes?

Three Best HMWs Overall

- [POV #1]: How might we just provide items the customer has already bought in store?
- [POV #2]: How might we conveniently show the customer online info about this book?
- [POV #3]: How might we let the algorithm know the shape of the customer and recommend the right size?

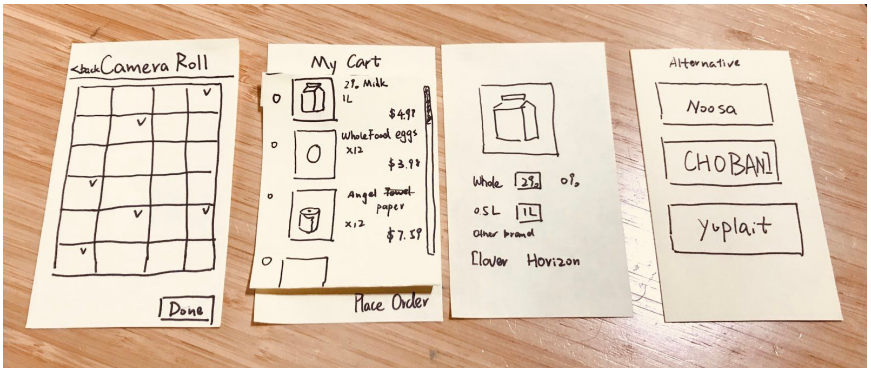
Three Best Solutions Overall

1. Maintains a list of “routine products” and when you run out of something, you just tell your virtual assistant to put it in your shopping cart and place the order. An extension is provide 3 alternative product (selected, high quality) if user get tired of the old one.
2. We create an app that can load online information from books (Using barcodes, or book title). That information consists of things like spatial recommendations (Arrow in the HUD pointing towards direction of book you may like) and Amazon review scores for books.
3. We can measure the shape of the person using phone camera (through 3D reconstruction or ARKit) and draw 2D picture of how clothes lie on the customer’s body (layers can include tightness heat map, etc.).

Prototypes

Prototype #1: “Routine Product”

We found that while buying unfamiliar products, our interviewees put more trust in products they can actually see in store rather than online. We also noticed that there’s a kind of “routine product” in our homes: we always buy the same product again and again when our old ones run out. Most of them are just standardized commodities: the quality has no difference between offline and online. Shopping in store is time consuming, so we propose a list of “routine products” and when you run out of something, you can buy it with just “one-click”. Our assumption is that the customer would think it is convenient to just tell our virtual assistant put one “routine product” in the shopping cart and buy it and prefer this solution to in-store shopping. An extension is, “what if I’ve got tired of my old yogurt, and want to try a new one”. We also provide the user 3 alternative products (good quality, carefully selected by us) that the user can easily place the order and try.



Test and Feedback:

Step 0) Our interviewee, Junjie, agrees that there are a lot of “routine product” and would appreciate a convenient way of buying. She immediately thought of Amazon’s button. We told her our app maintained the one-click convenient but extend the category of available products.

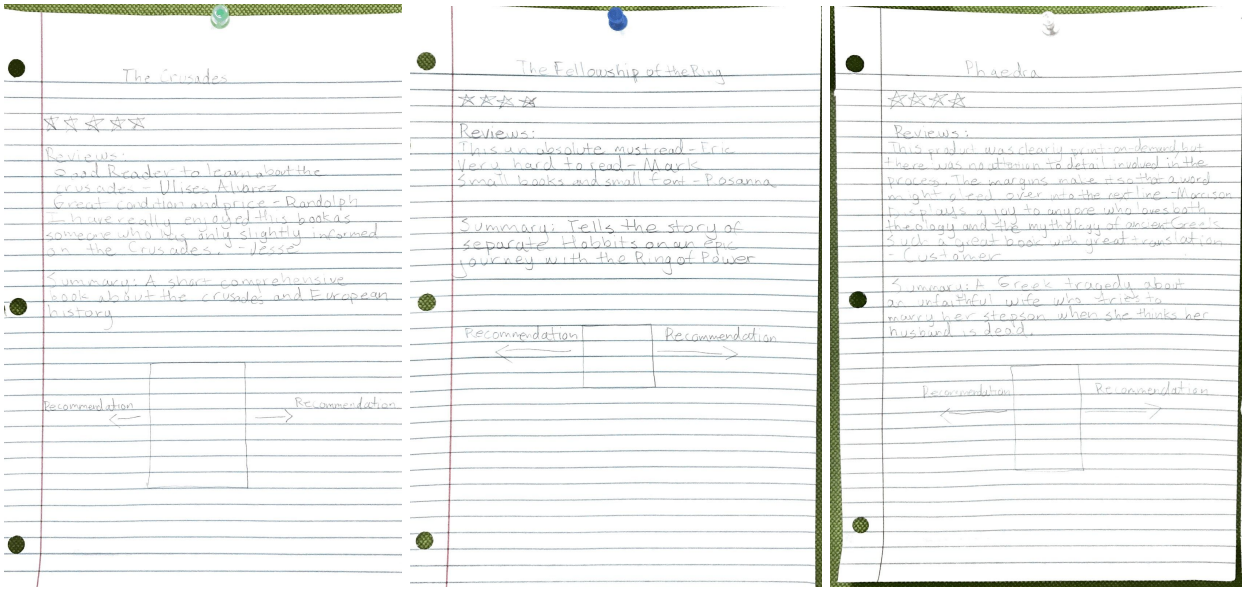
Step 1) She took 3 pictures. She was afraid of products cannot be recognized. We also observed that it’s not realistic to ask our user to add all the “routine products” before she actual need to buy. We might need to find easier ways to build the list, e.g. scanning the shopping receipt, adding products into the list while buying.

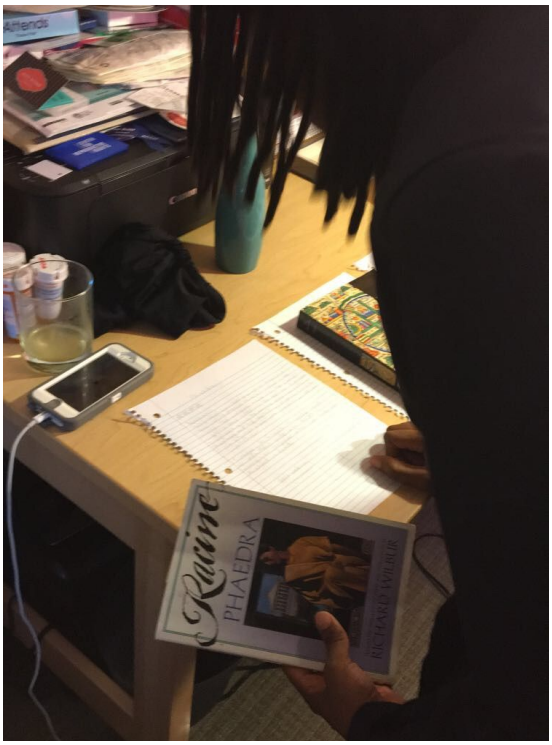
Step 2) The user said “Hey siri, I need a new toothpaste”. The virtual assistant placed the corresponding item into shopping cart. The user prefers speaking rather than take pictures.

Step 3) Our user appreciate the function of showing 3 alternatives when want to try new things.

Overall, the user appreciated this simple way of buying everyday needs. Besides, she concerns that certain products are only available in special store, e.g. trader joe’s, doubt how we can get them online.

Prototype #2: “Bookstore Problem”





Our initial assumption was that people would appreciate having to put less energy into finding a good book to purchase. For our first solution, we chose a paper representation of our interface to deliver more book data to customers. Each piece of paper had the information we that want in our interface, such as a five star rating system, reviews, a summary, and a placeholder for the spatial recommendations. The test was a two part test. The participant received books both with and without our interface and gave us feedback on how useful the interface was.

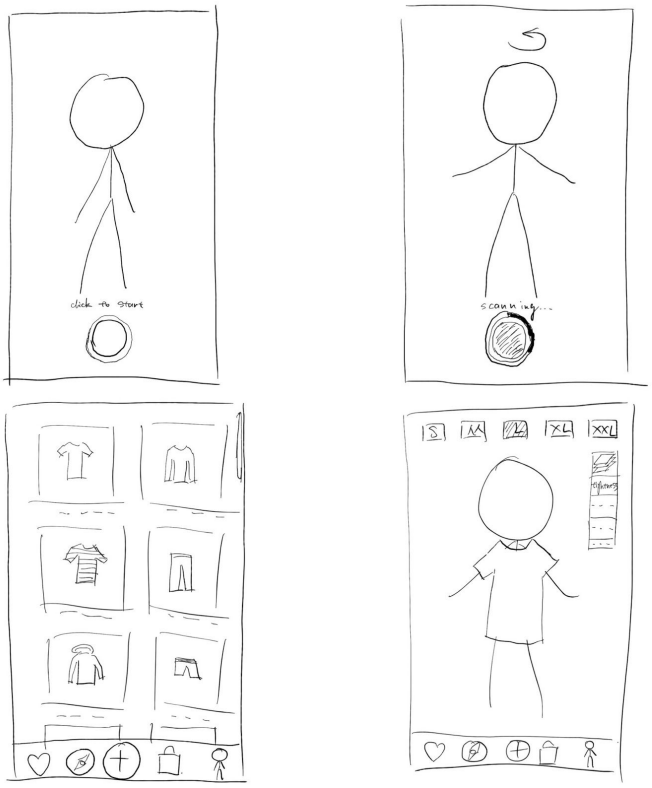
Test Steps: Our test was a two part test, which consisted of gaining feedback from both interacting with our interface and interacting with the books themselves without our interface. First, we gathered a series of books. We split the books into two groups. For one group, we created an interface out of paper with relevant book information for each book. For the other group, we did not create any interface. Then we had our participant interact with the first group of books and give us feedback on what she thought about the interaction. Finally, we introduced our participant to the second group of books, the ones with interfaces, and had her give her feedback again.

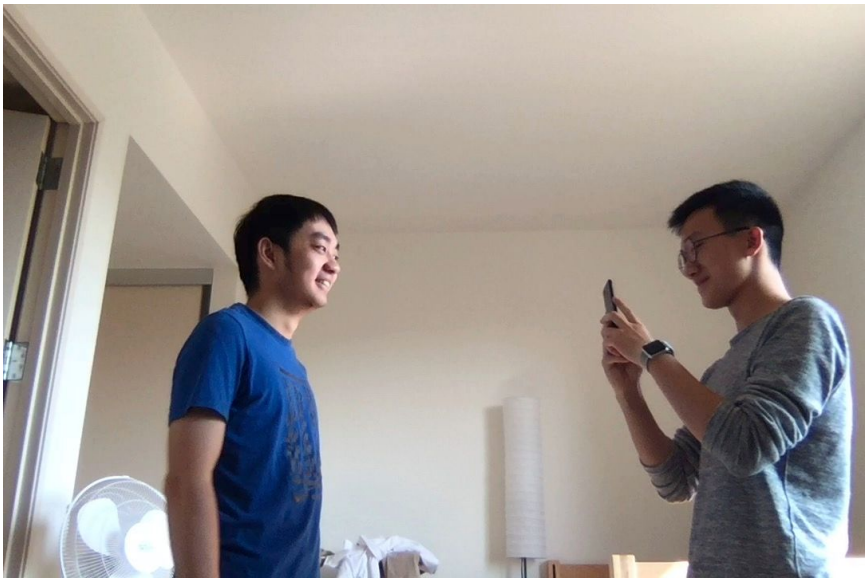
Feedback: We found that the participant was dramatically happier using our interface even if she did not support all of the assumptions we originally made. We had thought that people would appreciate not having to physically go and pick up the book to search for information, but our participant informed us that she really enjoyed that process of buying books. However, she was thrilled with the extra detailed information from the reviews of the books. She also like how convenient having all of the books information in one place was.

Prototype #3: Cloth Size

The solution 3 can be divided into 2 steps: first, we get the measurement of the user's body; second, we help the user to make a decision. Our key assumption for the first step is that users generally don't have an accurate and convenient way to measure the shape of their bodies. And the assumption for the second step is that labeled size of clothes (S, M, L, XL, etc.) is not sufficient for users to make a decision.

We used a fake app UI and an iPhone for simulating scanning process; roles are the user, the instructor / operator of the app and an observer; scene or environment is home.



- 

Test 1: we let user try following methods to get measurements of his body. In the meantime, we record and compare the time and the results.

Method	Time	Result
say some measurement of their body only by recalling them	20s	height: 175cm, weight: 60cm He didn't know any other measurement, e.g., waist.
use rulers to measure some key scale of their body	5s (invalid)	He didn't have a ruler.
get measurement from clothes they bought	30s	Jeans: 31, 170/76A
(virtually) try the app and get a 3D model of their body	10s	(virtually) Get every detailed measurement of his body

We found that our first assumption was true. Users tend to remember quite a few key measurements of their bodies (height, weight, and at most waist). They usually don't have tapes or rulers, which is also inconvenient. It is true that they can get partial measurements from clothes they bought, but they aren't accurate and generalizable. In contrast, our method can produce accurate measurements in a short time (if implemented).

Test 2: suppose we already have an accurate body measurement and accurate data of a certain hoodie, we let the user make decision of size through several methods.

Method	Time	Result

show some labeled size (S, M, L, XL, etc.) to the user and let him pick one	1s	M
show the size guide provided by the store	30s (quite hesitate)	M
(virtually) show the 2D pictures of our app and let him pick one	13s	M

The second assumption was not as correct as the first one. User can probably make decision by just recalling clothes they bought. However, it is worth to mention that, the user said clothes in US were generally larger than those in China. Thus, while he usually bought L-size clothes in China, he began to buy M-size clothes in US. We consider this kind of difference not only exists between different countries, but also exists between different stores. What's more, our app (if implemented) can show detailed information, such as tightness heat map, to let user gain an in-depth understanding of the clothes.

Most Successful Prototype

The "Routine Product" was chosen as the most successful because it has the most potential for the future, it's the most novel, and it had an acceptable level of success during our trials.

Appendix

POVS

1. Graduate student from Georgia

We met a man only spend 10% on grocery
We were amazed to realize He thinks shopping for grocery is a waste of time.
It would be game changing to Find an easier and quick way to buy the everyday needs

We met a man sometime buying clothes online
We were amazed to realize It's hard to choose the size even provided with the clothes dimensions
It would be game changing to get a easy to, helping online customers get the right cloth size

We met a man in the grocery store
We were amazed to realize It's hard for him to choose new product/ category never tried
It would be game changing to recommend some product, and show him how to use (like the free try in costco)

2. Public Safety Department Employee

We met a customer hanging around in the bookstore
We were amazed to realize it is very hard for him to decide buying a book, he even looked up the internet for more info
It would be game changing to provide easy way of choosing books to buy

We met an Public Safety Department Employee in Palo Alto.
We were amazed to realize Convenience and price are the single most important factors in a shopping trip for him
It would be game changing to provide a way to satisfy both of those factors at the same time (Hao's idea of predictive pricing, estimates when it is most convenient to a nearby store for a deal on an item you want)

3. Korean Housewife

We met a housewife with two babies
We were amazed to realize shopping with babies is hard, but the mom would go in person to get good quality grocery and baby product
It would be game changing to provide quality reliable and easy solution

4. Chinese Housewife

We met a housewife with a 5-year-old daughter
We were amazed to realize she sometimes intentionally make a detour to playground for her daughter
It would be game changing to provide some family relationship building shopping / free housewives from grocery shopping to spend more quality time with kids

We met a 35-year old housewife
We were amazed to realize she do not try new tech for shopping
It would be game changing to provide a low-cost way & motivation to adopt new technology

5. Nurse

We met a nurse at a hospital in San Francisco
We were amazed to realize the social aspect of shopping is very important to her.
It would be game changing to create a way to improve her social experience while shopping

6. Graduate Student

We met a new graduate at Stanford
We were amazed to realize. how hard shopping could be without a car
It would be game changing to provide fast, cheap shipping & returning service and free try

HMWs

HMWs for POV #1

1. How might we **reduce the time** required to shop in store?
    - 1.1. How might we leverage store layout?
    - 1.2. **How might we reduce queue time for check out**
    - 1.3. How might we provide a list, and there will be a man give you
    - 1.4. How might we build an automatic offline grocery store, which is as convenient as online shopping? (same: How might we make offline shopping more convenient than online shopping?)
2. How might we let the customer **trust online product quality** as like in store
    - 2.1. Fresh food:
        - 2.1.1. How might we deliver online fresh foods in shorter time?
        - 2.1.2. **Provide a way letting people see how the people choosing**
        - 2.1.3. How might we provide expensive and fancy foods online, which seem have better quality to customers?
    - 2.2. General items
        - 2.2.1. How might we let online stores provide limited number of selected items?

2.2.2. How might we let offline stores provide their online shopping websites and guarantee the quality is the same?

2.2.3. **How might we just provide items the customer has already bought in store?**

3. How might we provide a reason for people to want to spend longer in the store?
4. How might we let the robot know what the man wants to buy and buy for him
5. How might we make time spend in the store less important to the customer
6. How might we make the store like a bar?

HWMs for POV #2

1. Recommendation
   1.1. How might we hold reading club in the bookstore regularly?
   1.2. How might we get a person/ robot ask you some question and give you the recommendation
   1.3. How might we remove the need to read the info in order to find books he/she likes, like music/ movies online recommendation, show top 10 maybe
   1.4. How might we show the sales volume for books in the bookstore?
2. Information
   2.1. **How might we conveniently show the customer online info about this book**
   2.2. How might we connect the offline books with online information by a interface of object recognition or bar code scanning?
   2.3. How might we let customers in the bookstore leave comments on books?
3. How might we make the long process of finding a book you like enjoyable?
4. How might we connect similiar readers in their search for good books offline?
5. **How might we trace customers in store behavior like online stores does.**

HMWs for POV #3

1. **How might we let the algorithm know the shape of the customer and recommend the right size?**
2. **How might we create virtual avatar of each user by entering parameters, and demonstrate the size of clothes?**
3. How might we directly send the customer multiple sizes to try and provide free return for the unfitted ones
4. How might we eliminate the problem by reducing reasons for online shopping.
5. How might we leverage the inventory of nearby stores to provide sizing for nearly-identical clothes?
6. **How might we show the difference between actual sizes and labeled sizes?**
7. How might we provide an incentive for companies to standardize sizes (Companies provided with a reason to make all sizes the same)?w
8. How might we provide the actual dimensions of each cloth, rather than an average guide?
9. How might we deliver some sample clothes made with plastics to customers in advance?
10. How might we keep the price of online stores same as offline stores?