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Grocer.io MVP Final Report

1. Executive summary

Grocer.io is a grocery reordering and delivery solution for the everyday consumer. With an added emphasis on groceries which are depleted and reordered often, this product will allow for the user to not have to shop for the items that they wish to replenish.

We will achieve this through the use of a web app which the residences will have accounts on. The user will attach their credit card, preferred delivery schedule, and preferred pickup grocery store. When the user throws away an item they wish to reorder, they will scan the item's barcode on a barcode scanner near the trash receptical. The barcode scanner will be connected to a microcontroller which can interface with our server, which will add the item corresponding to the barcode to the user's cart. When the user's pre-scheduled order schedule triggers, the server will order all of the items in the cart at the time for delivery or pickup.

2. Company synopsis

Our team consists of Chase Bastian, Sarp User, and Jacob Landgren. We are

electrical engineering students at the Jacob's School of Engineering at UCSD, and we have put all of our skills and experience to the test with our company, Grocer.io. Combining both hardware and software, our product perfectly encapsulates both our education at UCSD, and our passion as aspiring electrical engineers.

3. # Market overview

The market we are targeting with this product and service are individuals who shop for their own groceries, are busy or otherwise inconvenienced by the task of commuting to a grocery store and back to restock their groceries, and/or have a passion or interest in home tech and IoT. Our product maximizes time efficiency for grocery restocking, making it a prime choice for those who struggle to find time or ability to do their restocking manually.

For our total addressable market, we are focused on the greater San Diego area, which has a population of around 1.4 million. We believe that with adequate marketing local to this area, our available market after a year will be about 1% of the population, which is about 14,000. From our customer interviews, we learned that about 15% of randomly polled individuals would be willing to spend money to cut their grocery shopping time, so we can approximate that of the 14,000 reached, about 15% would like to use our product, giving us a total user count of 2,100 by the end of the year for our obtainable market.

4. # Competitive analysis

The main competition for Grocer.io are grocery delivery services, such as

Instacart, Doordash, and Amazon Whole Foods. All of these services offer the delivery of items which are manually ordered on their website or phone app, with the exception of Amazon where you can schedule recurring orders.

The white space for Grocer.io over Instacart and Doordash is the automated reordering of products without the need for the user to manually order it.

The white space for Grocer.io over Amazon is the reordering of products only after they are depleted and disposed, whereas Amazon offers simply a pre scheduled recurring order. Grocer.io will also work for most grocery stores, whereas Amazon is only Whole Foods.

5. Customer personas and customer interview highlights

Customer Persona 1: Stacy's Mom is a single mother in her mid 30s who lives a busy life juggling work, friends and hobbies, and her 2 children's schedules.

1. **Interests**: Stacy's Mom enjoys cooking, trying new restaurants and bars, and pool boys.
2. **Pain Points**: Stacy struggles to find time in her busy schedule to go grocery shopping. She is often forgetful, often forgetting until the stores around her are already closed.
3. **Motivations**: Stacy's Mom's biggest motivator is providing for her children.
4. **Technology**: Stacy's Mom is fairly up to date with technology, with all the latest upgrades to her phone and laptop. She looks for futuristic solutions, including a car with all the added technological features.
5. **Personality**: Stacy's Mom is outgoing, confident, adventurous, and intelligent.

6. **Brand affiliations**: Apple, BMW, Bitcoin

7. **Flows**: Stacy's current solution is setting regular reminders to reorder common groceries. She also already uses food delivery apps such as Instacart since she often is too busy to shop herself.

Customer Persona 2: Dawson is a recent college graduate focused on machine learning models, who is very career oriented.

1. **Interests**: Dawson's life revolves around work. When he is not working at his company, he is reading up on the latest research notes in machine learning, or networking with his peers. Other than that, he loves League of Legends, either playing or watching streams.

2. **Pain Points**: Dawson is often too tired after putting in a 10 hour day to be bothered to do much, like showering, the gym, or grocery shopping.

3. **Motivation**: Dawson is hyper focused on efficiency in everything he does, from optimizing code to his grocery shopping.

4. **Technology**: Dawson typically has an excess of money thanks to his booming tech job, and likes to spend it on quality of life things around the house since he barely leaves. Things like Alexa, automated light switches, and self cleaning appliances.

5. **Personality**: Dawson is a total Silicon Valley brogrammer. He is very career oriented, lives and breathes his job, and loves networking. He also is overly confident in his decisions, especially when anyone calls into question his judgment at work.

6. **Brand Affiliations**: Amazon, Apple, Tesla, Bitcoin, Berkshire Hathaway, Hot Pocket, Pop Tart, Instant Noodles

7. **Flows**: Dawson primarily addresses his lack of grocery shopping by ordering takeout to be delivered, but often finds himself wishing for the simpler things such as Hot Pockets, Pop Tarts, and Instant Noodles.

Our primary customer interviews were conducted using a survey with 28 respondents. 45% of responses indicate that they shop for groceries more than 2 hours per week, a considerable amount of time that could be used for personal interests.

How much time do you spend shopping for groceries each week?

26 responses

- 0-1 hours
- 1-2 hours
- 2-4 hours
- More than 4 hours

Based on a not very well sampled group, 15% of respondents indicated that they would be willing to pay money to cut their grocery shopping time. Since nearly 75% of our respondents are college aged individuals, this may not be very representative of a general population as many college students are forced to live frugally compared to our target audience of busy professionals and family grocery getters. Nevertheless, if 15% of the general population was willing to pay more to save time shopping for their groceries, there would be a large market of potential customers for Grocer.io.

## Would you be willing to pay money to cut your grocery shopping time?

26 responses

● Yes
● No

84.6%

15.4%
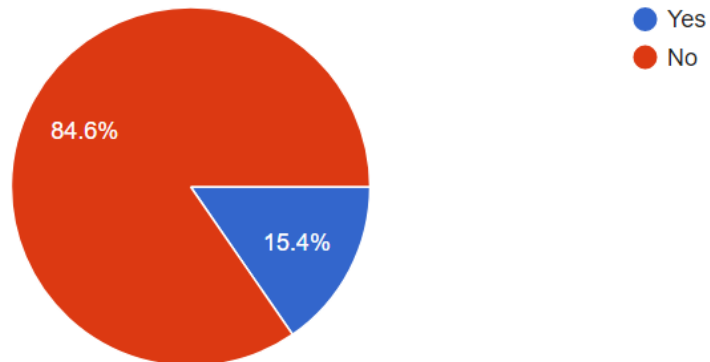
One of our key value adds is that Grocer.io will allow you to order groceries when they run out, ensuring you don't stockpile groceries or have to wait days for your regularly scheduled. According to our survey, this model appeals to about 50% of people as they do not think their groceries can be regularly ordered. This shows clear whitespace in the existing grocery market.

Do you find you use your groceries regularly enough that you could predictably reorder them, or is it somewhat varied?

26 responses

● Predictably reorder
● Somewhat varied

Somewhat varied
13 (50%)

50%
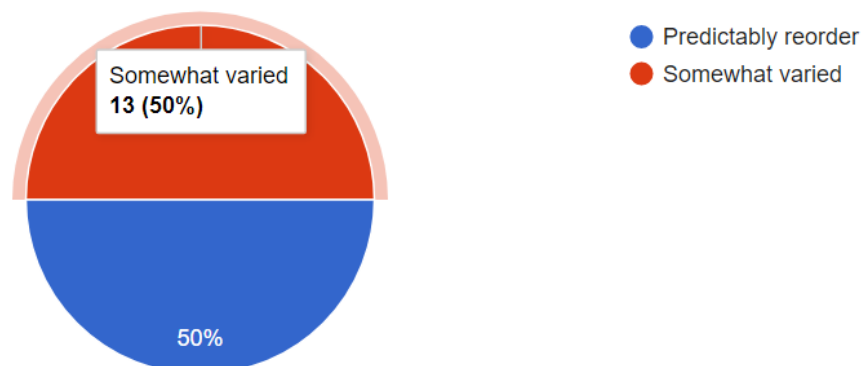
Perhaps the most unexpected highlight of our customer interviews is that 88% of respondents would prefer to scan the barcode using a phone app than a barcode scanner, and of those 75% would still prefer it even if the barcode scanner was given for free. For our MVP we elected to use a barcode scanner instead of an app, however this should be an easy pivot to developing an app. We would still like to test the satisfaction of app versus barscanner once this pivot is done, just to make sure the customer experience accurately reflects the customer opinion before using our product.

How would you prefer to scan this code?

16 responses

- Barcode scanner (purchased when registering account)
- Phone app (free)

87.5%

12.5%
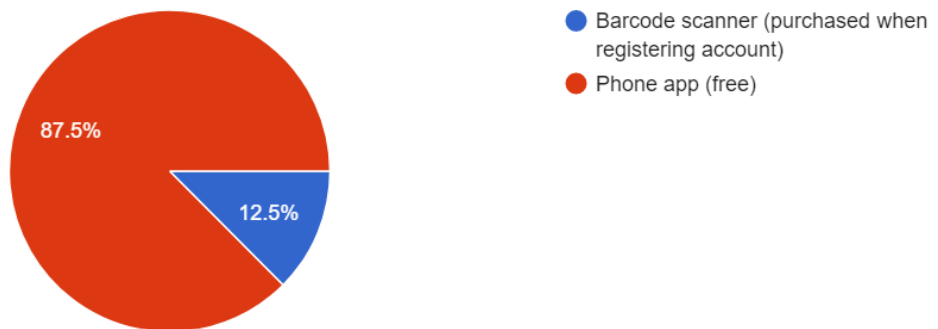
6. Customer acquisition plan

When we first launch, we are going to have to advertise aggressively to get users to know about our product. Based on our target market, we have decided that posting advertisements on Instagram and Facebook will yield us the most returns, seeing as these social media platforms have a higher percentage of adults who would likely be shopping for their own groceries, as opposed to teenagers and younger. We will set out to reach at

least the 14,000 from our available market, and aim to have at least double the amount of clicks as our projected 2,100 for our obtainable market.

7. Product design

The product is two-fold: the barcode scanning hardware, and the webserver.

The barcode scanning hardware will be a small device that can be placed on a countertop that has a microcontroller, a WiFi communication chip, a button used for pairing the device with the user's account, and the barcode scanner, either handheld or built into the box.

The webserver consists of a front-end for the user account creation, configuring preferences, and viewing cart contents, along with a back-end consisting of a MySQL database for storing the user information along with their cart contents. The back-end will also be responsible for communicating with the Instacart Connect Fulfillment API via RESTful routes, along with receiving RESTful requests from users' devices for adding items to carts.

8. How the product works

The product consists of three main elements: the hardware, consisting of a a microcontroller and a USB barcode scanner in a housing; the website, where users will configure their account and view/edit their cart; and the server API call to Instacart's delivery service, which is how we will place the orders and execute deliveries and pickups.

When the user sets up their account via our website, they will input their contact

information, including email and phone number, their address, preferred grocery stores, the day of the week and time they want the orders to take place, and the payment method. We will then ship them our hardware for free, and once they receive it, they will pair their device with their account using a button on the device and website.

Pairing is achieved by utilizing the fact that the Raspberry Pi and the user's device they are using to access the Grocer.io website is on the same internet, which means that any requests sent to the server from either the Raspberry Pi or the browser will be coming from the same IP address. We will leverage this to link the Raspberry Pi and the user account, and we will store the user's ID (coming from the users table in the database) on a file locally on the Raspberry Pi.

Once paired, whenever the user scans an items barcode, the item will be added to their cart on our server. When the current time matches the day of the week and time the user selected for their preferred order time, the server will find all local stores and match any of them to the preferred grocery store specified by the user, and then make an order using the cart, all of which is done through the Instacart Connect Fulfillment API.

9. **Revenue model**

For our revenue model, we will have 3 main channels. There will be some revenue from fees for every order placed through our service, both a flat fee of about $1, along with an additional fee about 5% of the total including Instacart's delivery and service fees. The second stream will be through an optional monthly subscription of $8 a month, which will void all of our fees for every order. The third channel is through our

optional additional barcode scanning devices for $30.

10. **Traction to date**

Currently we are on the finishing steps to having a working MVP. Our MVP consists of a Raspberry Pi and a handheld barcode scanner for the hardware, a web server front end for simple user account creation and management along with viewing cart, a backend database for storing the user information and cart, and the communication and linking of the Raspberry Pi/Barcode scanner to the server for adding items scanned to a user's cart.

Our MVP will not communicate with Instacart through the API to create real or mock orders due to not receiving the access token for their API, however, our MVP will have all the functionality for the cart and will have all the necessary data needed to use the API. Our MVP will capture the entire user journey, from making an account, linking their device, scanning the items they want to add to their cart, and viewing their cart on our website.

11. **Financials**

Our main costs will be the hardware/manufacturing for the barcode scanning device, which we estimate to be about $20 per unit, and the server maintenance costs which we can approximate to about $1,500 a month for a mid-range spec server hosted on the cloud via AWS (estimation from servermania.com for a 32GB RAM 8 CPU 640GB storage and 12TB bandwidth server). If we assume 2,100 users by the end of the year, that will bring the total cost to $42,000 for the hardware/manufacturing and $18,000

for the server maintenance. There is also the cost of marketing, which will be how we will reach the 14,000 people in our available market, and eventually get 2,100 users for our obtainable market. If we chose to market through Instagram ads, the average cost per thousand impressions is ~$3.00, and we are hoping to get 14,000 impressions, giving us an approximate cost of $42. Then the aproximate cost per click is about ~$0.75, and we can approximate that to get 2,100 users, we'd need about 4,000 to click the ad, which will cost about $3,000, totally to $3,042 in a year for Instagram. We can also do marketing on Facebook which will likely have similar cost per thousand impressions and cost per click, which will end up adding up to the same value. The total approximate cost for the year is $63,000.

For our revenue, based on our revenue model and our approximate obtainable market, we can approximate having around 2,100 users by the end of one year. If we assume a linear growth model, we can approximate the total revenue as an integration over our fitted linear growth model as a function of time in months, where when t=12, we have 2,100 users. If we integrate with the added factor of $18 of revenue per user per month, assuming each user does 2 orders a week for the month, then the approximate revenue is $226,800. If we subtract our costs, that gives us an approximate profit of $163,800.

12.   Accessibility AND ethical considerations

As of now, our accessibility considerations include dynamic CSS to allow differently sized devices to access the website. Also, our product allows for grocery delivery, which will be

useful for any disabled customers who may face difficulty in leaving their home. In the future, we would like to add clear labeling so that our website can be accessed using screen readers. Other visual impairment considerations include the fact that our website followed the design principle that objects should say what they do, rather than use visual cues. On the hardware side, in the future we would like to implement a flashing light to indicate a successful barcode scan, as of right now it is done via the beeping of the barcode scanner, which obviously will hinder our hearing impaired customers.

Ethically speaking, grocery delivery services allow for less driving total which will decrease the amount of pollution given off by all of the cars of people driving to the grocery store and back since delivery drivers typically do multiple orders in one trip.