
Bucket: President's Challenge Application

Difference, a Drop at a Time

PROBLEM

16.2 million children in America do not know where their next meal is coming from. 48.9 million Americans live in food insecure households. In 2011, 6.1 million households in the United States had to access a food pantry or similar resource at least once.

At the same time, in the United States 31 percent of the 430 billion pounds of the available food supply in 2010 went uneaten. Ten percent of the total, 43 billion pounds of food, are lost annually at the retail level. The majority of reasons for disposal involve damaged packaging, superficial blemishes, and overstocking. 33,600 pounds of food are wasted by the average supermarket every year.

Food waste and malnutrition remain an open wound in a world riddled with technological advances that shatter even our wildest imagination. Amazon will soon deliver sweatpants to one's door via drone in less than twenty minutes. Uber will get you picked up, anywhere, anytime. Skype allows for conversations a world away. Even with all that, even within the most industrialized nation in the world, millions of parents forgo their share of dinner so that their kids can get enough. All the wondrous gadgetry and social connectivity in the world does nothing to get the taste of that injustice out of one's mouth.

Even though these issues are daunting, a relatively low improvement in efficiency will garner substantial returns. Remember the scope. 133 billion pounds lost every year. Reducing these food losses by 10 percent would feed more than 20 million Americans. 20 million human beings, with lives that could use one less issue to worry about. There is no greater impact, no more valuable goal. We've long had the capability to reduce hunger in the United States; it's high time we do it.

SOLUTION

On a typical day, 32 million American adults visit a supermarket. That's equal to about 12 billion trips a year. Old and young, conservative and liberal, everyone needs to eat.

According to the Bureau of Labor Statistics, about 62.8 million people volunteered through or for an organization at least once between September 2013 and September 2014. Twenty-five percent of the population obviously wants to do good and Bucket looks to target these philanthropic souls, giving them an outlet for their goodwill with little effort required.

Bucket will be an iOS and Android app, downloadable for free. The central functionality of the app is that it will be able to detect food drop-off and pick-up opportunities in real time, and allow users to claim these opportunities accordingly.

Bucket will partner with supermarkets across the nation, encouraging them to collect fruits and vegetables, products that make up 20 percent of retail food waste, that supermarkets would otherwise dispose. Using boxes provided for by Bucket, the supermarkets would instead place the produce under a designated pick-up location. Eventually, Bucket will include meat, poultry, and fish.

Bucket's users, the store's very customers, would be able to see how many boxes are available for pick-up at any given time. If they choose to pick-up one or more boxes, our application will provide adjusted directions

for their trip home. Using some applied optimization, we will provide a route that goes by a local food bank or non-profit that aims to feed the hungry. If no such location is nearby, we will establish city drop-off locations. The user will then leave the box(es) at a designated drop-off point. The detour is guaranteed to take less than ten minutes.

Every time a user completes a trip with Bucket, they will be adding a Drop to their personal bucket. If 1 in 12 of supermarket visits result in a Drop, we will be able to reduce food waste by our goal of 10 percent. By harnessing the power of the people, crowdsourcing the solution to food waste and malnutrition, we believe that this can make a substantial change.

In order to function, Bucket will need to be synchronized with Google Maps and embedded with effective optimization mechanisms. There are two aspects of the app, the user-to-supermarket interface and the optimal route selector. The first aspect is currently being prototyped and should be deployable at a testing scale soon. Depending on who logs in, one would either be able to claim or add boxes at a certain supermarket. The second half, the optimization, would involve taking the coordinates of supermarkets, drop-off points, and end-points and selecting an optimal route between them. Members of our group have experience with optimization and are prepared to tackle this challenge.

MARKET OPPORTUNITY

Our product looks to reach every American with car and a smartphone. We don't need them to pick up a box every time they visit their local Wegman's; every now and then, when they have time, will do. This flexibility allows Bucket to be approachable, a crucial factor in our long-term success. Bucket must be able to be used by anyone.

We believe that the average American wants to do good. However, volunteering takes substantial effort and the lack of individual impact is demoralizing. Most people choose to stay on their couch. We at Bucket believe that, if given the right tool, these people will choose to help.

Bucket understands that rewards and social media are crucial to an app's adoption rate and has tailored its business model accordingly.

In order to ensure the sustained success of the product, Bucket will sustain a seamless connection to social media and a captivating rewards system. The former would allow our user to share their philanthropic actions with their friends and followers. Much of the success of current apps and social movements is owed to sites like Facebook and Instagram. By allowing our users the opportunity to share their philanthropic deeds, we can expect our user base to grow and a sense of community to be fostered.

The latter will ensure continued involvement and would be crucial to our business strategy. Drops add up, filling an individual's Bucket. After certain benchmarks, Bucket will reward the user with gift cards or other such promotions. Partnership will be sought with both local and national businesses, with the positive publicity incentivizing their involvement. Points are not why people will use Bucket, but it is a necessary form of engagement.

Additionally, we believe that this year is an important one in the fight against food waste, which signals the ideal entry to market. France has banned supermarkets from throwing away edible food. England is moving in the same direction. The topic has been covered on important television shows like Last Week Tonight with

John Oliver and The Late Show with Stephen Colbert. Food waste is now in the consciousness of the American public, which means the time to enter is now.

There are no direct competitors to Bucket. There are a couple of products, namely Spoiler Alert and Lovin' Spoonfuls, that seek to resolve the same issues. However, their approach is nothing like ours. Spoiler Alert works links supermarkets and food banks, forgetting about the people. Lovin' Spoonfuls is a volunteer service, nothing close to crowdsourced. Doug Rauch, founder of Trader Joe's, has begun a project called the Daily Table that appears to be a potential partnership rather than a competitor.

TEAM & ADVISORS

Nicolas Rossenblum (Co-Founder)

Harvard College, Class of 2016

Nick is a Government concentrator with a secondary in computer science with experience in Python, HTML/CSS, Javascript, and Swift. His work experience at both start-ups (ScoreBig) and industry leaders (Honda) has prepared him for the organizational and fundraising challenges that come with new ventures. Bucket is an idea he feels strongly about and would like to spend his remaining time at the College - and beyond - working on bringing it to fruition.

Alyssa Arnheim (Co-Founder)

Boston University, Class of 2018

Alyssa is a biomedical engineering student with experience with Matlab working on translating her coding skills to Objective C. Alyssa is pursuing a minor in business and will be taking classes at Questrom School of Business. Alyssa served as a FIRST Ambassador to business leaders and raised \$30,000 as president. Alyssa was instrumental to the creation of Bucket and knows that it is a venture she wants to turn into a reality.

Max Kaplan

Princeton University, Class of 2016

Max is a senior at Princeton, majoring in Operations Research and Financial Engineering. Max has worked within in a variety of industries, but his passion remains optimization. Max's senior thesis focuses on the London Underground and new approaches to improve its efficiency. Max and Nick have previously worked together, and he was recruited to help with the route optimization.

David DiCiurcio

Harvard College, Class of 2016

David is a senior at the College, concentrating in Applied Math. David has substantial experience coding and was a TF for CS50. David's expertise has proved valuable in the early stages of code and will be vital when scaling up.

ADVISORS

Lovin' Spoonfuls

Boston-based food rescue group

Lovin' Spoonfuls is a group that seeks to resolve many of the issues we care about. We have spoken to their team and have learned from them. Their model is far different from ours, but the end goals are the same. Their advice and resource have done much to increase the viability of our product.

Kendra Doyle

Public Relations Director of Ralphs and Food 4 Less (SoCal)

Ms. Doyle has spoken to us about Ralph's commitment to sustainability and their current efforts, which has led to talks about a potential partnership in Southern California. Regardless of the partnership, Ms. Doyle has been crucial in helping us establish our knowledge about supermarket operations.

Professor Gordon Bloom

Harvard T.H Chan School of Public Health

Professor Bloom is the main lecturer for HPM251: Social Entrepreneurship & Innovation Lab for U.S and Public Health. Professor Bloom allowed for our inclusion in the Social Entrepreneurship course at the iLab and will be a continued resource throughout the semester.

GO-TO-MARKET PLAN

Our plan contains three prongs.

1. Begin establishing relationship with national supermarket chains. Simultaneously seek local partnerships that will allow for real-world tests of Bucket as a product.
 1. Secondary Goal: Seek commercial partnerships to improve our rewards program.
2. Create and improve the central Bucket application. Functionality will be the first goal, aesthetics a very important second. Well within our combined coding ability, but more than happy to seek the help of knowledgeable peers. Begin establishing our supply chain, customize and order Bucket branded boxes and tents.
3. Public relations campaign to create the Bucket brand and clear up concerns. Look for sponsorships and endorsements to make us more popular.

Our first step is to establish our partnerships with supermarkets, both local and national. This would have two concurrent stages.

1. Establish relationship with large chains. The process is sure to be bureaucratic and intense, but will have the greatest pay-off. The chains must be assured that they will not be legally liable for their donations. The Bill Emerson Good Samaritan Food Donation Act thoroughly protects any supermarket that is donating food. The publicity from involvement with a popular non-profit will benefit the chain and bolster the green image many of them are trying to pursue.
 - a. To enforce this, we can formalize the process of becoming a "Bucket Partner". If our venture succeeds, the partnership will be similar to receiving awards for being environmentally friendly. Supermarkets are looking to establish positive relationships with their community and Bucket can help.
2. Talk to Cambridge area supermarkets and food banks. We've begun establishing a relationship with Sprouts and are initiating conversations with Trader Joe's. If we can persuade the local entities, we can run a very effective trial run of the product. Bucket is wonderfully scalable, able to produce the desired results with two supermarkets as well as with 100. Bucket can be tested on the Cambridge microcosm and, if successful, can thus prove its viability on the national stage.

On the operations side, there are a couple of focuses.

1. The application. This will be a continuing focus throughout the semester. Basic functionality is the first goal, which we're pretty close to today. A functioning version of the app should be ready by May, which is where we can start our trials.

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2. Establishing our supply-chain for boxes and tents. Both of these will be branded and hopefully reusable. The former is crucial. Seeing Bucket boxes around and tents throughout the neighborhood will add credibility to our product.

As we establish these relationships, we must also work on potential advertising and public relations. We believe that there are three major points we must make clear to potential consumers:

1. Bucket is hassle-free. There is no commitment, no credit card information, and no stress. Bucket is easy to use and purely altruistic. No one will ask you for IDs or personal information. Ideally, you would pick up a box on the way out from the store, drop it off, and go on with your life.
2. Bucket isn't giving low-quality or dangerous food to the poor. The current approach to food and expiration dates is wrong. The terms you see on your perishables, like "sell by" and "use before," have never been formally defined. So far as food safety goes, they're meaningless. Instances where states have attempted to impose regulations, meanwhile, are remarkably inconsistent, and usually left up to the producer's discretion.
3. Bucket can change things. As a user, you're not another face in the crowd. Using Bucket isn't "liking" an article that demands action. Bucket isn't an idea or a critique. Bucket works to put real food in the mouth of real people. Every single Drop makes a difference you can see, face-to-face. Bucket is worth it and, if we all pitch in together, can change the world.

Additionally, we will continue to look for sponsorships and celebrity endorsements. Having a great idea is nice, but making it popular and publically endorsed will help its growth.

PROGRESS TO DATE

Our team has engaged over 20 executives at major supermarket chains in order to get their thoughts on implementation and their willingness to cooperate. We have visits planned with the local Sprouts and two food banks in Downtown Boston. In terms of consumer engagement, we see our base as any American with access to a car. Our ability to tap into that base depends on product quality and social presence.

Most of our research has been online, since we previously lacked an understanding of the market and the problem at hand. After contact with various NGOs and research on the Bill Emerson Good Samaritan Food Donation Act, we have come to understand the scope of the challenge.

Currently, the Bucket app is working to calculate the optimal route between two points while crossing a potential drop-off point. Since no partnerships are currently established, this work is mostly done through coding trial and error. Additionally, the basic code for a counter (boxes currently available at supermarket) that dynamically updates across users is written. Over the course of this semester, we plan to develop the Bucket application in full and release a user-ready version by next fall.

To prepare for Bucket's release, we will initially focus on developing contacts and a greater understanding of how pick-up/drop-off will work into the daily flow of supermarkets. These agreements should be done by March/April.

Concurrently, we will develop the application with a focus on the interactive map and the rewards system. Once the platform has been established (May), we will then work on creating an easy to operate and bug free application by July.