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Give more, Waste less.

Americans waste as much as 40% of all food produced in the United States. And yet 48 million people here live in food insecure households. Clean Plate seeks to empower the average citizen to bridge this gap by taking excess, quality food and produce from restaurants that otherwise would have wasted it and lets you deliver it to nearby homeless shelters and food banks. The process is simple. After you arrive at a participating restaurant, you'll receive a notification inviting you to take some time to deliver food after your meal. Then, Clean Plate gives you directions to the nearest delivery points and you get a discount on your meal! It's a quick, deliverable means to make a positive difference in your community and even get something in return for your kindness!

Sketches

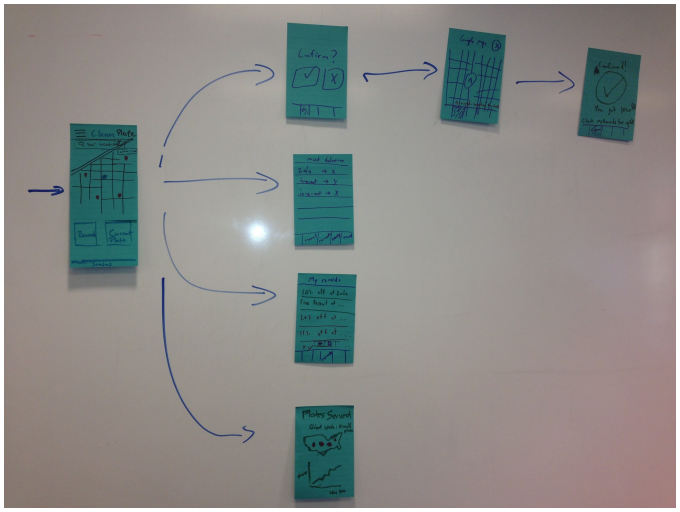


Figure 1

The mobile application interface provides functionality for navigation, customer-restaurant interaction, rewards, user history, and geographic statistics.

The user begins on the navigation page that includes a map and a search bar. Participating restaurants appear as red dots on the map. They then have the option to select another page from the navigation bar. The user may then search for a location, confirm pick-up at that location, proceed to navigation and deliver that food. Other navigation options include rewards, recent deliveries and geographic statistics.

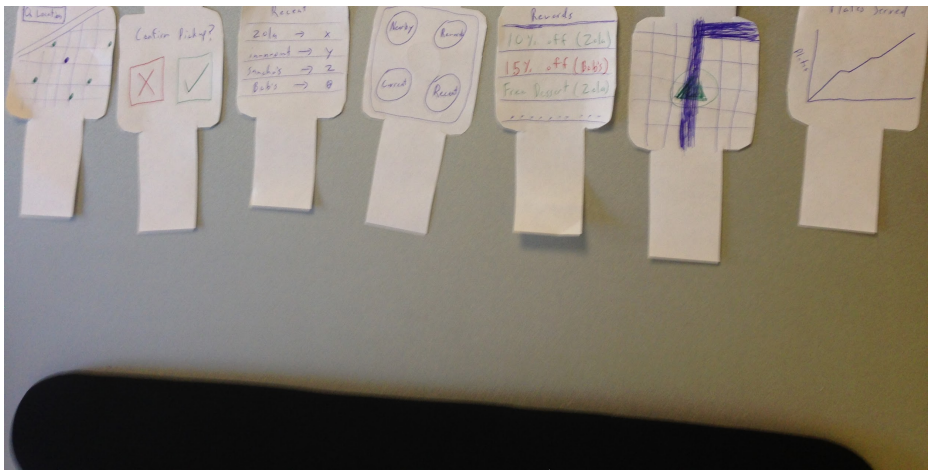


Figure 2

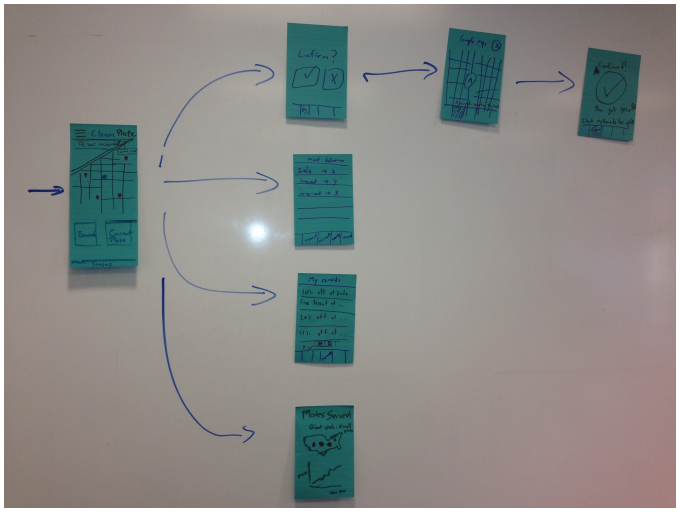
Low-fi prototype for smart watch application. Includes basic functionality best for small-screen use, including navigation, interactive confirmation for delivery, rewards, and global statistics. The smart phone application (as seen from the second screen), is better for receiving notifications and performing much simpler tasks. In this case, it would be very useful for receiving notifications to pick up food in the current restaurant. However, a mobile application can also complete this task.

Figure 3

The web application has a more specific use cases for individuals planning a donation trip. Allows for more involved navigational procedures and setups. Functionality and use are very

similar, but the web version lacks GPS, so the user must preplan a donation trip—the application will provide printable directions or sync to the user's phone.

Selected Interface Design



The phone application was chosen because cell phones are ubiquitous in everyday life, and many people already use their phones (i.e. Google Maps) for navigation when driving. Ideally, the user will have access to the app in the restaurant to get a notification for food pick-up or to redeem a reward, and in their car when they are driving to a restaurant/donation site. This would not be feasible on a laptop or tablet. It could work similarly on a watch, but the watch would provide no additional functionality and smartwatches are much less common than smartphones as of now.

Prototype Description

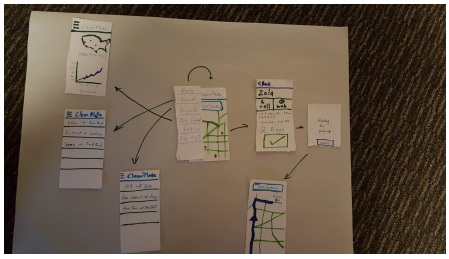


Figure 1

The overall storyboard for the prototype features the task flow. Users begin at the main navigation page and can choose to tap on the navigation bar (Figure 3). This brings up a set of options for navigation (Nearby, Recent, Rewards, Plates Served, Settings, and Log Out). If the user is seeking to serve more plates, they can click nearby or enter a location in the search bar and will be provided with search results that will appear as dots (Figure 3).

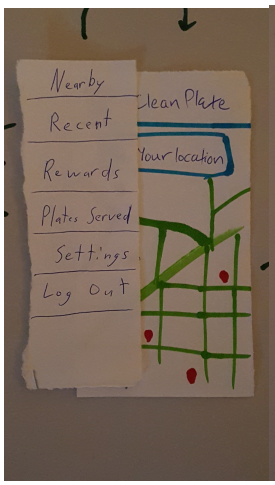


Figure 2

Figure 3

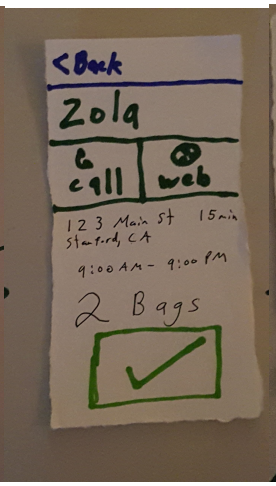


Figure 4

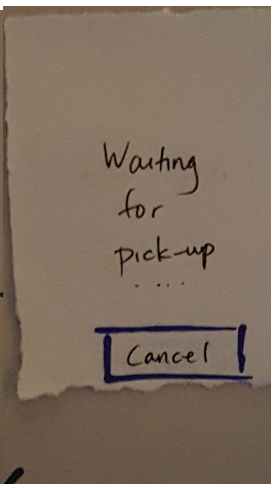
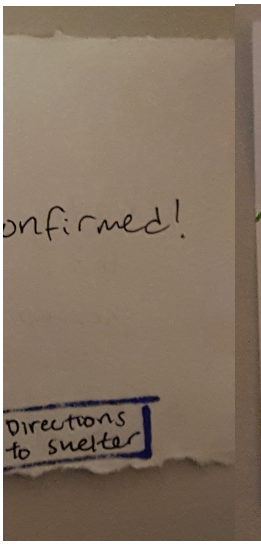


Figure 5

The user can then select a dot that corresponds to a restaurant and are provided with a screen listing the food available for delivery at that restaurant and the time frame requirements (Figure 4).



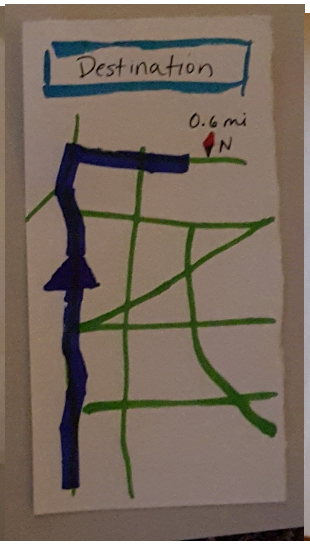


Figure 6

Figure 7

Figure 8

After selecting the check box that you intend to pick up the food, the restaurant receives the notification indicating your interest and the app begins to process the event (Figure 5). After you have picked up the food and the restaurant confirms (Figure 6), you can navigate to the shelter (Figure 7). After delivering the food, the application will confirm delivery and send you a reward.

Figure 9 Figure 10 Figure 11

You can access rewards (Figure 9), geographic statistics (Figure 10), and recent deliveries (Figure 11) from the navigation pane on the side.

Method

In identifying testing participants, we knew we wanted a wide range of motivations. In particular, we wanted to get a diverse group of testers to see if they had any conflicting or similar reactions.

Tester 1 is a very environmentally conscious college student who had experience in creating and running sustainable efforts in communities. With this particular tester, we were curious how his interest in sustainability would affect the experience.

Tester 2 is a college student with no interest in sustainability and has no experience in making any sustainable efforts. We wanted to see if our app would resonate well with people who are generally not interested in preventing food waste. The ultimate goal is that through our idea, we can inspire these individuals to prevent food waste while helping the hungry as well.

Lastly, Tester 3 is a Ph.D. candidate in entomology at the University of Maryland. We chose Tester 3 for several reasons. We wanted to get someone a bit older to make sure that we had a variety of ages among our testers. In addition, she is not from the Stanford area—geographic factors may play a role in an individual's proclivity for service. From our initial prototyping, we began to realize that people from California tend to be more socially conscious and susceptible to sustainable efforts than people from around the rest of the country. Since our first two testers attend Stanford, we especially wanted a third tester who was not familiar with the area.

We spoke with our first two testers on Stanford's campus in quiet rooms where we would not be disturbed. We sat in front of the largest table in the room with the tester by our side. We placed the current screen on the table in front of the tester so that the tester could easily see

and interact with the prototype. We met with our third tester at a restaurant in Palo Alto. We sat beside our third tester at the restaurant and placed the current screen in front of her so that she could use our prototype. All of our testers were more than happy to test our low-fi prototype and did not require any form of compensation. They were interested our idea and were all very cooperative to work with.

We had three tasks for each tester to complete in our prototype. Each one of these tasks was either a complex, medium or simple task. The first task was the complex one. This was for the tester to find a restaurant with leftover food to pick up, select that restaurant and navigate there within the app. This whole process included the tester viewing the map in the app of where the tester currently was and seeing which restaurants near the tester had food available to pick up. From there, the tester would have to tap on that restaurant to bring up a small view with more information about that restaurant. The tester would then have to click that view or the “more” button on it to bring up a full screen view describing the restaurant, how much food it had to pick up, and the ability to call the restaurant. Lastly, the tester would have to click the green checkmark button in that view to confirm the pick up. This would bring up some navigation in a map similar to google maps directing the tester towards to the restaurant. Because of all of the steps to accomplish this task, this was our complex and most difficult task.

Next, once the tester has picked up the food from the restaurant, the medium task is to navigate to the donation center and deliver the food. This task is not as complicated as the previous one since it only entails tapping on the button labeled “take me to donation center” and then following the navigation in the maps view to arrive to the donation center. All that is left to do from there is to receive confirmation from the donation center that they have received the delivery.

Our last task, which was our simplest task, was for the tester to navigate to their rewards view to see the reward that they have earned from their last delivery. This includes the user finalizing their delivery and seeing the confirmation screen that states that they have received a reward for their work. The tester can then pull out the navigation side bar menu that contains all of the sections of our app and tap on “rewards” to go to the rewards view. This view will show the tester all of the rewards that the tester has earned including the most recent one from their last delivery.

In terms of our procedure, we tried to follow the same routine with all of our testers. We read from our script initially in order to give a proper and constant introduction to our idea and product. Once we felt like our tester understood our goal, Bryan began to demo a simple task with our prototype. He showed our tester how to navigate to the “recent” view in our app, which displays all of the recent deliveries that a user has made including the restaurant that donated the food and the center that received it. We made sure that the tester felt comfortable and understood this task very well before continuing. Once the tester was ready to move on, we followed our script and instructed our tester to complete the first task which was to navigate to a restaurant with leftover food to pick up. We allowed the tester to fully interact with our prototype. To do this, we allowed the tester to tap on the screen in places that indicated that they were

buttons, locations, cells etc and we would provide the appropriate response in the prototype. For example, when any of our testers tap on the menu button or swiped right from the edge of the screen, we would drop in our paper cut out of our navigation menu for the user to interact with. When the tester clicked on a button to change the view, we would provide the correct view for the user to interact with. Once the tester completed the first task, we then would instruct them to complete the second task which was to navigate to the donation center. When this was completed, we instructed them to view their rewards, which was our last task.

During this whole process, we always told our testers to talk through whatever they were thinking. We wanted to gain some insight into the thoughts of the tester as they used our app. Also, we paid close attention to the expressions and hesitations of the tester. If they ever looked puzzled or started to mumble, we would ask them what they are currently thinking to try to understand what was confusing to them. On the other hand, when they nodded their head or smiled, we would take note that they are having a pleasant experience at that exact time. In addition to this form of immediate feedback, we asked them to critique the application after they had completed the trial. We found that the highest concentration of criticism focused on confusing elements of app navigation, rather than the idea itself. In particular—navigating from the pick-up page was confusing, as multiple testers noted that the buttons were nonintuitive.

Results and Discussion

Overall, our results from this prototyping were successful. All of our testers were able to complete the three tasks. With that being said, there were some key points in our critical logs for the testers.

There were a couple of situations throughout these testing trials where most or all of our users found themselves unsure of how to proceed. The most common situation was in trying to get to the restaurant. We saw how testers could easily view what restaurants had food to pick up, but selecting that restaurant after clicking on its location seemed to be more unintuitive that we had thought. In our prototype, once a user clicked on the location of a restaurant and decided to see more about that restaurant, our app went to a full screen view with the restaurant name, address, a call button, a link to the website, how many bags there were to take and a green checkmark button. We thought that this button would clearly indicate to the user that they could pick up food from that restaurant. However, we found that this button confused our testers and because of that, they did not know how to select that restaurant and get directions there. This was a clear bottleneck that we did not expect. We also found that just saying how many bags of food there were to pick up was not descriptive enough for our testers. They wanted to know what exactly was being donated and how much of it. Saying more about these bags of food would have given our testers more motivation to pick up this leftover food.

Another criticism of our app, especially from Tester 3, was that it was not social enough. She said that she would want the ability to post her deliveries to Facebook and other social

networks to show others her accomplishments and help market the service to her network. She also mentioned that she would like to post these deliveries to different social networks because she would like to promote these sustainable restaurants to her friends. This could be an added incentives for new restaurants to partner with us. Tester 3 also mentioned that instead of displaying the number of plates served nationally, she would like to know how many plates she has served through her deliveries and how that compares to the average person or even her Facebook friends. It seems like this added value of competition would engage more users in our app.

Overall, it seems like the layout and flow of our app was very easy to understand. All of our testers understood how to properly use the slide out navigation menu. They were all very comfortable with the directions map view to get to their destination. Once they understood the idea of our app, most of our screens became much more intuitive. In summary, users want more information and more connectivity from our application interface. We can build on the existing model to incorporate some of their suggestions, as noted above and in the appendices section for "Log of critical incidences."

Word Count (pre-appendices): 2391

Appendices
Log of critical incidences:

<u>(01) - All minor</u>

- (01) Food criticism: 2 bags of what?? what food is he getting? is it cold, is it hot?
- (01) wants distance from restaurant to shelter
- (01) doesn't know where he's supposed to go at the confirm screen (what shelter / where you're going / how far is it?) → repeat it on both the confirm (check and x page) and the initial page
- nice buttons
- nice "uberized" type of navigation system
- seamless navigation → pretty easy
- (01) when you arrive at the place, you should be able to call the shelter (have a phone number, like Uber when the driver arrives)
- (01) click on the reward and go to your rewards (coupon code or something)
- (01) coupon code when you activate the reward
- (01) expand cell for recent trips (give more info about recent)

- (02) Good: understood the "Recently" column
- (02) Plates served: easy to find

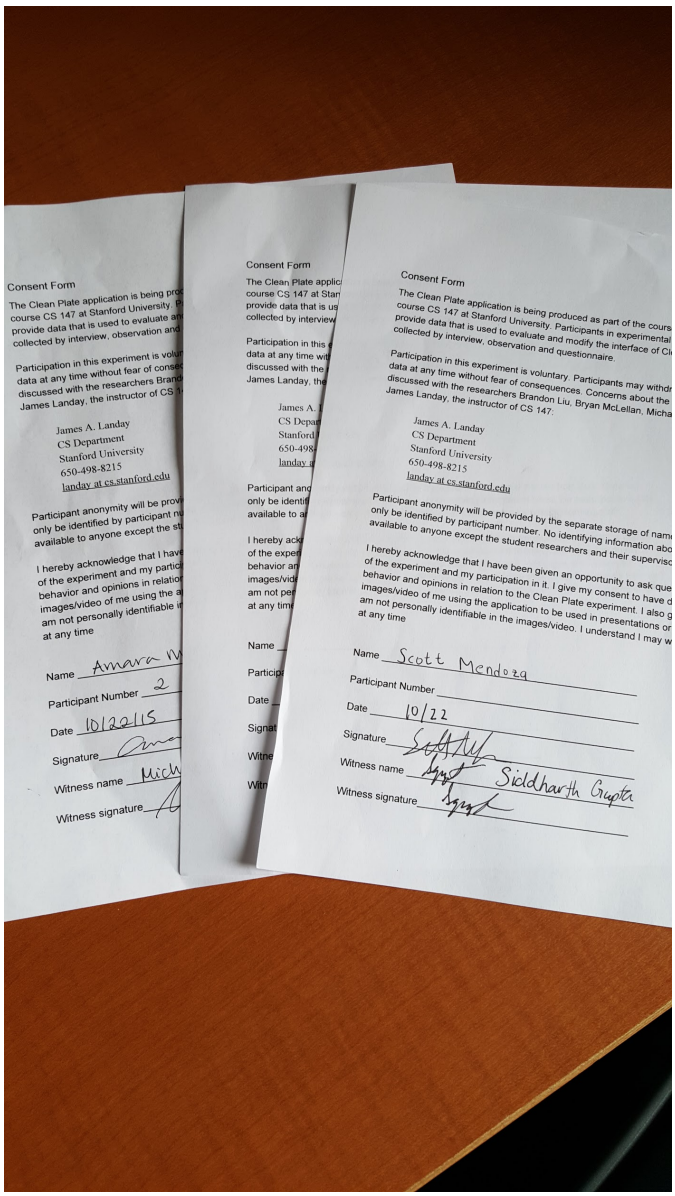
<u>(02) Trivial/Minor concerns</u>

- (02) User growth doesn't necessarily make sense?

- (02) Taps correctly on red dot (learn a bit more about the place)
- (02) Gets slide of Zola (confused after this point? → check mark button is confusing, should be labeled)
- (02) Click on check mark? → confirm pick-up?
- (02) Routing to the restaurant
- (02) More information on “Waiting for pick-up”
- (02) Directions -> Directions to the shelter
- (02) After confirming pick-up → just log off

(03) Trivial/Minor concerns

- (03) add share to Facebook feature
- (03) on plates served, wants to see where you indiviually stack up
- (03) gamify plates served view. ie let you compete against your friends just like words with friends
- (03) check button is unclear in the restaurant view
- (03) add more information to the navigation to restaurant and food shelter
- (03) want to share and promote these good restaurants that are sustainable



Consent Form

The Clean Plate application is being produced as part of the course CS 147 at Stanford University. Participants in experimental provide data that is used to evaluate and modify the interface of Cl collected by interview, observation and questionnaire.

Participation in this experiment is voluntary. Participants may withdr data at any time without fear of consequences. Concerns about the discussed with the researchers Brandon Liu, Bryan McLellan, Micha James Landay, the instructor of CS 147.

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Participant anonymity will be provided by the separate storage of nam only be identified by participant number. No identifying information abo available to anyone except the student researchers and their supervis

I hereby acknowledge that I have been given an opportunity to ask que of the experiment and my participation in it. I give my consent to have d behavior and opinions in relation to the Clean Plate experiment. I also g images/video of me using the application to be used in presentations or am not personally identifiable in the images/video. I understand I may w at any time

Name Scott Mendoza
Participant Number
Date 10/22
Signature
Witness name Siddharth Gupta
Witness signature