

Fantastic Five

P3: Interface Prototyping

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Group 3 - H06/H08

Project Description

The problem space of our project aims to improve local community engagement with the food relief organization Urban Recipe. Within our previous milestone, we brainstormed various designs that would help achieve these ends, ultimately deciding on a mobile app to fulfill these requirements. Within our scope of increasing interaction between community members and the organization, our general area of application is in bridging the barriers between these two entities and forming a sustainable approach to integrate the organization and its surrounding community. To this end, we have narrowed our goals down to three intended tasks we wish to support. They are the following: 1) Incentivize local community members to participate in social work within the community. 2) Reduce barriers to donating and volunteering with the organization by streamlining these processes to be as simple as possible. 3) Develop a stronger network of volunteers through invitation programs ("Refer a Friend"). The user population targets individuals within the community who may be relatively better off and have the time and ability to participate in philanthropic activity. The interface for our solution to these goals will be accessed through a mobile app, as the modularity that mobile apps have, along with our specialized skill sets as CS/CM students in programming, make this a feasible option to implement these user tasks. With all of these tasks in mind, the outcome is to reciprocate charitable behavior between community members to form a self-sustaining community that takes care of its neighbors and values mutual well-being.

Requirements Summary

Functional Requirements

Outreach:

The overall functional goal of our system is to increase the level of engagement between the local community and Urban Recipe. There are a variety of methods we have considered to accomplish this task (which will be elaborated on in our design alternatives section), as outreach has a very wide breadth of possible design solutions. Nonetheless, the system must aim to increase awareness and recognition of the Urban Recipe brand.

Recruitment:

An important part of increasing engagement between the local community and Urban Recipe is the building up of a strong volunteer base. The system must afford opportunities for local community members to contribute, and foster an environment where community members feel proud to contribute as well.

Non-Functional Requirements

Sustainability:

The system should adhere to UN sustainability principles of No Hunger (2), Sustainable Cities and Communities (11), and Partnerships for the Goals (17), as described in detail in Section 1.1 of our Part 1 report. Urban Recipe should serve as a point of reciprocity between community members. People helping people forms a closed loop (see principles of ecological design) community that feels proud to volunteer at Urban Recipe, and doesn't feel stigmatized for receiving aid from Urban Recipe.

Inclusion:

When designing our interface, a crucial point of consideration is the target demographic that we are performing our outreach to. This project is a community-wide effort to raise awareness of the services Urban Recipe offers, so the design should include as many members of the community as possible. Gathering voices from different income brackets and from diverse ethnic and cultural backgrounds within the area fosters a healthy exchange of perspectives.

*** Part 3 afterword: We recognize that certain sacrifices had to be made to our requirement of inclusion after determining that a mobile app would be the best path forward. Upon reflection, the nature of a mobile app inherently has a disproportionate impact on low-income communities who may not have mobile devices or readily available internet access. However, we contend that inclusion may be implemented as a design philosophy of our application by working on making the interface intuitive. Intuitive interfaces allow less tech-savvy people to nonetheless be able to navigate and gain meaningful utility from the application.*

Safety:

COVID-19 complicates the logistics of our interface, especially given that volunteering and outreach are traditionally in-person activities. Special care must be taken to ensure that safety guidelines are followed across every step of the system, and certain ideas like in-person outreach events become less feasible due to the pandemic. Additionally, marginalized communities are at a higher risk for COVID infection, complications, and death ([Risk for COVID-19 Infection, Hospitalization, and Death By](#)

[Race/Ethnicity | CDC](#)). Therefore, it is imperative that our design solution does not produce unnecessary exposure to vectors of COVID spread whenever possible.

*** Part 3 afterword: Having our interface be entirely digital mitigates the risks associated with COVID-19 exposure. Nonetheless, tasks adjacent to our user interface such as showing up to outreach events should still have ways to alert users of safety precautions.*

Design Summary

To fit in with our problem space of encouraging participation and engagement in the community, our design for our prototype has a large focus on facilitating the process of getting information to possible participants, volunteers, and donors, while also making it easier to participate in tasks associated with helping the community out and reducing food insecurities in the area. Our final prototype idea to address this problem space was a mobile app that would have multiple functionalities to inform users and make it easier for them to engage. For the design of the mobile app, we wanted to make information easy to see and make it so that the user is not overwhelmed with too much information. The tasks that we chose to base our design around are derived from our functional and nonfunctional requirements.

Our first two functional requirements were Outreach and Recruitment. Our design implements both these requirements through the tasks that we have based the design on. For the Outreach requirement, we currently have a page dedicated to showcasing events by Urban Recipe to keep users informed of what is going on at the time. We also have an easily accessible calendar that gives users knowledge of what is to come and volunteering days with several days in advance so that they have time to plan and prepare. One of the critiques of the current signup system from our data collection in Part 1 is that it is difficult to see what slots are available. Our design allows the user to see only what is available. For our Recruitment requirement we have implemented an option to refer friends so that they may also join the user in fighting food insecurities. Having more people participate in volunteering and donating falls under our goals of driving engagement.

Our non-functional requirement of sustainability is built into the design as a guiding philosophy, and ties into our inclusion principle. We will be gathering information from our demographic pre-survey to evaluate whether there are any disparities between the abilities of different user groups in accomplishing the tasks (anticipating that certain populations may be more tech-savvy, while others may not, such as a 64+ age group; we want the app to be as intuitive as possible so that demographics who are less “tech-savvy” still are able to easily use our interface). We want to ensure that every member of the community is able to take advantage of this interface, so that it can be used toward the goal of supporting their local community. This reciprocative cycle of community members with means assisting community members in need is our ultimate goal in the adoption of this prototype. Finally, safety considerations are acknowledged in the previous section’s afterword on Safety as a non-functional requirement. Although we acknowledge that safety and a mobile app do not immediately share characteristics, we assert that ways information is communicated to users of the application can assist with ensuring safety at events and best guidelines to follow while performing certain responsibilities.

Prototype

Prototype Summary

To address our solution space, we decided to create a mobile application. This application aims to provide an easy method of volunteering with and donating to Urban Recipe. Furthermore, this application provides ways to reach out to other people, with the ultimate goal of getting the community engaged with the task of eliminating food insecurity. We decided to utilize a mobile application as our interface due to the high accessibility of mobile devices in modern days. Given that a majority of the United States' population access the internet through a mobile device (<https://www.census.gov/library/stories/2018/08/internet-access.html>), we decided that we will be able to reach a maximum target audience with a mobile app.

Our prototype contains various functionalities to achieve the goal of increasing volunteer retention and engagement. Specifically, the functionalities are viewing/signing up for volunteering events, donating to Urban Recipe, and friend referrals. The volunteering functionality provides the user with enough information to know what they are volunteering for and facilitates the process of signing up for events and viewing what is available. The application walks the users through multiple screens, each pertaining to specific aspects of a volunteering event (e.g. date/time, event description, etc.). The donation functionality provides users an easy, accessible way to make a donation through a credit card or a bank account. Finally, the friend referral functionality encourages and allows users to send a message to a friend, notifying them to download the app and participate in Urban Recipe.

The prototype features multiple screens for the various functionalities and user tasks that we have chosen to be essential to increasing engagement in the community. Another major goal for our prototype is to make participation more accessible and reduce any resistance points while engaging with Urban Recipe.

Visual Materials

Home Screen

This is the current home screen of the mobile app, displaying the upcoming volunteering events. Users can view the event description of any event by tapping on the event. Users can also click on the calendar icon to see a calendar view of Urban Recipe events, as shown in Figure 2.

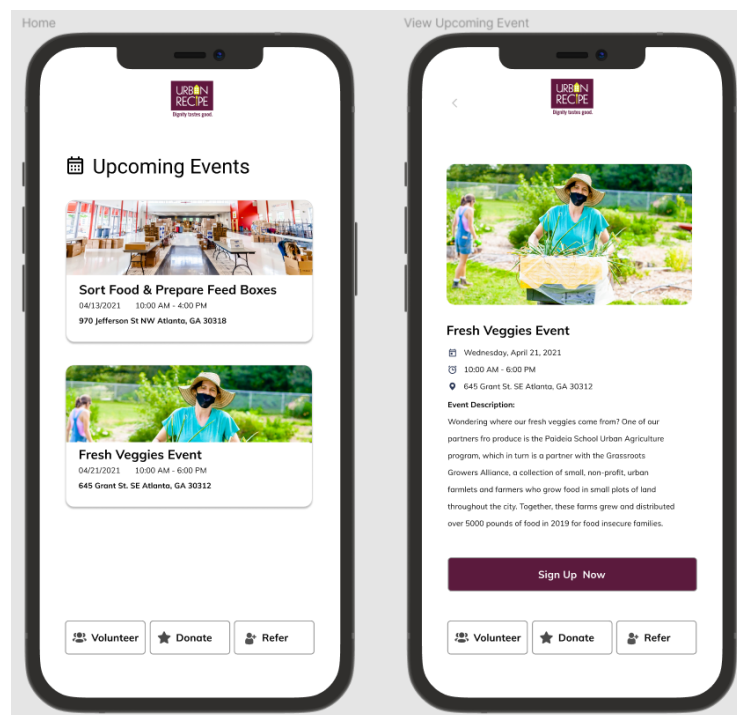


Figure 1: A mockup of an interface within the mobile app that shows upcoming events and event descriptions.

Sign Up Screen

The sign up screen of the mobile app displays a calendar, which highlights days of the current month that have any special events going on regarding volunteering. It also shows whether there are slots available to sign up for that day/time to volunteer. For example, tapping on April 21 may show that 40 out of the 100 available slots are filled for the Fresh Veggies Event. The confirmation screen indicates that the user had completed volunteer registration.

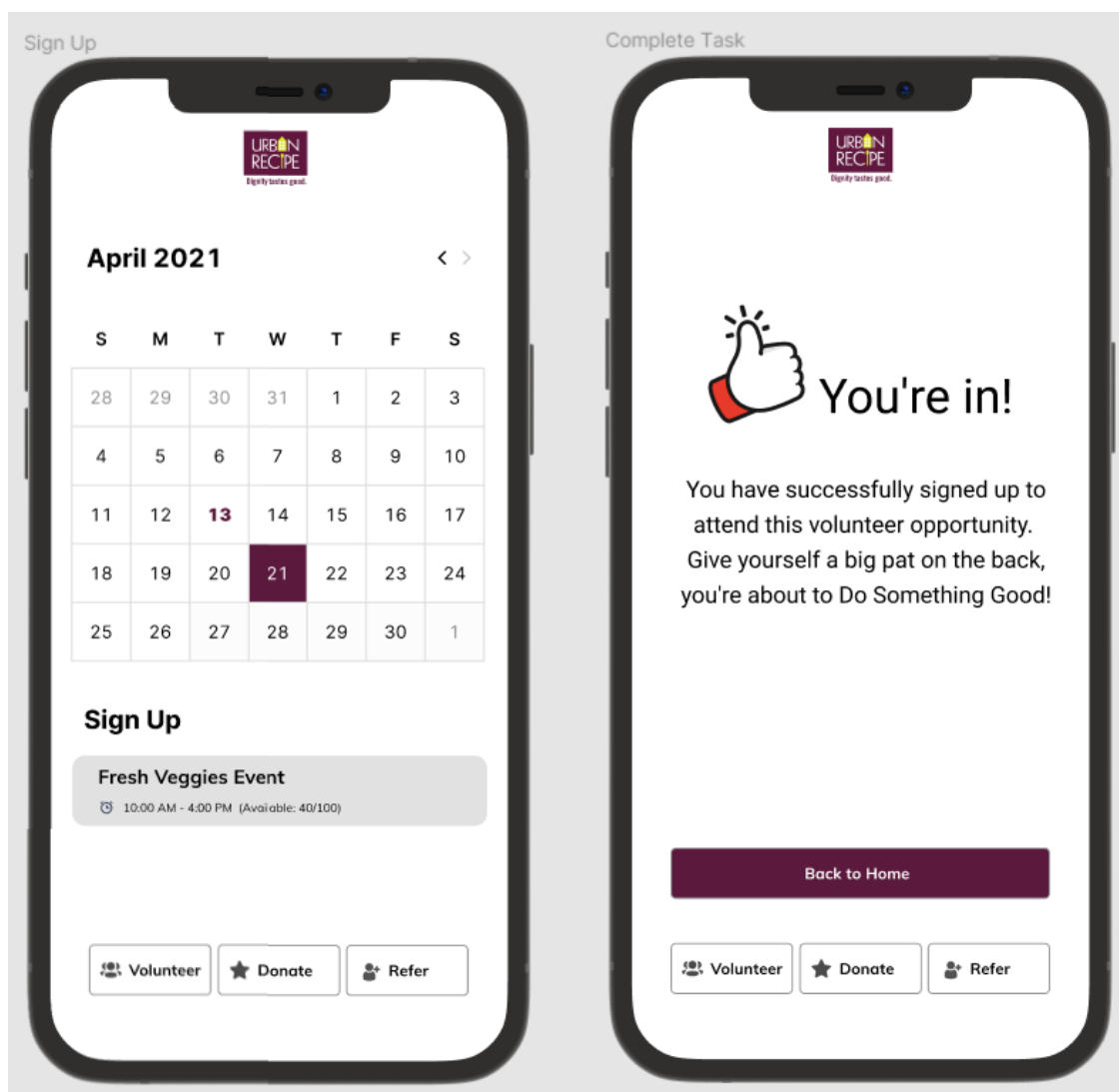


Figure 2: A mockup of an interface within the mobile app that shows upcoming events in calendar view.

Donate Screen

The donate screen of the mobile app displays the donation amount, frequency and payment methods. Once the user checks the checkbox, the additional 2.9% processing fee will automatically be added to the total. Users can donate with a credit card or bank account; after filling in the required billing information, users may tap Donate to confirm. The confirmation screen indicates that the user had completed donating to Urban Recipe.

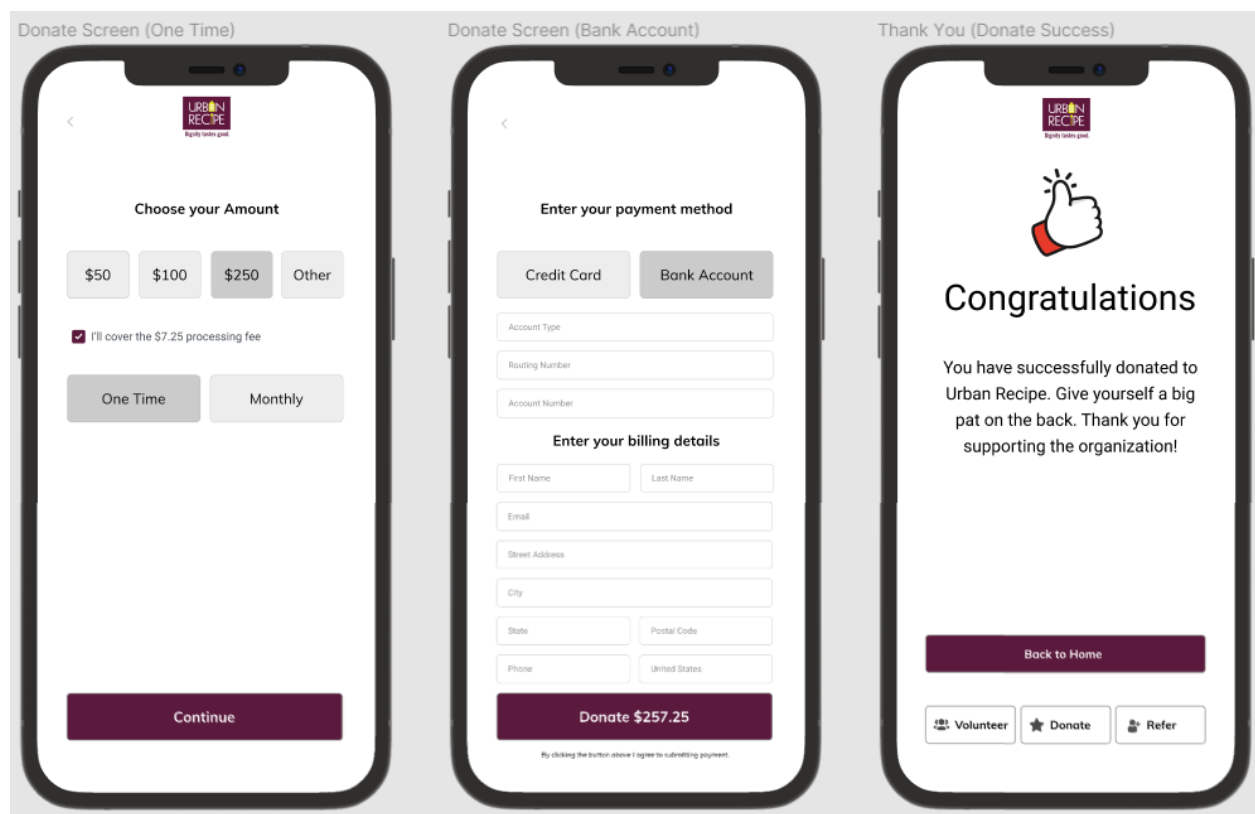


Figure 3: A mockup of an interface within the mobile app that allows users to make donations to Urban Recipe with their credit card or bank account.

Referral Screen

The referral screen of the mobile app displays two buttons, Email and Phone, showing different ways regarding referring friends. This invitation can be sent out through the app itself through accessing contacts that are already on the users phone. The confirmation screen indicates that the user had completed recruiting a friend to join in volunteering or donating to Urban Recipe.

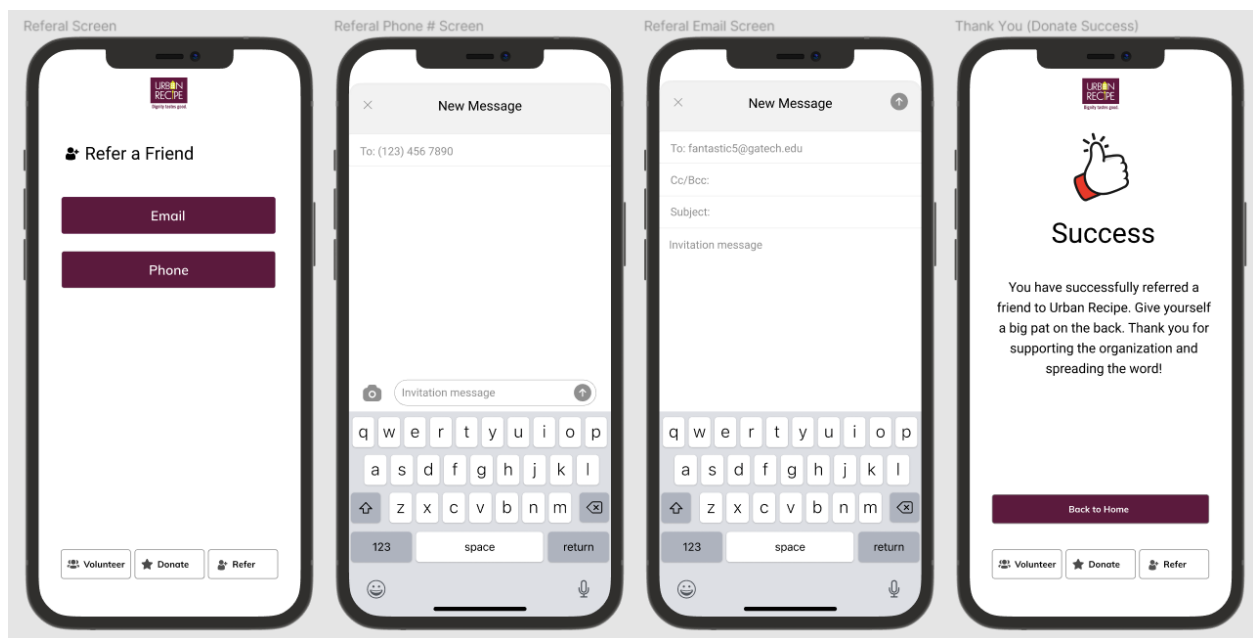


Figure 4: A mockup of an interface within the mobile app that allows users to send referral messages to friends.

Prototype Rationale

We decided to choose this prototype in the end because it ranked highly among our initial prototype ideas in terms of usability goals and it was also popular among the people who saw our ideas during the poster session. In particular, Urban Recipe representative and Deputy Director Andrea Arroyo visited our booth during the 3/29 poster session and was most invested in our mobile app prototype¹. From the data that we collected during the survey², most people already have a mobile device, and if they were to receive any notifications regarding volunteering events and donations, they would have preferred it to be done electronically through text or email. A mobile app would provide users with a convenient way to signup and also be reminded of any slots that they have signed up for because they will most likely have their device on them.

With a mobile app, we believed we could more utilize our individual skills on the team. Having a team composed of primarily Computer Science majors, we decided the prior two ideas, school outreach event and t-shirt design, would be feasible but would not fully align with our skill sets. A mobile app can also be scaled and improved upon over a period of time. With a dedicated team to update the software, feedback can constantly be attained which can lead to new features and updates that can improve the users quality of life using the app and boost further future engagement with Urban Recipe.

¹ See Poster Session Notes in our team page:
<https://gatech.instructure.com/courses/164786/pages/h06-slash-h08-3-fantastic-five>

² Survey is described in further detail at [P1 Document - Fantastic Five](#)

User Scenarios

Scenario One

Ronald, 21, is an average college student who loves getting engaged with his community and is very tech savvy. However, he wants to be more involved in the community but is constantly traveling from place to place throughout the day, rendering him unable to actively sit down and search for opportunities. A good friend of his says he found a new mobile app that Ronald can use to easily find opportunities all from his phone. His friend sends Ronald a referral link from the app. Ronald excitedly clicks the link and downloads the app. After creating an account, he quickly looks at the calendar within the app to see when any events are taking place that coincide with his own free time. After quickly browsing, he finds an event he likes and signs up with the press of a button. Surprised by how quickly he was able to register, he clicks the referral tab and starts referring other friends he knows will be interested in volunteering with him. Ronald is satisfied that he can now sign up for volunteering events no matter where he is.

Scenario Two

Carlos finds out about the mobile app through a 'Refer A Friend' invite in his inbox from his friend Joshua. Within the email, Joshua tells Carlos that he's been volunteering at Urban Recipe, and wants Carlos to join him at his next volunteering timeslot. The email has a direct link to download the Urban Recipe companion app, so Carlos installs it hassle-free. Once he's in the app, he's able to use his existing Google account to sign in as a unique user without needing to make a new username and password. From the app's home screen, he's able to discover types of volunteering options. He is able to tap a modal. Once he selects it, a calendar interface shows up. Once he selects a date, he's able to tap to sign up for his desired activity. After a confirmation screen, he's greeted by the "You're In!" screen indicating that he has completed his task of volunteer registration.

Evaluation Plan

Tasks Evaluated:

- Register for an outreach event that you'd be interested in
- Send a Refer a Friend invite to someone you think may be interested in volunteering
- Financially support Urban Recipe by donating money to the organization.

Evaluation tools:

- Pre-evaluation demographic survey- [link removed]
- Post-evaluation prototype survey - [link removed]
- Time it takes to navigate
- Number of clicks
- Listening and observing participant initial and reflex thoughts and actions.

We chose three tasks which closely aligned with the main goals of the primary and secondary shareholders that will be utilizing our app and built a high fidelity prototype on figma to simulate these various functionalities. The overarching problem which we've been aiming to solve has been increasing communication, engagement and community awareness of Urban Recipe. Therefore, the main goals of the user during the evaluation revolved around utilizing app functionality for participating in events and spreading the word about the organization.

One important protocol to follow through our evaluations is to remain systematic about our methods and the platforms that we use to conduct the evaluation of the system that we have designed.

During the evaluation, we begin by explaining who we are and what the goal of the evaluation is. We follow this by assuring the participant of confidentiality of their identity and responses. This is to ensure accurate and unbiased answers. Participants are statistically more likely to provide honest feedback when there is no possibility of

their answers being disclosed. Upon receipt of clear consent, the participant is given a pre-evaluation survey to fill.

In order to ensure inclusiveness and gather data of possible demographic related bias, a pre-evaluation survey is administered. The survey contains carefully curated questions which store the user's age, gender, ethnicity, education level, employment status, familiarity with non profit organizations and technological tendencies. The final two are very important because in building an app, a participant's previous experience using mobile applications can greatly influence their perception on the usability of our app. In addition, previous familiarity with non profit organizations can also alter some metrics such as likeability and usability based on the user's already formed expectations.

Upon completion of the pre-evaluation survey, the participant is given the figma mockup of the app, and directed to begin completing the tasks.

While completing the various tasks, a series of quantitative and qualitative techniques are utilized to better understand the efficacy of our mobile app. The time it takes to complete each task is tracked and recorded. This offers a metric to evaluate the simplicity and the discoverability of various functionality. The longer it takes to complete a task, the more likely it is that the UI lacks clarity and simplicity. This will help us decide on what functionality to further iterate over and possibly simplify.

In addition, the number of clicks it takes to carry out a particular task is also tracked and stored. This helps track the efficiency of various functionality. Overly robust workflows cause confusion and lead to mistakes. This can negatively affect user

satisfaction. We intend to measure the number of clicks it takes each participant to complete a task compared to our predetermined minimum, and use that as a guide on how to improve the speed and efficiency in which users complete tasks.

Furthermore, during the entire evaluation, participants are encouraged and probed to share their thoughts on ease of use and discomforts while utilizing the app. This helps us to track the "unknown unknowns." Feedback without possibly biased prompts, will help us understand not only the participant's actions but also the reasons behind those actions.

Task 1 : Register for an outreach event that you'd be interested in

The main relevance of this task is to track our solutions to the problem of low community engagement, a calendar interface for signing up for events. This task helps us test the most important first step to participating in an event, registering. Upon registration, volunteer retention is facilitated through periodic upcoming event updates.

Task 2 : Recruit a friend to join in volunteering

The main relevance of this task is to grow a local community network of volunteers by allowing other people within the community to get involved through the use of existing volunteers as vectors.

Task 3 : Donate money to Urban Recipe

The main relevance of this task is to test a functionality that will be more frequently utilized by secondary shareholders. Participation and community engagement also

occurs through financial support and this task helps us test the usability of donation functionality.

Upon completion of the various tasks, a post-evaluation survey is administered. This survey asks participants to rate the intuitive and ease of use of various tasks in order to have a quantitative measure of usability of the app. Subsequently, it asks participants to rate how likely they are to revisit the app, this helps to get an objective measure of the likeability of the app and its effectiveness in increasing community engagement. Finally, participants are asked open ended questions about their opinions on the ease of use and overall feelings about the app. This provides a more subjective, isolated data point for evaluating the app.

Finally the participant is debriefed, offered gratitude and the evaluation concludes.

Reflection

Around the conclusion of our interface report for Part 2, we initially planned to proceed with the “school outreach event” interface to accomplish our tasks. However, the poster session conducted near the end of our Part 2 Report period gave us valuable insights, particularly from the deputy director of Urban Recipe, Andrea Arroyo, who was drawn toward our mobile app interface alternative. After further deliberation with team members, we decided that the logistics of implementing a real-world “event” as an interface prototype stretched the intended interpretation of a “user interface” a little more than we would have liked. Furthermore, as we have already reiterated throughout this

report, advantages of a mobile app implementation included relative skill set expertise, modularity, existing access by a large majority of US citizens, among others. Notably, due to the change in the prototype we wished to move forward with, we have had to make some concessions and acknowledgements to certain functional and non-functional requirements, detailed in the afterwords in those sections.

The process of defining the primary tasks we wished to implement and translating them into actionable objectives in our high-fidelity Figma prototype was a relatively streamlined process aided through our studio sessions and lecture work time. Having team members who were already experienced with Figma allowed us to easily translate ideas into interactable pieces. In developing the evaluation protocols for our demo, we delegated responsibilities among individuals and discussed together throughout lecture work time in order to be efficient while ensuring that everyone was on the same page regarding the evaluation's goals and methods. Our actual demo session was particularly insightful; in particular, Kevin Hwang provided us with feedback about ways to better structure our evaluation protocol in the future (make sure that the verbal consent is *explicitly* given, give the participant greater background toward the research's objectives so that they can better immerse themselves into the task). One thing we encountered during the demo was that our participant's mouse wasn't being tracked by Discord's screen share. Because one of our evaluation metrics was on the number of clicks taken to achieve a task, we were not able to reliably get information for that metric during the demo. We ended up tracking it through the number of screen changes that appeared, although this data will need to be thrown out as it is not systematic and was recorded differently due to external circumstances. Circumstances like these are

something we will have to take into consideration in the future when conducting the research on real participants. Nonetheless, our demo process was successful on the whole, and we are satisfied with our prototype.

Appendix

Fantastic Five team page: [H06/H08 --- \(3\) Fantastic Five: 3873 U I Design \(instructure.com\)](#)

Pre-study Demographic Survey: [link removed]

Post-study Evaluation Survey: [link removed]

Figma Mobile App mockup: [► Fantastic Five Mobile App Mockup \(figma.com\)](#)

P3 Demo Script (Includes confidentiality procedures, surveys, tasks, and debriefing):

[link removed]

P3 Demo Evaluation Sheet:

[link removed]

P1 survey results described in detail here: [P1 Document - Fantastic Five](#)

UN Sustainability Goals: [THE 17 GOALS | Sustainable Development \(un.org\)](#)

Risk for COVID-19 Infection, Hospitalization, and Death by Race/Ethnicity

[Risk for COVID-19 Infection, Hospitalization, and Death By Race/Ethnicity | CDC](#)

Marginalized ethnic groups have poorer internet access even in the same country

[Marginalized ethnic groups have poorer internet access even in the same country - The Verge](#)

More Than Two-Thirds Access Internet on Mobile Devices

<https://www.census.gov/library/stories/2018/08/internet-access.html>