GetGreen Process Book

Cato Cannizzo, Roz Gillie, Lara Hattatoglu, Sebastian Priss

University of Washington

HCDE 493

Executive Summary

GetGreen is a sustainability habit building app that's looking to increase user retention through task recommendations and eco-friendly goals. Given the unique nature of building sustainable habits, refinement is required to ensure user satisfaction. In the first phase of our capstone project, our team conducted extensive user research to investigate user perceptions and experiences surrounding geolocation features, current sustainable actions, as well as experiences with habit-forming applications. Over two weeks the team conducted a diary study, a comprehensive survey of 24 people, and a focused three-person participatory design session.

This generative research helped us understand our problem space before moving forward with creating our designs. After affinity mapping our findings across methodologies, the team iterated upon several preliminary takeaways. These takeaways will help increase and sustain engagement through refinement of geo-location notifications, and various interface adjustments.

The most commonly brought-up issue was dissatisfaction with the actions presented in the application. Frequent pain points included the repeated content that lacked variety as well as the limited customization of actions and notifications. Another takeaway was the importance of transparency, both in terms of general location-based services, and specifically how GetGreen uses geolocation. Regarding notifications, the research highlighted the significance of customization. Users would like to be able to choose what notifications they receive and how they receive them, all of which help mitigate notification fatigue. Habit building has proved to be challenging, with many users relying on social support as well as setting an intention to remain motivated.

After synthesizing the data collected, we set forth recommendations for future iterations. Using the data collected from the diary study, participatory design session, we recommend that GetGreen:

- Redesign how users add, track and manage action items
- Personalize action suggestions
- Increase customizability of notifications
- Add habit-forming functionalities such as scheduling, and goal tracking

These takeaways were used to inform our design spaces for our next phase in this project. After discussions with GetGreen, we prioritized the following design spaces and began wireframing solutions:

1. Home screen navigation and action plans
2. Personalization Settings

To understand how we might create such features we created several low fidelity prototype screens. These screens added multiple views for the action layouts on a users home page, new ways to look at and view goals, and new affordances for interacting with actions that have already been selected. Then we usability tested the screens to ensure their navigation was intuitive, and that the new features would help address existing users wants and needs. This usability test revealed six pain points with our low fidelity designs. However in terms of overall experience, our low fidelity designs averaged at 81 out of 100 on the US Government System Usability Scale (SUS).

We then recreated our designs into high fidelity wireframes incorporating the visual branding and UI elements of the GetGreen application and eliminating the pain points found within our usability test. We think that this redesign is ready to be added into the existing GetGreen application. Once incorporated this redesign would see users with slightly shorter first sessions within the app, followed closely by several more consistent sessions in the following days. This should help even out the time users initially spend with the app and increase long term engagement with a goal centric improvement model to build off of. If segmentation is necessary when add our redesign to the app it should be prioritized as follows:

1) More prioritized and visible goal selection process (See: *Onboarding Wireframes*)
2) More affordances for tasks, especially repeatable tasks (See: *Modals)*
3) More settings options for personalization (See: *Notification Settings)*

Phase 1: Research

Introduction

The new application, GetGreen, from Emerald Technology Group, hopes to support users' climate fears by providing information and actionable suggestions to increase sustainability. GetGreen creates an actionable environment in which there is a measurable impact on combating climate change on the individual level. GetGreen reached out to our team to help kickstart use of geofencing technologies into their new app.

How might we increase user retention through geofencing and other geolocation-based technologies?

Our research question shown above revolves around the usage of geo-location in the GetGreen app and its influence on user retention. Our initial research relies heavily on the functionality of this geo-location feature. As this is a new feature on the GetGreen application, we needed to be prepared for a wide range of user experiences as we work with the variable accuracy and reliability of the geo-location data. To accommodate this, we conducted a diary study along with a participatory design session to reveal insightful qualitative data from our user's experience with the app. In preparation for any challenges we might face if any technical issues arise, we prepared an additional community survey to gather user feedback, regardless if we had a fully functional feature to test.

Diary Study

To begin our research, we took GetGreen's current implementation of the geofencing user experience and conducted a longitudinal diary study. The diary study allowed us to follow users for two weeks as they interacted with the app notifications and task flow. During this time they would take notes of their experience and identify any pain points that should be addressed.

For our study, we used screening surveys to recruit users interested in the two-week study. Because of the limitations placed by GetGreen's development of the geolocation features, we were restricted to only having users who had Android phones and who lived in the University District. We primarily used Slack channels, Facebook environmental groups, Reddit posts, and emails to environmental clubs at the University of Washington to recruit participants. For our onboarding, we organized a Zoom meeting with our

participants to go over the details of the study and show them how to download the GetGreen app.

Diary Study Participants

Our study participants were primarily college students who we recruited using personal connections and from our recruiting emails. We originally had 10 participants onboarded, but due to location and technical issues, we ended up having only 6 participants who stayed engaged in our study for the two weeks. For each week in the diary study, the participants received $10. The participants being all college students may limit us in the future if we plan to design with older demographics in mind.

Demographic Breakdown

#	Age	Gender	Race	Income	Job Status
P1	21	Female	White	$1,000 to $9,999	Student
P2	21	Male	Asian	$10,000 to $49,999	Student/Part-time
P3	22	Female	Asian	$1,000 to $9,999	Student
P4	21	Female	Asian	$10,000 to $49,999	Student
P5	25	Male	White	$1,000 to $9,999	Student/Unemployed
P6	22	Male	White	Rather not say	Student

Data Collection Method

Our diary study had two main forms of data collection; short response and long response surveys created using Google Forms. For the data collection, we set up a slack channel with all participants on it so we could send out the survey to everyone at the same time. During the two-week study period, the short response survey was sent out at 6 pm every day on the #general channel. The long response survey we sent out on the #general channel halfway through the study.

Our short response daily surveys collected information regarding if the user received a location-based notification if it was completed, any barriers they faced, and just general questions about their experience. Our long response survey gathered general information about the GetGreen app as a platform. Participants were asked to share their likes/dislikes, thoughts on notifications, and their current sustainable habits. The findings

from both of these studies were then affinity mapped on our team FigJam board. To see our survey questions, refer to Appendix D.

Overview of Data Collected

After our study, we had a total of 59 responses to the diary short response surveys and 6 long responses from our 6 participants over 2 weeks. Of the 59 short responses, participants only had a total of 6 times where they received a notification. In our 6 long responses, participants expressed how they enjoyed the variety of challenges and the way they were able to track their progress through the collection of leaves. The people who did receive notifications responded that the notifications didn't change their actions, and they wished they could hide certain actions that don't pertain to them. To view the affinity mapping of our results from these surveys, refer to Appendix A.

Diary Study Challenges

The main issues we had with our diary study arose during the participant recruiting and screening. For starters, we had a major bias of male responses over female respondents, which we believe came from us posting our recruiting survey on Reddit. We also had no way to verify if someone lived in the U-district, which resulted in us onboarding two participants who were located overseas. We believe that they got through our screening because of how predictable our questions were, as it was easy for participants to understand what we were looking for and lie in the screening. The main effect this had on our study is we had fewer participants than we were expecting, as we didn't have time to recruit and onboard more. To avoid these issues, we should have kept recruiting local connections, and not posted it on Reddit where anyone in the world can see it. In the end, the demographic our data represents ended up only being college-aged participants.

In addition to our data collection issues, we faced challenges with the use of geolocation data on the GetGreen backend. We had to troubleshoot with participants to ensure they were sharing their location data, but this was hard to verify because our onboarding was over Zoom, and the numerous points of failure to get a notification. Some of our participants never received geolocation-based notifications, and because of this, we received less information from our daily surveys than we were expecting.

Participatory Design

After the diary study, we then met with some of the participants to hold a participatory design session. We unpacked their experiences with the app to gain insight into how they

believed the experience could be redesigned. This allowed us to understand how users interacted with the app in their everyday lives, and how it fits into their daily schedules.

Participants

We invited three of the diary study participants to join the team for an hour-long participatory design session. All three participants were students studying at the University of Washington and had been actively engaged with the beta version of the GetGreen application over the past two weeks. All three participants expressed an interest in technology as well as sustainability. Participants were rewarded with $30 for their involvement in the participatory design session.

Data Collection and Analysis

The three participants were shown a PowerPoint presentation that prompted them to think about a variety of topics. Namely, what sustainable actions they would like to complete, how they form habits using their phone, experiences with geolocation, and general pain points within the GetGreen application. Using sticky notes, each participant would brainstorm their ideas and have a group discussion where they would affinity map patterns and relationships between the noted concepts with their peers. To promote discussion, the participants were instructed to approach the topics as a group, even when brainstorming. For a full list of instructions, refer to appendix E.

It is important to note that while many of the prompts referenced concepts relevant to the GetGreen application, the discussion was kept more broad to include potential experiences with other applications as well. When the discussion was coming to an end, the team would ask about connections between the concepts that were discussed and the participants' experiences with GetGreen. To view notes from the participatory design session, refer to Appendix B.

Survey

The final method we used in this first stage is a survey to collect general user feedback on the type of features they would like to see from the app. This was conducted alongside the timeline of the diary study and gave us an understanding of potential users beyond the ones in our study. This survey informed us on how we can increase user retention through features outside of those present within GetGreen’s app.

Participants

We surveyed 23 participants who were recruited from the HCDE slack channel, a UX networking group slack channel, and word of mouth. Therefore, we expect that our participants are primarily college students and UX professionals. The only requirement we had for our participants was that they were over the age of 18. All other demographic factors were kept randomized.

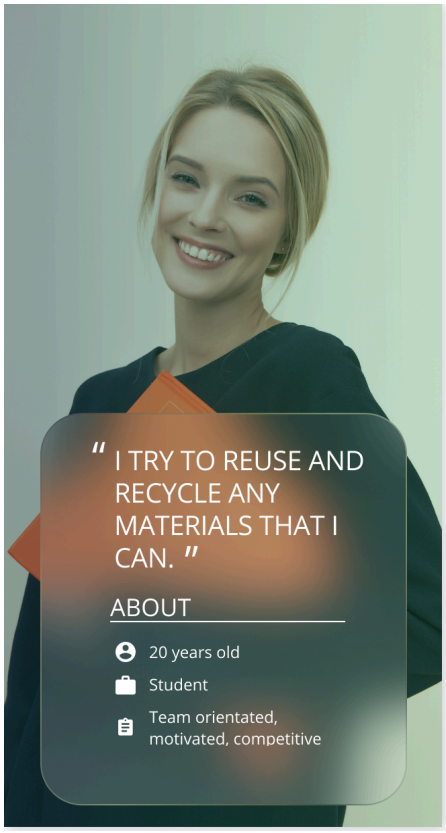
Data Collection and Analysis

We created our survey on Google Forms. Our survey gathered information on three categories that pertained to the Get Green application. These categories were sustainability actions, location tracking, user retention, and habit formation. For each category, we asked for both qualitative and quantitative data. The quantitative data captured information on the frequency and satisfaction of different actions. The qualitative data allowed users to go more in-depth about their experiences and opinions. Google forms automatically created data visualizations for the quantitative data and we affinity mapped the qualitative data on Figma to extract key findings. Refer to Appendix D for a full list of survey questions.

Key Findings

Personas

Our team created two personas to represent the needs of our target users. The purpose of these personas was to better understand the expectations, concerns, and goals of our users to create designs centered around them. In addition, we wanted to understand the varying needs and wants of our different user groups. Therefore, we created two different personas. Jackie represents the environmentally conscious user who is well-informed about sustainability and is already doing actions that positively impact the environment. Daniel represents the user who wants to do more for the environment but isn't sure where to start. We created these personas using the data we collected from our research.



JACKIE STUDENT

SCENARIO

Jackie is an undergraduate student at the University of Washington majoring in environmental sciences. She is passionate about doing her part when it comes to sustainability. She helps her housemates recycle and is always composting. She has been vegan for three years and takes the bus to school every day. Nevertheless, she often wonders how she can incorporate more sustainable habits into her day-to-day life.

GOALS

- Reduce carbon footprint
- Share actions and engage with a sustainability community.

WANTS

- Learn about more sustainable options.
- To be able to understand the impact each of her actions has on the environment.

FRUSTRATIONS

- Unsure of how to incorporate new habits into her daily routine.
- Sustainable products are costly, and she sometimes has to go out of her way to get them.

FAVORITE APPS

getgreen

Journey Map

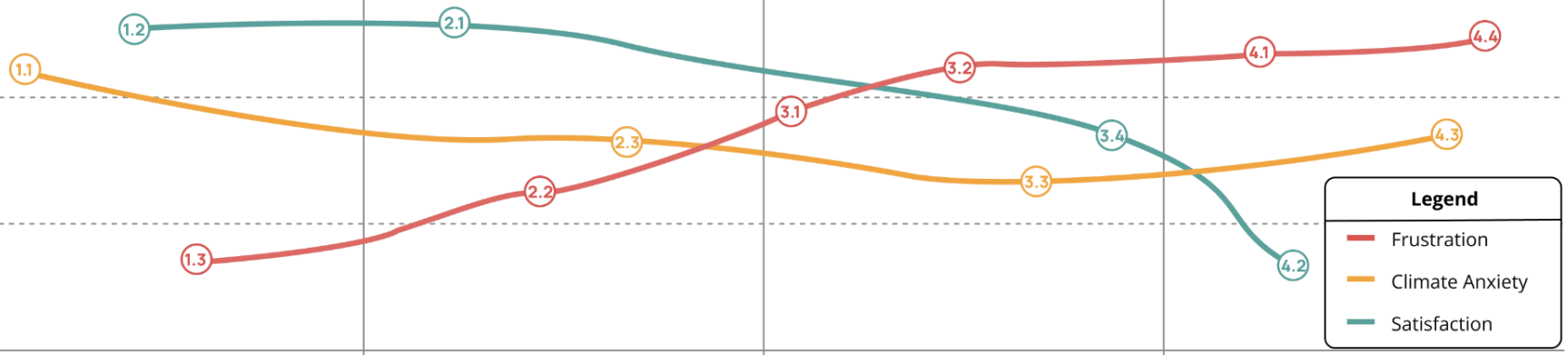
One of the best ways to visualize user pathways is to create a user journey map. A user journey map is a visualization of what the person goes through as they take the necessary steps to accomplish a goal. Unlike user flows, journey mapping adds a dimension of human emotion and frustration throughout each step of the process. It also includes context by adding a scenario to the map. The following map provides a holistic view of the user's experience with geo-location services and reveals the findings we gathered from our diary studies, participatory design session, and competitive analysis.

User Journey Map
Jackie

User Description:
Jackie is an undergraduate student at the University of Washington majoring in environmental sciences. She has been vegan for three years, but she often wonders how she can incorporate more sustainable habits into her day-to-day life.

User Goals:
- Reduce carbon footprint
- Wants to share actions and engage with a sustainability community.

Level	Onboarding	Exploring the App	Completing Actions	Longterm Engagment
High				
Medium				
Low				

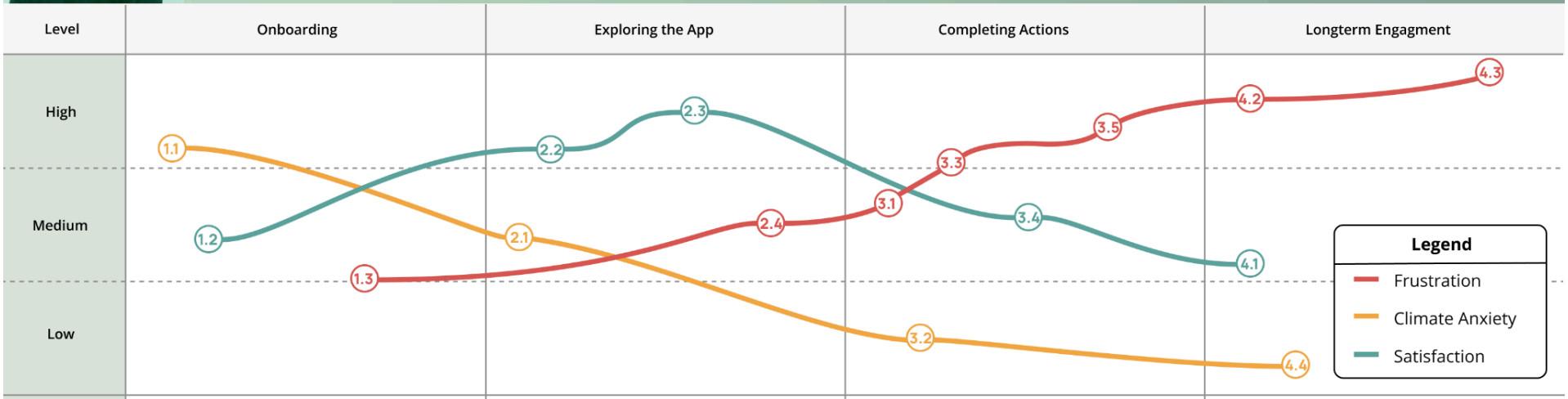


Experience				
	1.1 Is recommended the GetGreen app from a friend in her major. Goes to the app store on her phone and downloads it to see if it will help her be more sustainable	**2.1** Loves the wide range of sustainable options. She spends a few minutes exploring the app.	**3.1** Keeps getting notifications about going meatless or using meat alternatives, but she already is vegan so these reminders seem pointless. She wishes she could hide them.	**4.1** Still isn't quite sure why the app needs her location data and isn't comfortable with it for the long term.
	1.2 Taps through the onboarding steps and enjoys how it personalizes the experience for her.	**2.2** A lot of the actions she already does consistently, so she spends time clicking complete for all those actions. She wishes the app would have known to complete these actions for her based on her current sustainable habits.	**3.2** Sees recommendations for sustainable actions in the home, but she lives in the dorms and can't complete any of them.	**4.2** Likes seeing recommendations for vegan restaurant recommendations and has kept that notification on.
	1.3 Slightly confused about why the app needs her location, but provides it anyway if it means it will improve her app experience.	**2.3** Is intigued by the climate projects and wants to learn more about how to contribute to them.	**3.3** Enjoys seeing how her leaves contibute to real world sustainablliity projects.	**4.3** Wonders how much her leaves have helped the climate projects.
			3.4 Enjoys seeing herself on the leaderboard based on all of the tasks she has completed in the past.	**4.4** Keeps using app occasionally, but has turned off most notifications because they didn't apply to her.

User Journey Map
Dan

User Description:
Dan works as a sales consultant for a Seattle-based technology company. Lately, he has been feeling guilty about his lack of sustainable habits and is oftentimes discouraged about the impact of his individual actions.

User Goals:
- Make more informed choices about his actions
- Eat more locally sourced and organic food and produce



Experience

1.1 Comes to app full of climate anxiety with out knowing what he can do to fight it.

1.2 Likes the onboarding and is eager to see his personalized action recommendations

1.3 Confused why the app wants his location all the time, and wishes the app would explain more about what is does with the location data

2.1 Relieved that he has so many different actions he can do to combat climate change

2.2 Loves that his actions can also help contribute to carbon capture projects

2.3 Likes how each day has a new challenge to direct him to be sustainable

2.4 Confused that he sees so many actions that go against the answers he put in onboarding

3.1 Annoyed that the app always tracks his location although he barely uses it

3.2 Happy he is finally doing his part to fight climate change

3.3 Always forgets his progress on week long actions

3.4 Finds notifications helpful reminders as he constantly forgets what actions he has selected

3.5 Dislikes that he constantly has to re-select the daily / weekly actions he does

4.1 Enjoyes he can look back on the type and amount of leaves he has earned

4.2 He keeps seeing actions he can not do, and actions he has no interest in doing

4.3 He has done most of the actions and is now repeating actions, so he decides to uninstall it

4.4 He has done most of the actions and is now repeating actions, so he decides to uninstall it

Results and Recommendations

After analyzing the data from our preliminary round of user research and mapping it to our user personas and journey maps, we established four areas of improvement for the GetGreen app. The areas of improvement are: Action Interaction, Action Search, Notification Personalization, and Information Conveyance. While these areas for improvement do not systematically address each piece of feedback we captured, we believe that the changes suggested in each area will be foundational for improving the users' experience with the app, and will provide the first steps to increasing user retention. Additionally, while we captured feedback and results that call for new features we have limited our recommendations to suggested changes to current features of the app.

Action Interaction

Throughout all three segments of our user research one common trend was the unique ways each user wanted to engage with an action, or habit in the survey responses. This is most clearly seen in the survey responses to "How do you build habits?" (Appendix C - Figure 13) but can also be directly noted in the "Sustainability Activity" (Appendix B - Figure 6), and "Miscellaneous Notes" (Appendix B - Figure 5) of the participatory design session. Specifically, for the GetGreen application, the users in our participatory design session wished for better ways to track their progress while completing actions, and more affordances for actions that can be repeated daily. So we recommend three changes to the user interaction with actions.

1) Allow users to set their reminders for individual actions. Other affordances such as a notes section, social section, or allowing users to select predetermined variations of the actions would also be recommended. This will allow users to feel supported in tackling actions in a way that is flexible to their personal lives.
2) Add tags to each action for if it is a 'daily', 'weekly', 'monthly' or 'one-time' action and affordance for each type. Specifically, repeated actions should have a mechanism to automatically add themselves to the users' home page without the user having to go to the explore tab and select 'count me in' each time. Additionally, users mentioned in both surveys and the diary study interest in 'streaks', which could be implemented as a way to see for how many days/weeks/months a user did a repeatable action. Finally, an affordance for 'One-time' actions would be to not reappear in the users explore tab.
3) Break up big actions into a string of sub-actions. Users in the diary study mentioned how some actions were unfeasible, or the notifications for the actions were unhelpful due to the uncommon situations required to complete certain

actions. Our example for this recommendation is the 'donate rather than discard your old clothing' action. This action could be broken down to 1) Go through your closet and bag clothes you do not wear. 2) Put your bag of clothes in your car / next to the exit of your home. 3) Drop your bag off at a donation center. These subtasks would not only make the action more approachable to the user but also would allow the app to make more timely and specific notifications.

Action Search

This area addresses the ways users search for and are suggested actions. The most ubiquitous piece of feedback received during the participatory design session was an annoyance at constantly seeing the same actions that a user is unable to do. Other complaints in this area included a lack of a search option for 'actions in progress,' in other words actions on the home screen, and the fact that the current onboarding did not seem to have a noticeable effect on user experience. (Appendix C - Figure 7) To that end, we recommend:

1) Include a way to hide actions. Although users should always be able to find hidden actions in another tab or action group.
2) Make onboarding have a transparent effect on the user and their data. This could be setting some actions to be pre-hidden or reducing the visibility of certain actions in some other way, but the app should point out these changes to the user so that they know what their onboarding choices affect.
3) Add a search function and/or grouping to actions on the home page. One user mentioned that they signed up for several actions and they were annoyed when they had to spend significant time scrolling through actions on the homepage to find the one they did.
4) Add more actions. More actions, no matter how banal, will increase the user's interest in the app, and two different users noted the current selection bored them after only two weeks.

Notification Personalization

To help support each user's unique interactions with the app, as established in the 'Action Interaction', we also want to recommend changes to notification interactions. The diary study showed a lack of interest in the current notifications presented by the app (Appendix A - Figure 1), and the participatory design session detailed that users wanted more control of the notifications (reminders) that they got in "Sustainability Activity." (Appendix B - Figure 6)

1) Users should be able to schedule when they get notifications. Affordances for this could be allowing the user to set their geofences for triggering notifications (this directly entwines with suggesting number one of 'Action Interaction') and allowing the user to input time frames where they would want to receive notifications.
2) Limit the number of notifications per hour. Currently, the app can send tens of notifications all within minutes of each other. Limiting the app to a specific number of notifications per hour would decrease user notification fatigue with the app. An additional bug here is the same notification can trigger multiple times if the user stops at a place next to a geolocation notification trigger.
3) Add requirements to notifications. During the participatory session, a user mentioned that they would only be interested in getting a reminder for reusable bags at the store only if they drove to the store, as they keep their reusable bags in their car. Making the app have multiple triggers for certain notifications (like a geofence, along with the recent speed of access of X) may be a key feature for increasing retention. Additionally, finding a streamlined process to allow the user to adjust the triggers that they are interested in would significantly improve notification interaction.
4) Give an option for users to silence notifications for specific actions. As the users continue to build habits through the app eventually notifications will become redundant for the user, at this point the notifications will become a hindrance rather than a help.

Information Conveyance

The final area for improvement revolves around the idea that some users are uncomfortable with apps constantly tracking their location. This finding was initially discovered through the diary study's long-form responses, (Appendix A - Figure 3 and 4) and were then validated in the survey results in 'Times User is Uncomfortable with Location Tracking.' (Appendix C - Figure 12) However, we have expanded this area to include all information due to findings from the participatory design session showing that users were also confused by how their leaves interacted with the 'projects tab.' (Appendix B - Figure 5) The changes we recommend here primarily address parts of the app to increase information to the user and are not recommendations on what to say.

1) Information about how the users' location data is being used, and how this information is stored. Transparency here is important because lack of transparency is the number one reason people listed why they are uncomfortable with apps tracking their location.

2) Information about how a user's leaves interact with the projects tab. One user from the participatory design session mentioned that they did not have any interest in the projects tab because they did not know what 'contributing' did.

Phase 2: Ideation

After discussing our primary research findings with GetGreen we narrowed our design space to exclude the geolocation feature, and instead focus on redesigning the current layout to promote user retention. To start our design process we matched the solutions spaces highlighted by GetGreen, with the affinity mapping we did in our user research milestone. This resulted in us solidifying around the ideas for a homepage redesign, adding user directed action plans, and increasing affordances for user interactions with individual actions.

With our design solutions in mind we went about ideating what different layouts involving these three aspects might look like. We started by creating our own low fidelity sketches of what pages with these features might look like. Then we went out and searched for other designs that incorporated some aspect of these solutions. Finally we discussed how we could combine the best aspects of our low fidelity sketches and the designs we found around the internet.

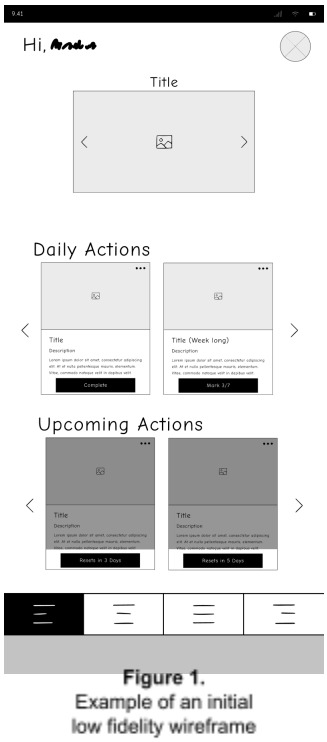
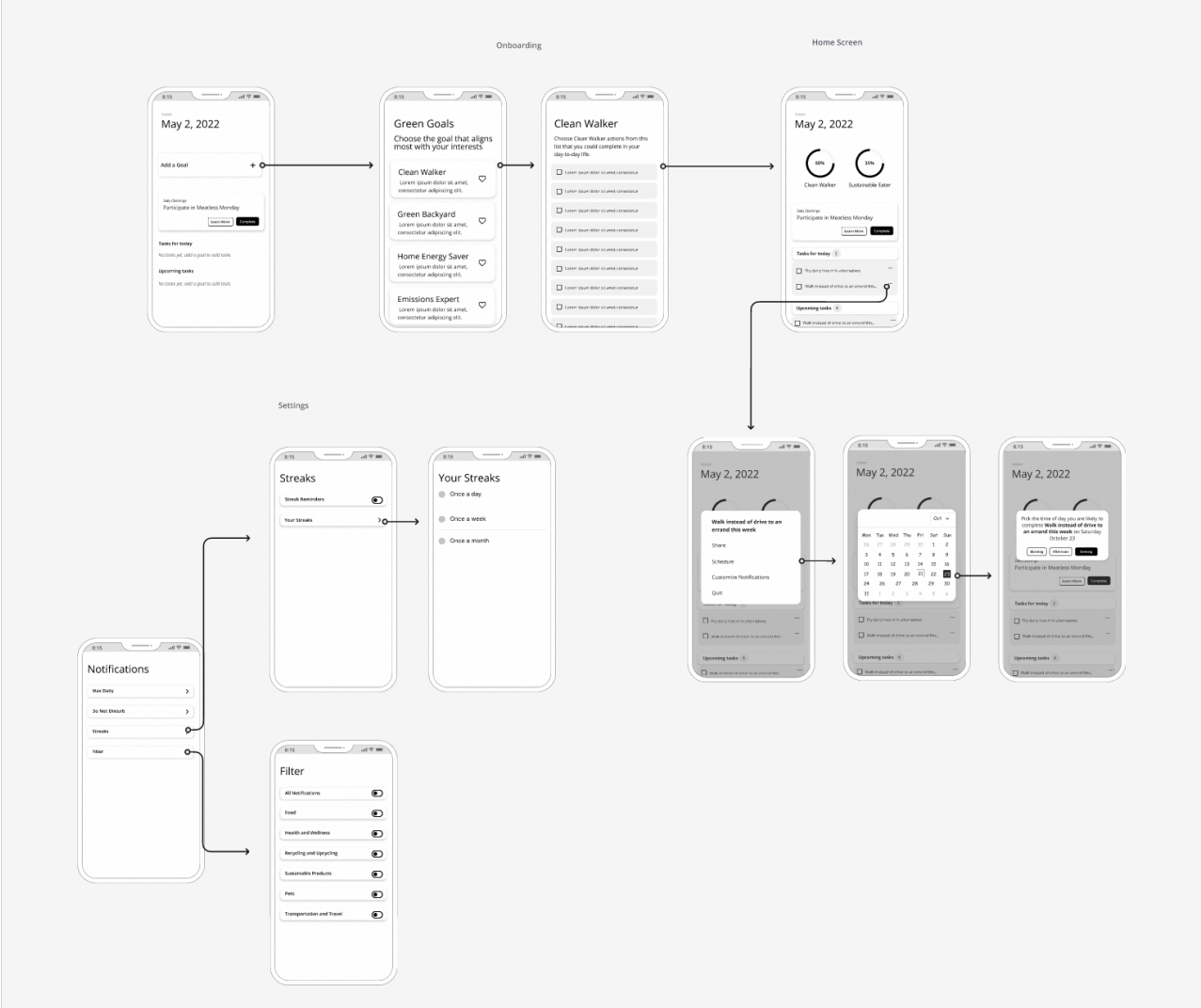


Figure 1.
Example of an initial low fidelity wireframe

We settled on clustering actions around ‘goals’ and inviting users to select a goal when they initially use the app. After picking the type of goal they want to use the user is prompted to add several actions that are related to that goal before they are directed back to the home screen now showing their progress of the goal, and with the tasks they picked showing up in a todo style list. The idea behind this solution was to seamlessly provide action recommendations while letting the user pick out only the actions applicable to them.

The next change we made was to the settings page of the actions. Here we introduced the ability to add an action to a repeat actions list, change the actions notification settings, and finally schedule a notification for the action. This gives the user an ability to customize their experience within the app to best suit them

WireFlows



The purpose of the wireflows are to visualize the changes made to the Get Green application based on our generative research and ideation process. They capture big picture ideas such as content layout, features, and navigation of the Get Green homepage. The “user flow” aspect of the wireflows shows how users go about adding and tracking action items as well as navigating throughout the different functionalities. In our core workflow, the user adds actions through selecting a goal during the onboarding process. They can then track their progress towards completing the goal and are shown a new set of actions daily they are prompted to complete. They also have the ability to schedule the actions to another date and set a reminder. These are our initial iterations of the re-design. We plan to elaborate on these ideas further based on the user feedback we receive in our testing.

Phase 3: Evaluation

Before moving onto our final designs, we put our low fidelity designs in front of potential users to test the usability, desirability, and feasibility of our changes to the application. We wanted to ensure that the navigation of the application was intuitive, the features were desirable, and that user's did not run into any critical issues that prevented them from completing a task.

Demographics

Participants primarily consisted of college students. Demographic factors such as age, race, gender, and income were kept uncontrolled and randomized. Recruitment occurred over word of mouth. Each participant was compensated for their time with a 30$ gift card.

Methods

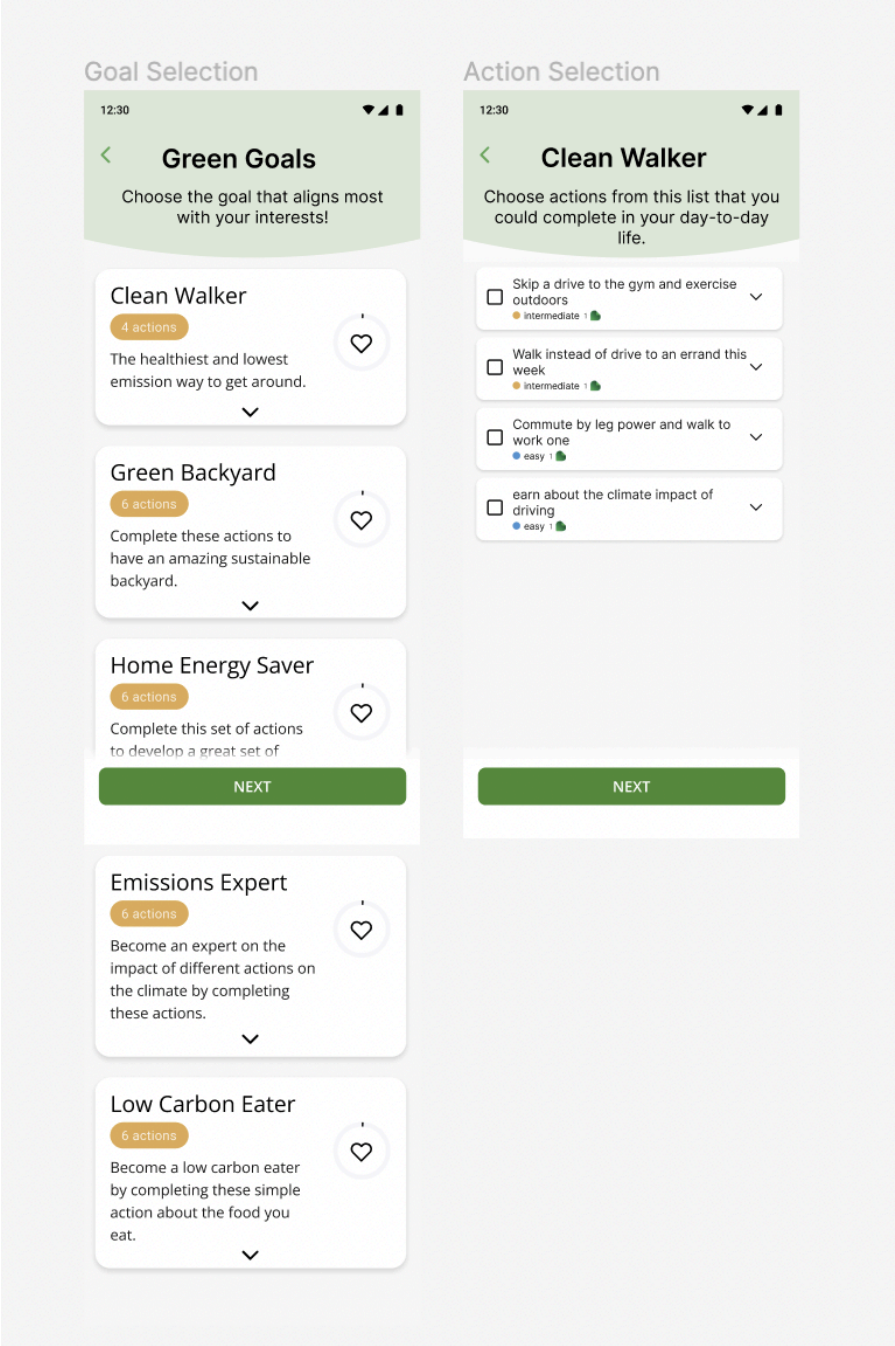
The metrics for our usability test were: number of critical errors, satisfaction rates, and our own observation. We had the participants complete four tasks while thinking out loud throughout the process. The tasks were: adding action to a to-do list, schedule action for another day, complete an action and add it as a repeated habit, and customize notification. Each task was rated on the perceived difficulty by the user and any missteps the user made while completing the action. At the end of the test, we had users rate the revised app on the US government System Usability Scale and provide feedback on the overall experience of the application.

Results

After gathering the participant data and affinity mapping the results, our team was able to identify six major pain points in the revised design. During the goal selection process, some user's desired being able to view information about the goal before clicking it. They also found it frustrating that the whole action card was not clickable and wanted a back button to be able to navigate to the previous page. When prompted to complete an action, one user was unable to locate the complete button. There was also little to no desire for a separate list view of the action. When customizing the notifications for the repeated actions, some users were confused by the terminology. Terms such as "refresh now" and "in-queue" were not intuitive to users. In terms of overall experience, our low fidelity designs averaged at 81 out of 100 on the US Government System Usability Scale(SUS).

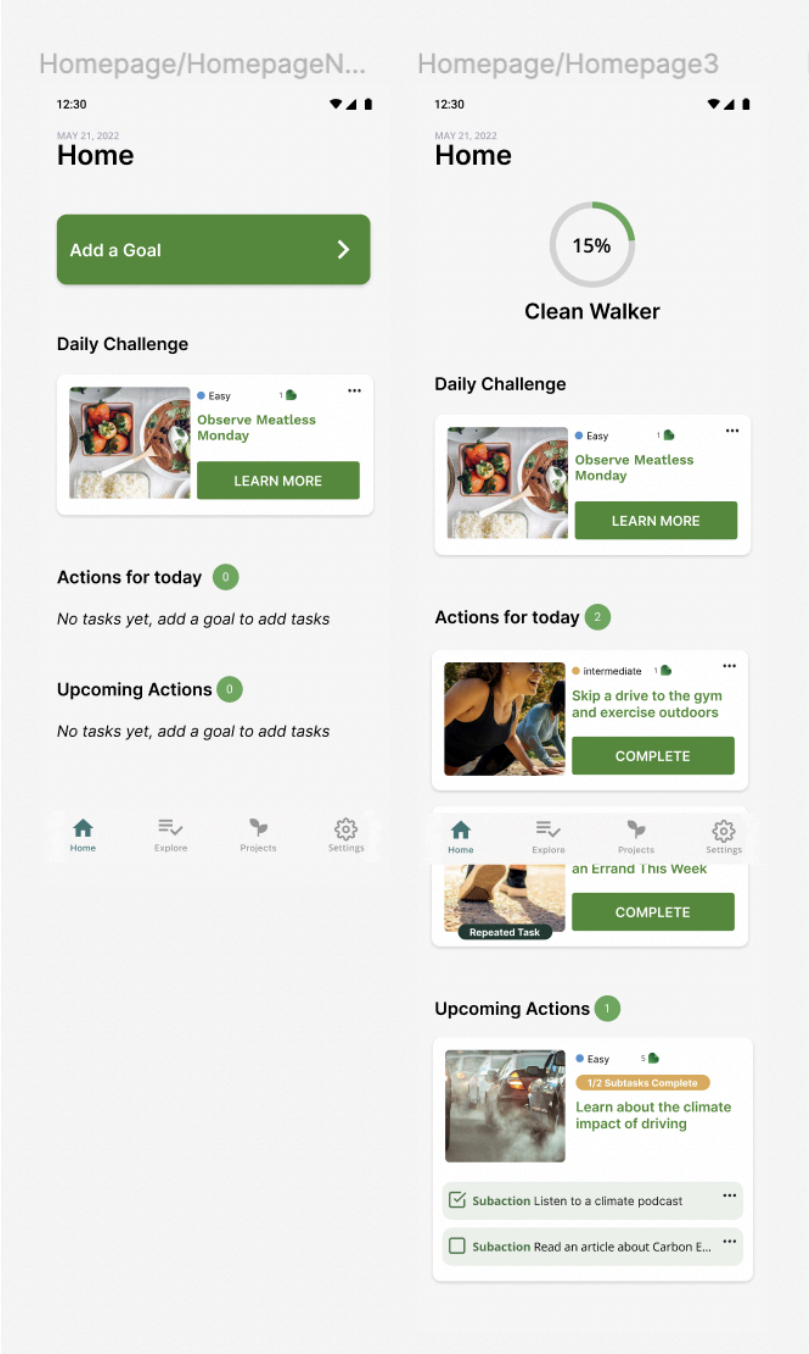
Phase 4: High Fidelity Wireframes

For the final stage of our process, our team created high fidelity wireframes. The high fidelity wireframes incorporate our user test findings along with the visual branding and UI elements of the GetGreen application. The purpose of these wireframes are to communicate the refined, re-design of the application for development. Changes were made to the home page, settings and action page. Then a goal selection, action selection, and notification settings pages were added. For the goal selection, participants expressed desire for viewing the actions before clicking on the goal. To address this issue, we created a dropdown for the goal card that revealed some of the actions. For the homepage, participant's struggled to check of actions for completion. We addressed this issue by adding a complete button to the card view. For the notification settings, participants pointed out the confusing wording. To address this, we changed the wording and we also update the format of the repeated actions modals. Now users can select how often they want to complete the repeatable action as well as what days of the week they want to complete it, giving them more control over their action plan.



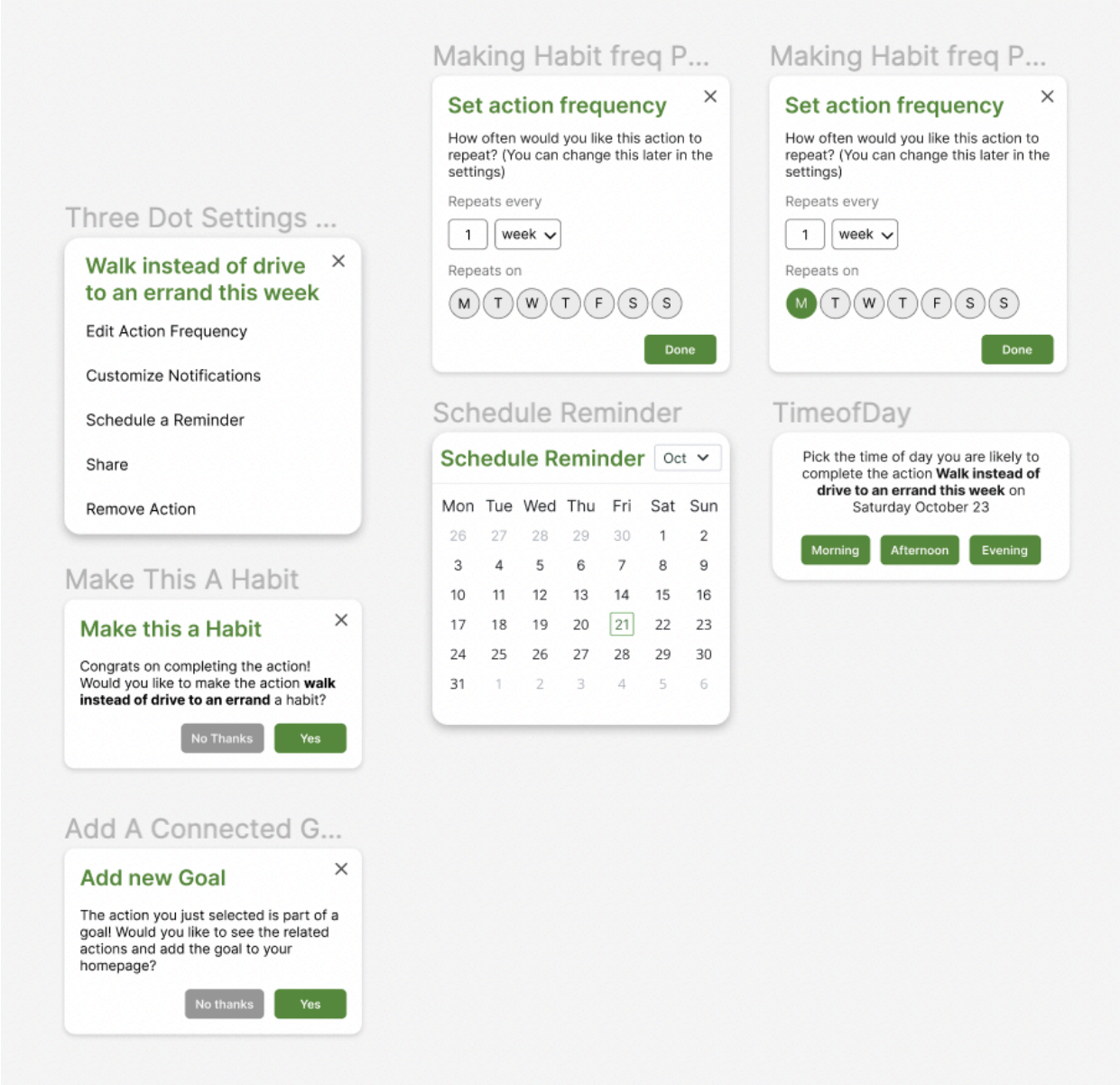
Onboarding Wireframes

This view of our onboarding final design highlights the end result of our “action plan” ideation. Here users have a streamlined process to select actions based on goals in a simple and digestible manner. This makes it easy for new users to pick up the app as they can easily be directed to now pick a goal they are interested in.



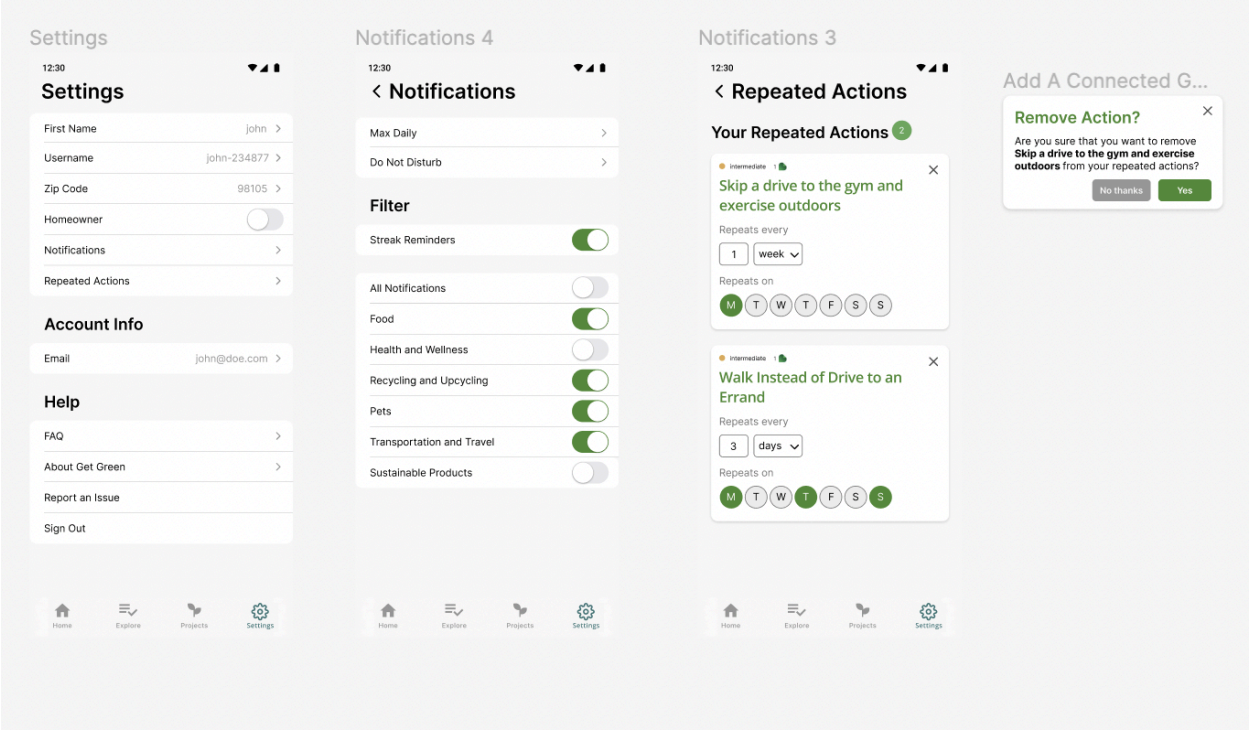
Home Screen Wireframes

Here our final design of the home screen highlights a more simple view with affordances for users to view multiple actions at a time, unlike the original app. We also highlighted our new goal structure putting their progress, or a call to action at the top of the page. Finally we redesigned the action cards to provide small visual indicators for tasks that are repeatable and tasks that have subactions.



Action Setting Modals

Here is a view of the modals we created when it comes to actions settings navigated to by the three dots in the action menus. We have added ways to change the frequency of repeated actions. As well as ways to schedule notifications for specific actions. The final two modals “Make this a Habit” and “Add new Goal” provide affordance for users to interact with the repeated action system and the goal system, when completing an action or adding an action from the explore screen.



Notification Settings

Our final addition is an increase in functionality to the settings. We added notification settings and repeated action settings pages. Here the notification settings page allows users to customize how many notifications they would receive, set hours to not be disturbed, and change what type of tasks they get notifications for. Then the repeated action page provides another way for uses to view all their repeated actions (habits) in one concise screen.

Takeaways & Future Work

When the team began this project we aligned our research and ideation along the following research question:

How might we engage users in building sustainable habits, ensuring long-term engagement through geo-location based technologies?

Conceptually geo-location based technologies captured our interests. To be able to create a system that can adapt to your location, your personal lifestyle and schedule, and present you with well-timed push notifications that encourage and develop sustainable habits was incredibly fascinating, and the team set out to explore this novel space. Our first phase of this project involved a two-week diary study in which we followed new GetGreen users' experiences within the application. These participants were using a beta-version of the application that sent notifications when users who had signed up for specific actions walked into a relevant geo-fence. However, our diary study revealed various other shortcomings in terms of long term engagement within the GetGreen application, and clearly expressed that the refinement of geo-location based technology implementation within the application would not maintain their engagement, so the team changed directions. After several meetings with GetGreen and going into our ideation phase the team developed the following research question:

How might we engage users in building sustainable habits, ensuring long-term engagement through action plan personalization and goal setting?

After discussions with GetGreen, we prioritized the following design spaces and began wireframing solutions to the problem spaces. Here is our prioritization using GetGreen's feedback:

1. Home screen navigation and action plans
2. Notification Settings

Our preliminary competitive analysis and further research showed the positive implications of personalization, and benefits of a customizable experience in terms of users engagement so our usability testing was focused on evaluating our wireflows and ensuring that participants would be able to successfully navigate through our designated tasks. Our usability testing went quite well, nearly every participant was able to complete every task with ease, and the results from the SUS gave our team confidence that our designs were beneficial to long-term user engagement. One limitation of the usability testing is that although participants are going through the process of establishing their

goals and related action plans that will help promote long-term engagement, they are merely going through the onboarding process, and we gain little insight into whether or not they adhere to the goals we set.

That said, if these changes were implemented into a live version of the application it would be simple to quantify whether or not the changes increased retention. In its current state users spend a very large amount of time on the initial onboarding, this is due to a variety of factors. One being that users who install GetGreen are passionate about sustainability, and have already taken many steps towards sustainability, as such when first using the application they go through and check off all of the actions that they have completed within the application. This leads to a very lengthy initial session on the application, but low return rates as users have nothing motivating them to reopen the application at a future date, they have already checked off many actions and may feel satisfied with their sustainability contribution.

With our redesign, our team predicts shorter initial sessions, as rather than checking off large amounts of previously completed tasks, users will be directed to choosing goals to guide their process. Users are likely to approach goals that they have already made substantial progress towards and if they only need to complete a small amount of tasks to complete a goal then they are more likely to revisit the application and obtain a badge for completing said goal. Furthermore, this goal-centric approach provides users with a structure that encourages habit forming tasks, as well as providing scheduling functionality, both of which promote retention past the first session. To verify the above hypothesis, the GetGreen team would need to evaluate the usage metrics for users of the redesigned application, and compare them with previous engagement times. A successful redesign would see a slightly shorter first session, followed closely by several more shorter sessions in the following days.

Another way to evaluate the redesigns would be to conduct A/B testing of the two homescreen layouts. Given the equivalence in fidelity, and assuming equivalent functionality, conducting a usability study with two large user groups, one evaluating the original interface, and one the redesigned, having users fill out the SUS questionnaire would quantitatively reveal which interface was more usable. Higher usability would contribute to greater long term engagement, however, usage metrics from the application provide substantially more insight in terms of engagement over time.

Final Reflection - Meta reflection

Through this capstone I have learned a lot about user research and team coordination. The chance to finally go through a complete user research for a company was a fantastic experience. Since my group started with several user research methods I learned the most about what to expect and plan for in research settings. Including how to advertise for such opportunities what to look out for and how to better control who is accepted into the studies. This is mostly due to the fact that our original recruitment for our diary study ended up with several participants who did not meet our eligibility requirements and so a second more thorough round of recruitment was needed. But such unexpected lessons is the nature of capstone and one of the reasons it is as valuable of a class as it is. If I could have gone back and changed anything it would have been these primary user research cases. While grouping them at the start of our plan allowed us to efficiently run multiple of them at the same time it severely limited the takeaways we could have gathered if we spaced them out and iterated our designs between them. However this is an easy lesson to apply going forward and in this one case it helped us to solidify our design space when both my team and the sponsors had a hard time narrowing it down. But in the future my newly found user research skills will be imperative when designing for spaces, micro-cultures, and technologies I do not have first hand experience with. I would say that user research is always applicable to any project because it allows you to break down your questions and solidify your knowledge of the design space. Finally I think my individual experience contributed to the overall success of the team, just as I think my teammates experiences contributed to my growth as a designer. Each of us had different areas of knowledge and through a shared collaborative effort we not only covered each other's weakness we also were able to teach and strengthen one another.