Milestone 2 - My Goal Garden

HCI Project by Dawg Bots

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Design Process

Over the course of several weeks, we have learned a variety of ways to approach the design process. We chose to approach our designs at this stage with the general functionalities in mind, rather than details pertaining to color or general aesthetic of our application. How would the user like to interact with the application? Would they like to receive notifications or alerts? Would they like to have multiple options? From these general questions and more, we developed 3 fundamentally different designs which will help us gather general ideas about how we choose to develop the final product.

Design 1 - Physical Plant System

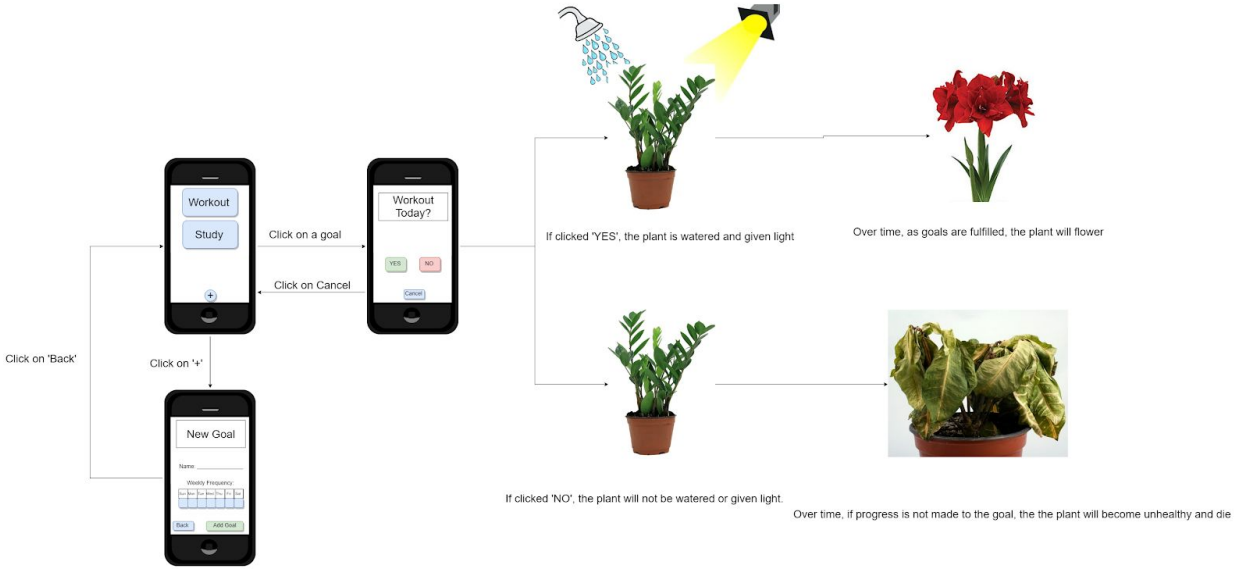


Fig: A flowchart/storyboard on how this system will be used. Note that the plants in this design are real physical plants in the user's home. This plant will be provided water and light from a grow lamp whenever a user successfully makes progress on a goal they set for themselves. If no progress is made, the plant will not be taken care of and will whither over time.

For this design, we considered the user's interaction with an in-person, physical plant. Initially, we gathered this idea from a previous project done by our group member Chris Whitmire. This project was a user centered project that focused on making it easier for gardener to care for their plants. The project resulted in a garden system that would record and report the water saturation level and light exposure to the user. During the user research process of this

former project, Chris found that users really enjoyed caring for their plant and felt (sometimes strong) negative emotions if a plant became unhealthy and died. From here, we realized people may have a greater sense of responsibility if their actions controlled the life of another living thing. Therefore, we designed our physical plant system. With this system, users are asked daily if they completed their goal (homework, exercise, etc.) and answer accordingly. If they have completed their goal and select yes, our system is activated and the plant is nourished with water and light from a grow lamp for the appropriate amount of time. If they have not completed their goal and select no, the system remains inactivated and the plant is not taken care of. In order to account for potential user dishonesty, we have considered implementing light and moisture sensors to see if the plant is getting watered or given light without the user making progress on a goal. This could then hurt the user's progress in the app in some way. However after some discussion, we decided that we should wait and engage in user testing before putting in this system. If after user testing it becomes apparent that users treat the system dishonestly, we may try out different ways of preventing this.

This design involves an app and a physical system. The app allows the user to easily say that they made progress on a goal on a certain day, and the physical system provides the user with incentive for making progress on their goal. The app has a home screen, which lists the current goals and allows the user to press a button to enter in a new goal. If a user wants to enter in a new goal, they type in the name of the goal and choose which days of the week they want to make progress on that goal. For example, if someone wants to do yoga every Monday, Wednesday, and Friday, they check each of those days. Note that they also have a 'Back' button in case they did not mean to go to this page. While on the home page, if the user clicks on a certain goal, they can say whether they made progress on the goal that day. Note that the user defines what that progress is. For example, the goal could be named "study for 30 mins", so the appropriate progress is to study for that 30 mins. If the user clicks 'YES', then the physical plant will be given the appropriate amount of water and light. Over time, if the user continues to work on achieving their goal, the plant should flourish. However, if the user does not make progress, then the plant will not be given any water or light, resulting in the plant's health degenerating over time.

A strength of this design is that a real living thing depends on the user to keep working on their goals. This provides a strong incentive for the user to maintain their goals. This system also provides real tangible rewards as physical flowers or even fruits/veggies could be produced as the user makes progress on their goals. A weakness of the design is that it will be difficult to figure out an algorithm that will be able to distribute the correct amount of light and water to the plant because people's goals will change over time, as will the amount of goals and the days they work on those goals. We would have to come up with a way that makes it so the plant's care depends on the user's actions, while not over watering the plant. Another weakness is that it may take time for the plant's visible state to change, so there is not much immediate feedback to the user.

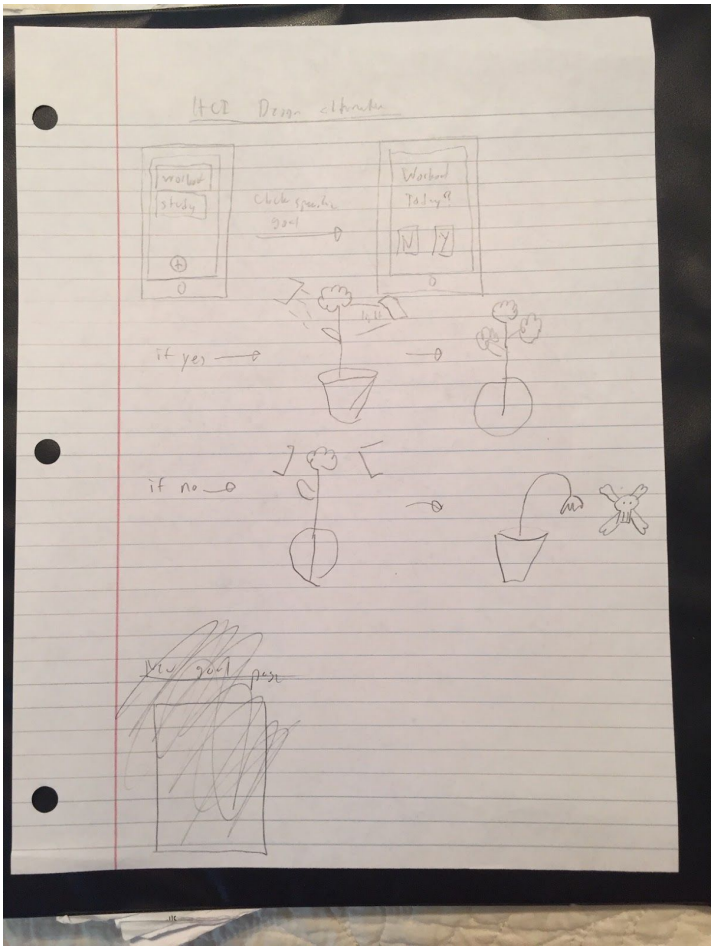


Fig: A preliminary sketch of design 1.

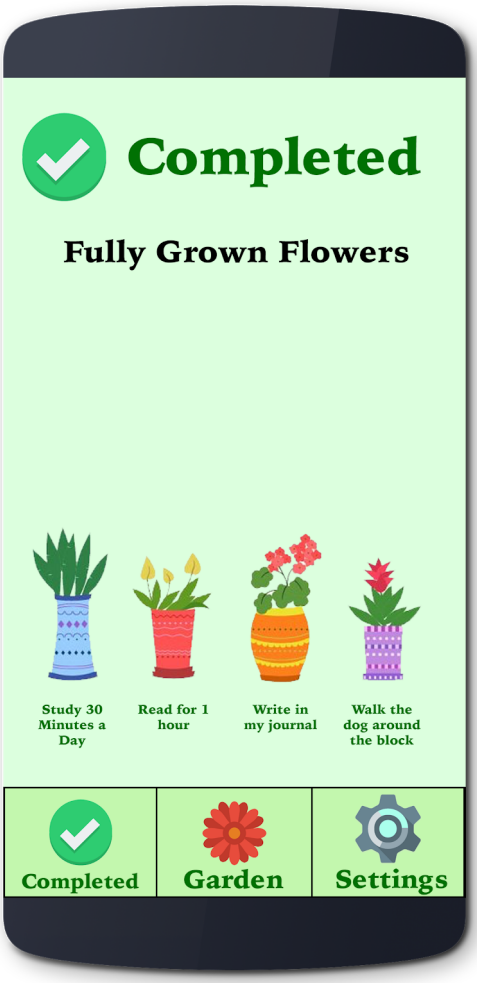
Design 2 - Minimal UI, Bottom Bar Navigation

Home Screen

Specific Goal

When the user opens up the app, they are taken to the **Garden/Home Screen**. They may return to this screen from anywhere in the app by hitting the "Garden" button on the bottom bar. There is also a clear button to take you to the **New Goal** screen.

If they click on one of their goals/plants, they are taken to the **Specific Goal** screen. There they can select whether they completed their daily goal or not. There plant will grow a bit if yes is selected and shrink a bit of no is selected.



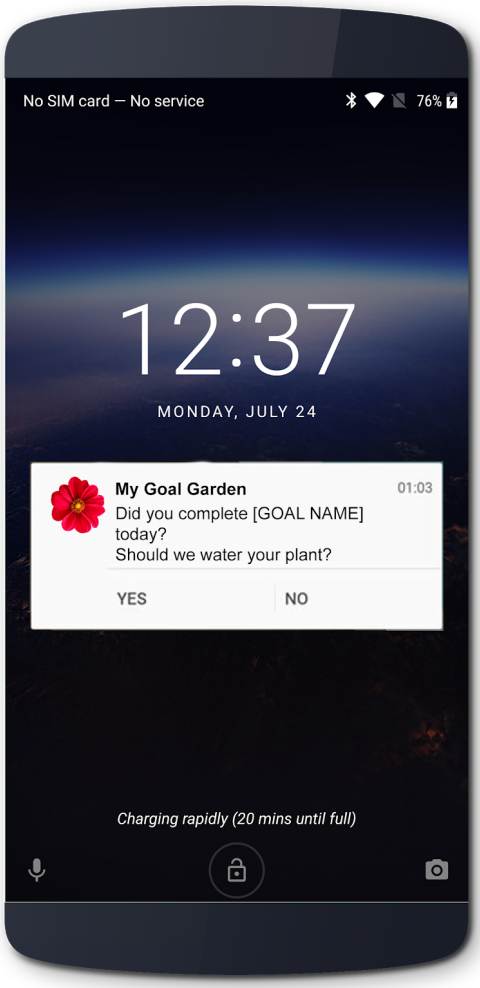
Completed Goals

New Goal

From the **Garden/Home Screen** the the user may select the “New Goal” option and be taken to the **New Goal** screen. From there they can create a new goal/flower with specific options. The final version will likely include more options for goal/flower customization.

From anywhere in the app, by clicking the “Completed” button on the bottom bar, the user will be taken to the **Completed** screen, where they may view an archive of their completed goals/fully grown flowers.

Settings



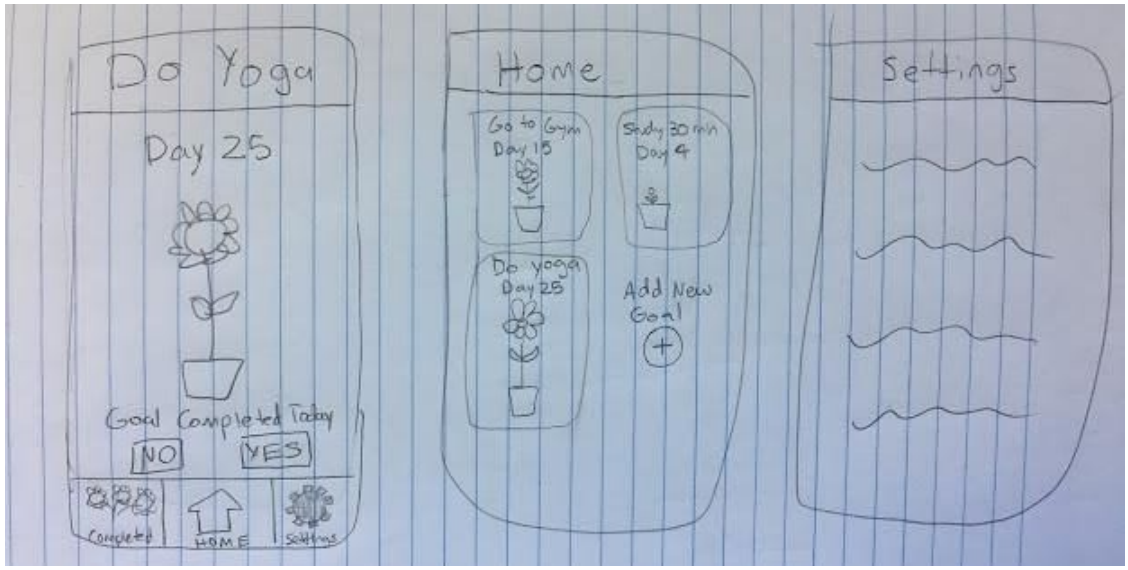
Notification

The user may access the **Settings** screen from anywhere in the app by hitting the “Settings” button on the bottom bar. The final design will include an expanded list of settings based on the full list of included features.

The user will receive daily notifications for their goals. The notifications will be actionable, allowing the user to confirm whether they completed their goal or not without having to open the app.

Navigation Diagram From Poster

Initial Design Sketch



Overview:

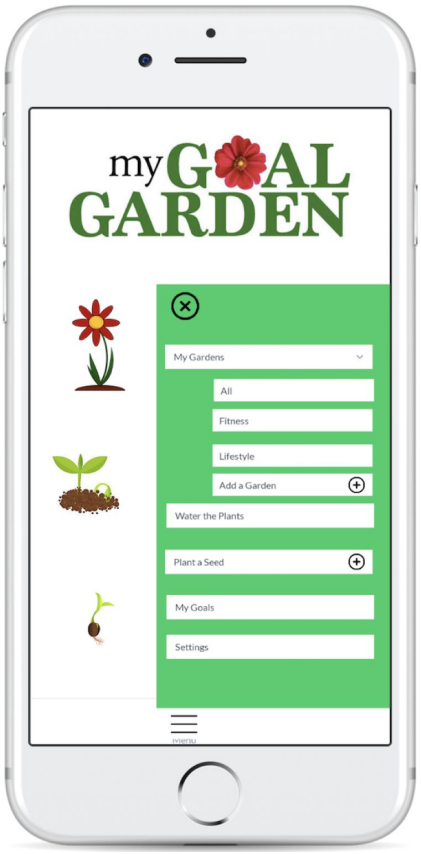
This design was created to focus on providing the user a simple, aesthetically pleasing, and easy to navigate interface. The bottom bar navigation was a key part of the design from the beginning. You see a lot of applications moving to this interface these days since it's a very simple to use and is placed in a location that is easy for the user to press. The main three screens for the app are a home page(which ended up being called "Garden"), the page for completed goals, and the settings page.

The Home screen offers a very simple grid view of all the goals you are currently working on, and has a clear button for adding new goals. You can select any of these goals to view more details and select whether you completed your goal or not. The home screen, the archive of your completed goals, and the settings are all just a click away from anywhere in the application.

The main strengths of this design are it's visual appeal and usability. I feel that users of almost any technical ability would have almost no trouble navigating and using the app. We went with a mainly green color scheme throughout the app since it's very easy on the eyes and matches well with the plant theme. There is some room left for improvement though. Design 3 offers a very easy way to water multiple plants with minimal navigation. That's something that may be worth considering implementing into this design. Overall this seems to be the design we are going to mostly base our final design on. We will likely incorporate some elements from design 3 as well to improve usability.

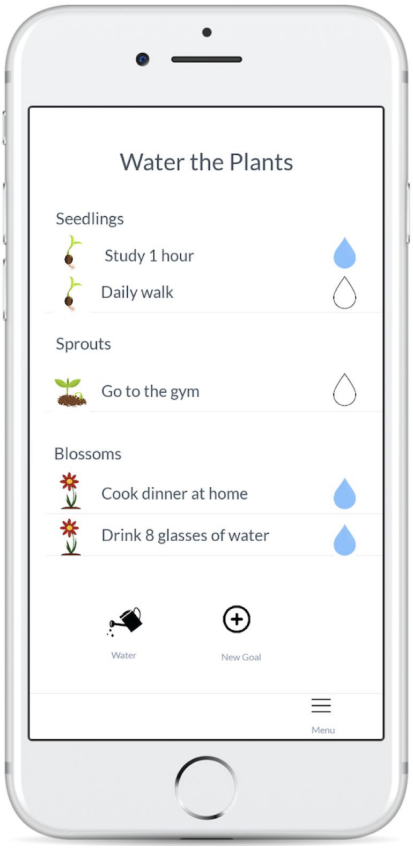
Design 3 - Managing Multiple Goals

Screen A. Home screen/view garden

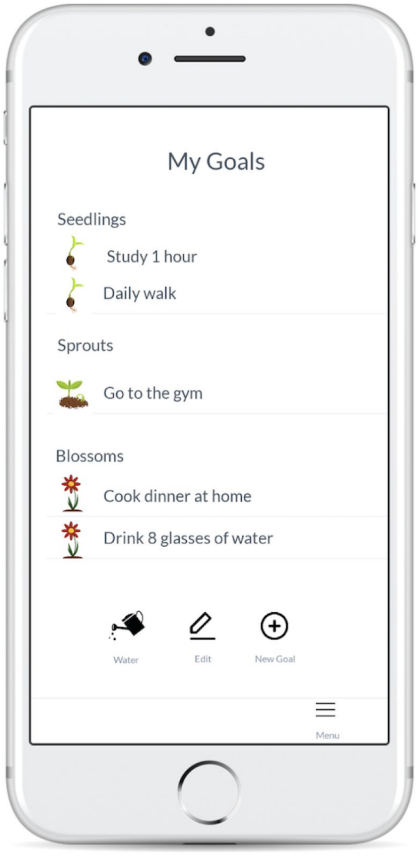


Screen B. Menu screen--available from all screens

When the user first opens the app, they see screen A. This home screen shows a visualization of all of the plants the user has grown from all of their goals. On the bottom right of the screen, the user can open the menu, bringing the user to screen B. The first option, 'My Gardens' categorizes the goals into individual gardens, so if the user wishes to see their fitness goals, for example, they can see the plants for these goals grouped together. The user can also customize their gardens by choosing 'Add a new garden'. Choosing 'all' brings the user back to screen A.



Screen C. Water the plants

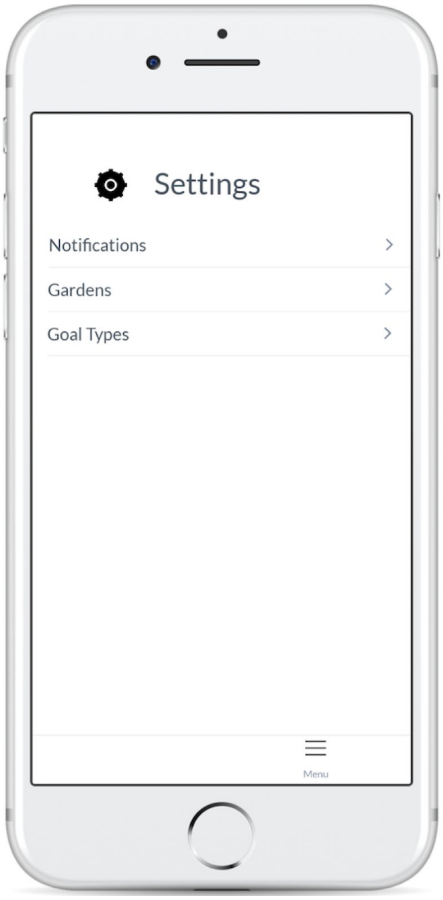


Screen D. View or edit goals.

If the user selects ‘Water the plants’ from the menu, they come to screen C. Here, the user can select which goals they have completed by tapping the water drop on the right side of each goal and selecting the water icon at the bottom.

If the user selects ‘My goals’ from the menu, they will see screen D. This screen is similar to Screen C, but is strictly a list of the goals. The goals can be edited from this screen and the water button can take the user to the Screen C.

Screen E. Create new goal

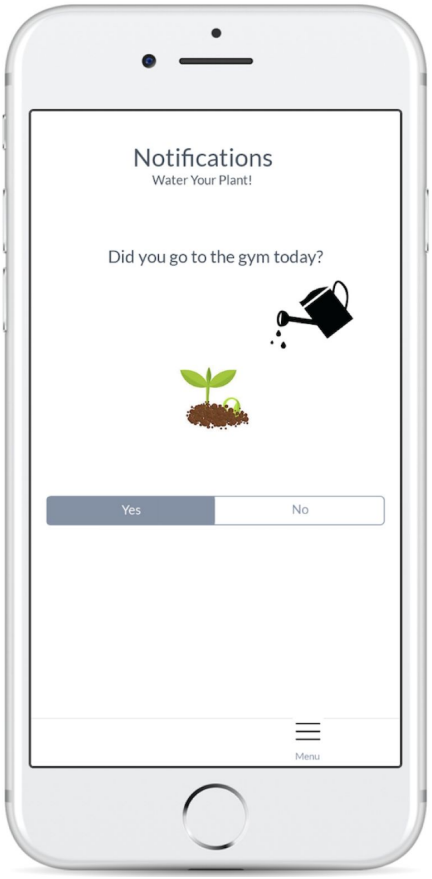


Screen F. Settings

The user can choose ‘Plant a seed’ from the menu to see screen E and create a new goal. Both screen C and screen D also have the option to add a new goal, which brings the user to screen E as well. Here the user can give their goal a name and assign it to a goal category, or specific garden. The user can choose the notification settings for this goal.

If the user selects ‘settings’ from the menu, they will see screen F. Here the user can access and change the general settings for their notifications, gardens, and goal types.

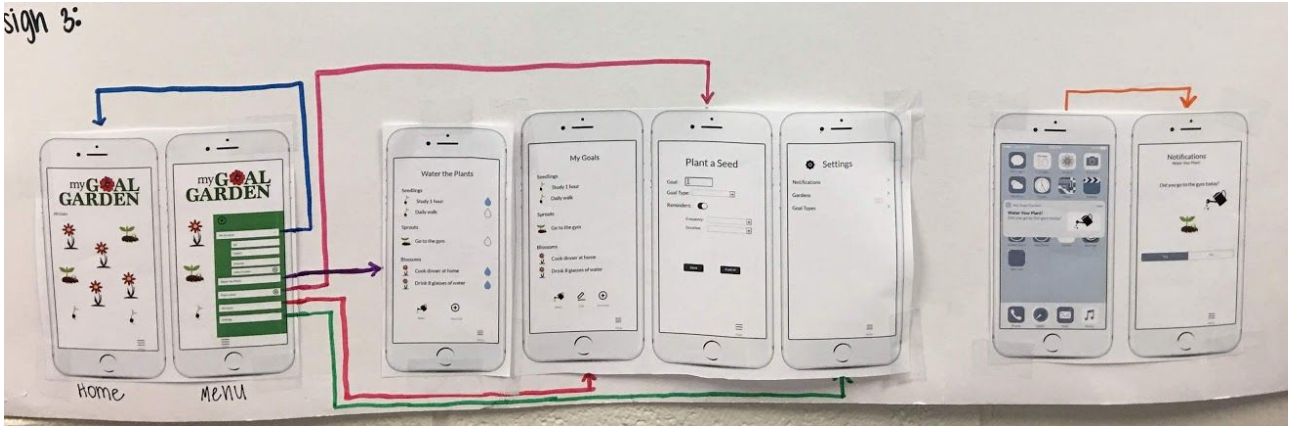
Screen G. Notification about a goal.



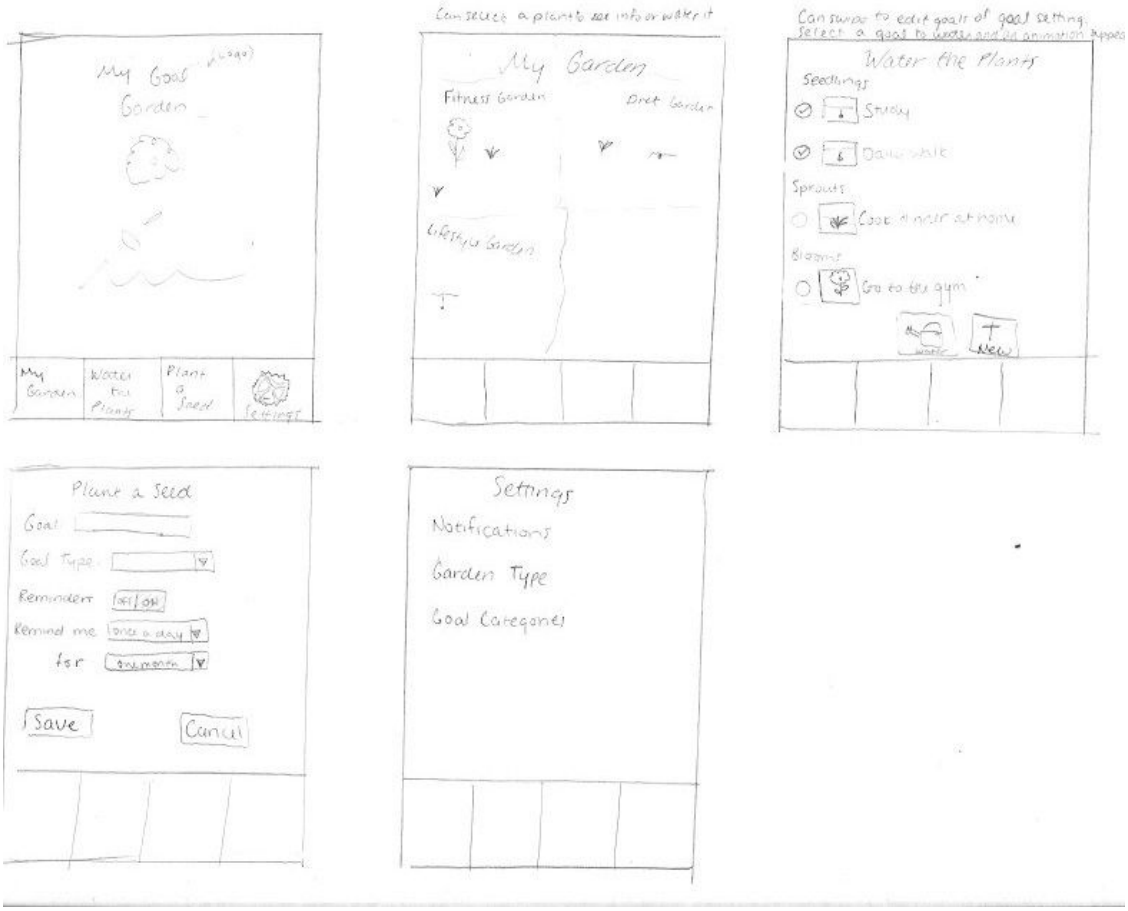
Screen H. Open notification to water specific plant.

Screen G shows what a notification for a specific goal will look like, and screen H is the screen when the user opens the notification. Here, unlike screen C, only one plant can be watered at a time.

Navigation Diagram from Poster



The preliminary design leading up to design three is the sketch below:



This design was created to give a way for the user to organize their goals and efficiently manage several goals at once. The user can view their garden specific to fitness or diet or create their own custom garden. This allows the user to visualize in which areas they excel at attaining goals and where they may need more motivation. Similarly, the user can view the list of their goals, ordered by the size of the plant. A new goal or one that has not been worked towards consistently, is still a seedling and listed first. Mature plants, or completed goals, are blossoms and are found at the bottom of the list. Additionally, this design allows for more efficiency when a user is working towards several goals at once. The user can water several plants at one time rather than going through each goal individually.

Another strength of this design is easy navigation. The menu button is present at all times, so the user can easily navigate to any screen. There are multiple ways to perform tasks. For instance, there are several ways to water the plants, and the user is able to create a new goal from several screens. However, this feature is also the greatest weakness of this design. The ability to perform a task in various ways may be confusing to a user who might not know which button to choose.

This also results in repetitive screens when the same function can be carried out from just one path and fewer screens.

Conclusion

Our three different designs allowed us to see and predict some positive and some negative aspects of our potential design. With our design 1, the user will be able to see a physical plant. This could be beneficial because the user will be able to physically see their goal progress. However, the logistics of this design could be difficult for us to figure out. In addition, the user may have a tendency to care for their plant outside of the application, which would not be beneficial to achieving their goals. Our design 2 provides a simple, easy to follow app design with a virtual plant. This is the strongest aspect of the design. It is very easy for a potential user to use. There is nothing that could be potentially confusing in navigating through the application. However, it does not have a good way to view all the goals at once. Our design 3 is another simple virtual plant app, with some differences in the application itself. This app design is beneficial in allowing users to see all of their goals at once and is also easy to use. However, there are many ways to do a single task which could potentially be confusing to the user. After looking at all of our designs, it is clear that they all have specific strengths and weaknesses. We will need to examine the strengths and weakness and take feedback in order to create the most user friendly version of the application. This may require adding different aspects from any combination of our potential designs, in order to get rid of the negative aspects. Once we figure out a way to do so, we will have a design that will contain all of the positive aspects we want the application to have, including being as user friendly as possible.