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**Paper Prototypes and Descriptions**A picture containing text

Description automatically generated

Screen 1 is a log-in screen that displays text fields for username and password. There is a button underneath for a user to log into their account after providing their credentials. There are links underneath the “Login” button that allow a first-time user to create an account and a current member to reset their password. The screen has a logo and welcome text at the top and an image of flowers on the bottom. It establishes the use of a primary green color and uses to border the logo and text fields.

**Screen 1**

A picture containing letter

Description automatically generated Screen 2 displays after a user enters the correct login credentials. It maintains the same logo in the same place at the top with a flower image and there is a collapsed menu icon in the top left corner. The screen displays a list of the user’s plants that are being monitored in the mobile application. Each plant has it’s own container that displays high-level information on a plant’s soils soil conditions, an overall health meter, and a quick reminder glance. Containers can be tapped to display a low-level overview. There is a solid icon with a plus sign in it that allows users to add another plant to their list. The primary color is used to fill this icon and border containers.

**Screen 2**

Diagram

Description automatically generatedLetter

Description automatically generated Diagram

Description automatically generatedScreen 3 is an example of a low-level overview that displays when a container on Screen 2 is tapped. This screen shows different gauge icons to show the user moisutre content and fertilizer levels of soil for a plant. When a user scrolls downward, Screen 4 displays which shows another gauge icon for pH. Each of these icons display a real-time measurement regarding soil conditions for a plant. There are sections below the pH icon for notes, reminders, and photos. A user can add to these sections by pressing a similar icon to the one on Screen 2 with a plus sign. There are toggle buttons next to each gauge icon that allow a user to toggle between views for that piece of data. Screen 5 shows how data for moisture content changes between views when its toggle button is pressed. A graph is displayed that shows moisture content over the last 2 weeks with a note above it that states when a plant was last watered. The flower image, logo, and collapsed menu icon from Screen 2 stays consisntent in Screen 3 and 5.

**Screen 4**

**Screen 5**

**Screen 3**

**Follow-up Interview Notes**:

Follow-up interviews were conducted separately with Judy and Larry. Judy was interviewed at her home and it lasted about 40 minutes. Larry was interviewed at a restaurant and it lasted 30 minutes. Both participants were asked to describe what they saw on each screen and a series of questions about how they would navigate the application. They were asked to treat each screen like an actual phone screen to show how they would interact with it. Information was collected using handwritten notes that have been aggregated and sorted by screen below. The only change I would make to additional follow-up interviews is use more or different interviewees from the first interview to increase perspective.

***Screen 1***

Both interviewees appreciated the simplicity of the applications design and use of color. They were able to quickly identify all of the elements and their functionality. Nether participant provided any suggestion for improvement. Judy especially liked the flowers at the bottom. Larry only grows one type of plant indoors so it was not as relative to him, but he did not mind it. Both thought the green primary color was appropriate for the application’s purpose.

When asked to show what they would do if this was their first time using the application, both participants tapped “Create Account” on the paper prototype. Afterwards, they were asked to demonstrate how they would reset their password and both tapped “Forgot Password” below the login container. Finally, users were asked to log in as if they had already created an account. Judy and Larry simulated entering credentials into the username and password text fields before tapping the “Login” button. No challenges were experienced by the interviewees while modeling interactions on this screen.

***Screen 2***

Neither participant understood what the meter on Screen 2 was supposed to represent. Judy thought that the meter was for water levels and Larry thought it was for fertilizer. Larry was interested in knowing what kind of details could be added to a plant. Both Judy and Larry described the screen as an inventory of plants. Judy wanted to know if she sets the reminders or if it is determined and pushed by the application. The design and use of color was appreciated again because of its simplicity. Judy suggested coloring in the containers for each plant to give it contrast with the background. Larry momentarily suggested that the flower image have a face that changes, but then took it back. This is interesting because it was specifically discussed in the first interview and had a completely negative reaction.

When asked to add a new plant to their inventory, both participants tapped the plus sign icon in lower-right side of the screen. They have used similar functionality in other apps. Larry showed me how he adds a contact to a text message by pressing an icon that looks the same. In addition to the challenge with the overall meter, it was not as clearly understood how to move to the next screen. Participants were asked to find more information about the first plant in the inventory. Larry tapped the collapsed menu icon and Judy scrolled downward.

***Screen 3 and Screen 4***

Both participants described seeing readings for water, fertilizer, and pH. On Screen 4, they intuitively understood the notes, reminders, and photos sections. Judy thought that there could be more contrast in the lower sections similar to her request with Screen 2. She also suggested that the pH gauge not be visible at all on Screen 3. Instead, she thinks it should only be seen from Screen 4. Larry thought the pH gauge should change too, but in design and color. He uses pH pool strips to test his pool and suggested that it is a more common way to read pH along a bar than how it is pictured on Screen 4. He said it doing so could also condense all three measurements onto Screen 3. He really thinks that the color usage for the pH reading should change. No other comments regarding color were made. Both were a little confused by wat the water and fertilizer reading meant.

Participants were asked to add a new note, reminder, and photo. Both scrolled to Screen 4 and tapped the associated plus sign icon without issue. Participants were then asked to find more information about moisture content. Judy was not sure if she should tap the toggle button or swipe the gauge to the left. Larry swiped the toggle button.

***Screen 5***

Both participants described seeing a graph about water for the past two weeks and information about when the last watering was. Judy liked that only the water element changed when she tapped its toggle button instead of all readings changing views. She suggested dots on the graph to mark days that the plant/soil was watered. Larry thinks the graph should show a one week mark. He said that if the pH reading can fit on Screen 3, then he would like all readings to change views with a swipe.

When asked to logout of their account, both participants instinctively tapped the collapsed menu icon. Both expected a drop-down menu with a logout button within. Larry asked if it was necessary to logout.

**Interview Analysis**

During the interview process, I was surprised to hear Larry suggest that the flower image in Screen 2 convey emotion through a facial expressions. This topic had been discussed during the first interview and he thought such characters were childish. He did revert back to this view, but I was caught off guard. I was also surprised about how positive the reactions were overall because this was my first time making a prototype and there were time constraints.

The feedback that I found most valuable was how easy or difficult it was for participants to perform each task. It provided me information about where the application’s interface could be improved to enhance user engagement. I plan to make changes to Screen 2 by making it more obvious that tapping a container will change screens to a more detailed overview of soil conditions for a specific plant. Judy’s feedback about applying contrast will help shape the changes I make in future designs for this area. I also think it could improve the aesthetics of the design. I also want to make changes to the overall health meter on Screen 2. It was difficult for both participants to comprehend its purpose. I could add a simple “Overall Health” title over each meter and provide values for both sides of the range. On Screen 3, I really liked Larry’s feedback about the pH meter being include on the screen and Judy’s feedback about it being only visible from Screen 4. I agree that it does not look proper to see a partial icon for pH on Screen 3. I would like to evaluate both ideas out to see how they look. My concern is that the second view for pH would not fit because it would consist of a graph similar to the one for moisture. I do think that Larry’s feedback about changing the color and form for pH is important. My concern is that it will negatively impact the design because it is different looking than the other two readings. I would like to explore different ways to show the pH reading and see how they fit with the current UI design. Since both participants struggled to toggle between moisture views, I think that using a different toggle icon could help users achieve this goal better. The last piece of feedback I found most valuable was from Larry about adding a one week marker for the moisture graph. I think that adding lines along the y-axis to represent other days during the two week period would be a good change too. I like Judy’s feedback about markers for when a plant was watered during the last two weeks, but I am concerned that the graph would become congested if a plant is watered every day or every other day.