**Brian Engel**

**Module 2 Milestone**

**Issues not Considered Beforehand:**

* **The need for a simplified interface with large print and customizable text size for older** **users, as mentioned by Interviewee 3.**
* **This has more to do with the current way of testing nitrogen levels – 2 had never** **actually measured it and 1 tried unsuccessfully (couldn’t read the instrument). This** **checks out as I have never tested nitrogen levels and use a timed approach.**
* **The need to see charts and a history for moisture and nitrogen levels.**
* **The need for manual control of the automation. Everyone wanted to hit a button when** **the alert popped up to start or delay a sprinkler system. This makes sense because if** **there were drought conditions and the city was enforcing a watering schedule you** **could get a ticket, or you wouldn’t want the sprinkler system to turn on while you were** **cutting the grass.**

**Patterns or Themes:**

* **Users across different age groups and levels of experience express a desire for** **simplicity and ease of navigation in the app's design.**
* **There is a common preference for features that provide actionable insights and** **automate tasks to simplify plant care, such as alerts for soil conditions and integration** **with watering systems.**
* **Interviewees emphasize the importance of customization options, such as selecting** **plant types with predetermined moisture and nutrient levels and changing font size,** **indicating a need for personalized user experiences.**

**Keywords Mentioned Most Often:**

* **"Simplicity" and "ease of navigation" emerged as recurring themes across all** **interviews, indicating a strong user preference for intuitive and user-friendly interfaces.**
* **"Automation" and "alerts" were frequently mentioned in the context of desired features,** **suggesting a high priority for functionality that streamlines plant care tasks and** **provides timely notifications. Even the interviewee that specifically didn’t want alerts** **changed her mind if the alerts were able to help automate the process.**

**User Priorities Identified:**

* **Simplicity and ease of use in the app's interface.**
* **Automation features that simplify plant care tasks and reduce manual effort.**
* **Customization options that cater to different user preferences and plant types.**
* **Integration with existing systems, such as smart sprinklers, to enhance efficiency and** **convenience.**

**Target Audience:**

Unfortunately, I was unable to interview anyone who owned, operated, or worked on a farm or orchard, but I think most of the responses about the interface would be similar. I do however think that the reason behind using the app would be different. I would assume that they would have a much greater knowledge of what nitrogen and moisture levels should be for their crops and would be using the application as a time saver by not having to manually check all areas of their land.

In regard to the other target audience, homeowners, age or education may not be as significant factors influencing the user base as having a sufficient income to afford to own a house. Again, the actual profession of the user wouldn’t matter, as long as it was well paying. The main reason for engagement was to simplify care and maintenance of trees, lawn, flowerbeds, and gardens, and reduce the time required with possible automation. Users would engage with the product during the initial setup, if they add a new sensor, want to check any reports or logs, and when an alert occurs. It seem that of the potential users that I talked to, they didn’t want to be bothered at all by the app unless an action was needed, and it should just run in the background. Users would be most likely to engage with the app at their homes, when they have access to their plants and gardens, although an alert could happen any time they have a connection. The primary devices that would be used are smartphones and tablets, since they are available almost all the time and are portable. After setup, users are not likely to spend any significant time on the app, unless they are checking reports or logs.

**Persona 1: Sarah the Homeowner**  

* **Goals and Tasks:**
  + Sarah is a 65-year-old retiree who enjoys gardening and takes pride in maintaining her lawn, flowerbeds, and vegetable garden. Her primary goal is to ensure the health and vitality of her plants by monitoring soil moisture and nutrient levels.
  + She uses the app to track soil conditions, receive alerts for low moisture or nutrient levels, and make informed decisions about watering and fertilizing her plants. Sarah appreciates the simplicity and ease of use of the app, allowing her to manage her garden effectively without extensive technical knowledge.
* **Physical, Social, and Technological Environments:**
  + **Physical Environment:** Sarah engages with the app primarily in her home garden, where she has access to her plants and garden areas. She may also use the app while relaxing on her patio or sitting in her living room.
  + **Social Environment:** Sarah may share her gardening experiences and successes with friends or fellow gardening enthusiasts in her community. She may also seek advice or tips from online gardening forums or social media groups.
  + **Technological Environment:** Sarah uses the app on her tablet or smartphone, which she keeps handy while working in her garden. She appreciates the app's user-friendly interface and customizable text size, making it easy for her to navigate and view information without straining her eyes.
* **Personalized Elements:**
  + **Name:** Sarah Johnson
  + **Age:** 65
  + **Education:** Bachelor's degree in Education
  + **Family Status:** Married with grown children
  + **Job Title/Responsibilities:** Retired schoolteacher; responsible for managing household tasks and gardening activities
  + **Quote:** "Keeping my garden healthy brings me joy. The app helps me nurture my plants with confidence, even as I enjoy my retirement."

**Persona 2: David the Farmer** 

* **Goals and Tasks:**
  + David is a 45-year-old farmer who manages a large-scale orchard and crop fields. His primary goal is to optimize crop yield and efficiency in his farming operations while minimizing resource use.
  + He uses the app to monitor soil conditions across his fields, track moisture and nutrient levels, and make data-driven decisions about irrigation and fertilization schedules. David relies on the app's automation features to streamline farm management tasks and enhance productivity.
* **Physical, Social, and Technological Environments:**
  + **Physical Environment:** David engages with the app while working in his fields or overseeing farm operations. He may use the app on a rugged tablet or smartphone designed for outdoor use, allowing him to access real-time data and alerts while on the go.
  + **Social Environment:** David interacts with agricultural experts, agronomists, and fellow farmers within his professional network to exchange knowledge and best practices. He may also attend industry conferences or workshops to stay updated on the latest advancements in farming technology.
  + **Technological Environment:** David relies on the app's integration with smart sensors and irrigation systems installed across his farm. He values the app's ability to provide actionable insights and alerts, enabling him to make timely adjustments to his farming practices and optimize crop health and productivity.
* **Personalized Elements:**
  + **Name:** David Rodriguez
  + **Age:** 45
  + **Education:** Bachelor's degree in Agriculture
  + **Family Status:** Married with two children
  + **Job Title/Responsibilities:** Owner and operator of a large-scale farm; responsible for crop management, irrigation, and farm operations
  + **Quote:** "Efficiency is key to farming success. With the app, I can manage my crops smarter, not harder, and stay ahead of any issues that may arise."

Male in his 40’s, homeowner, single, IT in oil and gas, doesn’t really care about lawn / trees / plants but he needs them for the HOA, quickly adapts to new technologies

1. Understanding User Needs and Pain Points:

1. Can you tell me about your experience with managing soil moisture and nitrogen levels for your trees or plants? Owned house but had lawn guy and sprinkler system. Watered when it hadn’t rained in a while, fertilize never

2. What challenges do you encounter when it comes to monitoring and maintaining optimal soil conditions? Have to pay attention to when it hasn’t rained – not accurate. Otherwise observe grass / trees for signs of stress

3. How important is it for you to have real-time data on soil moisture and nitrogen levels? Not at all until there is an issue (he would get it after it was too late)

2. Exploring Current Practices and Tools:

1. What methods or tools do you currently use to track soil moisture and nitrogen levels? Not tracked but uses observation to determine current conditions

2. How satisfied are you with the effectiveness of these methods or tools? Hasn’t had any issues so far

3. Are there any limitations or frustrations you experience with your current approach? If an issue arises there is no data to fall back on to see what is wrong. Can see the downfall of having to replace plants if they die because of lack of a real system

3. Gathering Feedback on Desired Features and Functionality:

1. What features would you consider essential in an application designed to help with monitoring soil conditions? Dashboard featuring expanding list of sensors similar to a file system that is green, yellow, or red. Then expandable up to individual sensor level. Like group of properties -> individual property -> field1 -> individual tree (can tell if something is wrong at a glance and then dig as far as needed)

2. Are there any specific functionalities or capabilities you would like to see included in such an app? Graph of the history of moisture and nitrogen levels

3. How do you envision integrating alerts or notifications for low nitrogen levels and moisture? possible automation, ability so set when and how alerts are scheduled.

4. Discussing User Experience and Interface Preferences:

1. What qualities do you look for in the user interface of a mobile application? Less is better initially but wants the ability to expand and find any pertinent information from the application

2. How important is ease of navigation and simplicity in the design of an app like this? Extremely important

3. Do you have any preferences or suggestions regarding the layout or organization of information within the app? Already touched on the home screen acting as a sort of file system.

Male in his mid 20’s, in market for a house, single, finishing med school, bit of experience with plants and enjoys the work involved, grew up with smart phone in hand

1. Understanding User Needs and Pain Points:

1. Can you tell me about your experience with managing soil moisture and nitrogen levels for your trees or plants? Doesn't have own house yet but many years taking care of mom and grandma’s lawn and flowerbeds

2. What challenges do you encounter when it comes to monitoring and maintaining optimal soil conditions? Watering was based on last time it rained. Fertilize was timed as well - in spring. All pretty much best guess as to whether it is needed or not.

3. How important is it for you to have real-time data on soil moisture and nitrogen levels? Would be nice with busy lifestyle. Take guesswork out and save time

2. Exploring Current Practices and Tools:

1. What methods or tools do you currently use to track soil moisture and nitrogen levels? Not really tracked, more of a combination of intuition, timing and observation

2. How satisfied are you with the effectiveness of these methods or tools? Works fairly well, but not fool proof. Works best with grass, not nearly as well with flowering plants.

3. Are there any limitations or frustrations you experience with your current approach? Waiting to long kills off grass, doing it wrong has severe consequences

3. Gathering Feedback on Desired Features and Functionality:

1. What features would you consider essential in an application designed to help with monitoring soil conditions? An alert for when something is wrong. Automation if there is a sprinkler system that will allow it. It has to be simple.

2. Are there any specific functionalities or capabilities you would like to see included in such an app? Instead of having to enter moisture and nitrogen levels for different sensors for different plants, have a drop down list.

3. How do you envision integrating alerts or notifications for low nitrogen levels and moisture? Message on phone and option to automate watering (have to authorize to start watering). Option to completely automate if predetermined (going on vacation and no wifi or service).

4. Discussing User Experience and Interface Preferences:

1. What qualities do you look for in the user interface of a mobile application? Simple but functional

2. How important is ease of navigation and simplicity in the design of an app like this? Important but wants apps that do more than one thing

3. Do you have any preferences or suggestions regarding the layout or organization of information within the app? Seperate sections for water and nitrogen, graphs for each, tabs between weekly, monthly, and yearly stats. if automated how may times sprinklers were turned on and when

Female in her 70’s, homeowner, married kids out of the house, retired, has lawn, houseplants, and vegetable garden. Uses some technology but is not as savvy as younger generations

1. Understanding User Needs and Pain Points:

1. Can you tell me about your experience with managing soil moisture and nitrogen levels for your trees or plants? Mostly on a timed schedule for fertilizer. Automated for outside watering (2 times a week). Finger test for house plants.

2. What challenges do you encounter when it comes to monitoring and maintaining optimal soil conditions? No testing leads to inconsistent results especially with garden

3. How important is it for you to have real-time data on soil moisture and nitrogen levels? More important for garden – get better yield

2. Exploring Current Practices and Tools:

1. What methods or tools do you currently use to track soil moisture and nitrogen levels? Finger test for moisture level and observation of plants. Used to have sensor that measured moisture, nitrogen and phosphate but couldn’t read while in the soil.

2. How satisfied are you with the effectiveness of these methods or tools? Not satisfied with sensor, and would like something better than observation and finger test.

3. Are there any limitations or frustrations you experience with your current approach? Small type, chart to compare levels too hard to read, and finger test not precise

3. Gathering Feedback on Desired Features and Functionality:

1. What features would you consider essential in an application designed to help with monitoring soil conditions? Does not want alerts because she is already bombarded with alerts from other apps and does not like them. When app is opened have a generalized view that lets you know if there is a problem, and the ability to dig further if needed.

2. Are there any specific functionalities or capabilities you would like to see included in such an app? Didn’t really have anything to say but when I brought up specific aspects of inputting what the moisture and nitrogen levels would be set to really liked the idea of a drop down list of trees / plants with predetermined nitrogen and moisture levels.

3. How do you envision integrating alerts or notifications for low nitrogen levels and moisture? Was more open to getting an alert if automation of sprinklers could be involved. Alert would be nice to let her start sprinkler but would also want vacation mode to automatically do it.

4. Discussing User Experience and Interface Preferences:

1. What qualities do you look for in the user interface of a mobile application? No clutter, large print – ability to change size, clean otherwise she loses focus

2. How important is ease of navigation and simplicity in the design of an app like this? Very important. Was the top thing

3. Do you have any preferences or suggestions regarding the layout or organization of information within the app? History of readings would be nice