
brio

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BRIO THESIS DOCUMENT

The Justification

While searching for a topic to research, I looked upon my own personal experience with taking care of cacti and succulents and how the plants I have taken care of inevitably died. This prompted the research question that started my journey of creating the app *brio*.

How might I significantly reduce the risk of accidental cacti/succulent death?

Increasingly, you see houseplants just waiting to be bought in your local grocery, inside windows you pass on the street while shopping, and nestled on shelves. While plants have always been popular décor and additions to a home, such as botanical gardens, indoor potted plants, wall ivy, etc., it would appear that they have yet again risen into popularity. Below is a brief excerpt of an article written by Rachel Zuckerman of Mic magazine as a possible explanation for the popularity of houseplants, especially the species of succulents and cacti.

"Their popularity as an indoor houseplant coincides with the popularity of online social platforms, such as Pinterest and Tumblr, and the rise of home and design blogging," Erin Marino of the plant delivery site the Sill, told Mic. "Bloggers not only shared their aspirational images, but also how accessible and easy to care for the plants are." (Why Succulents Are the Ideal Houseplants You Can't Kill No Matter How Busy You Are, Oct. 2015).

You have probably heard this before. The claims across the web that cacti and succulents are the easiest plants to take care of. Bold claims of the invincibility of plants such as succulents and cacti have swept the Internet and local retailers, further adding to the popular trend of decorating a home with them. But with trends come lack of knowledge on the care of each plant, as all plants are not made equal. This phase of adoration for the succulent and cacti has taken many of the plants right out of their natural habitats and into environments of which they are not grown to flourish. Specifically, succulents and cacti are from semi to arid areas, where heat and sunlight is high and water is low. This becomes extremely important when one decides to buy a succulent or cactus in a climate that is both hot but very humid. While it may be true that succulents in particular are able to adapt to less-than-ideal conditions, they will, in the end, fail if they do not receive the proper care (All My Indoor Potted Succulents Are Dying, Homeguides, 2013).

When looking specifically into climate and the care of these semi to arid plants, it becomes the first round of problems for those who are not used to taking care of such plants. This then negates the claim of the easiest plant to take care of. For example, in humid climates, most succulents and cacti do not fare well because of the added moisture in the air. This can leave plant owners in these climates frustrated as their plants begin to morph colors and possibly suffer root rot from too much water. This can leave owners baffled, as they do not realize that even though these plants are available for purchase in their areas, the plants are not meant to live and flourish there.

Another issue that owners run into is their inability to easily identify a plant species. Succulents and cacti have a vast array of genus and sub-specie, with dozens upon dozens of plants categorized under one genus. One infamous example is the rosette succulents known as echeveria, which are the most commonly known succulent. While searching the Internet, it could take quite some time to find the exact same plant that you own, unless you are lucky enough to purchase a plant with a plant tag describing which specific name the plant is called. However, with this issue there are current solutions available to help users identify their plants. Imagine a woman in her mid twenties named her Emilia. Emilia lives on the East Coast of the United States and has just purchased her very first pair of cacti. In her area, it grows extremely humid in the warmer months, though she thought nothing of it when buying her arid based cacti. The cacti that she purchased were already potted and did not have identification tags included. Without much thought, she simply watered the cacti as she would with any other plant, and after a month the cacti began to become yellow at their bases and turn squishy and rotten. Unbeknownst to her, delving deeper into Internet research, she found that the cacti indeed were native to the desert regions of Central America and that she has been overwatering them to the point of no return with root rot and malformation.

Apps such as Leafsnap and Garden Compass use photo ability to find possible matches with existing photo inventory. Other apps like Gar-

den Answers and Koubachi have the abilities to ask a horticulturist or compare photos to help identify the plant you have. However, even with these methods problems can arise by the user's lack of information. Unless you know the common/scientific name of the specie you buy, you have to rely on taking photographs and hoping that a correct match is paired. Even if a correct match is found and you correctly identify your plant, the care information that comes up is generalized with little information about climate differences and care for your specific area. This still leaves a user puzzled and unsure of what to do when their plant begins failing due to the not ideal living conditions. So how would a user find information and a care plan personalized to their environment and climate?

Despite the existing solutions listed above, there is still room for innovation in this problem space. With the creation of a device to be inserted in a plant's soil and an app to read said device and formulate a personal care plan for each specific plant. The app will utilize the photo-based functionality of other apps, but unlike the current solutions this app would scan the leaf shapes and colors to create an accurate identification rather than guess work with other plants in the photo database. Users such as Emilia will be able to better take care of their succulents and cacti and therefore reducing the mortality rate of such plant specie.

Works Cited:

Baldwin, Debra Lee. "Why Are Succulents So Popular?" Succulents and Succulent Garden Design | Debra Lee Baldwin. N/A, 19 Feb. 2016. Web. 17 Apr. 2017.

Kelly, Gwyneth. "I Love Big Succulents and I Cannot Lie." New Republic. New Republic, 15 Nov. 2015. Web. 17 Apr. 2017.

Writer, Leaf Group. "All My Indoor Potted Succulents Are Dying." Home Guides | SF Gate. SF Gate, 08 July 2013. Web. 17 Apr. 2017.

Zuckerman, Rachel. "Those Green Plants You're Seeing Everywhere? This Is Why They Got So Big." Mic. Mic Network Inc., 26 Oct. 2015. Web. 17 Apr. 2017.

The Landscape

Before getting too far into my personal ideas on how to design, I took on the task of scouting out solutions that already exist for the problem space. Each of these solutions offers something different from each other, but none of them live up to what I think the solution may be.

Please keep in mind that the following current solutions in the landscape are only half of what was looked at.

Gro

EXAMPLE 1

Location

App Store, by the Scotts Miracle-Gro Company. Search by "Gro".

Overview + Relevance to this project

Gro is an app centered around to care plans specific to one's geographical area. This app isn't specific to a certain kind of plant, but has a wide variety and helps the user price out the money they would need to spend on certain types of gardening. Gro mentions care plans for container succulent and cacti gardening as well.

Experience Concept

Good: Works really well with helping a user find plants that are great for growing in their specific areas. The ability to filter catergories of what you're looking for is useful.

Bad: Works mainly on the thought that you're planning to buy supplies from them or similar vendors, rather than customizable to the user's wishes.

Functionality

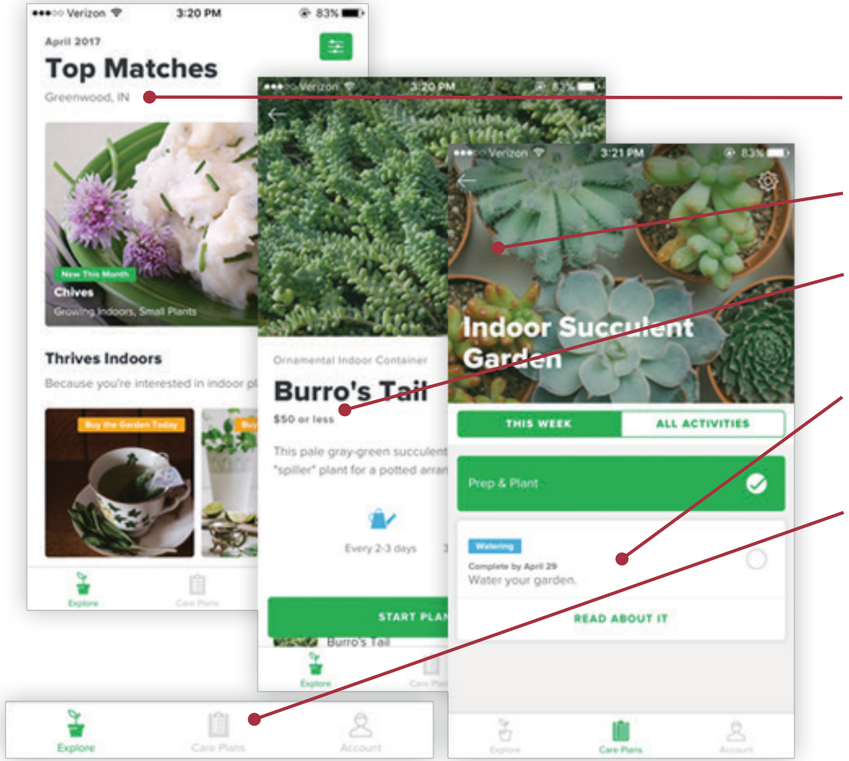
Good: Easy navigation throughout the app, and gives a well-detailed care plan for each plant. Makes it easy to go and find what types of plants you're looking for.

Bad: There isn't a clear ability to search for something by its name so a user is forced to look only at what plants are in their targeted catalog.

Visual Design

Good: Organize and clean with plenty of white space to lessen the amount of perceived clutter. Simple navigation that is easy to understand. The color palette works well for simplicity. The photography is very pleasing to look at.

Bad: Once having a plant added, the list of weekly activities is long and not interesting to look at. It becomes bland.



Matches plants to your area

Clear and visually appealing photography

Mostly about planning and pricing with their merchandise

Becomes bland when you have your care plans

Clean and simple, easy-to-follow navigation

Flower Power

EXAMPLE 2

Location

App Store, by FishTales Multimedia.
Search by "flower power - home garden".

Overview + Relevance to this project

Flower Power is another app specializing in care plans, though it provides more in-depth details about the care of each plant in your garden. This app contains a wider variety of succulents and cacti.

Experience Concept

Good: A great way to keep track of different plants and how to properly take care of them. This app provides more information about potting, fertilizing, temperatures, and more.

Bad: Does not make information specific to your area, but rather then general care plan that the plants normally should have. Also only allows 2 plants before having to pay a fee.

Functionality

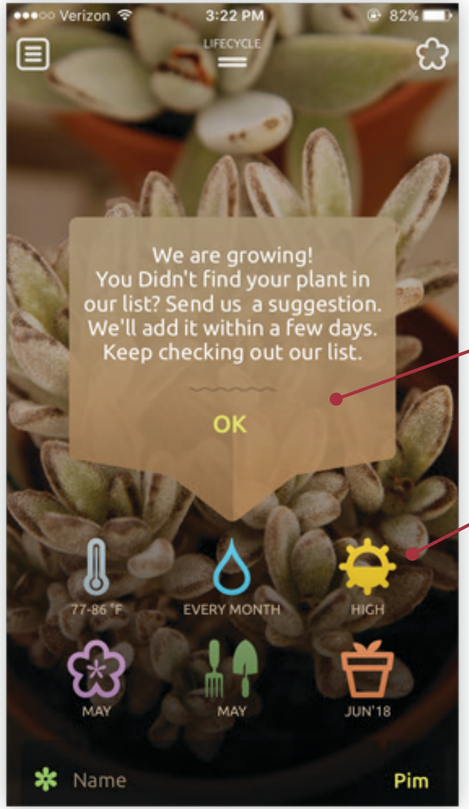
Good: The animations look clean and simple yet diverse. Functions rather well.

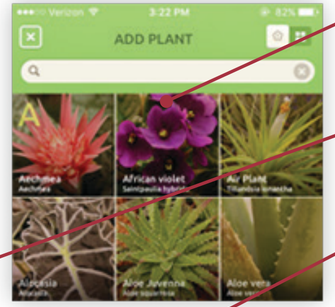
Bad: Does not flow as well as it could. Swiping left and right to view more pages can glitch and lag at times.

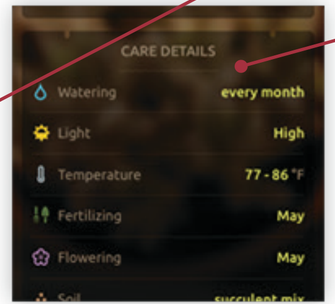
Visual Design

Good: Visually stimulating to look at with good photography and iconography that remains simple but detailed enough to not be boring. Well organized and thoughtful with their info.

Bad: While the animations are nice, they can be a little over the top and too often, which can hinder the flow of the app.







Search system by photo and name, but no photo taking ability

Icons move around and the box animates when it comes up

Simple but nice iconography with calming colors

Simply scroll down to see all of the care information

Garden Compass

EXAMPLE 3

Location

App Store, by Garden Compass, LLC.
Search by "Garden Compass".

Overview + Relevance to this project

Garden compass is an app that helps the user organize and care for their garden plants. With each plant, the user is able to see what items are required to plant the plants. This is another app that the user is able to identify by photo as well.

Experience Concept

Good: Helps the user keep track of plants and what types of soil, watering system, etc. are needed for each plant. This app also identifies possible pests a user may encounter.

Bad: Lackluster in its final output, with very little information that comes up with each plant. The information provided is not very informative or accurate.

Functionality

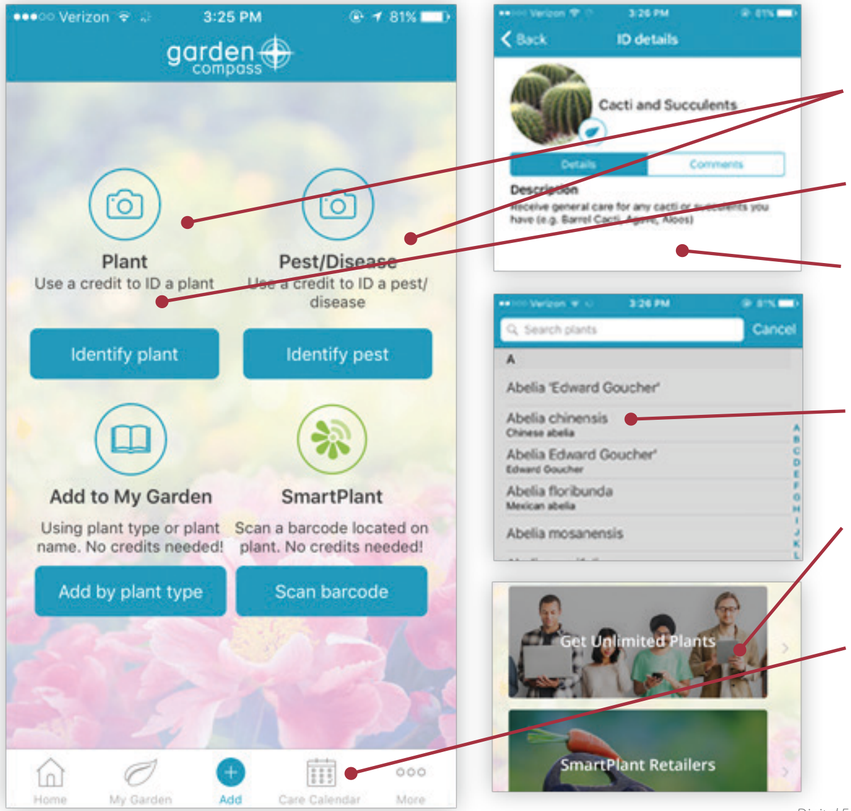
Good: The app itself is easy to navigate and the bottom navigation is clean and simple.

Bad: The way a user is meant to identify plants or pests is by photo, but that photo is sent off to "experts" and the user isn't able to receive an answer very quickly.

Visual Design

Good: Calm color palette, with nice clean photographs and iconography. The navigational icons are very simple and easy to understand.

Bad: Home page is just ads leading to other places assumably owned by the same makers. A lot of white space exists and makes the app feel empty.



Ability to identify plants and pests

Have to use paid or earned credits to identify plants and pests

Half of the time this area does not load in information

The list only goes by alphabet of scientific names

Homescreen only leads to other places outside of app

Nav is simple and easy

Leafsnap

EXAMPLE 4

Location

App Store, by Peter Belhumer.
Search by "Leafsnap".

Overview + Relevance to this project

Leafsnap is a tool used to identify different tree leaf shapes, steams, buds, etc. One of the main functions is playing a game in which to match the name with the leaf, flower, or stem. Another main function is the ability to photograph and identify.

Experience Concept

Good: This is a great tool for identifying trees and what their leaves are like.

Bad: Doesn't give the option to identify leaves of other plants, such as average florals or anything that leaves that isn't a tree. It would be nice to also provide information about each of the plants they have in their database.

Functionality

Good: It does well with showing the different angles and ways a user can find certain leaves in the wild. It gives clear names for each leaf type as well as giving the user the ability to turn the names on or off if they want to quiz themselves.

Bad: A tad slow when uploading a photo to identify leaves.

Visual Design

Good: The photos show the necessary details of each leaf.

Bad: Photos are low resolution, even for being on a digital device. Icons appear to be png and are pixelated. Almost looks like early windows websites.

Has games where you can match the leaves to the names

Only trees and flowering trees available

Ability to photograph leaves for identification

Icons are low resolution and fuzzy

Gives the ability to see different instances of the same leaves

Container Gardens

EXAMPLE 5

Location

Physical book, by Better Homes and Garden. Website: bhgbooks.com

Overview + Relevance to this project

This book is focused on container gardening and how to properly take care of the plants. It delves into great detail with care plans, different types of planters and what works well in those planters, etc. While much of this book is centered around designing beautiful gardens, it provides care information.

Experience Concept

Good: It's tradition to make informative books for users to learn by. This particular book shows new or interesting types of containment (such as planting in birdhouses), and has a list of plants good for containment. Included is a USDA Plant Hardiness Zone Map to help users identify what can typically work in their area.

Bad: It's pretty standard for a book, and doesn't have interactivity outside of that.

Functionality

Good: It's a handy guide of information to have all at once, and the layouts work well for teaching and inspiring users to try new plant containment systems.

Bad: Because it's a book, it can't truly make things personal to a user's location.

Visual Design

Good: Appealingly bright and crisp photography. Layouts are clean without too much text on each page.

Bad: Some of the columns of text are too skinny, and makes it rather awkward to read it properly. The leading is too wide and the text is bold for some reason in the sub-text boxes.

Bold with leading too wide on text

Crisp and inspiring photography

Columns can be too skinny on some pages

The included USDA Plant Hardiness Zone map in the back

The Design Criteria

The design of the brio app/device will improve cacti/succulent health for every day plant owners.

Experience

Have the user feeling in control of their plant's health.

Make the user feel connected at all times.

To help the user feel comfort that data is personalized to them rather than generalized.

Make the user feel knowledge-able of their plants.

Functionality

Scan plant to identify by photo.

Sync with "device" to create personalized care plan.

Search ability by name and characteristics, not just photo.

Push notifications to remind user when to water, add additional sunlight, fertilize, etc.

Timers on home screen for each plant in user's "garden" to also indicate when to water, fertilize, etc.

Visual Design

Minimal color palette to reduce clutter and confusion.

Photo based but with illustrative elements through-out for variation for the eyes.

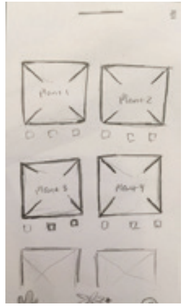
Simplistic layout for easy navigation to reduce clutter.

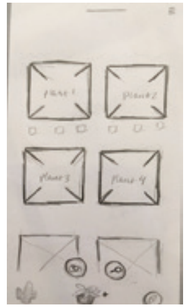
Plenty of "whitespace" without seeming too empty or unused.

The Testing

After all of the research, I was able to develop design criteria for the solution. This became a 3 step process in which I created low fidelity, medium fidelity, and high fidelity prototypes and had users test it throughout. With each test I gained invaluable knowledge and insight on changes to make, what people were wanting from an app such as this, etc.

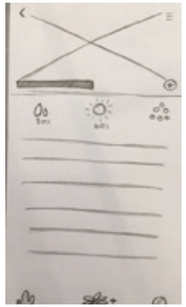
Low Fidelity

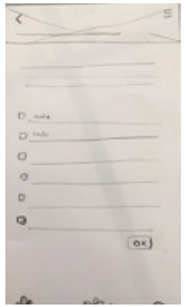

Landing page


Landing Nav

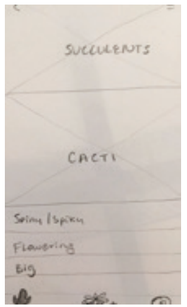

Scanning photo

Confirmation


Info Page


Plug in info

Discovery



Adding filters


List of plants


2 List of plants

Test 1: Taylor

AGE: EARLY 20S

The discover icon is a little confusing, it seeming a little like location. Everything seems nice and clean.

The idea for scanning the photos is nice!

Tasks

Add a plant by taking a photo

Add a plant by searching

Discover a new plant specie

Insights

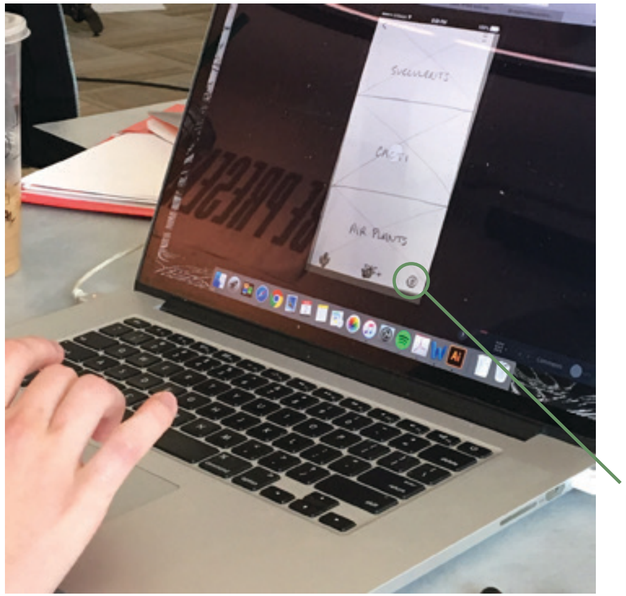
The structure is nice and simple

Icons can be confusing, especially for the 'discover' option

Not much to see yet with the app

Test 2: Mae

AGE: EARLY 20S



Tasks

Add a plant by taking a photo

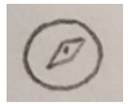
Add a plant by searching

Discover a new plant specie

Insights

Not much criticism to be had yet, as there isn't enough to look at

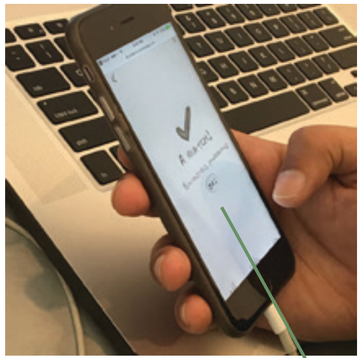
Discover icon is confusing

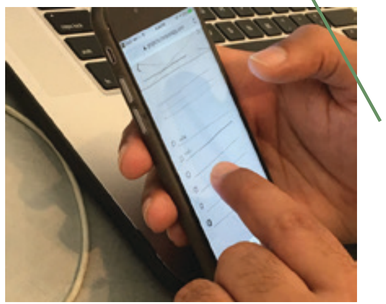


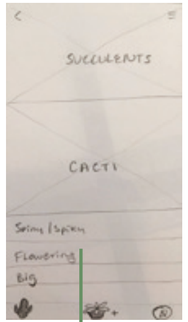
Discovery icon was confusing to know exactly what it was leading to

Test 3: Omar

AGE: MID 20S







Sizes need to change and move with the new added filters

Needs something more than just the OK to switch between photos and adding plants

Tasks

Add a plant by taking a photo

Add a plant by searching

Discover a new plant specie

Insights

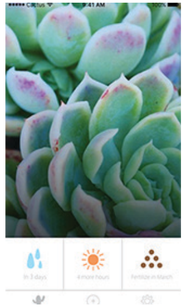
Not enough feedback from photo to adding sequence

The simplicity is good

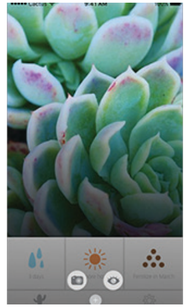
Everything too big in 'discover' screen with the drop down menus not changing to accommodate the new filters

Text is too small

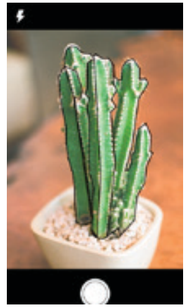
Medium Fidelity



Landing page



Landing Nav

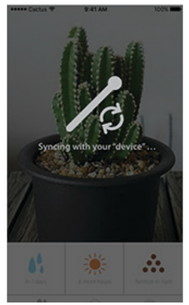


Scanning photo

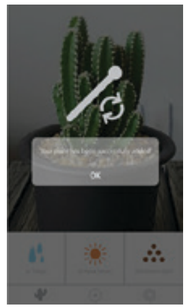
Correct plant?

Info page

Plug in info



Syncing



Confirmation

List of plants

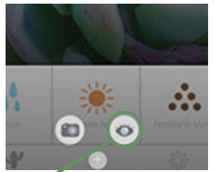
Adding filters

Test 1: Parker

AGE: EARLY 20S

Too much 'real estate' on the landing page and should have more info

This isn't reading as just identifying. There's confusion thinking this is the adding sequence.



This isn't reading as discover either. Suggests using magnifying glass

Tasks

Add a plant by taking a photo

Add a plant by searching

Discover a new plant specie good for your area

Insights

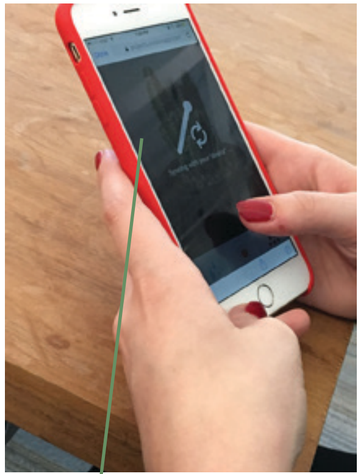
Confusion when identifying; thought that identifying was also adding

The new discover icon, the eye, isn't really working well

The filters are too close together. Not enough space on landing page used. Lots of empty area

Test 2: Kelly

AGE: EARLY 20S



Would like to see dying plants as another scenario

Pictures in the high fidelity should have more variance

Tasks

Add a plant by taking a photo

Add a plant by searching

Discover a new plant specie good for your area

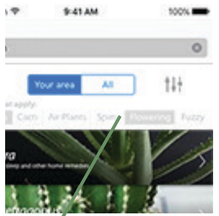
Insights

It would be nice to see what it would be like if one of your plants was dying and how you could fix it

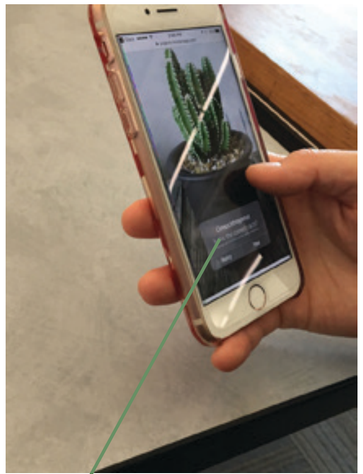
Pictures need more variance

Test 3: Elizabeth

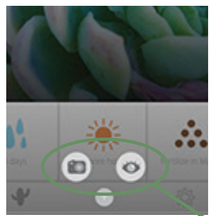
AGE: EARLY 30S



Filters should be changed to be more legible and straight forward



Should be telling you what plant it is and not just asking if it's correct



Separate these

Tasks

Add a plant by taking a photo

Add a plant by searching

Discover a new plant specie good for your area

Insights

Should tell and not ask that plant is correct after scanning

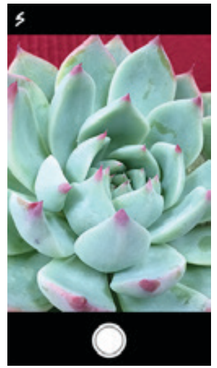
Discover in your area and taking a photo should be separate

Maybe try another type of filter system

Text is still too small

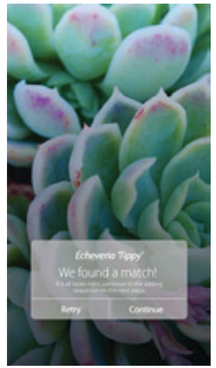
High Fidelity

Syncing



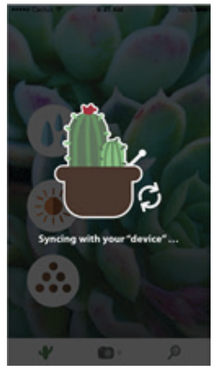
Camera Photo

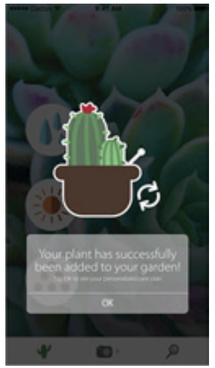
Scanning

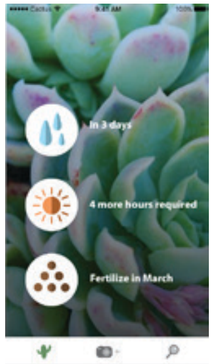


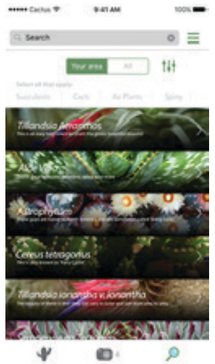
Matching

Info page



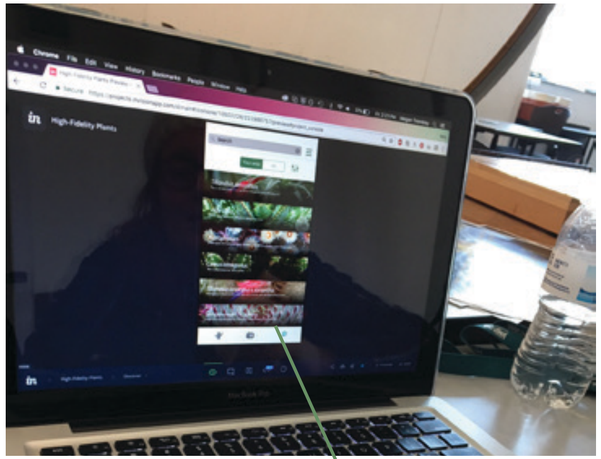






Test 1: Morgan

AGE: MID 20S



Use common names and then use scientific for learning purposes

+ would be better, and make text larger

Tasks

Add a plant by taking a photo

Add a plant by searching

Discover a new plant specie by applying a filter

Insights

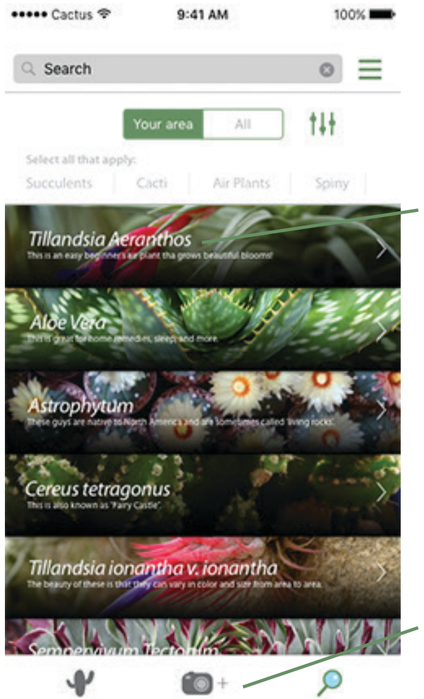
Don't use scientific names for the plants: use their common names and have the scientific name secondary

It's difficult to read over the images for the discover screens

Use + sign instead of writing out 'add' on the information page. Make text larger for the sun, water, and soil icons

Test 2: Kathy

AGE: LATE 50S



Difficult to read over top of the images

Navigating through-out the app is easy and clean

Tasks

Add a plant by taking a photo

Add a plant by searching

Discover a new plant specie by applying a filter

Insights

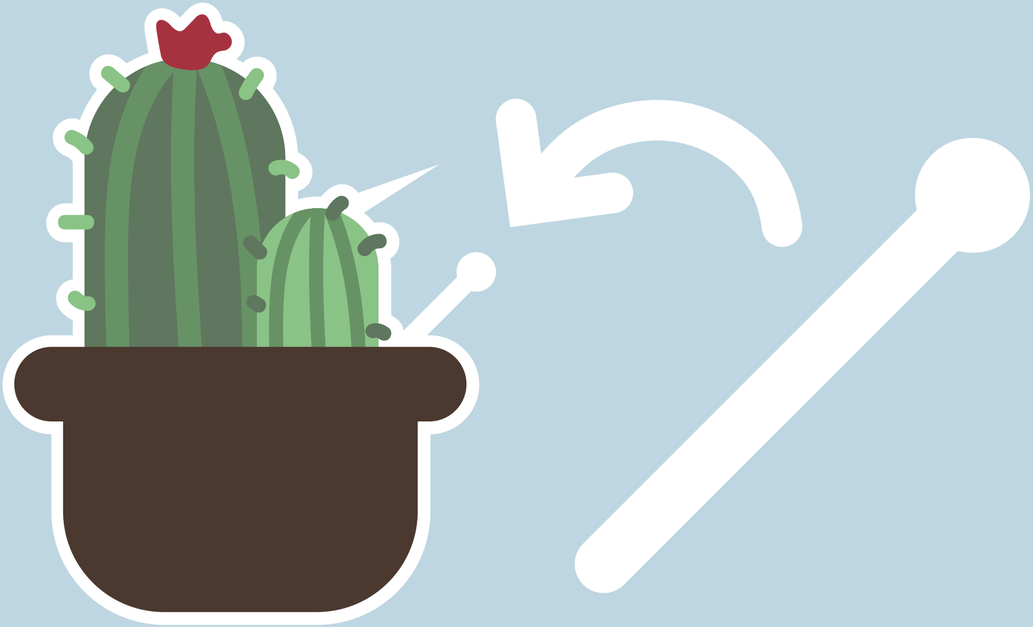
Text is difficult to read over top the images in discovery and the info page

The function is really simple and easy to follow throughout the app

The Solution

Taking each user test into consideration throughout the prototyping process, the final solution was born. It addresses each of the design criteria previously stated, and creates a new and useful solution the users themselves picked out.

One of the main pieces of the solution is the *brio smart sensor*, which is placed in the soil with the plant and reads when water, sunlight, and fertilization are needed. This gives the user a *personalized care plan*.



brio Smart Sensor

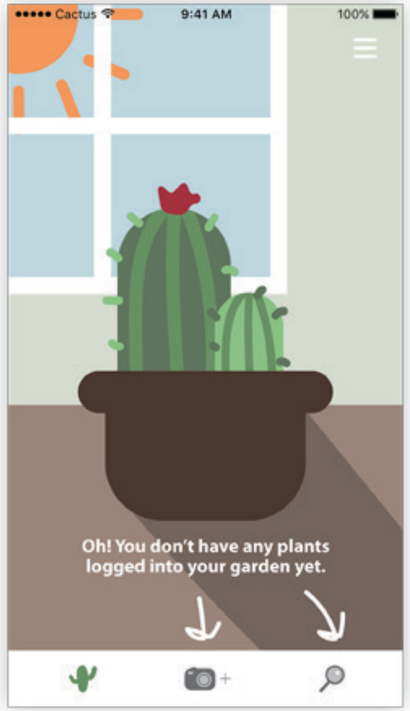
As previously mentioned, the *brio Smart Sensor* is a device that is placed in the soil with your plant. There is a piece at the top that is to face the sun, which will provide you with data on how much more sunlight your plant will need each day. The device will send you *push notifications* when you need to water, find more sunlight, and/or fertilize the soil. This will allow the user to feel in control of their plant's health and creates a personalized care plan to the user's environment and climate .

The *brio Smart Sensor* does not need to stick out so far as it shows in the illustration, but just enough so the piece at the top is in the sunlight.

Initial Landing Page

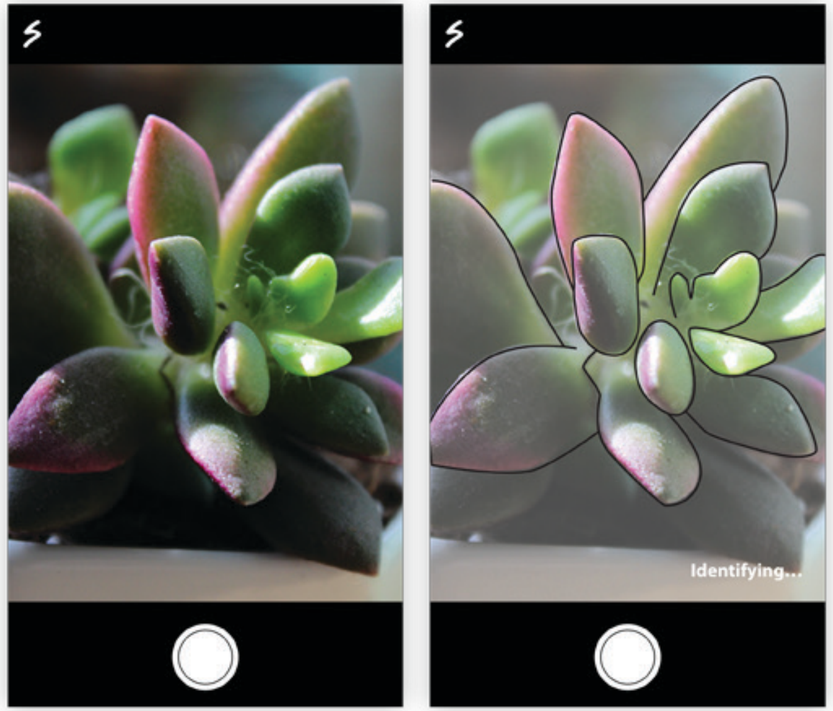
This is the initial landing page once you open the app for the first time.

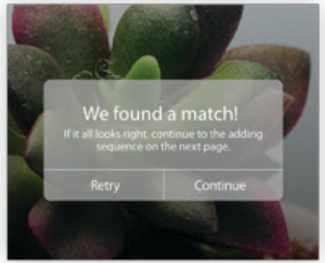
It clearly states the two ways in which you can add a plant into the app, which are by photo (which also identifies), and by the search icon where the user is ableto either look through images and names, or type in a name.



Scanning

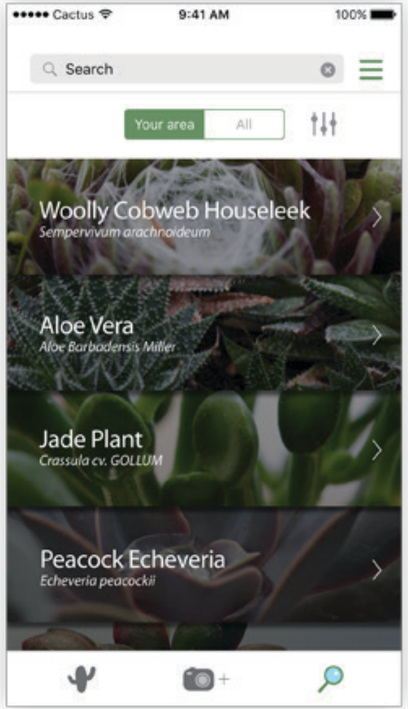
This gives the user the ability to take a photograph. The app will *scan the photograph* by leaf shape and color to correctly identify the plant.

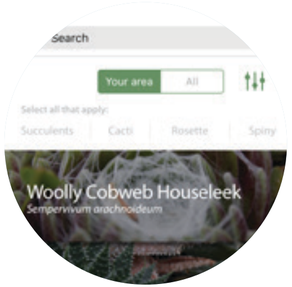




Searching

The user also has the ability to *search by name or browse* plants. As suggested during the testing phase, the user is able to search for plants that are *good for their area*, or to browse all.

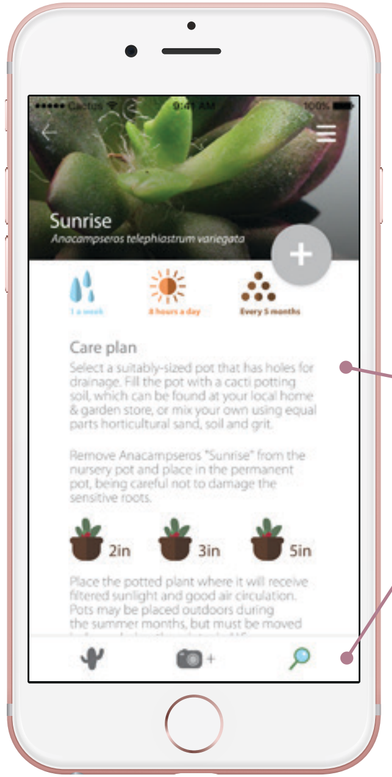




A drop down menu is available for the user to apply filters to help narrow down the list of plants.

Information page

Once the user has identified a plant by either photo or searching for it, a general care plan will come up. This plan will change once the user adds it to their garden via the plus sign. It will then sync with the *brio Smart Sensor* to create a personalized care plan to the user's environment and climate.

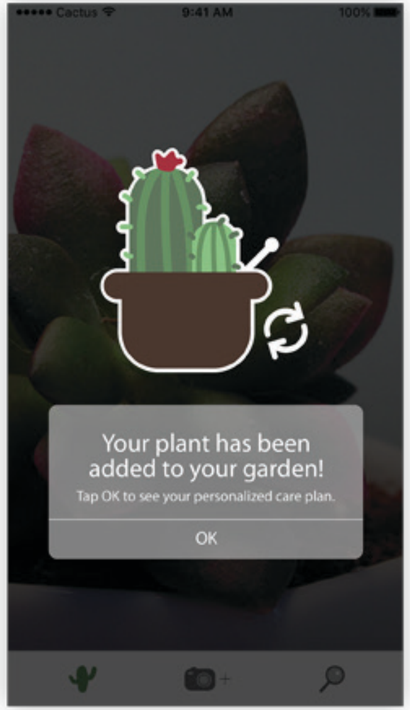


Provides more knowledge about each plant to the user

Simple navigation that leaves little room for confusion for the user

Syncing

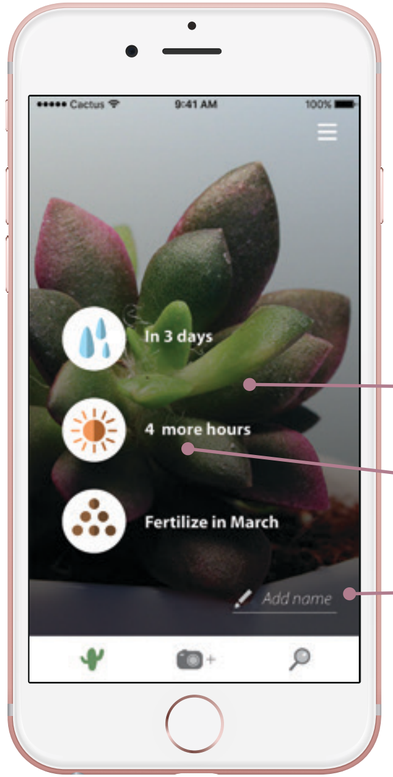
Once you tap the plus button, the brio Smart Sensor will sync with the app.



New Landing Page

After the brio Smart Sensor has synced, the user now has a new landing screen that has active countdowns of the main care components.

To switch between plants, simply swipe right and see similar screens with custom information for each.



White space without seeming too empty

Continuous countdown for when the plant needs tending to

Ability to name each plant for more personalization


Thank you!