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# HUSKY CHARGE



FIND THE HUSKY CHARGE FOR  
ANY DEVICE IN MANY OF YOUR  
FAVORITE LOCATIONS

## Husky Charge

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# Project Brief

Nowadays, electronic devices are becoming a must for college students, so keeping devices available, ensuring that students can use them when needed, and making the charging process convenient are the goals. The key problems that challenge the goals are that students may forget to charge their devices and bring chargers to school, have difficulties going to school's charging stations, and having to wait and stay near the charging places while charging. These problems can result in charging failure or inconvenience. These issues will be addressed in the following solutions.

## The Team

Hello! Our team is ready to combine our diverse sets of skills and put them to the test to create a good solution for our community that we focused on. We are all very excited to make this project go from an idea to reality! Get to know us better below!

### Team Members

#### Sean Lim

Hi! My name is Sean Lim, I am from San Jose, California. For this project, I am really interested in attempting a project manager role, along with helping with research, design, or whatever else is needed for me. Everyone in this group has different skills and interests which I think is great and important for the team dynamic. I am excited to work in a team environment to solve a problem.

#### Oscar Su

Hello! My name is Oscar Su. I am from Taiwan but spent 18 years of my life studying in Shanghai! For this project, I am excited about the communication and leading part but I am also comfortable with research and design. After several meetings, our team has a strong diversity in terms of skills and I believe we can work really well together!

## **Shey Gao**

Hi there! My name is Shey Gao and I'm from Beijing. This is the first project I have undertaken and I found that my group members are all responsible, friendly, and creative. Additionally, we have organized a meeting previously and discussed a lot about this project. I'm sure that we can do well as a group!

## **Lizeth Velderrain-Lopez**

Hey! My name is Lizeth Velderrain-Lopez and I am from Redmond, Washington. I will also contribute to planning, research, and whatever else is needed of me. After getting to know one another, I imagine that our group will work well together and produce something amazing!

# Introduction

Our group intends to target students and teachers at the University of Washington for this project. As college students, technology and devices have become an integral part of our everyday lives, and it is critical that they do not run out of battery. Not only are they crucial for students, but they also contribute significantly to the faculty on campus. One of the primary concerns is that we frequently forget to charge our devices before bed or to carry them to class with us. As a result, the first issue we want to address and investigate is how we can use information to increase the accessibility and use of chargers for students and faculty on campus. If this issue is adequately solved, the risk of people's devices running out of battery will be significantly reduced. The simple fact is that students who have access to chargers are more likely to avoid running out of battery during class or on campus in general. , At the moment, if the issue is not addressed, the state of our campus will most likely remain the same, with students struggling to find a worthy, cost-effective, and accessible way to charge their devices, having to travel off campus to purchase them and spending money that is extremely valuable to us. On the other hand, if this issue persists, people will run out of batteries and will be unable to accomplish their normal tasks efficiently. According to our proposed proposal, if the institution begins to provide an expedient method for people to use chargers at any time and from any location, they will be considerably more effective at their jobs and responsibilities.

# Solutions Considered

## Solution 1: Portable Charger Boxes

A possible solution that would improve on charging accessibility around the campus would be having shared rental portable charger boxes. By providing shared powerbank rental services, students would be able to swipe their husky hand to rent a powerbank and put it on hold until their husky hand is swiped again. Once the husky card is swiped, the power bank will be fully charged and come out of the box. These husky boxes are also located at specific popular buildings and halls so students can easily find them. The advantage of this solution is that even if students' phones run out of battery, they can still use their husky card to get a fully-charged power bank. Another advantage is that students can bring the portable charger anywhere and anytime, without having to worry about cables. However, if students forget to bring their husky card, they do not have access to the portable charger box unless their friends borrow their husky card.

## Solution 2: Library Charger Rentals

Another possible solution that would help target the issue of charging accessibility would be the ability to rent out phone, laptop, and tablet chargers. By going to populated UW buildings and libraries, students would be able to exchange their Husky ID card for the desired charger of their choice. By doing this, this incentivises students to not take the charger, and return it to get their Husky ID card back. The pro's to this would be that if students or faculty did not have access to a charger or possibly forgot theirs, they could easily rent one for the duration of their stay in whatever building they are in. On the other hand, the cons to this proposal would be the issue of mobility. If students wanted to leave or needed to go to another location, they would need to return the charger to get their Husky ID back, along with the fact that you would not be able to take the chargers out of the building. This could prove as a potential issue for students and faculty needed to be at other places.

## Solution 3: Charging Accessibility Locator

Another possible solution concerned with charging accessibility would be a service that would allow students to know where the UW charging stations are located. In addition, general work spaces' locations on campus that have access to outlets for charging would also be provided, such as the space in the NanoES building. This solution would be incorporated into UW Scout, which offers a website and app version of the service. UW Scout provides students with food locations on campus, available study rooms, and access to technology through a rental system. UW Scout would have an added tab wherein students can access information regarding the locations of the UW charging stations and any work spaces with charging accessibility available. The advantages include being able to locate places nearby that would provide charging and a space to work instead of having to go to places like the Odegaard Undergraduate Library, which is constantly busy and could be far away for some students. This solution also incorporates a system that students and faculty are familiar with and has other similar features. A disadvantage however, would be that although students would have greater charging access, they aren't able to charge on the go; they must stay by their device while it charges.

## Solution 4: Power Up Huskies Notification App

A possible solution that would increase the convenience of charging on campus would be using an app to send notifications to users. The existing charging stations may have all been occupied when the demand is high, and some students may have to wait there until others finish using them since they don't get any notification when one is available. A way to solve this problem is to send notifications from the app to notify them once there is an available charging station. For instance, when someone needs to use one but none is available, they can turn the notification setting on by using the app, and they will be notified as soon as one is available. During this waiting time, they can go somewhere else instead of waiting at the charging station all the time. Then, they can come back and use the charging station once the notification is sent. The advantage of this solution is that it allows people to do something else while waiting to use the charging station when all of them are occupied, and they don't need to wait there all the time. However, the downside does exist; not all students are willing to download the app on their phone or may not have the time to have to wait for a charging station to be open, or even be near one.

## Selected Solution

We have selected a mix of the first and third solution as the most appropriate solution for our users and stakeholders. The rental portable charger box service covers the necessities for the users including accessibility, mobility, and cost-friendly. In terms of accessibility, students will be able to find them in specific buildings around campus and we will determine the location based on the popularity and amount of classes each building has. Regarding mobility, students can rent a portable charger and carry it with them to classes anytime and return it after they are satisfied with their battery percentage. The powerbank box service is also cost-friendly because students do not have to pay additional fee to rent. Instead, the fee will be covered in the student technology fee in the tuition and students only have to use their husky card to swipe to gain access to the portable charger. Along with the rental portable charger box service, there will also be an implementation with UW Scout that helps students locate charger boxes and see if they are available for use. Essentially, this solution stands out as the best one because students do not have to worry about forgetting their charging cables anywhere and anytime around the campus.

## Description

While brainstorming, we have come to a clear idea of what our proposed solution will aim to look like. For the design of our “Husky Charge” portable charger boxes, there are two main aspects that make up the whole of the product. Starting with the charging box itself, this rectangular shaped device with rounded edges will be able to house 6 portable chargers with slots evenly divided on both sides. For the physical look of the charging box itself, it will be white with gold and purple color accents to represent the university. On the right hand side of the charging box, will be a black card swiping reader, that students will use to rent out the portable chargers. While the main focus of our solution is to house portable chargers for students to easily access them, the charging box itself needs a power source in order for the chargers to return to their maximum battery strength. The charging box will have one main cord running from the back middle, downwards, so it can be easily plugged into any outlet depending on the location of the charging box. Moving forward to the portable chargers itself, 6 individual chargers can be placed and taken out of the boxes at any point, with three slots on the right side and three slots on the left side of the product. The portable chargers will be purple all throughout, with the “Husky Charge” logo in the center.

# Product Features

## Primary Features

### **Husky ID Card Verification**

The rental portable charging box would be attached with a card detector that allows students to swipe their card to access the chargers. The card detector would look similar to those in cafeterias and cafes located on campus, except it would not charge a fee for the portable charger. This function enables people to conveniently gain access to chargers without doing other necessary steps. Swiping the card is not difficult for students to understand as it is a common signifier around campus.

### **UW Scout Implementation**

The portable charging box would also implement a location feature which would be connected via UW Scout. This would allow users to use UW Scout to track where the nearest charging box is and additional information corresponding to specific stations. By having a tracking feature, users are able to find charging accessibility with ease as to not waste their time and energy. This feature also incorporates UW Scout, a popular service for those tracking other things on campus, like food and study rooms. Thus, this incorporation would not be out of the norm and would be familiar to users as well.

## Secondary Features

### **3-in-1 cable**

The portable charger would be attached with a 3 in 1 cable. By having a built in 3 in 1 cable, students do not have to worry about bringing their cables outside of home. The portable charger would be able to charge any devices with interchangeable cables from micro USB to Apple's lightning cable to type C cable. The length of each wire would be just enough for the users to carry around and it wouldn't be too long for them to get bothered by it. With an attached 3 in 1 cable, it would certainly increase the ease of use and convenience for the users.

### **Battery Color**

Different colors show how much power is left in the portable charger's battery, so students can discern how much power is left and, if needed, put it back in the husky box and get a new portable charger. There will be three colors to represent distinct battery status: red for less than 20% battery power, yellow for 20%-50% battery power, and green for more than 50% battery power. By providing a clear indicator to users, it improves the usability, which is important to consider when designing a product.

### **QR Code**

There will be a QR code placed on each husky box. Students may find out where the other husky boxes are near them by scanning the QR code. They won't have to log in to the UW Scout APP; instead, they'll be able to check the position of all the husky boxes immediately on the website. In this way, students can return portable chargers to other husky boxes by knowing where they are located, even if the one they borrowed from is already full.

### **Charger Details on UW Scout**

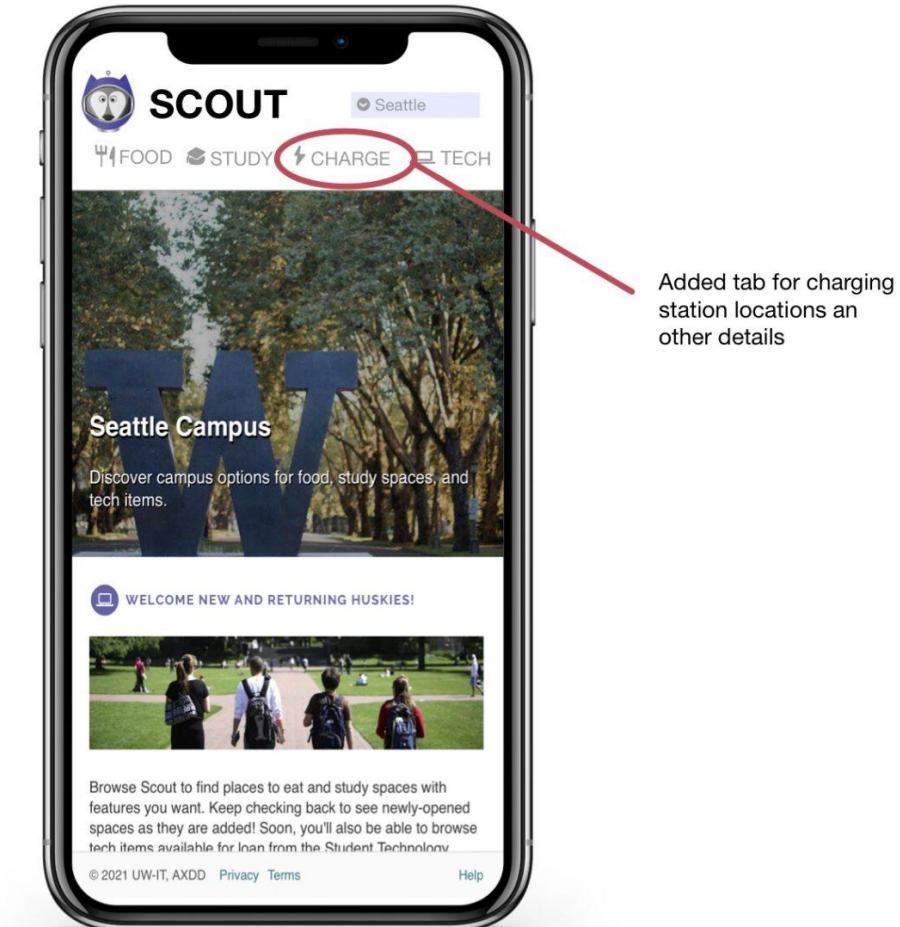
Within the charging station feature on UW Scout, specific details about the individual chargers will also be provided for added convenience. Each charging station listed will not only have its location provided, but also information concerning the amount of chargers and each of their approximated battery levels, similar to the data for the battery color feature. With this feature, users are able to know whether going to a charging station will benefit them, since there is a decreased risk of encountering an empty station or insufficient battery level.

# Low-Fidelity Wireframes

## Onboarding Screen / Screen 1

On the Onboarding Screen of the UW Scout page, the existing tabs include “Food,” “Study,” and Tech. In these pages, users can find nearby places to buy food and drink, study spaces, and have access to a portal for renting tech devices respectively.

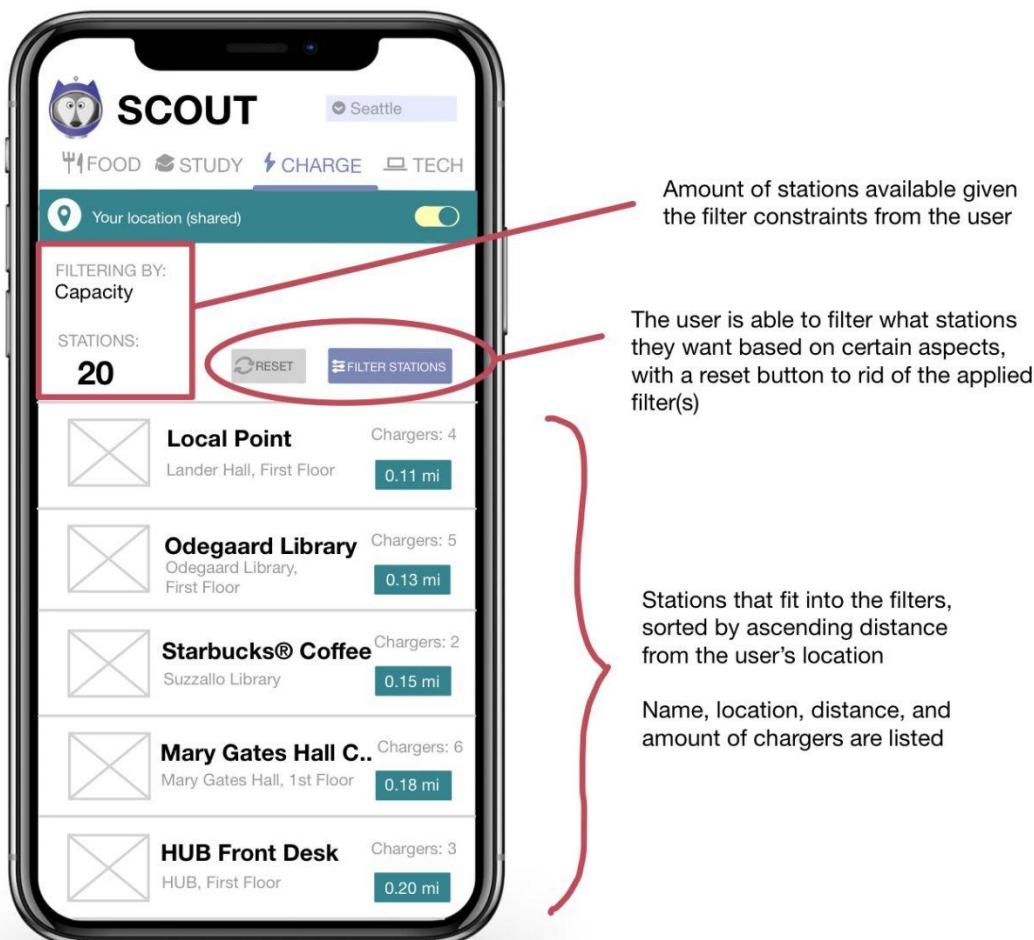
With the “Charge” tab, users will find a similar function to the food and study tabs. Here, users can locate charging boxes throughout campus with the Station Results Screen.



## Station Results Screen / Screen 2

On the Station Results Screen, users will find a list containing all the available charging boxes, which appears when selecting the “Charge” tab from the Onboarding Screen. The default access to this screen will not be constrained to any filters. The user will have the option to set constraints on the results through the “Filter Stations” button and get rid of said filters through the “Reset” button next to it. The screen lets users know what they are filtering by (if any filters are selected), and the total stations available.

From there, the list containing available stations is sorted by distance (ascending). Each charging station description depicts a picture of the actual charging box, its location, number of chargers available, and distance from the user. Through the results screen, users can determine which charging station is most efficient for them to use through the stations’ respective description.

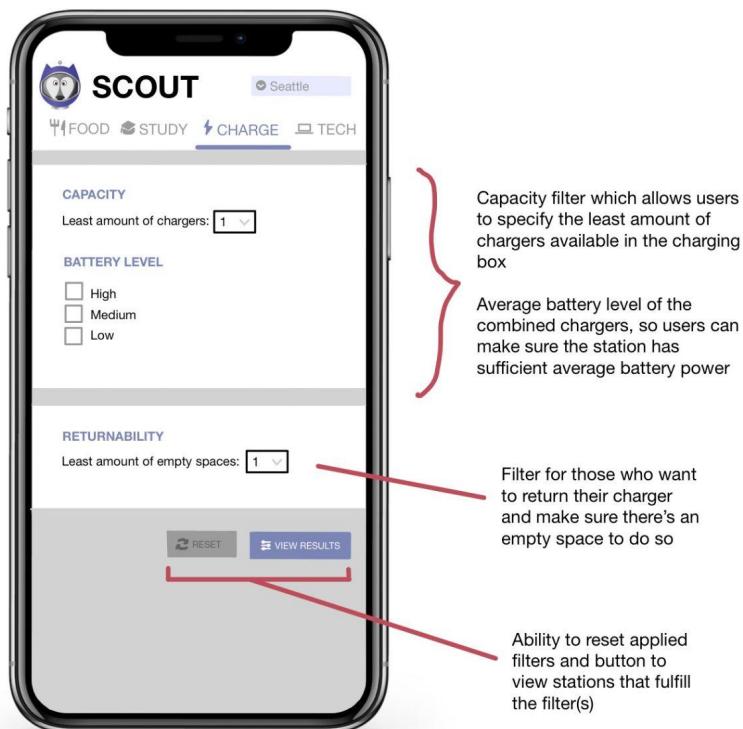


## Filters Screen / Screen 3

When selecting the “Filter Stations” button on the Station Results Screen, users will be directed to this page wherein users select the constraints placed on the charging stations on campus. The available filters are related to the capacity, battery level, and returnability of the charging box.

The “Capacity” filter sets the minimum number of available portable chargers from the station that the user wishes to have. This way, they can ensure that there will be a charger available for them. The “Battery Level” filter allows the user to check the average battery level of all the chargers in the box, so they are able to have sufficient battery power for their needs. Lastly, the “Returnability” filter is focused on users who want to return their portable charger to a charging box. Here, they select the minimum amount of empty spaces in the charging box, so they can efficiently return their charger.

Once the user has determined the filters they want to set, they have an option to view results from the filters set, as well as, the ability to reset the filters placed in case they change their mind. Either button will lead the user back to the Station Results Screen.



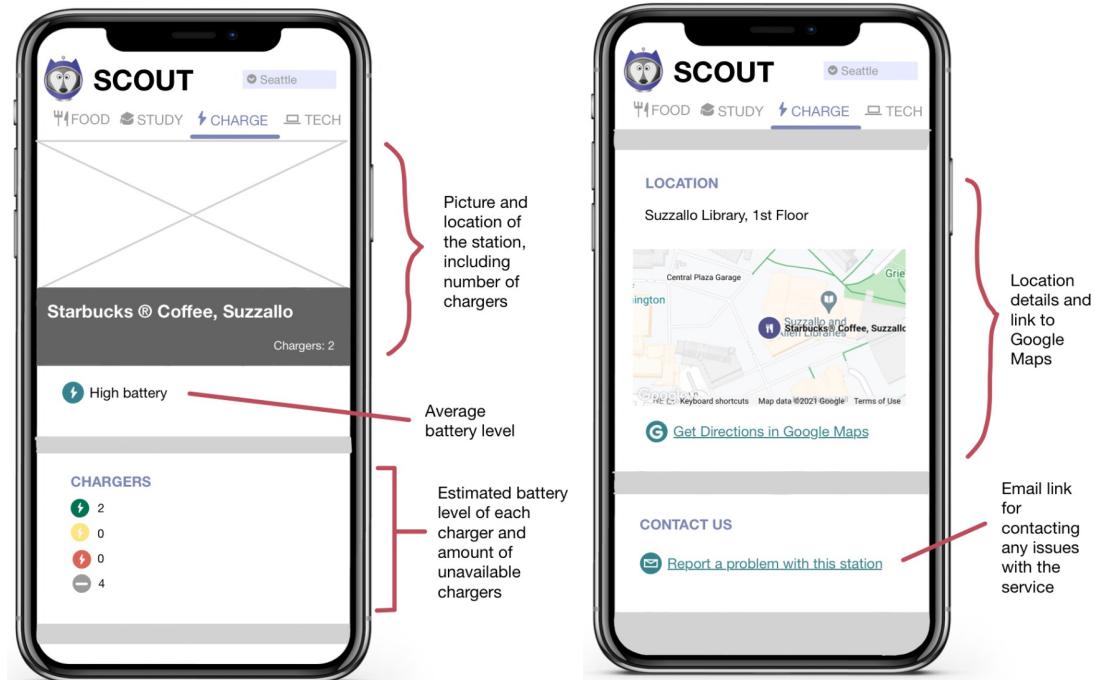
## Station Description Screen/ Screen 4

When selecting a certain charging station from the Station Results Screen, the Station Description Screen is shown. Similar to the Station Results Screen, users are provided with the picture of the charging box, the location, and number of available portable chargers.

This screen also provides the average battery level of available chargers in the box, which is also a filter. A section concerning individual chargers' battery level is also provided. Icons with high, medium, and low power are displayed with a number next to each, signifying how many chargers have the respective battery level. There is also a gray icon signifying unavailable chargers from the station. Therefore, the user can discern whether they can find a charger that will fit their power needs.

When scrolling further down the page, users will find a location section where more specific directions are included. A picture of the location depicted on Google Maps and a link are provided in case the user needs help getting to the location.

Another section is included with contact information, containing an email address, in case there are any issues with the specific charging station that need to be fixed.



## Low-Fidelity Wireframing Stage

The feedback received mainly surrounded the fact that the location feature of the solution is implemented within UW Scout, an existing app and website. We also received feedback concerning other design decisions relating to the content itself. From this feedback, we learned that taking control over the design would ultimately be a better play. This would allow for more freedom since the app would not be constrained by the format and design of UW Scout. More creativity and originality would also be a benefit from creating a standalone app instead. Therefore, regarding the revisions made to the low fidelity wireframes, they were heavily changed to demonstrate the change from UW Scout to our own app. A map feature was added to the home screen to represent the main feature of the app - to locate charging stations. Pins on locations with charging stations can be selected, opening an overlay with a few details, a link to Google Maps, and a button leading to the station page, where several changes were made as well. A picture depicting the charging station is shown with colors on each portable charger depicting its battery level and unavailability, with a key below for each color stating the battery level range. This way, users with disabilities can know how many chargers are available and their battery status with the added key.

# Design Language / Style Guide

## Font

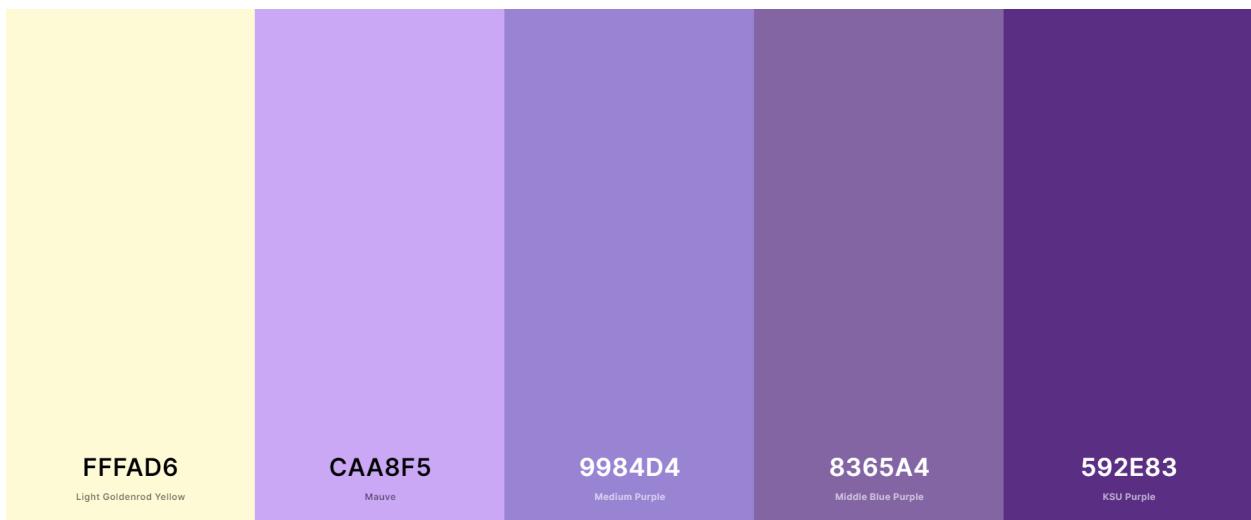
We selected to use Futura for our font style. The sleekness, legibility, and boldness combined is what attracted us to want to use this for our portable charger project design. We strongly believed that the Futura font worked the best for the aesthetic and design of our app, being simple and modern. Combined with the colors that were utilized along with the font chosen, we believe that our product is extremely user friendly and attractive to the eye.



Depiction of the Futura font (Wikipedia, 2021).

## Colors

We selected five different colors, which include four shades of purple, and one shade of gold. The reason why those colors were selected is mainly because purple and gold are UW school colors. Using school colors is an obvious way to show that this app is designed for UW students and faculty, since the charging stations will be located on campus. Moreover, the use of different shades make it easier for users to distinguish different contents visually. The different shades of purple are also used to differentiate features such as links, icons, and headers.



These are the colors used for the prototype, using Coolors to create the color palette (Coolors, n.d.).

# High-Fidelity Wireframes

## Onboarding

**Onboarding & Home Page**

- Onboarding page shows the brand and logo
- Map helps users navigate to the buildings with the chargers
- Purple circle in the middle represents user location and changes based on user's location
- The location button gives users an option to view more detail about distance and chargers available
- The purple arrow button allows them to view details about the chargers in that particular building
- Top right arrow button helps them get to the information page about the buildings with chargers
- Purple color represents the school and makes it more representative

# Usage Scenario 1 - Filtering and Locating Stations

**Station List Page & Filter**

- Users can find all the stations with the chargers on this page
- The stations are organized based on availability for chargers
- By tapping the menu button, a filter comes out and the user can select their requirements
- Clicking apply will lead to a new page with the stations that match with the filter
- When users want to see their location again, they can click on the dog on the top left to revisit the home page with the map
- Click on the station name and it will lead to the station description page

# Usage Scenario 2 - Finding Station Details

Odegard Library

Local Point

Suzzallo Library

High Battery | 80%-100%

Medium Battery | 50%-70%

Low Battery | 0%-40%

Unavailable

[Open Navigation](#)

High Battery | 80%-100%

Medium Battery | 50%-70%

Low Battery | 0%-40%

Unavailable

[Open Navigation](#)

High Battery | 80%-100%

Medium Battery | 50%-70%

Low Battery | 0%-40%

Unavailable

[Open Navigation](#)

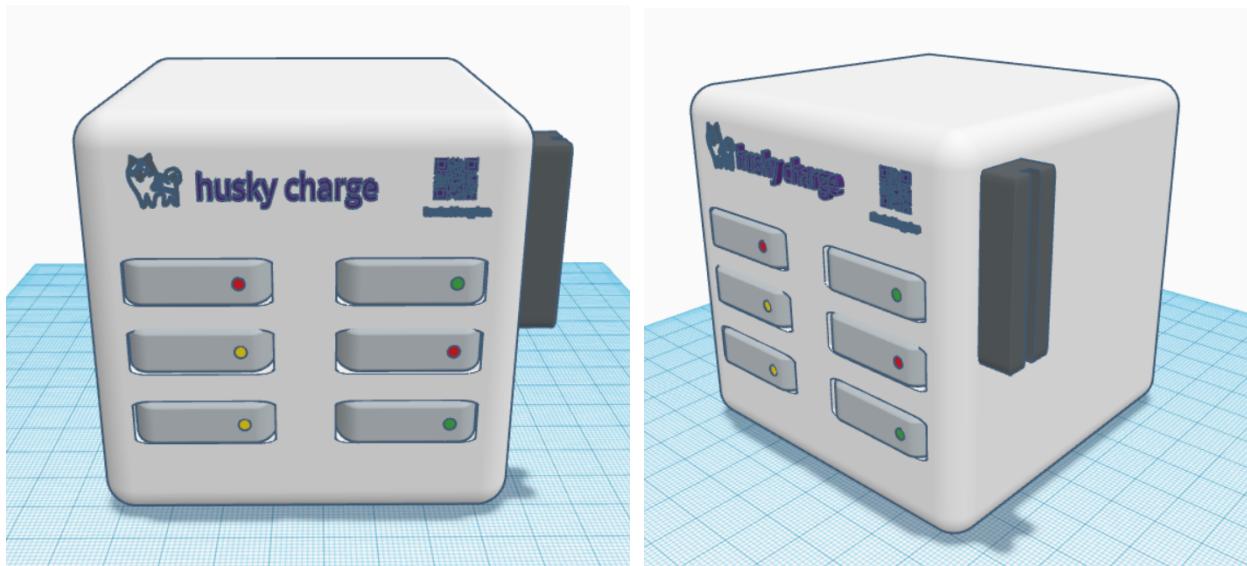
**Station Description**

- If the user clicks on the small arrow in each description box in the home page or clicks on the station name, this new page will appear
- The charging box is based on real-time updates, it allows users to see what is available in the charging box
- The charging box helps people understand easily, so they don't have a hard time figuring out
- Users can also click on open navigation to open their default map on their phone for them to find the places
- Users can also click on the dog on the top left to get back to the home page

# Interactive Prototype

For the app, we used Figma to create the [interactive prototype](#).

A 3D model was also created using Tinkercad to demonstrate how the [charging station](#) would look.

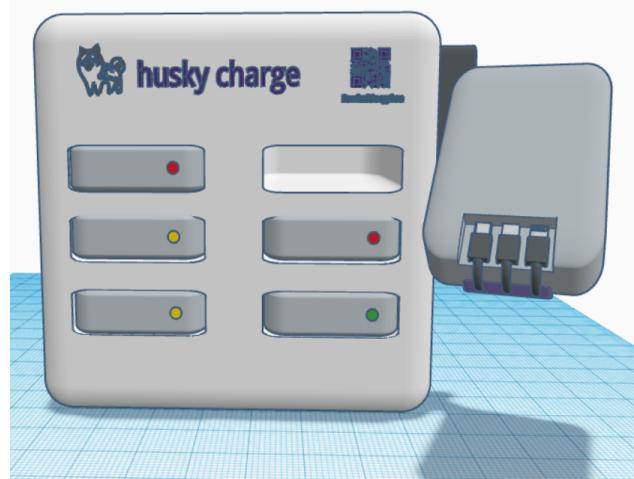


The station includes the logo and name included in the app, with a QR code to download the app. Each portable charger has a colored light which depicts the charger's respective battery level.

This charging station is a depiction of the existing Chargefon charging station while incorporating the app and UW designs (Chargefon, n.d.).

Once the portable charger is ejected, three different cables for different devices are connected to the bottom of the portable charger.

On the side of the charging station is a card swiper, used to swipe the Husky ID card in order to receive a portable charger.



# References

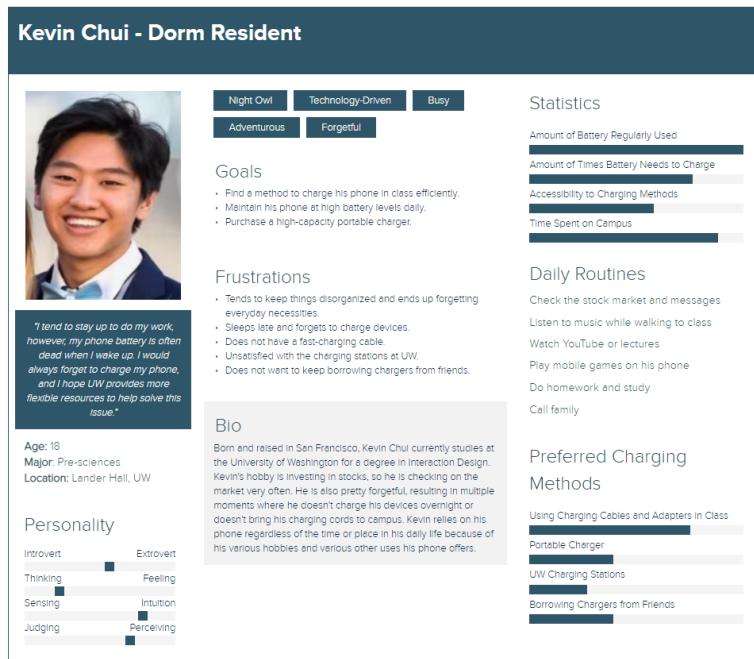
Chargefon. (n.d.). Shared Powerbank Rental Service. Retrieved December 3, 2021, from <https://chargefon.com/>

Coolors. (n.d.). Create a palette. Retrieved December 3, 2021, from  
<https://coolors.co/fffad6-caa8f5-9984d4-8365a4-592e83>

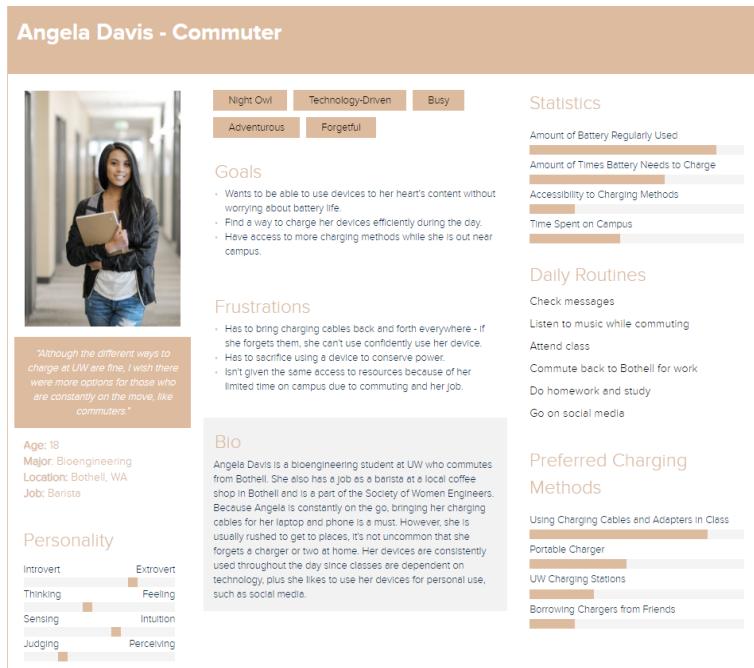
Wikipedia. (2021, December 10). Futura (typeface). Retrieved December 11, 2021, from  
[https://en.wikipedia.org/wiki/Futura\\_\(typeface\)](https://en.wikipedia.org/wiki/Futura_(typeface))

# Appendix

## Personas



The persona given in the Usage Scenario 1: Running Late to Classes from the Project User Research Report.



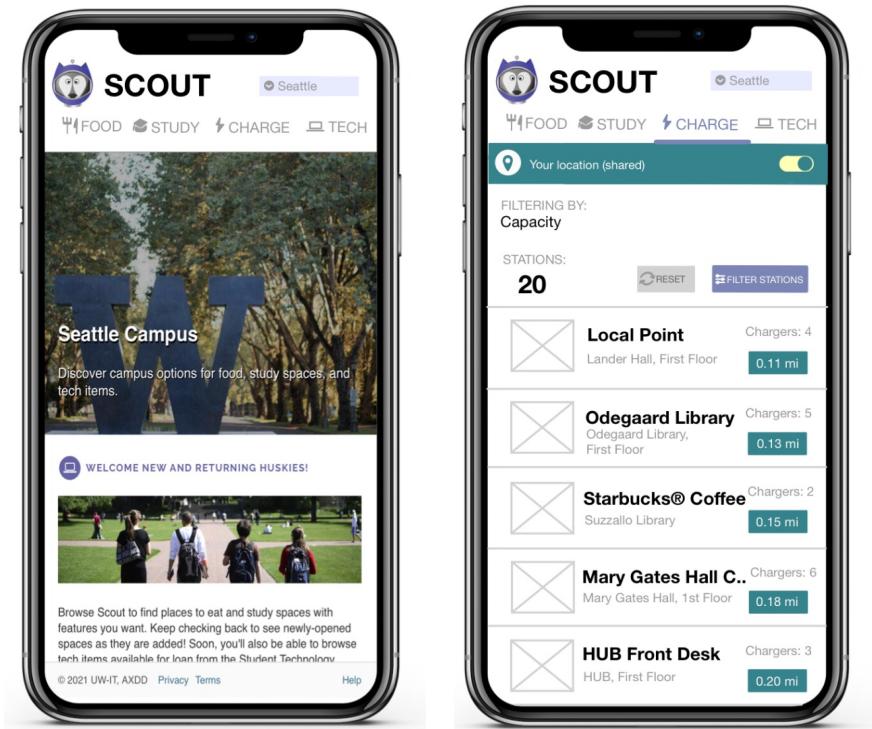
This persona from the Project User Research Report is featured in Usage Scenario 2: Benefits for Commuters.

## Brainstorming Process

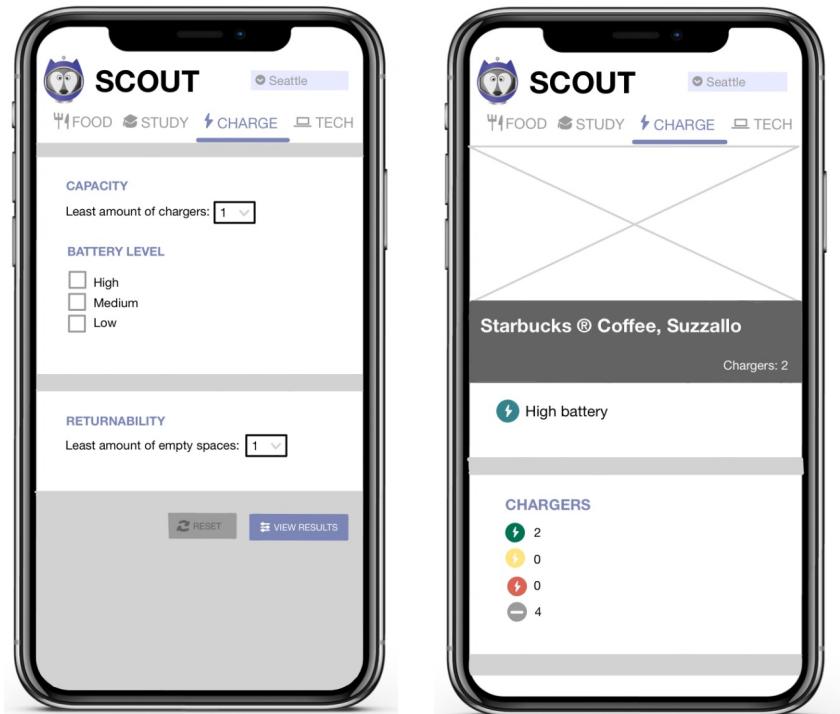


Images from a meeting depicting our brainstorming session of the actual charging box.

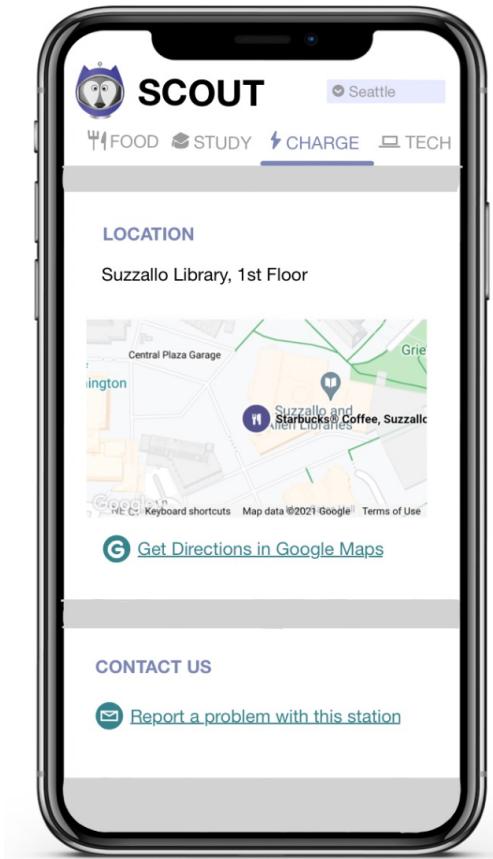
## Low-Fidelity Wireframes



Wireframes for the OnBoarding and Station Results Screens without annotations.



Wireframes for the Filters Screen and Station Description Screen without annotations.



Unannotated continuation of the Station Description Screen wireframe.