

Design Brief Template: Part 1

School: Parkrose High School

State: Oregon

Division: Middle School or **High School**

Team Members' Names: Essay Shimbahri, Tyler Doby, Aron Habtermarian, George Baker

Salcedo

Project Title: Readers should have a glimpse at what the project is about and want to read more. (25 word maximum)

Parkrose Provides Mobile Locker System: Convenient and Confidential for better access to students facing food insecurity within the Parkrose High School Community.

Project Purpose: In one or two sentences explain what this project intends to do. (50 word maximum)

To create a movable locker system that provides a confidential, convenient, and safe way to distribute food from the Parkrose Provides food pantry at Parkrose High School to students and their families. Currently, students collect backpacks from teachers, which can be embarrassing and prevents some students from accessing the support.

Abstract: Briefly describe the people who will benefit from the project and the challenges they face. Include any inequity that the project hopes to address. (100 Words Maximum)

At Parkrose High School, 71% of our students qualify for free and reduced lunch. The pandemic has made this issue worse and causes children to need extra provisions to make it through these difficult times. Food banks help alleviate some of the problems, but it can be hard for students to travel the distance. Using our existing school food pantry that is run by students for the students, we strive to create a prototype that helps us make that process more confidential. Nobody needs to know if you don't want them to!

User Research: Discuss key information about the users gathered through your research, interviews, and ongoing discussion with the user throughout the project. What did you learn about the user and the barriers they face? (200 word maximum)

Ms Ediza runs the Parkrose Provides food pantry. She works with student volunteers to collect, store and get food to students and families in need in our High School community. This food pantry supports an average of 20 families per week, out of the 900 families represented in the High School Community. Ms. Ediza and her students strive to provide food that is culturally relevant to families, so that they get the foods that would be normally used in their household. The food pantry relies on donations from various community partners. Money that is donated is used to buy any other needed staples.

Barriers to the food pantry include:

- How to get students onboarded - increasing access and avoiding embarrassment during the process.
- Maintaining confidentiality in collecting backpacks - how can students avoid the stigma associated with food insecurity
- How to get information out - how to advertising to students/families in need as well soliciting possible donations
- How to know how what is needed/to buy
- Volunteer time is at a minimum, so how to be more efficient in the process

User Insight: Discuss your team's understanding of the experiences, emotions, and motivations of the users. This insight should inform the rest of the project and help the reader have a deeper understanding of the inequity of the user. What did you learn about how the barriers affect the user? (200 word maximum)

Ms Ediza is passionate about Parkrose students, families, and the community. As an AVID teacher she sees the struggles of students who come to school hungry. Several years ago, she and a group of students developed an idea to create a food pantry that served Parkrose students. She is proud of the work that has been done by herself and her students. She is worried/saddened that students feel embarrassed about accessing help. She wishes it could serve more families. She knows that the systems for packing, taking inventory, etc. are not efficient. She was sad when it closed down during the pandemic and during her absence during semester 1 this year.

User Needs: Develop a specific list of the user's needs produced from the user insight. What does the user want to help them with the barrier? (100 word maximum)

1. Needs an app for student onboarding to remove stigma and improve access
2. Needs a system for distributing backpacks without adult involvement to increase confidentiality and access
3. Needs a more efficient system for packing and inventory
4. Needs a way to get information out about the services provided
5. Needs a way to get more monetary donations to buy the many food staples that families use

Project Goals: List project goals and describe how they are linked to and will adequately meet the user’s needs and address inequities and/or barriers faced by the user. What do you want the project to do to help the user? (100 word maximum)

1. Confidentiality - the locker system must be accessible without involvement from adults or peers
2. Specificity - each student should have a locker with a specific code that allows them to access their backpack, packed with culturally relevant foods, when they need it.
3. Access - the locker system should be able to be accessed at a time convenient to the student.
4. Efficiency - the locker system should help to make packing and distribution of backpacks more efficient for volunteers.
5. Mobility - the locker system should be movable so that backpacks can be easily transported from the food pantry to the pickup location.

Key Features of Design: List key features, illustrating that the design will adequately meet project goals. How will the project help the user? (200 word maximum)

The mobile locker features a keypad to make sure that the doors remain locked until the person intended uses their passcode to unlock their specified locker. We also installed many lockers, which will eventually have 12. The wheels support the transport of food from the food pantry, to a designated location where students can retrieve their specific bags. The location itself will be confidential and only those that have access to it will know its location.

Impact: Discuss how design addresses inequities for the user and/or removes barriers. Input from users should be included. Does the project help the user? How? (200 word maximum)

Ms Ediza is thrilled with our prototype. She shared that her favorite impact is that it will allow students to pick up and drop off their backpacks without contact with staff or other students and that this is something that the food pantry has been looking for! This relieves some of the embarrassment of others finding out their economic standpoint and the comparisons that may be made by getting food from school. The added confidentiality was important to our client, she thinks that if this was implemented it could result in more students deciding to sign up for food pantry support. This would enable more students to get their necessities and not have to go home where there is little food. The locker helps the food pantry to get students what they need based on what their family eats, taking into account their cultural background. Ms Ediza also shared that she thinks that this will make the delivery systems more efficient. Instead of volunteers having to travel to many classrooms to deliver backpacks to trusted teachers, volunteers can pack the locker system, and then wheel it to one central place for students to pick up backpacks.

Status of Project: Describe the current status of the project, including feedback from users, and discuss potential next steps. What does the project do now? What would you like to work on in the future? (200 word maximum)

As of now, our prototype (scaled version) is completed with 1 set of 6 lockers (2x3). Based on some of the feedback we've gotten, people like our design and it inspired them to join MESA. Some common feedback we got was about how it would make students feel less scared to come up and get food without scrutiny of others. They want to see it as a real product in the school, serving an important purpose.

If we were to make it an actual product, we would want to replace the outside plastic sheets with sheet metal. The plastic beam supports will be replaced with metal beams. Lockers will be moved to the side of the mobile locker so that we can fit 6 more (12 total). Then, we would add a pin pad, along with the microcontrollers for each door so that they can open. Lastly, there will be a maintenance section that holds the microcontrollers and is for the qualified personnel only.

Reflection: Show that the team has an increased understanding of human-centered design. Examples of personal growth and insights gained about designing for others and helping them overcome challenges should also be included. What did you learn during this project? (200 word maximum)

Starting out, we all had an interest in science. There was a 2 minute showcase of the club in our school news, which piqued our interest enough to join. After the first few days of being in MESA, we realized that our love of science serves a dual purpose of supporting others. After our first meeting with our client, we wanted to help in our school food pantry. We learned that many of the students at our school have issues with securing food for the week, which we decided was a great focus of our project. With the food backpacks being given to students during class, it made them less likely to sign up to get weekly food bags. We wanted to solve this by making a locker system for safety and confidentiality. During our time in MESA we've learned how to think of others in a critical way that serves the purpose of wellness in our community.

Prototype Graphic: A single graphic with key features adequately labeled. It should be easy to understand and the reader should have a general understanding of how the prototype functions by looking at the graphic.

