CS-570 INTRODUCTION TO HUMAN-COMPUTER INTERACTION
Spring 2023

PROJECT 2: Novel Interfaces

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Library Self Help Kiosk

PROJECT 2: NOVEL INTERFACES

INTRODUCTION

Our team chose to study the MERIT Library and how both employees and patrons complete everyday tasks within the library. This decision was made based on the high traffic the library sees on campus due to its central location, and the knowledge of one of our members who is familiar with the library's functions and possible difficulties with various functions of the library. With such a large student body at a university that strives for greatness, this library was a perfect opportunity to better the experience of students, faculty, and others using the library to have a much more seamless experience. We also felt like this would apply to students that work at the library, making their jobs less stressful and even hiring new people in the future easier as the tasks they'd be performing could be less difficult due to potential implementation of proper technology.

Although it seems simple enough that the library serves the normal, obvious function of checking out books, there are more features, such as reserving a room, returning books, and more. Beyond this, each activity requires technology that is outdated and inefficient, making it the employees job to make sure they understand these old, complex systems so patrons don't struggle. These old, seemingly legacy, systems furthered our interest in finding a solution, or partial solution, to some of the glaring issues the library faces. With this, we also knew we had to make sure the prototypes we decided on would not cause any extra unneeded complications for those utilizing the library as that would defeat the purpose of the new technology.

After these initial thoughts, we narrowed our problem down to a singular main point: employees do not have effective ways to do what is needed and patrons are often confused with processes. With this realization, we knew that whatever ideas we knew, whatever ideas we came up with needed to be innovative enough to simplify the work experience of the employees, yet simple enough for patrons with little to no experience using them to use. This leads into the target demographic of college students and faculty. As mentioned before, these are the main users of this library, and as students we felt that this demographic gave us an advantage as to what to look for when doing our design ethnography and creating a prototype. Focusing on this group, both as patrons and employees, we headed into our design ethnography with confidence of what to look for and who to interview. The ethnography and its findings are presented below and further into this report.

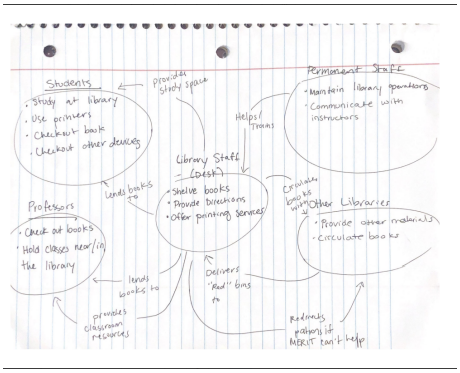
PROJECT 2: NOVEL INTERFACES
UNDERSTANDING

For our ethnography process, we chose to observe MERIT library and the work that librarians did. We observed librarians help patrons, shelf books, and use their resources that they utilized on a day to day basis.

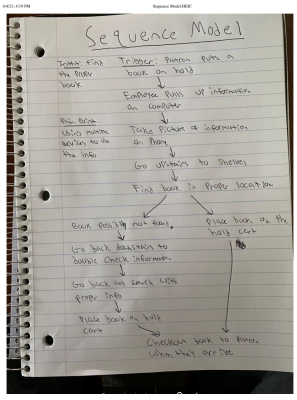
We first observed that librarians get a notification from their main circulation website called Alma. Alma is a library resource used to check out books, deliver documents, and return books. Then, we observed that a library staff member takes a picture with their phone to document the call number of a book so they can retrieve the correct book that a patron requested. Afterwards, the librarian goes upstairs in the library to retrieve the book and looks through shelves to find the correct book number. If the book is the correct one, the librarian then goes back downstairs to the main service desk to check out the book. A slip of paper is then printed out with information relevant to the patron. This includes the book number and when the book is due for return.

After the book is checked out, the librarian opens up an excel spreadsheet that has information pertaining to how the user requested the book (a physical versus digital request). The librarian then references a flow chart that shows what to do based on the type of request or service.

During our design ethnography process, we noticed that there were many factors that slowed down the process of librarians doing their work. For example, patrons would come up with questions asking where certain rooms were or where to find books, and librarians would be slowed down by their resources which took time to load and utilize. The process of shelving books and checking out books was slow in itself. Below, we documented the physical space in our physical model as well as the processes the librarians went through in our sequence and flow models.



Flow Model

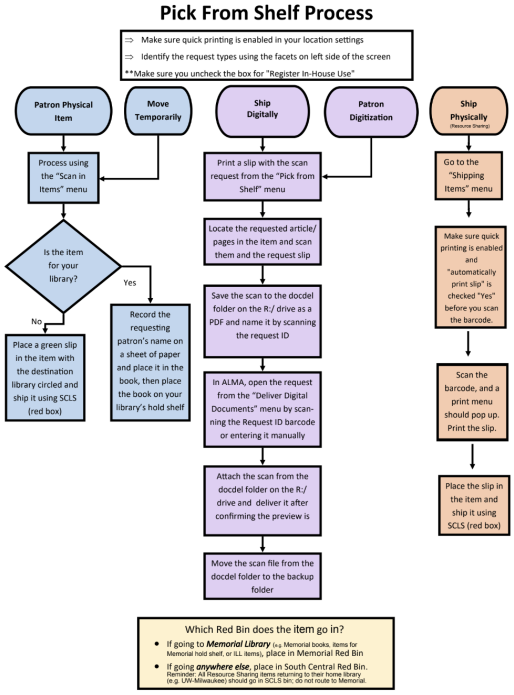


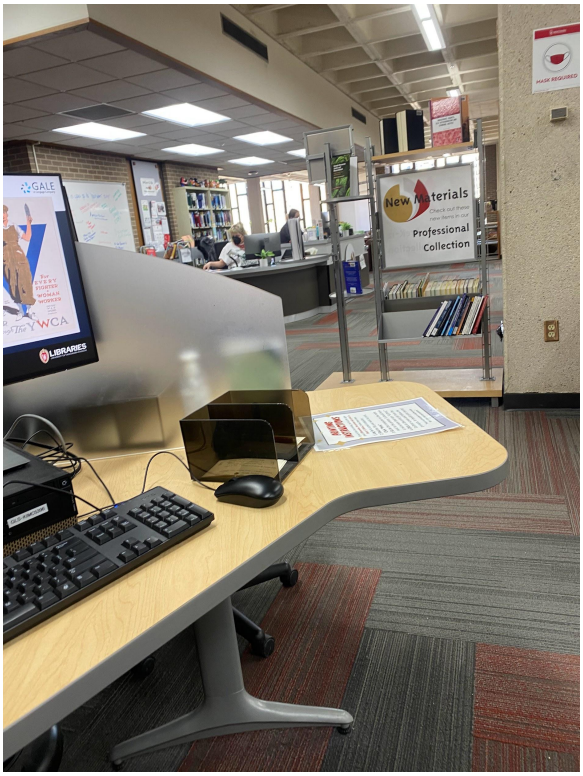
Sequence Model

PROJECT 1:WEB-BASED SERVICES

UNDERSTANDING

This page contains other design ethnography photos.





PROJECT 1:WEB-BASED SERVICES

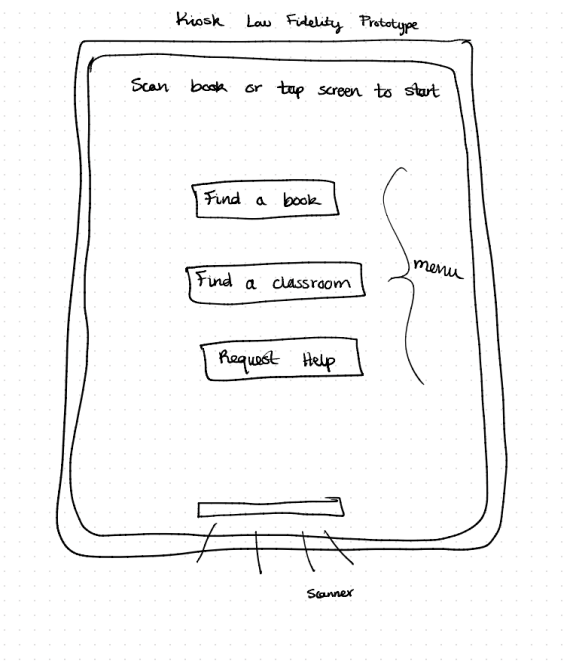
IDEATION

Some of the design ideas that we originally had included a self-help kiosk, a handheld device for checking out, and a helper-robot. We ultimately decided upon going with the self-help kiosk because it addressed most of the issues that librarians faced while working. We wanted to be able to have a design that checked out books and helped patrons with other questions and services that they may need. That way, librarians would essentially have an extra set of helping hands without needing to stop their own work or get distracted.

Our first scenario was checking out a book. A user that needed to check out a book could go up to the kiosk, look up a selection, and get feedback from the kiosk on where the book is located. After the user finds the book, they could go back to the kiosk, scan their Wiscard or put in their ID, and have a printed slip that tells them when the book is due and other relevant information pertaining to the book. This would be much more convenient than asking a librarian where a book is located, trying to find the book, and then going back to the librarian to have the book checked out.

Our second scenario was finding a classroom. instead of having patrons pestering librarians and distracting them by asking where classrooms are located, they could search on the kiosk instead. The user would simply search "find a classroom" on the kiosk, search up the room number, and the kiosk would display the room and a map where the room is located.

Our third scenario was "request help". If there was a case where the kiosk could not help with a question or service and a librarian was needed, a user could request help from a librarian. The user would simply press the "request help" button on the kiosk screen, and a librarian would receive a notification through their phone, showing that a patron needs assistance. The librarian would then acknowledge the notification by pressing "OK" and the kiosk screen would display a message that help is on the way. This would cut down the time needed for a patron to wait in line or go up to the help desk to speak with a librarian.

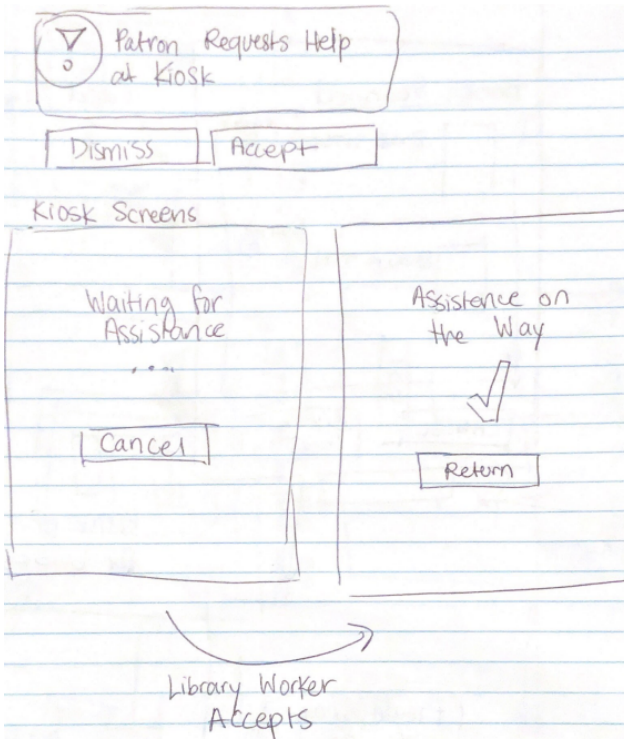


Kiosk options

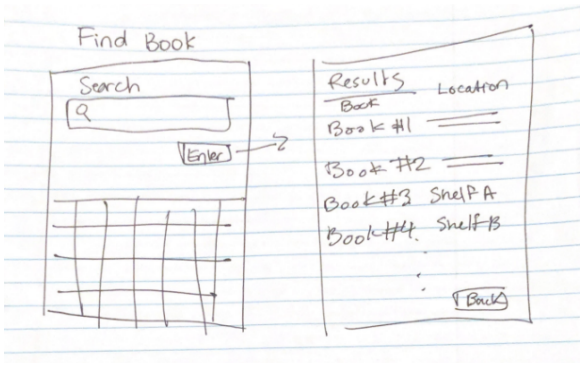
PROJECT 2: NOVEL INTERFACES

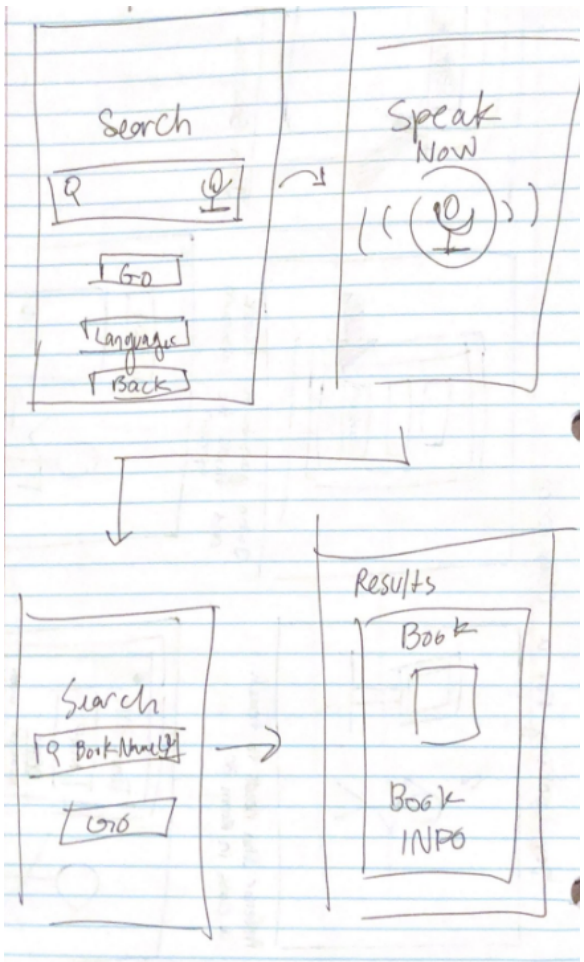
IDEATION

Sketches for "Request Help" Screen

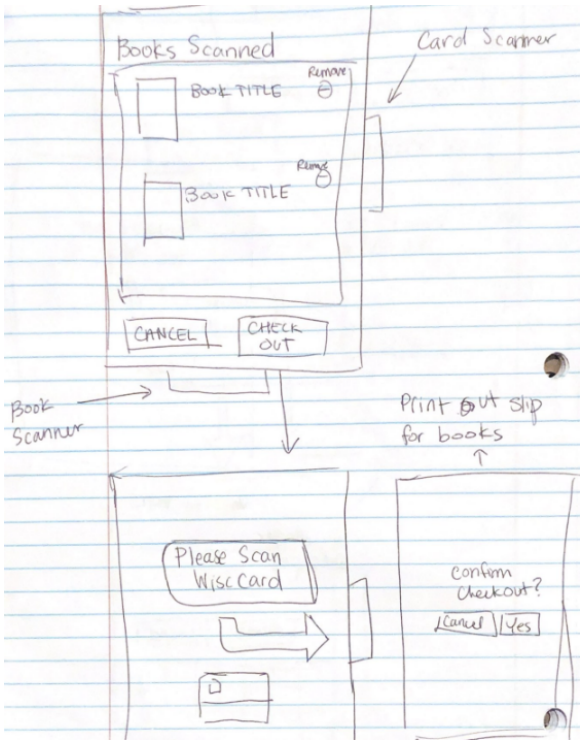


Sketches for "Finding a book"





Sketches for "Checkout"



PROJECT 2: NOVEL INTERFACES

PROTOTYPING

To start our video process we outlined the main tasks that we believed the kiosk would be most used for. To plan out our video we developed three different storyboards for those three different scenarios.

The first storyboard outlined the task for looking for a book, we created a persona called Suzie who is a student. The second storyboard showed the process of finding a classroom, using the persona of a professor. This is because during our ethnography we noticed that more than just students use the library resources. In this storyboard we show a professor looking for the classroom they need to teach in. The third storyboard describes how a user would request help at the kiosk.

We also did bodystorming to inform our prototype iterations and what we may need to consider for a physical design. Through this process we realized that certain interactions may need alternative options based on the user. For instance, some users may not be able to reach the height of the kiosk, or may not be able to type on the kiosk for certain reasons. We decided to include one of these alternative methods in the video with the "finding a book" scenario. Instead of just having to search using a keyboard the user can have the option to speak into the kiosk.

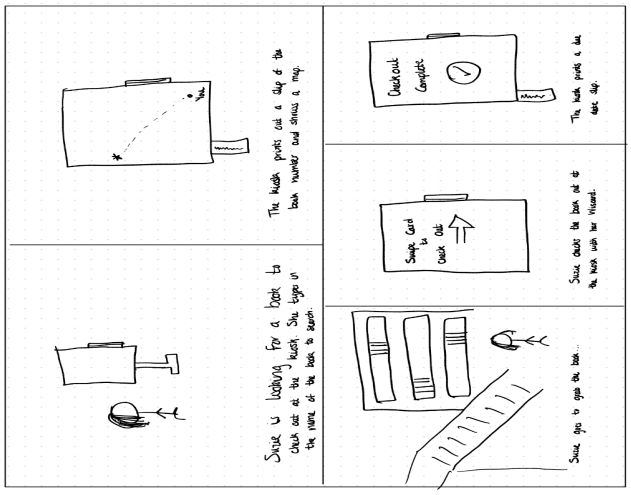
For the production of our actual video, we decided to incorporate edited images in a slideshow style as opposed to raw video footage. This allowed us to edit the prototype of our kiosk into the scene and better show the different interfaces. Our group preferred this over using an actual physical prototype (made of cardboard or paper) that may not have been able to show all the details of the interface. We also chose to focus on the persona of a student because that was the most common kind of patron at the library. Our group then went to a library and took pictures performing the different actions of a user standing and operating the kiosk as well as looking for a book.

For the video script we chose to add narration in addition to comments the user may say out loud. This is because the interaction of our kiosks is mainly between the user and the device. So if a user were to realistically use this device on their own they would not be speaking aloud often. The narration provided added details about what the user may be thinking and the motivations behind using the kiosk.

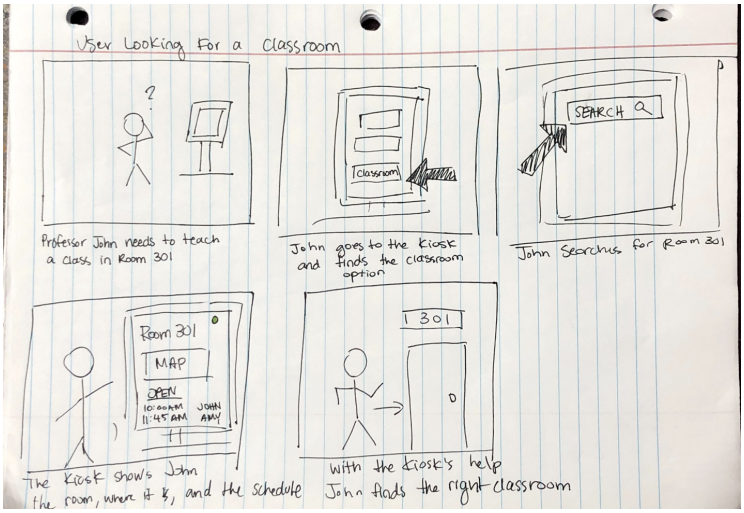
PROJECT 2: NOVEL INTERFACES

PROTOTYPING

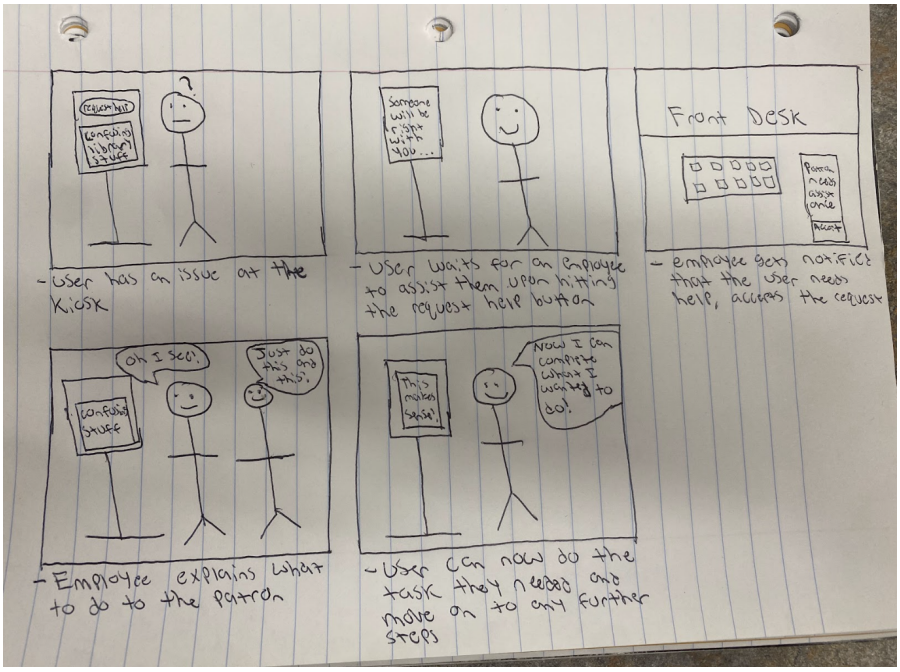
Finding a Book Storyboard:



Looking for a Classroom Storyboard:



Requesting Help Storyboard:



PROJECT 2: NOVEL INTERFACES

PROTOTYPING

Video Script

Script:
The Library Kiosk is a self-help station that provides resources and tools for patrons who are visiting the library. The kiosk allows users to get the help they need quickly and efficiently even when other librarians may be unavailable because of other tasks.

Emily has come to the library and wants to find and check out a book. But she needs help because she does not know where to look for it. She checks the library kiosk and selects “Find a book”. Emily uses the voice option to search.
Emily: “The Great Gatsby”
The kiosk displays the book’s information and shows what section of the library it is in. Emily goes to get the book.
Emily: “Time to check out! Let me go back to the kiosk!”
When Emily gets back she selects the “Checkout” button. Next, she scans her book as well as her ID. The kiosk prints out a book slip with the book number and when it will be due.
Kiosk: “Checkout complete”

Looking for a Classroom
Emily has a class in one of the classrooms in the library building but she has no idea where it is!
Emily: “Hmmm where is Room 301 and what time is the room even open?!”
On the kiosk she selects “Find a classroom”
There, it gives her the option to look at a map indicating where the classroom is. Additionally it shows the schedule for that specific classroom.
Emily: “Oh good it’s not open till 10am”

Emily: Nice I found Room 301!

Requesting Help:
Emily has a complicated question she needs to ask but can’t find anyone around to help. So she goes and selects the “Request Help button”. The kiosk tells her to wait for assistance while it sends out an alert to the librarians currently working.

Librarian: Oh looks like someone needs help! Let me accept this help request and go see what they need!

The kiosk lets Emily know that someone is on the way.

PROJECT 2: NOVEL INTERFACES

FINAL DESIGN

Our final video was broken into three sections showcasing our design helping users achieve book finding/checking out, classroom navigation, and requesting help from a librarian. The kiosk would be located at a central location within the library so it would be easily accessible for users. This is shown in our video as our prototype is set up in an open space.

The first section, which demonstrates finding a book, shows shots of a student using the kiosk to search for a specific title. The kiosk has a homepage that shows all the different options available. The "find a book" option will present users with a search bar as well as a speech option. So users have the option to either type in their search or say it out loud. Once a user has searched for the book, the kiosk will display the result with an image of the book, if it's available, and its location within the library. With this information the user can now go and find the book themselves. Once they do they bring it back to the kiosk when they are ready to checkout. On the homepage, there is a "checkout" option that the user can select which will then have the kiosk prompt them to scan their books and wiscard. Once everything is scanned, the kiosk will print out a slip with the checkout information and when it is due.

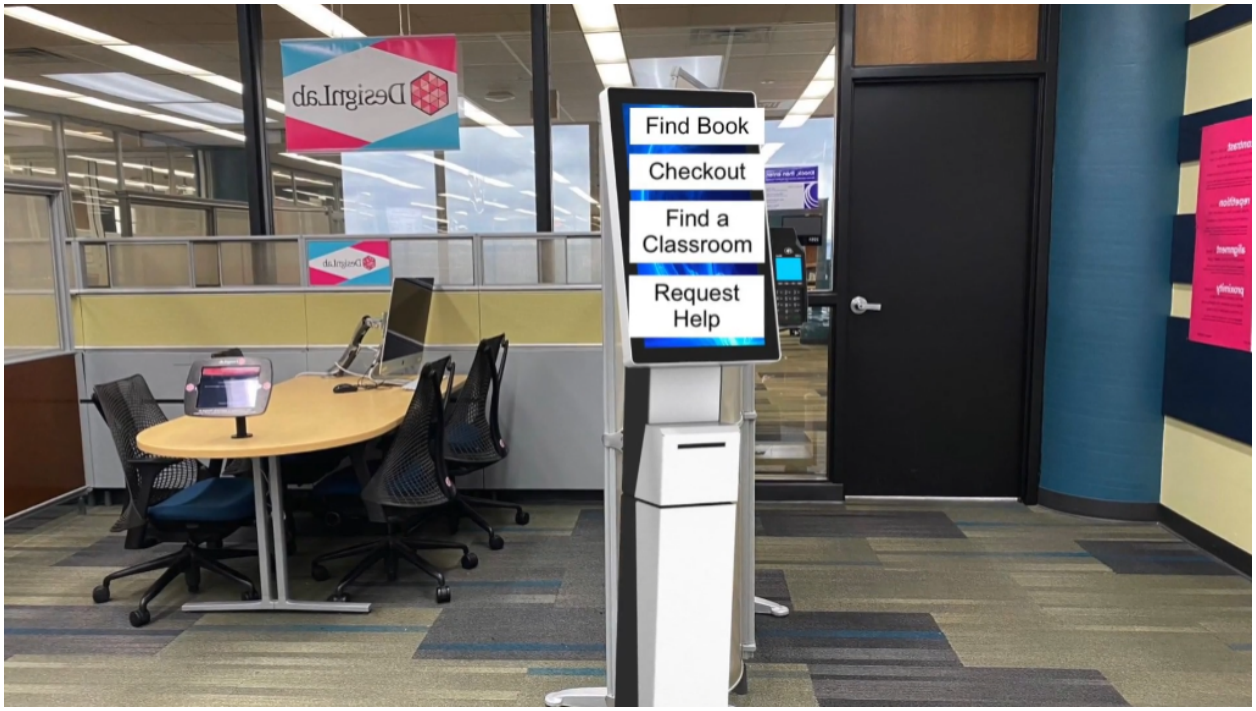
The second section of our video shows a student looking for a classroom and not remembering when that class starts. On the homepage they can select "find a classroom" which will show them a map of the building. The user will also be able to search for the classroom, which will bring up information regarding the room's schedule and the map option will then indicate where that specific classroom is located.

The third section of the video shows a student needs help for something more complicated that would require human assistance. However, sometimes librarians are not in the area and it can be a hassle to search for someone that works there if you don't know what you're doing. This is fixed by our kiosks' "Request Help" option. When the user selects this option, it will send a notification to all librarians currently working telling them a patron needs help at the kiosk. Librarians then have the option to accept the request and go help the patron. Or if they are currently occupied with a different task, they can decline. Meanwhile, on the user's end it will show a message saying "Waiting for assistance" if no one has accepted the request. This allows the user to possibly exit the request and go back to the homepage if they realize they don't need help. It also gives them feedback to let them know that the kiosk has in fact contacted someone for help. Once a librarian accepts the request, the user will get more feedback via the kiosk updating with "Help is on the way". After that a librarian will arrive at the kiosk and help out the user.

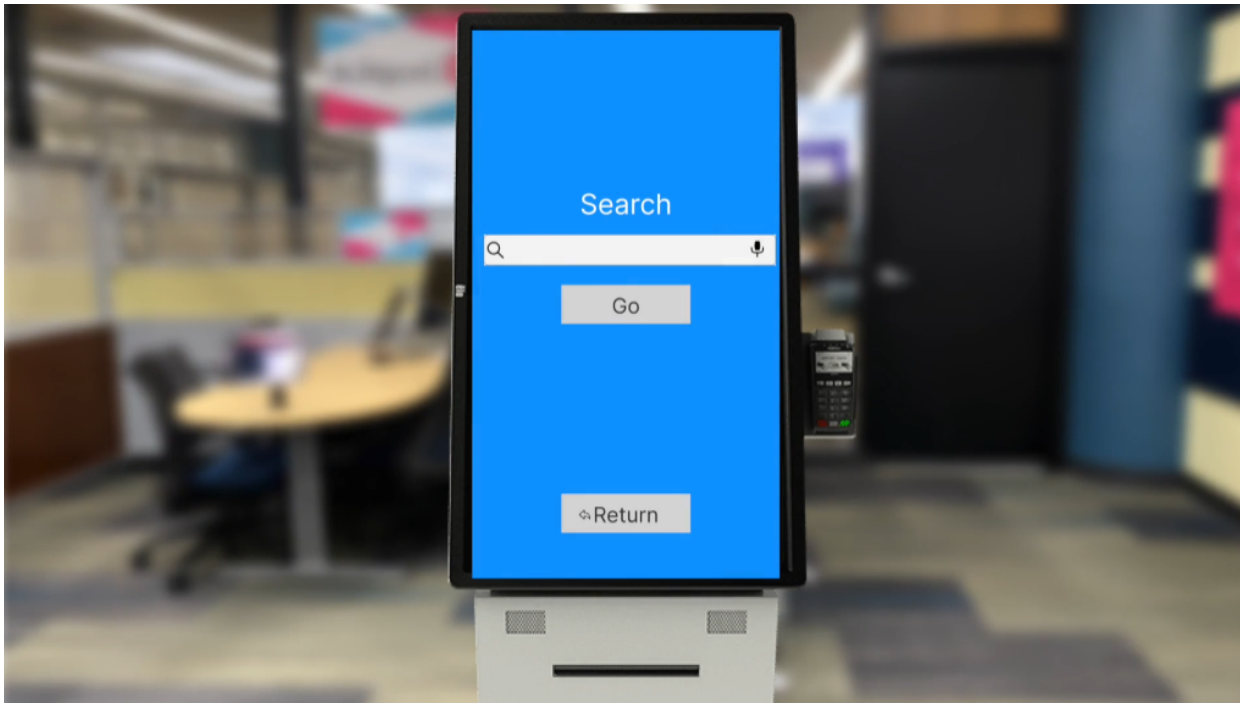
PROJECT 3: NOVEL INTERFACES

FINAL SOLUTION

Kiosk Homepage



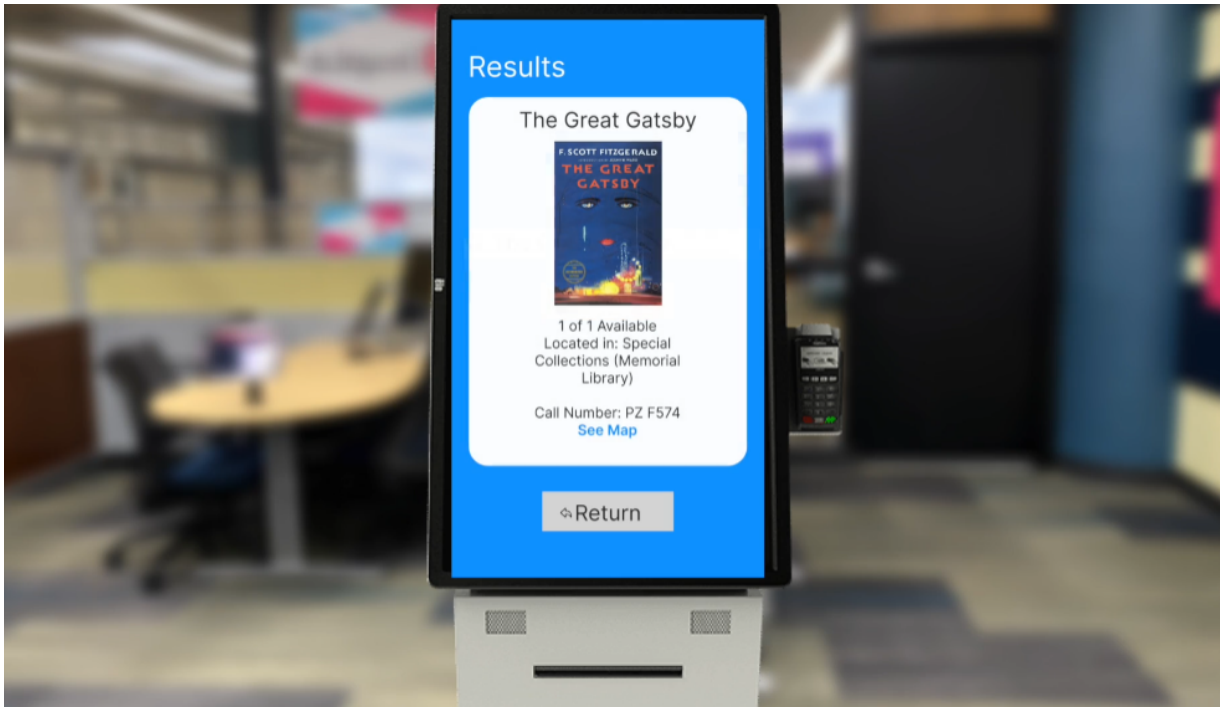
Kiosk Search Page (after selecting Find Book)



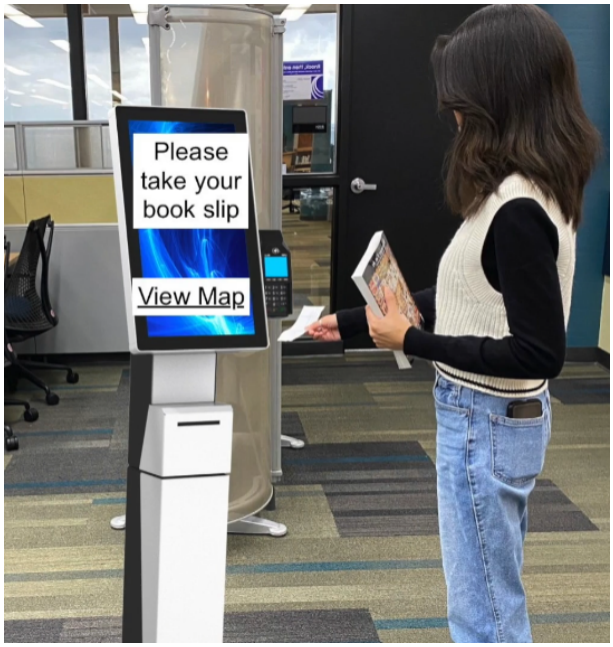
PROJECT 2: NOVEL INTERFACES

FINAL DESIGN

Kiosk Search Results (from the Find Book option)



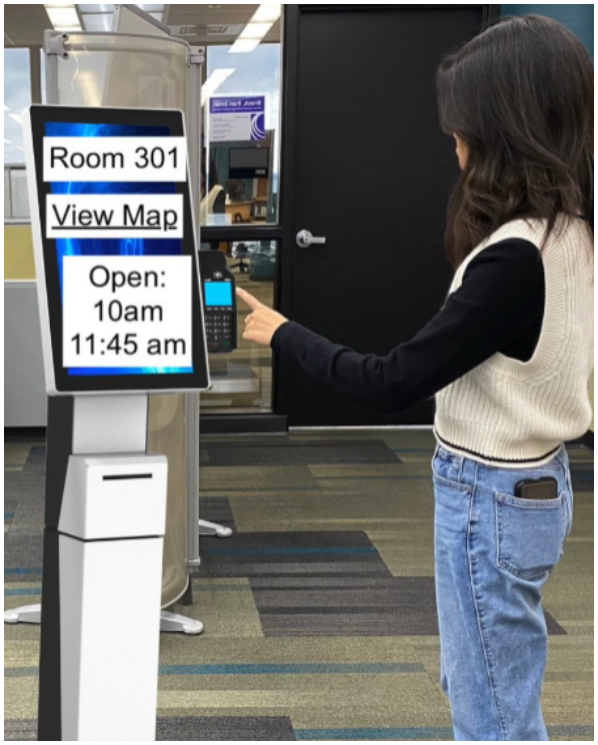
Checkout: User scanning the book and taking the book slip that is printed



PROJECT 3: NOVEL INTERFACES

FINAL SOLUTION

Find a Classroom Option



Requesting Help - The Librarian View when a Patron Request Help - Accept Screen for User