

Accessible Dining Services

Software Requirements Specification

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Presented by: Team Breakpoint

Team Member 1's Name	Christoffer Rosen
Team Member 2's Name	Emma Nelson
Team Member 3's Name	Ben Hare
Team Member 4's Name	Mustafa Al-Salihi
Team Member 5's Name	Sam Lucidi

1 System Summary

1.1 Domain Problem

The current system used by Dining Services at RIT uses a paper and pencil solution to provide students who have trouble communicating the ability to place food orders. This is inefficient and not an optimal solution for many reasons: often pencils are missing, it can be uncomfortable for students, menus or options change, and it slows down the line. Our project aims to create a more useable system that addresses all of the issues listed above.

1.2 System Description

Accessible Dining Services is intended to provide students with difficulty communicating a simpler way to convey what they want to employees at the dining locations on RIT's campus. The goal is to make the process of ordering food quicker and more fluid by removing the delay caused by filling out the paper form. It could even be used by all students with smartphones or tablets to place orders and skip the line.

At a high-level, the system entails the use of QR codes and/or NFC chips located at each dining location that students would scan in order to reach the correct site for that location. When the site has loaded, the student will log-in with their RIT DCE, if it is their first time logging in or if they did not choose to have their phone save the data. Then a dynamic menu system, optimized for mobile, will appear and students can use it to place their orders by selecting the items they want. The completed order will be sent to the location portal so the employees can see the order. In return, the student will be sent a number that correlates to the order. When their order is ready, they will be notified so they can go pick up the order.

2 Existing Competition

Paper Slip System:

Description: Users approach the front counter and acquire a paper ordering slip and a pencil/pen. Using any available hard surface nearby, users proceed to fill out their orders with the provided options on the sheet. Once the order has been filled, the user must then enter the line to wait. Upon reaching the front of the line, they hand off the sheet with their order to the employee to review. Ordering proceeds as usual from this point on.

Difference: Accessible Dining Services provides the capability to order from anywhere you like after you've scanned the QR/NFC for that particular dining area to visit the site. At this time you are prompted for your UUID and password, once you are logged in, you may place and submit your orders. You will be redirected to a waiting screen until your order has been made; at which point you will be redirected to a page notifying you to pick up your order. After your order

has been picked up you are redirected to a 'thank you for your patronage' page.

3 User Classes and Profile Characteristics

User Class: Student who has trouble communicating	
Context of use	Student on campus and upon arriving at the dining location with the intent of ordering food.
Goals	Personal goals: An accessible way to easily and conveniently order food. Problems + frustrations: Pen and pencil is very noticable, can slow down the line, pencils missing.
Frequency of use	How often used, what intensity? Depends on when is the user wants to orders food. This would likely be regular daily use for multiple times a day (breakfast, lunch, dinner).
Work responsibilities	What are the primary user responsibilities relative to the system (role)
Work environment	Social
Abilities	Education : College Domain knowledge : ability to operate a mobile devices, likely expert at it. physical abilities : typing and vision and disabilities: not able to communicate either through being hard of hearing or unable to speak or both
Personal	18-65, Males and Females, Students and Faculty.
Usability Objectives (rank in order of preference):	_6_ efficiency _1_ accuracy _2_ reliability _3_ learnability _9_ memorability _7_ clarity _4_ comprehensibility _5_ attractiveness _8_

User Class: Students who can	
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fully use the app, uninhibited.	
Context of use	Student lives on campus, orders food remotely to be picked up on his way to/from classes or other activities around campus
Goals	Personal goals: A way to easily and conveniently order food. Problems + frustrations: Having to stand in line when in a hurry.
Frequency of use	Depends on when is the user wants to orders food. This would likely be regular daily use, multiple times a day (such as breakfast, lunch, dinner).
Work responsibilities	What are the primary user responsibilities relative to the system (role)?
Work environment	Social
Abilities	Education, domain knowledge, skills, expertise, experience, physical abilities and disabilities
Personal	Age, gender, cultural background
Usability Objectives (rank in order of preference):	___ efficiency ___ accuracy ___ reliability ___ learnability ___ memorability ___ clarity ___ comprehensibility ___ attractiveness ___ other:

User Class: Dining Services Employee	
Context of use	Employee on the job at an on-campus dining location
Goals	Personal goals: View uncompleted orders to know what needs to be done next. Problems + frustrations: Only one order is known at a time right now.
Frequency of use	Approximately 10-40 hours a week based on how

	many hours they are scheduled for in a given week.
Work responsibilities	The user views the orders that have been placed and marks them completed once they have been made.
Work environment	Business
Abilities	College student or full-time employee, been trained for the foodservice industry, capable of fulfilling any orders that were placed.
Personal	18-65 years old, Male or Female, Student workers or full-time employees
Usability Objectives (rank in order of preference):	_3_ efficiency _1_ accuracy _2_ reliability _7_ learnability _6_ memorability _4_ clarity _5_ comprehensibility _8_ attractiveness _X_ other:

4 System Features

ID	Title	Description
FR-01	Login	The user must be able to login to the system using their RIT DCE and password. This allows the order to be tied to a student ID and account.
FR-02	Choose Location	If the student is at a dining location, they can use either a NFC-enabled device or a QR code reader to access the correct page for the location. If they are remotely ordering, they will need to have previously ordered onsite in order to have the URL.
FR-03	Place Order	User submits an order to an RIT dining service through a menu based UI that pulls information from the dining services website.
FR-04	Get Confirmation	The system notifies that their order has been received. This let's the user know that their order was successfully placed and will be processed by the dining services employees.
FR-05	Favorite an Order	Most frequent order the user had placed in the past.

		User can choose an order to place an order for the same thing again.
FR-06	History of Orders	Previous orders the user had placed in the past week organized according to their date. User can choose an order to place an order for the same thing again.
FR-07	Display Orders	Dining services employee has the ability to view orders placed by users on a screen visible from their workspace so the orders can be fulfilled.
FR-08	Mark Order Complete	Dining Services employee can mark an order as being completed when it is done being made.

5 Task Analysis

5.1 Place/Submit Order

Goal: The user aims to place a food order which may include multiple items, each with their own toppings or extras.

Tasks:

0. Using 'Place Order'
 1. Access 'Place Order' from the main menu.
 - 1.1. Touch 'Place Order' button
 2. Select an item to order
 - 2.1. Scroll up and down to locate desired food item
 - 2.2. Touch item to expand item details
 3. Add extras/toppings to selected item
 - 3.1. Locate desired extra
 - 3.2. Touch desired extra to adjust item
 4. Adjust quantities
 - 4.1. Touch quantity up/down button to change item quantity
 5. Add item to order
 - 5.1. Touch 'Add to Order' button
 6. Submit Order
 - 6.1. Scroll down to locate 'Submit Order' button
 - 6.2. Touch 'Submit Order' button
 7. Acknowledge Wait Time Estimate and Order Number

Plan 0: Perform steps 1 through 2 in order, then 3 and 4 if necessary, and then steps 5 through 7. Repeat steps 2 through 5 in order as necessary to add all desired items to order.

Plan 3: Perform steps 3.1 and 3.2 in order, repeating as necessary to add all desired extras.

Plan 4: Repeat step 4.1 as necessary to adjust quantity as desired.

5.2 Scan QR/NFC Code and Login

Tasks:

0. Scan Codes
 1. Take out smartphone or tablet
 2. Launch the web application
 - 2.1 Open a QR scanner application
 - 2.2 Use smartphone or tablet camera to scan the QR code
 - 2.3 Tap phone on NFC chip
 3. Login to application
 - 3.1 Enter RIT user name
 - 3.2 Enter RIT password
 - 3.3 Request to login
 4. View the options in the main menu

Plan 0: Do 1-2-3-4 in that order.

Plan 2 : When using QR code to access application, do 2.1-2.2. When using NFC, do 2.3

Plan 3: Do 3.1-3.2-3.3 in that order.

5.3 Save Order to Favorites

Goal: Save an order to favorites from previous orders

Tasks:

0. Save an order to favorites from history
 1. Open the web app by scanning the QR-code or NFC chip
 2. Log in with RIT credentials
 3. Open History screen
 4. Open the order screen
 - 4.1 Scroll to the day order was placed
 - 4.2 Tap on the order
 - 4.3 View order screen
 5. Select the favorite button
 6. Go back to the main menu
 7. Open Favorites Screen
 8. Find new favorite to verify it appeared
 9. Logout

Plan 0: do 1-2-3-4-5-9 in order. Do 6-7-8 in order before step 9 if not confident in the system. Do 9 only if you are done using the system.

Plan 4: do 4.1-4.2-4.3 in order if the order was not the most recent order. Otherwise, only do 4.2-4.3 in order and skip 4.1.

5.4 Browse Order History

Goal: The user aims to locate, view and comprehend the presentation of a week's worth of past orders.

Tasks:

0. Browse Order History
 1. Access the 'History of Orders' from the Main menu.
 2. Search for the desired order:
 - 2.1. Scroll down (and/or back up) the date/time ordered list.
 - 2.2. Select an order to see its summary.
 3. Once you've found the correct order:
 - 3.1. Select the favorite button to add that order to your Favorites-list.
 - 3.2. Select the 'Re-order' button to pre-populate the Order-screen with that order's data.

Plan 0: do steps 1-2 in order.

Plan 3: step 3.1 is optional and may be skipped. Step 3.2 should be done regardless of whether or not step 3.1 has been done.

5.5 Employee Processing of Order

Goal: Process customer orders and mark them as completed.

Tasks:

0. Employee Processing Order.
 1. Check screen for orders.
 2. Notify other workers to prepare food.
 3. Help fulfill orders.
 4. Write food labels.
 5. Hand customer his/her food.
 6. Mark order as completed.

Plan 0: Do 1-2-4-5-6 in that order. Do 3 instead of 4 in case of very simple order. Do 2 and 3 when the restaurant is busy.

6 Nonfunctional Requirements

6.1 Usability Requirements

Learnability

- All use cases shall be documented to provide users support in learning how to use the

application.

- Users shall be able to complete any use case within 5 interactions with the application.

Understandability

- Interface elements should be easy to understand and navigate.
- Meaningful names.

Operability

- The interface shall be consistent across OS platforms, user sessions and page views within the app.
- All error messages shall explain how to recover from the error condition.
- In terms of actions, actions which cannot be undone should ask for confirmation from the user.
- Define style guide.
- All actions shall be able to be accessed via touch controls.
- Scrolling shall be supported by Gestures.
- A user shall receive a notification that their order is ready within two minutes of it being marked completed.
- The interface shall use large, touch-friendly elements.

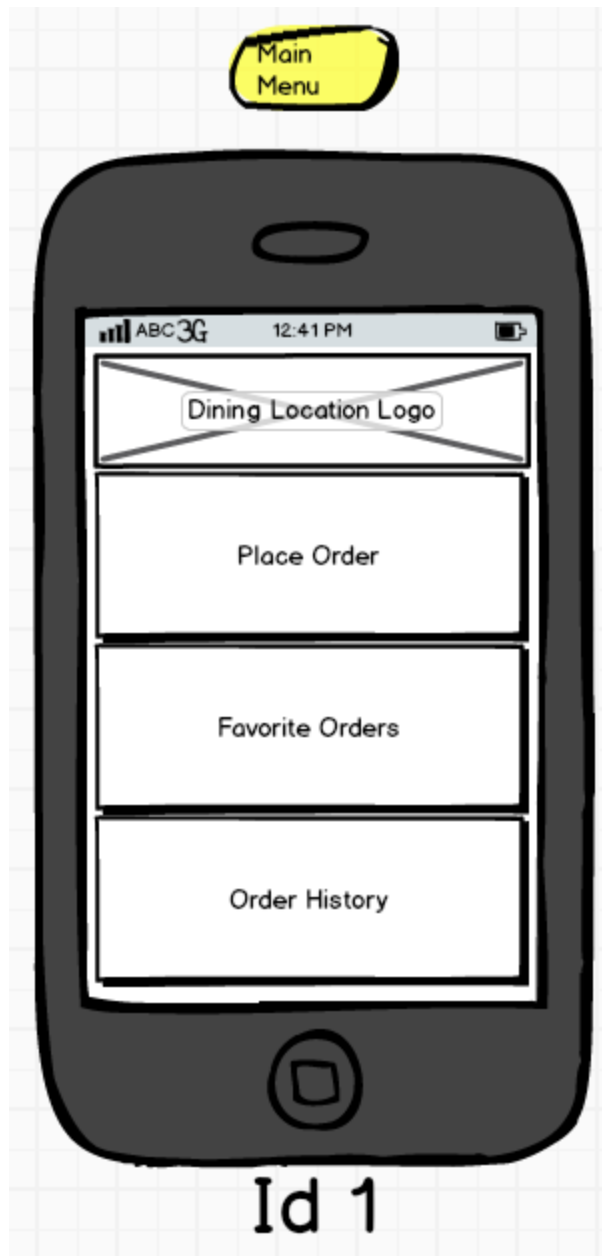
Attractiveness

- The screen layout and colors appearance shall have an average score of “good” in the Likert Scale by at least 10 users surveyed.
- Plan a workshop to review and elaborate the requirements for the system; developer and users should attend the workshop.

Accessibility

- A user shall be able to turn on high contrast for all texts in the application for accessibility.
- The system shall be color blind friendly throughout. This will be to support users who are color blind.
- The system shall support all text size to be increased by a magnitude of at least two. This is intended for users who have poor vision.

7 Prototype

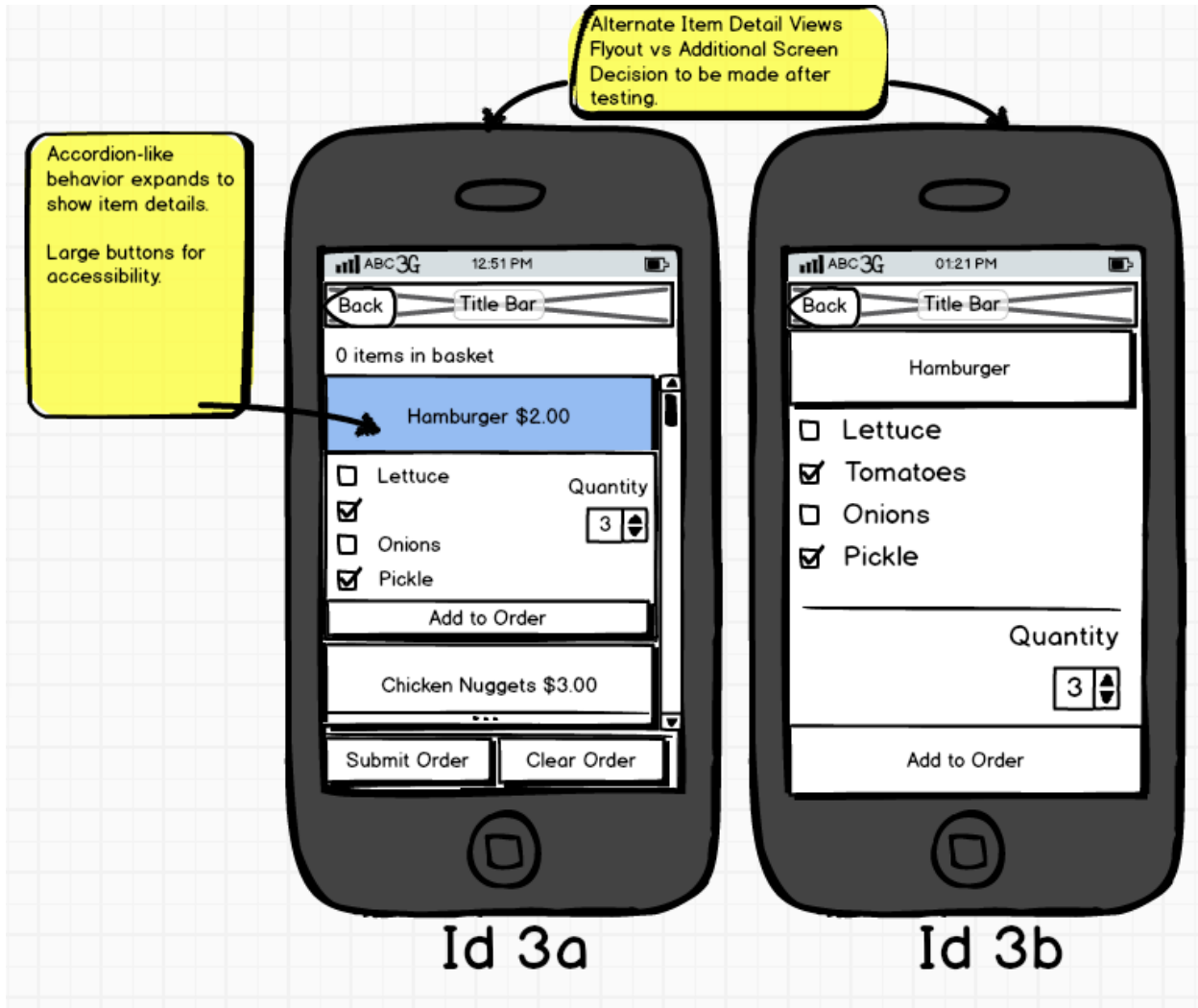


Screen 1: Main Menu

This is the first screen that the user will interact with after accessing the dining services location via QR/NFC or directly via URL. From this screen, the user can initiate the ordering process, select from favorite orders, or view their order history.

Screen 2: Item Selection

After the user initiates the ordering process, they are`



Screen 3: Item Details

This is the screen where a user can pick items from the menu. 3a and 3b show two different prototypes. In 3a, clicking on a menu item will show an accordion option list to customize their food order. In contrast, in 3b it will open a new window that will list menu item options. We haven't decided which option we will go with yet. Once menu items and their options are selected, the user can submit the order and it will be sent to the dining services employee.



Screen 4: Order Completion/Wait Estimate

After the user submits their final order, they are delivered a wait time estimate and their order number, as well as a reminder of the location at which they ordered. Their order number is prominent because they will use that number as part of the process to pick up their order at the physical dining location. From this location, the user can also view the receipt with their complete order and its cost. Selecting 'Done' will return the user to the main menu.