

SDU postomat

Team members:

220107107 Tamerlan Tuyakbayev

220101097 Alisher Bolekbay

220107031 lazarev alikhan

220107027 Asemay Rasilkhan

Introduction

The food shopping experience at SDU can be challenging, especially for students who face long queues and time constraints when purchasing food. The current process often results in frustration, particularly during peak hours, when students are forced to wait in line for extended periods. To solve this problem and enhance the overall experience, we propose the implementation of a **Food Locker** system integrated with a **mobile app**.

Our solution enables students to browse the menu, pre-order their food, and complete payment through the mobile app, eliminating the need to wait in line. Once the order is ready, students can simply scan a QR code at the food locker to collect their items. This system is designed to save time, reduce stress, and make food shopping more convenient. Additionally, the app will offer personalized recommendations based on users' preferences and provide real-time notifications about order status.

This project aims to improve the SDU market experience by automating the food purchasing process, making it faster and more efficient for students. Through a combination of digital tools and physical automation, we envision a solution that aligns with the needs and preferences of today's tech-savvy students, ultimately improving their overall satisfaction.

Background and Research

To understand the current shopping experience at the SDU Canteen, we employed two primary methods of data collection: **interviews** and **observations**. These methods were chosen to provide both qualitative insights (via interviews) and real-world behavioral data (via observations).

Interview

To better understand the customer experience at the SDU market, we conducted interviews with visitors. The primary goal was to uncover the preferences, challenges, and needs of the customers to inform our design solution. Two participants were interviewed.

Below is the list of questions used during the interviews:

1. How often do you visit this shop and what items do you buy most frequently?
2. How would you rate the level of service and the variety of products in the shop?
3. Do you encounter any difficulties when making payments, and what payment method do you prefer?
4. Have you ever experienced an item being unavailable, and what time of day is most convenient for you to shop?
5. How often do you have to stand in line, and what could make your shopping more convenient?
6. Have you faced navigation difficulties inside the shop? How could the shopping process be improved?
7. How much time do you usually spend shopping, and do you have any preferences regarding the store layout?
8. If the shop introduced a mobile app, would you use it? What features would be useful for you?
9. What is your opinion on automated order pickup systems, and would you use such a service?
10. Would it be convenient to collect your order from a special device without waiting in line?
11. How would an automated pickup system reduce the time spent shopping, and how frequently would you use it?
12. What could improve your experience with automated shopping technologies, and do you have any concerns about using them?
13. What advantages do you see in using automated systems for shopping?
14. How do you usually move through the shop from entry to exit?
15. Where do you notice the biggest crowd of people in the shop?
16. Have you ever used Kaspi Postomat, and do you know how to use it?
17. Would you use a Postomat service if it were available in the shop?

Key Problems Identified

1. Queue management: long lines are a recurring issue, especially during peak hours, causing frustration for customers.
2. Service limitations: the shop has two cash registers, but they are not always operational simultaneously, leading to slower service.
3. Self-service machines:
 - o Machines are not always functional and often fail to recognize certain products, requiring manual input.
 - o They are turned off during morning and evening hours.
 - o Many customers find the machines confusing to use, opting instead to queue at the cash registers, contributing to long lines.
4. Pricing transparency: not all products have visible price tags, creating inconvenience and uncertainty for customers.
5. Stock availability: certain popular items are often out of stock, disappointing customers and forcing them to look elsewhere.

Observation

I conducted observations at different times during the day to understand customer behavior and patterns:

1. Morning: observed twice during the break and class hours for 10 minutes between 10:20 and 11:00.
2. Afternoon: observed twice during the break and class hours for 10 minutes between 13:20 and 14:00.
3. Evening: observed after 18:00.

Key Observations

1. Morning and Evening:
 - o Self-service machines are turned off.
 - o Only one cash register operates during these times.
2. Queues:
 - o There is always a queue, but during break times, it becomes extremely long.
 - o Both cash registers work only during lunch breaks, making it slightly faster.
3. Evening: after 18:00, there are almost no queues.

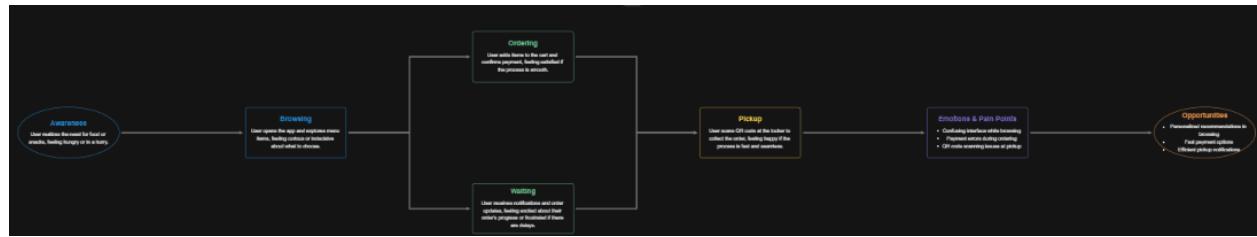
4. Self-service machines: many customers do not use self-service machines, even when they are working.
5. Quick checkout: most students buy only 1–2 items, so queues usually move quickly despite the wait.

User Journey Map

The **User Journey Map** illustrates the experience of students using the food locker and mobile app system. It follows the user through key phases:

1. **Awareness:** Realizes the need for food.
2. **Browsing:** Explores the app's menu and selects items.
3. **Ordering:** Adds items to the cart and completes payment.
4. **Waiting:** Receives notifications about order readiness.
5. **Pickup:** Scans the QR code at the locker and collects the order.

Each phase highlights user actions, emotions, pain points, and opportunities for improvement, such as streamlining the browsing process or enhancing the QR scanning experience.



Task Flow Diagram

The **Task Flow Diagram** maps out the user steps in the food locker system, from opening the app to picking up the order:

1. **Open App**
2. **Browse Menu** (select item, view details)
3. **Add to Cart**
4. **Review Cart** (edit or remove items)
5. **Proceed to Payment** (select payment method)

- 6. Confirm Payment**
- 7. Receive Order Confirmation & QR Code**
- 8. Wait for Notification** (order readiness update)
- 9. Scan QR Code at Locker**
- 10. Collect Order**



The following images represent various stages and features of the SDU Postomat project. Each image illustrates a critical component or scenario of the project that facilitates the interaction between users and the postomat system.

1. Postomat Design Overview

Image Description: This image depicts the main interface of the SDU Postomat. It includes a QR code scanner, compartments for storing and retrieving orders, and a digital display for user interaction.

Purpose: To demonstrate the physical design of the postomat and its core functionalities, including order scanning and retrieval.

2. Mobile Application for Ordering

Image Description: Screenshots of the SDU Store mobile application. It shows features like browsing products, adding items to the cart, and proceeding to checkout.

Purpose: To illustrate the user interface for placing orders via the mobile app and the seamless integration with the postomat system.

3. Store Operations

Image Description: This image shows a store employee interacting with the postomat, placing orders into designated compartments.

Purpose: To visualize how orders are prepared and securely stored in the postomat, ensuring that customers receive the correct package.

4. Order Ready Notification

Image Description: A mobile notification indicating that the order is ready for pickup, along with a scannable QR code for retrieval.

Purpose: To show how customers are notified once their orders are available for pickup and how the QR code simplifies the retrieval process.

5. Postomat Usage Instructions

Image Description: Step-by-step instructions for using the postomat. It includes scanning the QR code via the mobile app to open the designated compartment.

Purpose: To educate users on how to interact with the postomat system effectively.

6. Postomat in Use

Image Description: Students retrieving orders from the SDU Postomat in a campus environment.

Purpose: To highlight the system's usability and convenience for students in real-world scenarios.

7. Successful Order Retrieval

Image Description: A mobile confirmation screen indicating the successful retrieval of an order, with an option to rate the experience.

Purpose: To demonstrate how customers receive feedback and can evaluate their interaction with the system.

8. Error Notification: Order Not Found

Image Description: A screen showing an error message when the order is not found in the postomat, with a contact support option.

Purpose: To address potential issues and provide a clear pathway for users to resolve errors, ensuring user satisfaction.

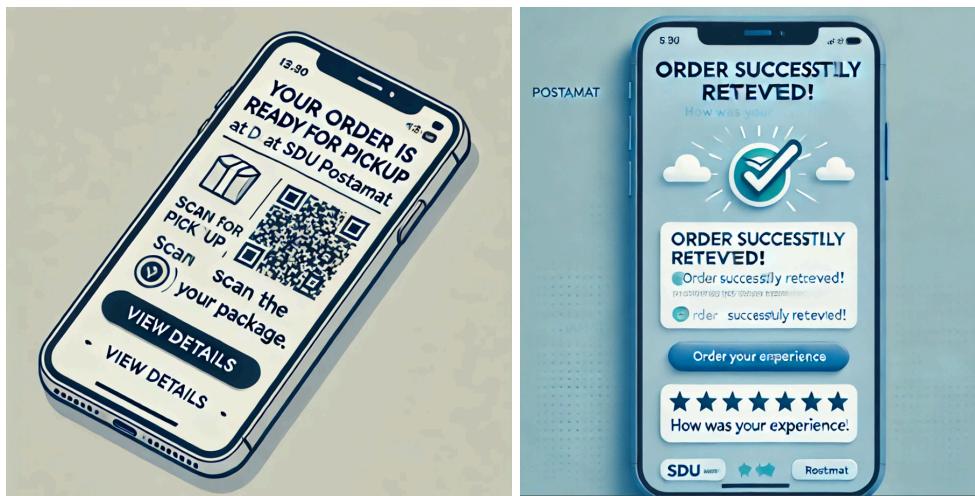
Usage of These Visuals

Design Validation: These images will be used to validate the postomat's design, user interface, and workflows.

User Testing: The visuals will assist in conducting usability tests to identify areas of improvement.

Presentation: These images will be included in project presentations to stakeholders to illustrate the system's functionality and impact.

Documentation: The visuals serve as part of the technical and user documentation for the SDU Postomat project.





Description of evaluation methods

1- Simulated interaction

Description:

The method allows testing a prototype interface to check how easily users can perform basic tasks.

Objective:

To evaluate whether users understand how to interact with the interface.

Identify elements that cause confusion or complexity.

Process for conducting:

Preparation:

Created a paper prototype of the interface with individual screens.

Tasks for users:

Scan the QR code.

Enter the code via the keypad.

Complete the action with the OK button.

Testing:

Five people tested a paper prototype.

Users “clicked” on elements on the paper, simulating interaction.

Capturing results:

Observing time to complete tasks.

Recording difficulties and questions arising from users.

Results:

Problems:

The “Enter code” button is not available

There are no instructions on how to use the QR code.

Positives:

Convenient keyboard layout.

Interface logic is clear to most users.

2. Feedback collection

Description:

The method aims to obtain users' subjective opinion about the functionality and usability of the interface.

Objective:

To understand what exactly causes difficulties.

To get suggestions on how to improve the interface.

Conducting process:

After testing, each user answered the questions:

Was it clear what to do on the screen?

What elements of the interface seemed convenient or inconvenient?

What would you change about the design?

The responses were analyzed and categorized.

Results:

Problems:

QR code without explanatory text.

User suggestions:

Increase the size of the "OK" button

Add a tooltip "Scan the QR code to get started."

3. peer review

Description:

Analyze the interface using UX/UI design principles.

Objective:

To ensure that the interface meets the basic principles of clarity, minimalism, and accessibility.

Process of Conduct:

The interface was evaluated using the following criteria:

Clarity: Are the basic functions clear?

Minimalism: Are there no unnecessary elements?

Accessibility: Is the interface suitable for all age groups?

Problems were documented and compared to the test results.

Results:

The interface is generally consistent with the principles, but needs to:

Increase the font....

Outcomes of the evaluation method

Overall conclusions:

The interface is understandable to most users, but needs refinement.

The main problems are related to visual elements (QR code, hints) and lack of instructions.

Recommendations for improvement:

Add an “Enter Code” function

Add instructions next to the QR code.

Appropriate Choice of Evaluation Method and Its Execution

After conducting interviews and observations, we made several key changes to our design based on the feedback we received. These evaluation methods helped us understand the pain points of users and allowed us to refine our initial ideas.

1. Interviews

We conducted interviews with regular customers of the market to understand their experiences and preferences. This method gave us direct feedback on their needs and pain points, allowing us to focus on solving real problems. For example, we learned that customers were frustrated with the lack of visible price tags and that the idea of delivery within the university did not seem practical.

2. Observations

We also observed customer behavior in the market at different times of the day. This allowed us to see how they interacted with the store layout, the self-service machines, and the queue system. Observations showed that self-service machines were not used much, and there was always a queue, especially during peak times.

Changes After Interviews:

- Initially, we planned to use barcode scanning for checking prices, but after receiving feedback that customers prefer clear, visible price tags, we decided to switch to traditional paper price tags instead.
- We considered offering delivery through a mobile app, but after further feedback, we realized that delivery within the university would not be practical or well-received. Instead, we decided to implement a **Postomat** system for order pickup, which better aligns with user preferences.

Changes After Observations:

- We originally thought of using a QR code system, similar to Kaspi's model, for order collection. However, after observing customer behavior and considering the costs, we determined that this approach was not cost-effective. Instead, we simplified the process: customers will now receive an email with a unique ID number. If the student approves the pickup request, the order will be released. If the request is not approved, the order cannot be collected.

Conclusion

The Food Locker and Mobile App system aims to revolutionize the shopping experience for SDU students by addressing key pain points such as long queues and inconvenient shopping processes. By integrating a mobile app with an automated food locker, we offer a seamless solution that enhances convenience, saves time, and delivers a more personalized experience.

Through our User Journey Map and Task Flow Diagram, we've identified the critical touchpoints and actions within the system. These tools ensure that the user's journey is smooth, from browsing the menu to collecting their food, with clear steps for improving efficiency and user satisfaction.

The system will reduce wait times, automate ordering, and make the entire food purchasing process more enjoyable, helping students better manage their time while increasing overall satisfaction with the SDU market.