

Designing the User Interface (UI) for a Mobile-Based Ordering System at Burger Stalls

Risandi Alfaliz¹, Zikri Ezza Alhira^{2*}

^{1,2} State Islamic University of North Sumatra
alfaliz.hasballah1065@gmail.com¹, ezzazikri@gmail.com^{2*}

Abstract

The development of mobile technology has encouraged culinary businesses to improve service quality through the use of digital systems, including in the ordering process. Warung Burger Zidan, as a small-scale culinary business, still uses a manual ordering system that has the potential to cause recording errors, service delays, and order discrepancies. This study aims to design a simple, easy-to-use mobile-based ordering system user interface (UI) that suits the operational characteristics of a burger restaurant. The research method used is qualitative with data collection techniques in the form of literature studies, interviews, and observations. The UI design process was carried out using a User-Centered Design (UCD) approach that placed user needs and characteristics as the main focus of the design. The results of the study are a mobile ordering application interface design that includes a menu display, shopping cart, automatic price calculation, and cash and QRIS payment method options. The design evaluation shows that the resulting UI design is capable of supporting a more structured ordering process, increasing service efficiency, and minimizing the risk of recording errors. This study is expected to be the basis for the development of a digital ordering system for small-scale culinary businesses.

Keywords: *User Interface, User-Centered Design, Ordering System, Mobile Application, Culinary Business*

1. Introduction

Warung Burger Zidan still uses manual order recording in its service process. This method often leads to errors in recording menus, order quantities, and additional toppings, especially when the number of customers increases. This condition indicates the need for a more structured ordering system to maintain service quality and consistency [1]. Research related to the design of food ordering application interfaces generally focuses on large-scale restaurants or systems with complex features. Studies that specifically highlight UI design in small businesses are still relatively limited, while interface aspects are often not the main focus of research. In fact, UI plays an important role as a link between users and the system in supporting ease of navigation and decision making during the ordering process [2],[3].

These conditions indicate opportunities for research into the design of interfaces that are simple, easy to understand, and suited to the operational characteristics of burger shops. In small-scale businesses, UI design needs to adapt to relatively simple user interaction patterns, while remaining effective in minimizing order recording errors. Therefore, this study uses a User-Centered Design (UCD) approach that focuses on user needs and characteristics through an iterative design process [4],[5]. Based on this, this study aims to produce a mobile-based ordering application UI design that is capable of supporting a more structured, accurate, and easy-to-use ordering process, as well as serving as the basis for developing a digital ordering system without involving high system complexity.

2. Main body

This study uses qualitative methods to gain an in-depth understanding of the ordering process and user needs. Data was collected through observation, interviews, and literature studies. Next, the interface was designed using a User-Centered Design (UCD) approach that places the user at the center of the design process [6].

2.1. Research Method

The data sources used in this study are classified into two types, namely primary data and secondary data [7].

1. Literature Review

Literature review is used as a data collection technique by utilizing various sources of information that are already available and compiled by other parties. Data obtained through this method is classified as secondary data, which is sourced from scientific publications, supporting documents, and electronic media related to the research topic [8].

2. Interviews

Interviews were conducted with Zikri Ezza, representative of Warung Burger Zidan, who stated that the ordering process is still done manually. This condition causes a number of obstacles, such as errors in recording orders, especially in the selection of toppings. The information obtained from this interview formed the basis for the design of a mobile-based ordering system interface using a User-Centered Design (UCD) approach with the aim of improving the accuracy and efficiency of the ordering process. The data from this interview is categorized as primary data because it was obtained directly from sources involved in the research object [9].

3. Observation

Observations were conducted directly at Warung Burger Zidan to observe the ordering and order recording process. The results of the observation showed that the entire process was still carried out manually without the support of a computerized system. This condition has the potential to cause recording errors, delays in service, and discrepancies between customer orders and the orders served. In addition, the manual method also makes it difficult for employees to manage orders, especially when the number of customers increases. Based on these findings, it is necessary to design a mobile-based ordering system UI that is easy to use with a UCD approach to improve the effectiveness and accuracy of the ordering process.

2.1.1. Metode User Centered Design (UCD)

User-Centered Design (UCD) is a design approach that places users as the main element in the design process of a system [10],[11],[12],[13]. This approach is widely applied in application design because it can produce designs that are in line with user needs and characteristics [14]. In general, UCD consists of four main stages, namely understanding the context of use, identifying user and organizational requirements, producing design solutions, and evaluating designs based on user requirements [15], [16].

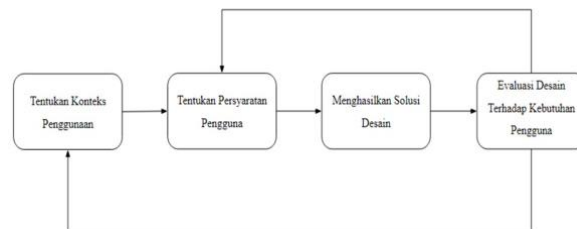


Fig. 1 Stages of the UCD Method [17]

1. Determine the context of use

At this stage, researchers understand the needs of potential users by conducting an approach and needs analysis of users[18], [19].

2. Find User Requirements

At this stage, the user requirements are specified, which consists of three parts, including:

- a. Solution to the Problem. Create a solution to the problem identified in the previous stage.
- b. User Flow. Determining the flow of the design to be created.
- c. Wireframe. Create an initial framework for the design to be made.

3. Generating design solutions

In this stage, the design solution will be developed based on the results of the two stages prior to this stage. The design solution is achieved in a number of stages, starting from concept development to design creation to final design[20], [21].

4. Evaluating designs against user needs

Prototypes or initial designs are tested by users to gather feedback and validate the user experience. This testing can be done through user testing sessions, observation, or questionnaires. The test results are used to improve the design and make the necessary changes[22].

3. Result and Discussion

The application of the User-Centered Design (UCD) method in the design of the ordering system interface at Warung Burger Zidan was carried out through four main stages, namely determining the user context, determining user needs, producing design solutions, and evaluating the design.

3.1. Determine the User Context

The first stage aims to identify who will use the system, what the system will be used for, and under what conditions the system will operate. Based on observations at Warung Burger Zidan, the context of use is defined as follows:

1. Users:

- a. Customers: A wide range of ages, from teenagers to adults. They want a fast ordering process without having to wait in long lines just to see the menu.

- b. Cashiers/Employees: They need a system that can minimize manual order recording errors, which often occur when the restaurant is busy.
2. Tasks:

Users need to view the available menu, select food or beverage items, know the total price transparently, and choose their preferred payment method (cash or non-cash/QRIS).
 3. Environment:

The system will be used in a dynamic food stall environment. Therefore, the interface must have high readability and uncomplicated navigation so that transactions can be completed quickly.

3.2. Discover User Context

Based on the analyzed context, several key requirements were identified that must be met by the user interface design solution:

1. Information Requirements: Users need a visual menu display (accompanied by images) to make it easier to recognize products. Price information must be clearly displayed on each item to avoid confusion.
2. Functional Requirements:
 - a. The system must separate food and beverage categories to speed up searches.
 - b. The system must be able to automatically calculate the total price when items are added.
 - c. The system must provide digital payment options (QRIS) in line with current transaction trends.
3. Interface Requirements: The design must be simple (simple illustrative) with buttons that are large enough (touch-friendly) to prevent accidental presses (error prevention) on mobile device screens or kiosks.

3.3. Generating Design Solutions

Based on the above needs analysis, a user interface solution was designed with a dominant red and white color theme that reflects the visual identity of appetizing cuisine. The following is the implementation of the system interface design:

1. Menu Category Selection Page

The initial display is designed to be as simple as possible to guide the user's focus. This page only contains two contrasting main options, namely the "FOOD" and "DRINKS" buttons. This design aims to reduce the user's thinking time (Hick's Law) so that they can immediately enter the desired category without distraction.



Fig. 2 Page for Category Selection

2. Food Menu List Page

On this page, products are displayed in a neat grid format. Each menu card features a high-quality product photo, menu name (such as Beef Burger, Cheese Burger), price (Rp10,000), and a bright red "+ADD" action button. This visual information makes it easy for customers to quickly compare menus without having to read a lot of text.



Fig. 3 Food Menu Display

3. Order Details and Total Price Page

After the user selects the menu, the system displays feedback in the form of an order summary at the bottom of the screen. This section contains "Number of Items" and "Total Price" information that is updated in real time. This feature addresses users' need for price transparency before proceeding to the payment stage.



Fig. 4 Order Accumulation and Total Price Display

4. Payment Method Selection Page

To accommodate different transaction preferences, the system displays a modal pop-up “Payment Method” with two large and clear options: ‘CASH’ and “QRIS”. The large button design facilitates touch interaction and reduces the risk of incorrect selection.



Fig. 5 Payment Method Options (Cash vs. QRIS)

5. Payment Results Page (QRIS)

If the user selects the QRIS payment method, the system will redirect them to the digital transaction completion page. This interface is designed to clearly display instructions or QR codes, ensuring that users understand that they must scan the code to complete their order.



Fig. 6 Payment Method Options QRIS

3.4. Evaluating the design against user needs

The evaluation was conducted to ensure that the resulting design addressed the issues and needs defined in the initial stage:

Table 1: design evaluation table

User Requirements	Design Features	Evaluation Results
Ease of Product Identification	Use of real product images and grid format in the menu list (Fig. 2).	Fulfilled. Users can recognize products faster than text-based lists.
Ordering Efficiency	Separation of Food/Beverage categories (Fig. 1) and instant “+ADD” button.	Fulfilled. The ordering process is linear and fast, reducing the cognitive load on users.
Price Transparency	Display of unit prices and automatic calculation of “Total Price” (Fig. 3).	Fulfilled. Prevents manual calculation errors and provides cost certainty to customers.
Payment Flexibility	Clear cash and QRIS payment method options (Fig. 4).	Yes. The system accommodates both conventional users and digital wallet users.

Overall, this interface design is considered successful in simplifying the previously manual ordering process into an intuitive digital system, in line with the operational characteristics of Warung Burger Zidan.

4. Conclusion

This study successfully designed a user interface (UI) for the food and beverage ordering system at Warung Burger Zidan through the application of a User-Centered Design (UCD) approach. The research process included identifying operational problems, analyzing user needs, and designing solutions tailored to the characteristics of small-scale culinary businesses. The analysis results showed that the manual ordering process had the potential to cause recording errors and prolong service time, especially when there was an increase in the number of customers. Through the application of four main stages in UCD, namely understanding the context of use, determining user needs, designing solutions, and evaluating designs, a more intuitive interface design was produced that supported the efficiency of the ordering process. The final interface design features a simple and communicative visual concept dominated by red and white colors. This design displays separate categories for food and beverages, clear visual presentation of products, and an automatic price calculation system to increase transaction transparency.

In addition, the interface also supports two payment methods, namely cash and QRIS, to adapt to the development of digital transactions in Indonesia. Based on the evaluation results, the resulting interface design has optimally met user needs. This design is able to increase the efficiency of the ordering process, reduce dependence on manual recording, minimize potential transaction errors, and provide a better user experiences for customers. It is hoped that the implementation of this design can support improvements in service quality and operational capacity at Warung Burger Zidan. As a further development, this study recommends conducting direct testing involving real users to ensure the effectiveness of the design in actual operational conditions. Further research can also be directed at system integration with a backend database for real-time stock reminders, as well as the development of sales analysis features to support managerial decision-making.

References

- [1] S. D. Pangestu, I. Ratna, and I. Astutik, "Rancangan aplikasi kasir toko kelontong berbasis website menggunakan metode waterfall 1.," vol. 9, no. 1, pp. 125–135, 2024.
- [2] T. Zahara and T. Widodo, "Development of Cashier Applications at Cantik Stores Using Mobile-Based User Centered Design (UCD) Pengembangan Aplikasi Kasir pada Toko Cantik Menggunakan User Centered Design (UCD) Berbasis Mobile," vol. 5, no. January, pp. 190–197, 2025.
- [3] R. Wun, P. Studi, S. Informasi, F. Teknologi, and I. Universitas, "PERANCANGAN SISTEM & USER INTERFACE UNTUK APLIKASI KASIR DAN INVENTARIS PADA BENGKEL BARU MOTOR SPORT".
- [4] W. Silviana and H. Kurniawan, "Perancangan Desain UI / UX Aplikasi Penjualan Batik Berbasis Website Pada Toko Batik Jambi Ariny Menggunakan Metode User Centered Design (UCD)," vol. 4, no. 2, pp. 687–698, 2025.
- [5] F. M. Alja, E. Daniati, A. Ristyawan, and K. Kunci, "PERANCANGAN UI / UX E-COMMERCE MENGGUNAKAN METODE USER CENTERED DESIGN (UCD) Abstraksi Keywords : Pendahuluan Tinjauan Pustaka Metode Penelitian," vol. 6, no. 1, 2024.
- [6] K. H. C. Utama, A. P. Wardhanie, and R. Santoso, "Aplikasi Pemesanan Menu Makanan Menggunakan Metode FCFS Pada Grande Garden Cafe," *Smart Comp Jurnalnya Orang Pint. Komput.*, vol. 13, no. 1, 2024, doi: 10.30591/smartcomp.v13i1.5296.
- [7] S. Utami, "Analisis Tingkat Utilitas dan Penjadwalan Produksi Mesin Huller Menggunakan Metode Fcfs, Spt, Lpt, dan Edd pada PT. Wahana Graha Makmur," (*Doctoral Diss. Univ. Medan Area*), 2022.
- [8] P. R. Tuerah, R. Mesra, T. Sukwika, U. S. Jakarta, and N. Susmita, *METODE PENELITIAN KUANTITATIF (Teori & Panduan Praktis Analisis Data Kuantitatif)*, no. August. 2023.
- [9] J. E. Syariah, F. Ekonomi, and D. Bisnis, "No Title".
- [10] K. Adiwina, B. Nugraha, and T. Ridwan, "PENERAPAN METODE USER CENTERED DESIGN DALAM PERANCANGAN DESAIN UI / UX WEBSITE SMAN 5 KARAWANG," vol. 12, no. 3, 2024.
- [11] C. E. Zen, S. Namira, and T. Rahayu, "Rancang Ulang Desain UI (User Interface) Company Profile Berbasis Website Menggunakan Metode UCD (User Centered Design)," no. April, pp. 17–26, 2022.
- [12] A. S. Nasution, M. Ridwan, A. T. Wibowo, and A. Kunaefi, "RANCANG ULANG DESAIN UI (USER INTERFACE) AUDIT CHECKLIST BERBASIS WEBSITE MENGGUNAKAN METODE UCD (USER CENTERED DESIGN)," vol. 8, no. 6, pp. 12015–12022, 2024.
- [13] S. Faridha, S. Yulianti, and Y. Sugiarti, "Metode Perancangan User Interface yang Paling Umum Digunakan : Systematic Literature Review," vol. 7, no. 1, 2024, doi: 10.32877/bt.v7i1.1467.
- [14] S. L. Ramadhan, I. Fitri, A. Rubhasy, U. Nasional, U. Experience, and U. C. Design, "Perancangan User Experience Aplikasi Pengajuan E-KTP Menggunakan Metode UCD Pada Kelurahan Tanah Baru," vol. 8, no. 1, pp. 287–298, 2021.
- [15] A. A. Mahfudh and W. R. Saputra, "Perancangan User Interface User Experience Aplikasi E-Ngaji Berbasis Android Menggunakan Metode User Centered Design (UCD) Pada TPQ," vol. 4, no. 2, pp. 255–262, 2022.
- [16] A. H. Luthfi and I. Arfiani, "Perancangan UI / UX Aplikasi Sampahocity Menggunakan Pendekatan UCD (User Centered Design)," vol. 7, pp. 24–36, 2024.
- [17] D. S. Mubiarto, R. R. Isnanto, and I. P. Windasari, "Perancangan User Interface dan User Experience (UI / UX) pada Aplikasi ' BCA Mobile ' Menggunakan Metode User Centered Design (UCD) User Interface and User Experience (UI / UX) Redesign on ' BCA Mobile ' Application Using User Centered Design (UCD) Method," vol. 1, no. 4, pp. 209–216, 2023, doi: 10.14710/jtk.v1i4.37686.
- [18] I. J. Informatika, M. Teknologi, N. Purwati, A. Syukron, E. Muningsih, and D. F. Akbar, "DESAIN UI / UX APLIKASI SAFE4C & W MENGGUNAKAN METODE USER CENTERED DESIGN (UCD)," vol. 26, 2024, doi: 10.23969/infomatek.v26i2.19053.
- [19] S. H. Lestari, I. Burhan, and V. S. Den Ka, "Analisis Efektivitas Penagihan Pajak Melalui Surat Teguran, Surat Paksa, dan Penyitaan Untuk Meningkatkan Penerimaan Pajak Pada Kantor Pelayanan Pajak Pratama Maros," *J. Anal. Akunt. dan Perpajak.*, vol. 5, no. 2, pp. 236–245, 2021, doi: 10.25139/jaap.v5i2.4145.
- [20] G. N. Aprilia and M. N. Dasaprawira, "PERANCANGAN UI / UX APLIKASI E-RAPOR PADA TPQ BERBASIS ANDROID DENGAN MENGGUNAKAN METODE USER CENTERED DESIGN (UCD)," pp. 48–58, 2023.
- [21] A. D. Susilawati, D. Prihadi, B. H. Irawan, P. S. Manajemen, and P. Tegal, "Penerapan Metode User Centered Design (UCD) Pada Sistem Informasi Pemesanan Air Galon Tirta Berkah 1," vol. 8, no. 2, 2023.
- [22] M. Metode, U. D. Ucd, Y. S. Purbo, F. S. Utomo, and Y. Purwati, "Jurnal Teknologi Terpadu," vol. 9, no. 2, pp. 123–132, 2023.