User Interface Design of Mykonter Mobile Application Using User Centered Design Method on Konter Sam Cell

Beby Ayu Astina[1*], Qadhli Jafar Adrian[1], Donaya Pasha[1]

[1] *Universitas Teknokrat Indonesia,* Lampung, 35132, Indonesia

ABSTRACT

Sam Cell is a counter business where sales are still done manually without the help of technology. Sam Cell's sales only cover the area around the counter and are not yet widespread in all regions, so income is still relatively small compared to other counter businesses. Sam Cell also doesn't have a good promotional system to increase sales. So this research has sales innovation through application design. Therefore, to achieve this goal, the user centered design method was chosen in designing the Mykonter application which focuses on user convenience (usability) and satisfaction (satisfaction) with the application design. The user centered design method consists of 4 iterative stages which can be used to strengthen innovation, solve a problem and help understand user needs so as to provide the right solution. The results obtained from user validation when using the Prototype are the conclusion that the application design has met the benchmark criteria, by obtaining a user satisfaction level of 53.5 points, where these points have met the criteria rules for measuring the System Usability Scale so that this application design can be developed by the development team to serve as a basis for building a Mykonter application design.

1. INTRODUCTION

The current development of information technology with easy internet access and the availability of information technology devices, it is now easier to read information or news in electronic format because it can be accessed anywhere with an internet connection [1][2]. Along with the growth of users and services based on cellular telephones (cell phones) in Indonesia [3], business opportunities in the field of selling cell phone credit have become a big opportunity for many groups, depositing electric credit and quotas where there are upline and downline components as the main business players in this field. Currently the only device used for transactions and communication between upline and downline is via mobile phone, although technologically today's mobile phone can meet the needs of electric credit and general quota deposit businesses, there are no tools or support other than using a mobile phone [4][5].

This design aims to build an application design that contains credit transaction offers through deposits and becomes a communication medium between upline and downline [6], helps in promoting the products offered by Mykonter and expands the electric credit deposit and quota network on Mykonter. Mykonter is the most complete, fastest and proven all-operator electric credit voucher distribution center dealer whose address is Teluk Betung, Bandar Lampung. Mykonter is an all-operator electric credit voucher dealer. Our services include all cellular providers such as: Indosat IM3, Mentari, AS, Simpati, XL, Telkomsel, Flexi, Fren, Axis, Esia, Smart, Ceria, Three, and Hepi.

2. LITERATURE REVIEW

Web-based system development has adopted a new paradigm called user-centered design, or UCD. Human-centered design (HCD) is another term for user-centered design (UCD). ISO 13407 (1999) [7][8], defines human-centered design as an interactive approach to system development that focuses on making a system useful. Another way to define user-centered design is as an interface design process that prioritizes the design's tasks, environment, user attributes, and usability goals. The UCD process is iterative, involving the development of design and evaluation from the ground up to ongoing implementation [9][10].
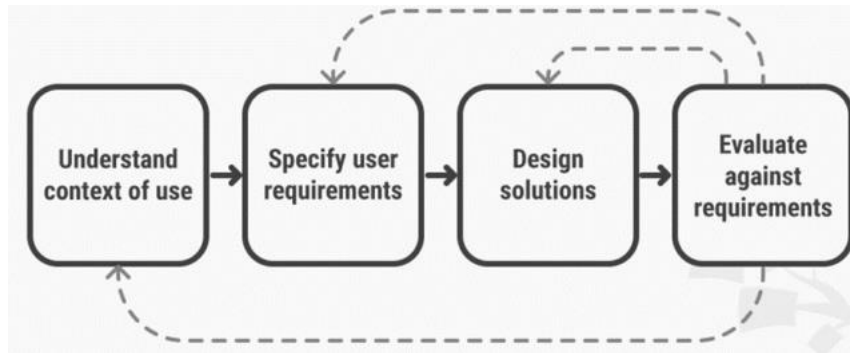
Figure 1. Stages of User Centered Design

In addition to the above image's description, User Centered Design has four stages.

1. Understanding The Context of Use

    It is imperative for system designers to comprehend the usability context of system use, which includes the users' demographics, intended uses, and usage scenarios.

2. Specifying The Requirements of The Users

    The designer can move on to the following step, which is identifying user needs, once he has a clear understanding of the application's context of usage. The designer needs to be able to identify the business's user needs as well as the objectives to be met during this process.

3. Designing Solutions

    The process that follows involves creating a solution based on the user requirements that were outlined in the preceding phase. There will be multiple stages in this design process, from an initial rough concept to a final prototype and design.

4. Evaluating Against Requirements

    Users who will utilize it will be included in the review process, which will begin with one procedure and continue to the next [11][12].

3. RESEARCH METHODS

The Research Framework is a description and proposition about the problem-solving conceptual framework that has been identified. The research framework can be seen in the picture below.
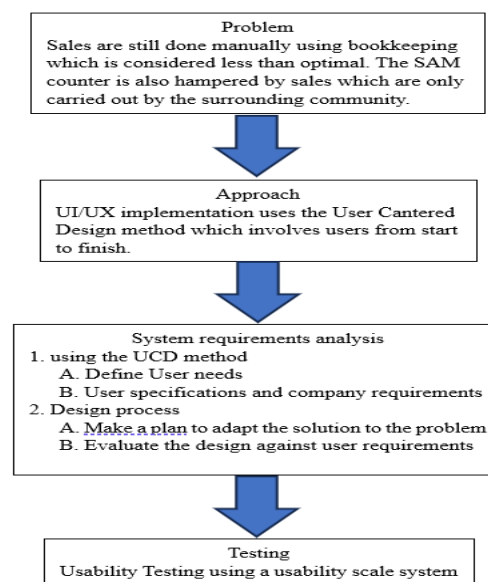

Figure 2. Research Framework

This problem identification is carried out in accordance with the User centered design (UCD) method where we carry out analysis to identify user needs through interviews and questionnaires.

1. Interview

    Interviews conducted in this research are very necessary as material for research work. This interview was conducted with Mr. Sam is the owner of Sam's counter. In the interview, we discussed the problems that occurred at Mykonter. UI/UX design using the User centered design method can provide solutions to current problems.

2. Literature Study

    Literature study is a research methodology, which is often used to collect data by taking notes, literature review or reading. Literature studies are carried out by studying journals, internet sites and YouTube videos that support research. This literature study stage was carried out to collect reference materials that were used as a basis for preparing research.

3. Observation

    Observations can be carried out directly or indirectly on how the counter works. This observation is to fulfill the counter's needs [13][14].

3.1 Produce Design Solutions

The design process starts with creating a Wireframe and Prototype based on the results of interviews and observations. In making a prototype using tools[15][16]. The prototype results will be checked again whether they meet the user's needs or not.

Figure 3. Wireframe

3.2 System Usability Scale

The System Usability Scale is a measurement tool that can be used to measure the level of usability of a system. Formed by John Brooke in 1986, the system usability scale can be used to measure the level of usability in various products such as hardware, software, mobile apps, and websites [17]. The System Usability Scale is a tool used to test the usability of computer systems which focuses on the user or users. This method is very simple and is often used in the research process. The System Usability Scale method has 10 questions and 5 answers [18].

The following are the rules for calculating the average score:

1. Of the 10 questions, for odd numbered questions the user's score will be reduced by 1.
2. Of the 10 questions, for even numbered questions, the final score is obtained from 5 minus the score given by the user.
3. The average score is obtained from the sum of each number and then multiplied by 2.5.

The following is the formula for calculating the SUS score:

SUS score = $((R1 - 1) + (5 - R2) + (R3 - 1) + (5 - R4) + (R5 - 1) + (5 - R6) + (R7 - 1) + (5 - R8) + (R9 - 1) + (5 - R10)) \times 2.5$. The average System Usability Scale score from existing research is 68. So if the average score obtained from testing the System Usability Scale is above 68 then the system is considered suitable for development and use. However, if the average value obtained is below 68, it means that the system still needs to update the design and carry out retesting.

4. RESULTS AND DISCUSSIONS

4.1 Application Design Results

This is the result of implementing the design at the High-fidelity Prototype stage using a design tool, namely Figma desktop, and as a tool to display the Prototype design. By using this Prototype stage, testing will be carried out on potential users or respondents using a usability testing system, which will later obtain quantitative data from user responses and will be used as a reference when carrying out several stages of literacy design.
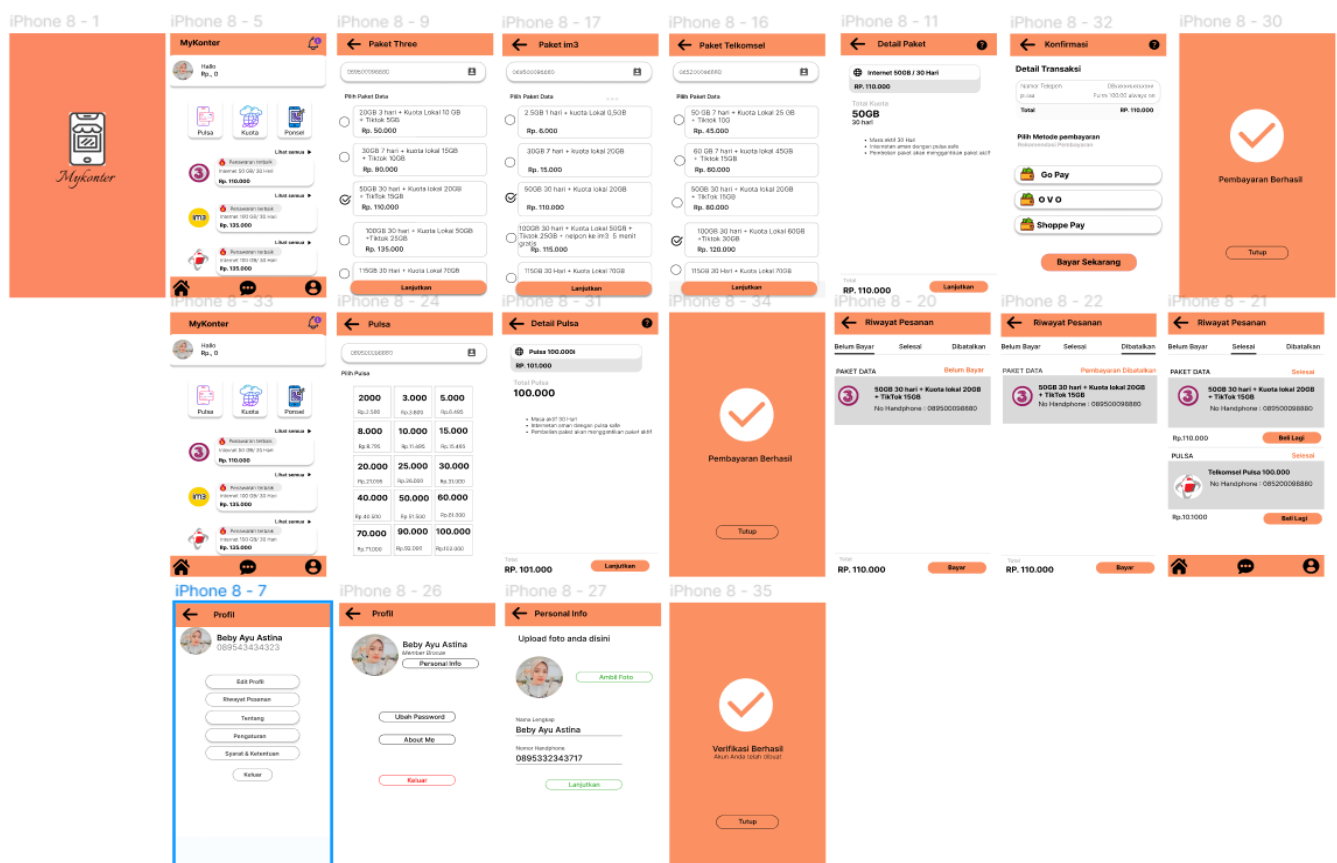
Figure 4. Result Desgin All Menus

4.2 Writer's Research Toolkit

The following are the components and tools that the author used when conducting this research, namely:

a. Hardware

Tabel 1. Hardware and Type

No	Hardware	Type/ Capacity
1	*Prosessor*	11th Gen Intel(R) Gen Intel(R) core (TM) i5 1135G7 20.Ghz
2	*Random Acses Memory* (RAM)	8192MB RAM
3	*Solid State Drive* (SSD)	Solid State Drive (SSD)
4	*Video Graphic Array (VGA)*	Intel(R) UHD Graphic

b. Software

Tabel 2. Software and Version

No	Software	Version
1	Sistem Operasi (SO)	Windows 11 Home Single Language 64-bit
2	Figma	New Update 2022 Version

Measure the level of user satisfaction with the application plan. The facilitator will provide a statement sheet which will be assessed based on the user's experience scale when interacting with the application. This research instrument uses a Google form which can be used easily to distribute questionnaires. The respondents selected in this research are users who measure effectiveness and efficiency based on categories or charm traits. User assessment scores can be seen below:

Tabel 3. Respondents' True Values

Questionnaires	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
Q1	4	4	4	3	4	4	4	3	4	3
Q2	3	3	4	3	4	3	4	3	2	3
Q3	4	4	4	2	3	4	3	3	2	2
Q4	2	1	4	3	1	2	2	2	1	4
Q5	4	4	3	2	2	1	5	2	2	3
Q6	3	2	3	3	3	1	1	1	3	4
Q7	4	4	5	4	4	3	4	2	3	4
Q8	3	1	4	2	3	2	3	3	4	4
Q9	4	4	2	4	3	1	4	4	1	2
Q10	3	3	4	4	4	2	5	4	1	4

This test uses a Likert scale in the System Usability Scale (SUS) list of statements. This test uses 10 questions with responses in the form of five Likert points for each question. The rating scale used is Strongly Disagree (STS) with a value of 1, Disagree (TS).) is worth 2 points, Undecided (RG) is worth 3 points, Agree (ST) is worth 4 points, and Strongly Agree (STS) is worth 5 points. For odd numbered question items (1,3,5,7,9), the calculated value of these points will be reduced by 1 (X-1), while for even items (2,4,6,8,10), the calculated value is 5 minus that point (5-x).

Tabel 4. After SUS Calculation

Questionnaires	SUS Measurements	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	Final SUS Score Results
Q1	X – 1	3	3	3	2	3	3	3	2	3	1	
Q2	5 – X	2	2	1	2	1	2	1	2	3	2	
Q3	X – 1	3	3	3	1	2	3	2	2	1	1	
Q4	5 – X	3	4	1	2	4	3	3	3	4	1	
Q5	X – 1	3	3	2	2	1	1	1	1	1	2	
Q6	5 – X	2	3	2	1	2	4	4	4	2	1	
Q7	X – 1	3	3	4	1	3	2	3	1	2	3	
Q8	5 – X	2	4	1	3	2	3	2	2	1	1	
Q9	X – 1	3	3	1	1	2	1	3	3	1	1	
Q10	5 – X	2	2	1	1	3	1	1	1	1	1	
Average		26	30	19	16	21	25	23	21	19	14	
Respondent's SUS Score		65	75	48	40	53	63	58	53	48	35	**53,5**

The level of satisfaction of respondents or users when interacting with application designs using the System Usability Scale (SUS). This score is interpreted based on the SUS assessment score with an absolute assessment of usability (adjectives rating) of 53.5 points, where this value has reached the standard Excellent value on the System Usability Scale (SUS) measurement.

5. CONCLUSSION

The design of the Mykonter application uses the User centered design method which consists of 4 repeated stages, namely Understand Context of Use, Specify User Requirements, Design Solutions and Evaluation Against Requirements. At the measurement stage, it is proven that users like the Mykonter application, which can be proven by the results of the SUS calculation, namely 53.5 points. The appearance of Mykonter has been successfully designed following the design stages of the User centered design method, resulting in an application that is easy for users to use.

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