

Designing Of User-Friendly Ordering Mobile Application: A Prototype for User Experience

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Abstract: A prototype mobile application that is QR Code based for Starbucks café shop. Wherein the customer will scan the QR code, and it will direct them to the application and menus of the café shop. This prototype aims to provide more convenience when ordering so that the customer can see the actual picture, price, size, category, and customize their orders easily without feeling time pressure. The mobile application prototype was developed by utilizing Flutterflow for deployment and Figma for prototype design.

Concepts: Multimedia Design

General Terms: User Interface, User Experience

Keywords: Ordering Mobile Application, Prototype, Qr Code and User Experience

1 INTRODUCTION

One of the most trending now in the Philippines is the use of online ordering mobile application. A study proposed a methodology for QR codebased smart restaurants, where unique QR codes are placed on each table of the restaurant so that the customers can scan the code using their smartphones using the camera or QR code scanner, Shradha (2017). [1]

The waiting line for Dine-in customers has been a persistent problem for restaurants, especially the most famous and biggest coffee shop in the Philippines Starbucks. Given the popularity, customers would expect nothing but the best, and demands will be elastic. Sticking to the traditional or manual operation of the business is cumbersome for both employees and customers. In line with this problem, the researchers developed a mobile application for Starbucks that uses Quick Response Code to view menus, choose the order, and pay for the order at their fingertips. This Quick Response code will be placed on each table so that customers can access the menus easily. Thus, it will save time and increase customer satisfaction as Starbucks begins to modernize.

1.1 Statement of the Problem

The Starbucks mobile application will help the employees and customer during peak hours. Thus, research aims to address the following:

1. How can the customer benefits from the prototype mobile application?
2. In what way can the prototype mobile application help ease the work of employees during peak hours?

3. Does the prototype mobile application help the customer to lessen the waiting time and the employees to reduce human errors?

1.2 Objectives of the Study

The objectives of the researchers for the system are:

1. Provide an easier way for the customers to know their order details.
2. To enable customers to know their coffee ad-on before ordering.
3. Create a mobile application that is more user friendly and easier to navigate.
4. Increase the speed of service, sales, sales volume, and customer satisfaction.

1.3 Significance of the Study

The study intends to speed up order processing by creating a mobile application that benefits both the customers and workers of the café. The study is of importance to the following:

Customers. It will improve customer satisfaction as they can order by scanning the QR code and view all the menu with just one click.

Coffee Shop. It will automate the order process of the shop plus it can attract more customers because of contactless transaction.

Employees. It will save their time and work because customers can now order through scanning QR code.

Future Researchers. This study will be useful reference for the future researchers who would plan to make any related study precisely of the system.

1.4 Scope and Limitations

This study conducted primarily for the purpose of creating a prototype mobile application that benefits both the customer and employee and identifying if this would ever help in making the ordering of coffee faster and efficient that the customer will come back to order more.

The Starbucks mobile application starts by scanning the Quick Response Code on the table using the camera of the user. After scanning, the user will be redirected to the main menu page at the top, core menus are displayed horizontally. While below, they can see the actual picture of the drinks along with their price, size, and category. If the user clicks one of the menus it will show the full details of the menu. From the full details of the menu, the customer can start ordering and customizing the order. There is a button below that gives the user a choice to proceed to order now or add to cart. This is to give a chance for the user to decide properly what order will be placed. Next, if the user clicks the add to cart button, the order will be placed to my cart page with the order details and options to edit, delete, cancel, and checkout. If the user clicks the order now button same as my cart page, order details will be displayed along with options to edit, delete, and cancel. Confirmation messages will appear after you click the order button, this is to ensure that the order taken is correct. If the user confirms the order, it will proceed to payment method page wherein the user can choose from the three-payment method: Pay by Cash, Card, and E-wallet. After that, the user will be given an order number and billing process and payment will be settled to the counter. Lastly, the user can rate the app by tapping the rate button.

The limitation of the study is that it is only a prototype mobile application without functions and does not have database to record transaction.

1.5 Definition of Terms

Smartphones. A mobile device that consists of phones and can be used to watch, browse, gaming, calls, texts and more.

Mobile application. A software application used by small computer device such as smartphones and tablets rather than computers.

User Experience. The interaction of user to a particular mobile or desktop application.

Quick Response Code. It consists of black and white arrays of square, normally used to open URLs by scanning them on the camera of the smartphone.

Prototype. The original model or unfinished product that can be upgraded to further improve the designs and functions.

Cafe shop. An establishment that serves coffee of various type as the main product of the shop.

2 REVIEW OF RELATED LITERATURE

AND STUDIES

Coffee ordering is the most important service done in every cafe shop. This is done by customers ordering their desired items from the menus indicated at the cafe shop. There are some problems that are happening using the conventional way of ordering coffee, like miscommunication that normally happens in any cafe shop, example is wrong order, number of orders, and more. Another one is where the customer will have to wait in the line to order their items and will wait for several minutes because the person before them is thinking what kind of coffee they will order. Therefore, User-friendly mobile ordering application using QR code is used to manage order process in the cafe shop. So, with QR code as the alternative way of ordering items will solve the problems. The system use smartphones or tablets because using smartphones or tablets is the trend or the necessity for everyone. The customer will only need to scan the QR code on their table, and it will direct you to the application and menus of the cafe shop where you can choose your desired orders without even falling in line and wait for your turn, Jaafar (2018). [2].

In 2022, Singh and his team proposed a smart QR based restaurant dine in system. Due to the pandemic, customer wants to be safety first when it comes to eating out. Most of the restaurant orders rely on the interaction of with waiters to place orders into the kitchen. Due to pandemic situation, Customers feels uncomfortable being around with waiters and other staff. The System will cover the whole order process of restaurant through web application. It is a complete product for managing restaurant services with minimal human interaction while providing maximum contactless service [3].

A Study on Kiosk GUI Design in Fast Food Store for Effective Interaction by Park, Eun-Young (2018), where he wrote about food culture become more widespread and the consumption trends for easy and convenient meals grew. Along with this change, various methods have been allowed for quick and easy ordering. Along with this change, various approach has been allowed for quick and easy ordering. The kiosk reduces the ordering queue and lessen the interaction with the staffs. An improve kiosk GUI design for effective interaction that provides efficiency and satisfaction to users by looking over the content of the kiosk [4].

2.1 SOFTWARE DEVELOPMENT METHODOLOGY

Multimedia Development Life Cycle

Initialization. The researchers gather all the essential information about Starbucks and other related trends studies to build a solid foundation for developing a mobile application for Starbucks.

Blueprint Design. The researchers begin with creating the flowchart of the Starbucks mobile application first before proceeding with the prototype UI/UX design mobile application. This is to guide the researchers in the development phase of the Starbucks mobile application.

Assets Preparation. The researchers make all the necessary preparations for developing the Starbucks mobile application. These includes framework, app name, app icon, app layout, app theme, compiling needed images, and app functions.

Product Development. The programmer used Figma as the framework during the development of the Starbucks mobile application and flowchart as the basis to follow the correct syntax and process of the mobile application.

Testing & Validation. The prototype UI/UX design developed will now put into test by Information Technology Professors to validate if the mobile application is industry ready to use.

2.2 RESEARCH INSTRUMENT

The evaluation tool of the study is based on ISO/1495:2003, or also known as Software Ergonomics for Multimedia User Interfaces. It is a design-related questionnaire for the user interface of multimedia applications, asking about the interface's conceptual structure, the way in which multimedia is integrated, and how well interface works with various media. The ISO 1945 covered the software aspects of multimedia user interfaces, and hardware or implementation issues are now covered. The designers will employ the five-point Likert Scale, a standardized instrument developed in accordance with the ISO/IEC Directives. The questionnaire can be answered based on Likert scale of 1 (Poor) to 5 (Excellent) to acquire the goals of evaluation.

3 PRESENTATION, DISCUSSION, AND INTERPRETATION OF DATA.

The visual design was consistent throughout the Starbucks Application	5.0	Excellent
The visual elements (text, images, icons, etc.) were clear and legible.	4.67	Excellent
The color scheme was pleasing on the eye.	5.00	Excellent
Interaction		
The interactive elements (buttons, links, etc.) were easy to use. 4.33 Very Good	4.33	Very Good
It was clear what the user needed to do to complete a task.	4.67	Excellent
Starbucks mobile application provided appropriate feedback to the user.	4.33	Very Good
Information Architecture		
The information was well organized and easy to find.	4.83	Excellent
It was easy to understand the hierarchy of information in the Starbucks mobile application.	4.83	Excellent

Starbucks mobile application provided the right amount of information without overwhelming the user	4.50	Very Good
INDICATORS	MEAN	DESCRIPTION
Navigation		
The Starbucks mobile application is easy to navigate through.	4.67	Excellent
The navigational elements were clearly labelled and easy to understand.	4.50	Very Good
It was easy to go back and forth between screens	4.83	Excellent
Visual Design		
The Starbucks mobile application is easy to navigate through.	5.0	Excellent

This chapter discusses the project potentials and boundaries and the result from the project evaluation by various evaluators who verified and assessed the Prototype mobile application.

3.1 PROJECT EVALUATION RESULT

The researchers conducted the evaluation of CCIT Professors from NU Baliwag, CCIT Program chair, Dean of the CET department, and a staff from Starbucks. The prototype mobile application's performance was assessed in terms of the Navigation, Visual Design, Interaction, Information Architecture, Accessibility, and User Testing of the system.

Table 1. The Navigation result of the Prototype Mobile Design.

Accessibility		
The Starbucks mobile application was accessible to users with disabilities.	3.67	Very Good
There were alternative ways for	3.83	Very Good
Users to access information (e.g. for user with visual impairments).	4.33	Very good
The Starbucks mobile application compiled with accessibility standards (e.g. WCAG 2.1).	3.50	Good
User Testing		
Users found the Starbucks mobile application easy to use.	4.67	Excellent
Users were able to complete tracking efficiently.	4.00	Very Good
No significant usability issues were found.	4.17	Very Good
Overall	4.47	Very Good

Table 1 presents the results of the respondents' assessment based on the performance of the prototype mobile application. The overall performance of the prototype mobile application gained a mean of 4.47 which is equivalent to Very Good in terms of rating.

3.2 PROJECT CAPABILITIES AND LIMITATIONS

The following are the capabilities of the project:

1. Interactivity describes the degree of functionality that is open to the users.
2. It has a precise shape, size, or material quantity in terms of process simulation, realistic, and working simulation see all the menus at once and order with ease.
3. The prototype is also good in presentation of the design not only in terms of appearance but also in the way the product works.

The following are the limitations of the project:

1. The prototype mobile application does not have billing features.
2. Colorblind users may misjudge the button and text because the color difference is slight only.
3. The prototype designs view may vary from other devices.

4. CONCLUSION AND RECOMMENDATIONS

4.1 CONCLUSIONS

Based on the results of evaluation carried out, the following conclusions are developed and presented.

1. The customer can benefit from the prototype mobile application, in a way that they can decide and order properly with the use of their mobile device only.
2. The prototype mobile application help ease the work of employees during peak hours, in a way of displaying the menus, getting the customer's order and mode of payment, and giving order numbers to customers. This process improves customer satisfaction as they go the counter for payment and claiming of order only.
3. The prototype mobile application helps the customer to lessen the waiting time and the employees to reduce human errors, in a way that the app is very user-friendly and straightforward. With the use of Quick Response Code, the customer will automatically be redirected to the main menu page wherein they can see all the menus at once and order with ease.

4.2 RECOMMENDATIONS

Based on the conclusions of the study. The following recommendations are forwarded. The Starbucks Menu and Order Application should be accessible and convenient also to Persons with Disabilities such as color blindness and visual impairment.

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