University Of Zakho
Computer Science Department

RESTAURANT ORDERING SYSTEM

By

Salar Aziz Ahmed

Supervised By

Mr. Yousif

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ABSTRACT

This Restaurant Ordering System project is developed to transform the old and traditional system that mostly used by the restaurants to a new and more efficient ordering system. The traditional ordering system brings inconvenience to both staffs and customers as it requires a lot of manual work. The manual work done by the staffs will cause some human errors such as give the incorrect bill to the customers, ugly handwriting of the waiter, incorrect sequence of the order. All these human errors will cause the customer dissatisfaction towards the restaurant. Therefore, this restaurant ordering system is designed and developed to help the restaurant to have a better management. By having this ordering system, the time of placing order has reduced. The customers do not need to wait to be served when they eat in the restaurant. The customers will be more satisfy at this ordering system.

The methodology that used to develop this system is throwaway prototyping methodology. This methodology is chosen because the system will be developed in a shirt time compare to other methodologies. Throwaway prototyping methodology also allows the developer to listen to the feedback of the end user to keep on working on the development to match the requirements of the end user.

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Introduction

Problem Statement

Nowadays, many restaurant using traditional restaurant ordering system to serve customers. In the traditional restaurant ordering system, the staff write down the foods that the customer order. The paper will then pass to the kitchen and the chef will start to cook. This has caused few inconveniences. The staff might make some errors while writing down the order. Sometimes, when the staff write in hurry will make the handwriting difficult to understand. The staff might lose the order paper and customers might also receive incorrect bill.

One of the problem that faced by restaurants that using traditional ordering system is the customers do not know the time for preparation for the food. Some of the customers might have next schedule after their lunch or dinner. They need to know the time preparation so that they can plan their schedule wisely. Especially when there is a lot of customers, the customers might think their order has been forgotten if their food still not yet be served in a long time. It will be good if there is an estimated time to prepare the food shown to the customers.

Furthermore, some of the customers might want to change their food or cancel their food. The customers are only allowed to cancel their order if the chef not yet start cooking. If using the traditional restaurant ordering system, the customers need to inform the staff, then the staff only inform to the chef. If there is a lot customer in the restaurants, the staff might forget to inform to the chef. The staff might also too late approach the chef and the customers are unable to cancel their order. This problem should be solved because it is inconvenient for the customers. It is much more convenient for customers if they can cancel their order themselves. They no need wait the staff to serve them and waste the time. A cancel button should be displayed so that the customers can cancel their order if the chef not yet start cooking.

Moreover, it is difficult to update the latest information to the customers. The availability of the dishes is according to the ingredients that bought every day. When there is lack of ingredients, the chef is unable to prepare some of the dishes. Therefore, it is difficult to inform every customer when they want to order. The staff might forget to inform the customers. As they have many things to do. If the customers already order and feel excited to taste the dishes, but the staff inform them the dishes is unable to order due to lack of ingredients. This will cause the customer dissatisfaction towards the restaurant. The brand image of the restaurant will be affected.

Background and motivation

People like to dine in at restaurant for their meals nowadays. There are a lot reasons why people prefer eating out. One of the reasons is they lazy to cook after work. People will feel tired after more than 7 hours of work. Therefore, they do not have any energy to prepare their meals. In addition, university students have a lot of works to do, such as assignments, tutorials and take part in curriculum activities. It will be more convenient if they eat in restaurant compare to they cook themselves. As more and more people eat in the restaurant, the restaurant manager should make some changes to increase the speed of ordering.

Traditionally, the customers need to interact with the waiters to place order. The waiters write down the foods that the customer order. The paper will then pass to the kitchen and the chef will start to cook. The customers have faced a lot inconveniences with this traditional method. For example, waiting to get the food served, received incorrect bill and many more. All this inconvenience will cause the customers unsatisfied on the service of the restaurant.

The customers are demanding simplification tasks such as book movie tickets nowadays. Therefore, restaurant also should make changes. With the new changes, the customers can make their order through restaurant ordering system. The customers do not need to wait to be served usually at the peak hours. After they order themselves using the ordering system, they just need to wait for the food.

In conclusion, this report is written to propose a restaurant ordering system. This system can help to improve the current ordering method. Furthermore, it also brings convenient to both restaurant and customers. After this project has done, this system will be very useful for many restaurants.

Objectives

- To develop a system that include the preparation time of food

By using this restaurant ordering system, it is easier to know the time preparation of the food. The customers might have their own schedule after their lunch or dinner. Therefore, they need to know the preparation time of food in order to plan their schedule wisely. During the peak hours, when their food is not yet being served in a long time, they might think that their order has been forgotten. By having this feature in the system, the customers can know the estimated time preparation of the food. They can check the estimated preparation time anytime and know that their order will not be forgotten by the chef.

- To ensure the customers can cancel their order

The restaurant that using traditional method include many steps when customers wish to cancel their order. The customers need to inform the staff, then the staff will inform the chef. In this restaurant ordering system, the customers can cancel their order without interact with the staff. They can just click on the cancel button to cancel their order. The customers can cancel their order with one condition which is the chef not yet prepare their food. If the chef started to prepare the food, the customers are not allowed to cancel their order. When the chef starts to prepare the food, he or she will change the status of the order. The status of the order will show to the customers so that the customers can know whether their order has prepared by the chef or not.

- To design a user-friendly system that provides latest information to customers

This restaurant ordering system allows both staffs and chefs to update the latest information of the menu to the customers. When there is lack of ingredients, the chef should be able to change the menu and the availability of each food. If the food is not available, the food will not appear in the menu. When the customers view the menu, they can't view the food. This can solve the problem of staff forgot to inform the latest information to customers. The user interface of the system should also be clean and clear and also attractive to the user. The system should be easy to use by the users. A user-friendly system is when the customers use the system in the first time, they know how to view the menu and make their order. The system also should not be complexity as the customers might do not know how to use it.
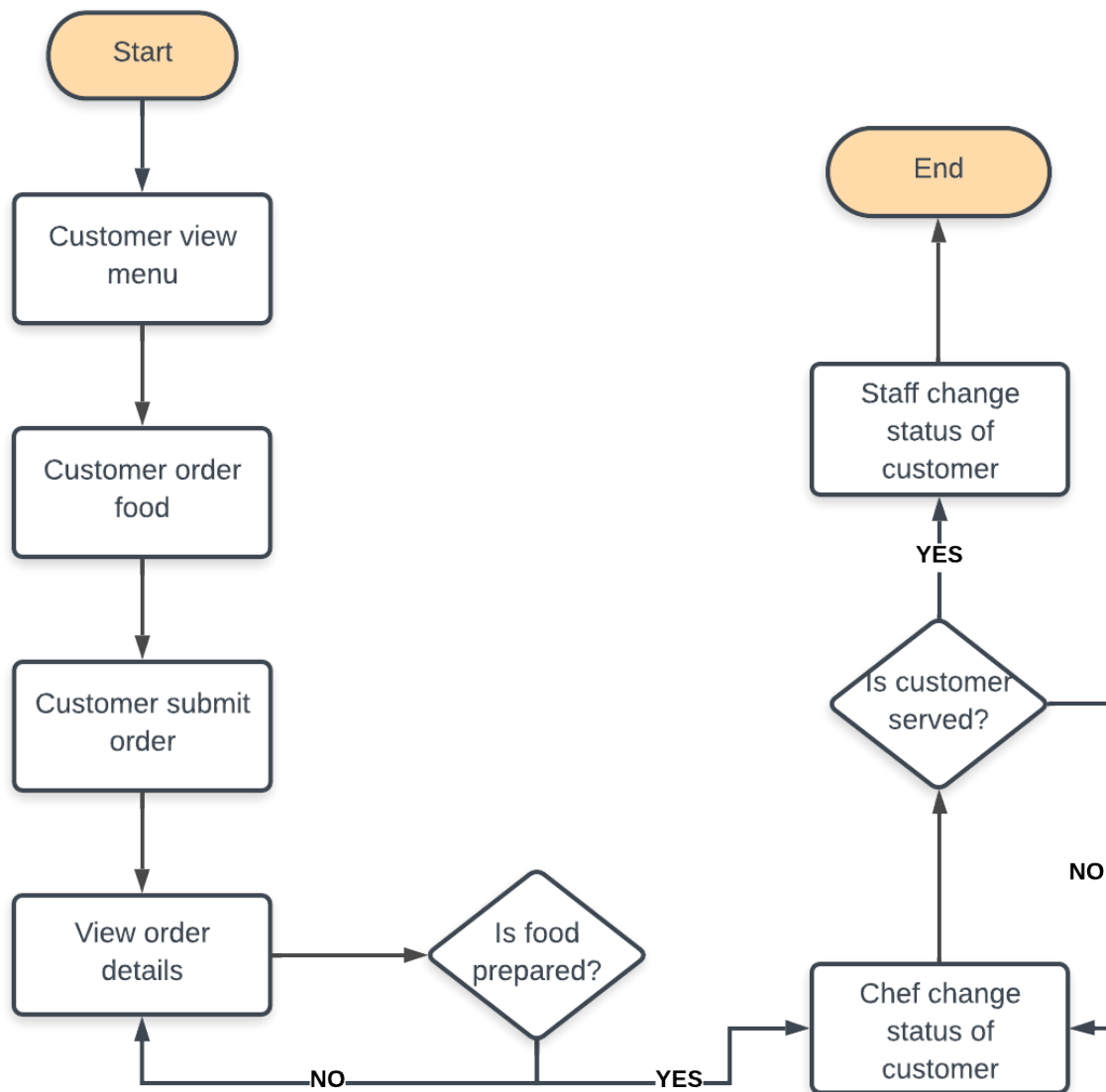
Proposed Approach/Study

Figure 1-1 System Flowchart of Restaurant Ordering System

Figure 1-1 shows the system flowchart of Restaurant Ordering System. When the customers walk in to the restaurant, the staff will serve the customers to sit down. Then, the customers will use the device that provided by the restaurant to view the food menu. Then, the customers can order their food. After the customers fill in the quantity of the food and the table name and submit the order, the chef and the staff will receive the order details of the customers. If the food is started to prepare, the chef will change the order status of the customers. After the food is ready, the staff will serve the customers with the food. After all the food has been served, the staff will change the status of the order.

Highlight of What Have Been Achieved

This restaurant ordering system is developed to solve the problems that will happen while using traditional ordering system. One of the problems that faced by restaurant using traditional ordering system is do not know the time of preparation for the food. This developed restaurant ordering system allow the customers to know the preparation time of their order. Therefore, they can easily plan their next schedule after their meal. Moreover, the customers might want to cancel their food. If using traditional ordering system, the cancellation of order includes few steps. However, in this restaurant ordering system, the customers can press cancel button to cancel their order. The chef will know it from the dashboard of the system. Furthermore, it is difficult to tell all the customers the latest information of the menu when taking order of customers. The staff might forget to inform the customers. With this restaurant ordering system, the staff can update the latest menu information. The staff does not need to inform verbally to customers one by one anymore.

Literature Review

Wireless Food Ordering System

Nowadays, internet is widely used in everywhere. People use internet to perform their tasks every day, such as chat with family and friends, communicate with colleagues, search information and many more. Internet is very convenient to the people as almost everything can be done by internet. The telecommunication and internet has growth rapidly. There are some industries starting to apply this technology into their business. This will help their business be more efficient.

The user can access to data and services from a remote server, which will allow the user to access the databases across the network or internet. Most of the handheld devices support this wireless technology because they allow the user to access the database to retrieve the data. People nowadays use mobile devices to work and access with data and information. It is because the mobile devices are cheap and small. PDA which is Personal Digital Assistant is the mobile device that suitable for business applications. They have the ability to access data and information from remote locations (Khairunnisa, K et al, 2009).

In this ordering system, the waiters take the orders from the customers by using the PDA. Then, the waiters will send the order to the kitchen via web-based wireless application. The order of the customers will be displayed on a computer screen in the kitchen. The kitchen staff will refresh the list when the food is ready to be served. The waiters will be informed through the PDA. Then, they will serve the food to the respective table. This system will increase the efficiency of the services as the waiters do not need to take an order using paper anymore.
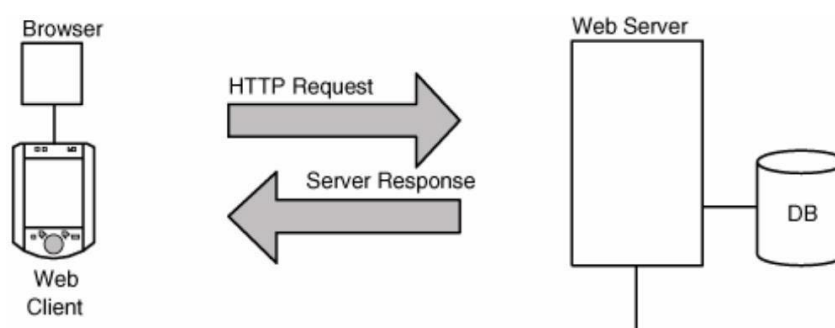

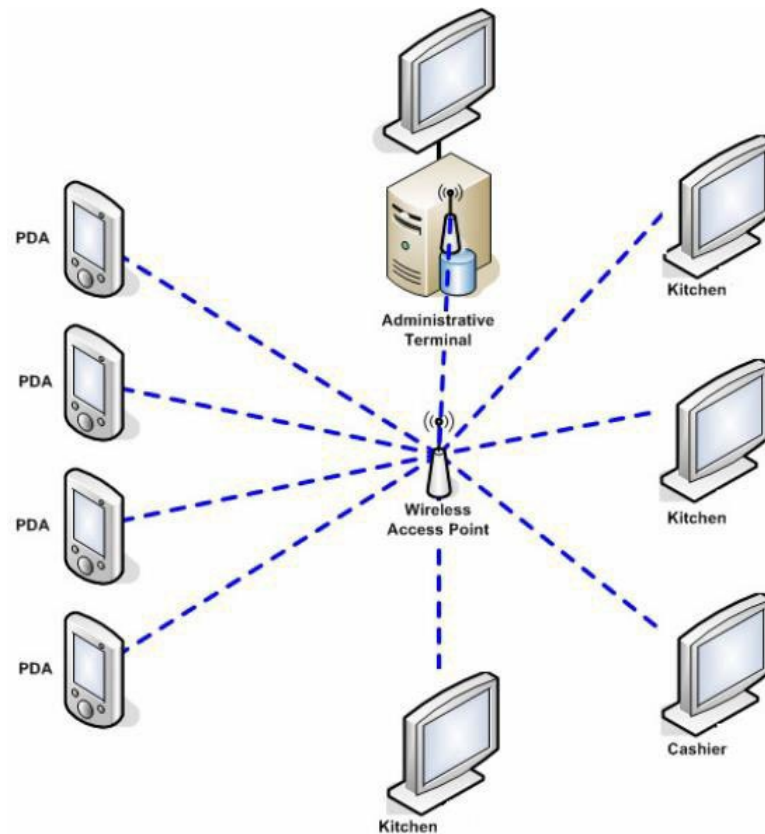Figure 2-1 Mobile Applications: Architecture, Design and Development

Figure 2-2 Logical Wireless Diagram

The strength of this system is the time in taking order has reduced. The waiter does no need to walk to the customers and take the order from them. They also no need to walk back to the kitchen to inform the chef what food has ordered. The customers can just make their order through the PDA and the order will display in the kitchen. Especially during the peak hours such as lunch time and dinner time, the customers do not need wait for a long time to be served.

The weakness of this system is it does not support real-time feedback. The customers are not allowed to provide their feedback after they finish their meal. It is because PDA can only use to make their order. PDA do not provide any order status feedback to let the customers to fill in.

This system and the proposed system have the similarity which is the time in taking order is reduced. Both of this system do not need the customers wait to be served. They can place order

themselves using the system. The proposed system also does not support the real-time feedback. If the customers want to give feedback, they need to speak directly to the staff.

Point of Sale System

Point of sale system which is also known as POS system, is a combination of hardware and software that allows the staff to perform some tasks. There are a lot of businesses using this system to operate their daily transactions including restaurants, hospitals and hotels.

POS system includes few hardware such as display pole, printer, handheld device, terminal and cash register. Display pole is used to show the price of the item when the item is scanned. Printer is used to print the receipt after the customers make their payment. Handheld device is used to accept the credit card payments from the customers. Terminal is the main screen that use to fill in the transaction details. Cash register is used to keep the cash. When the staff receive the cash from the customers, they keep the money inside the cash register ("Software Testing Help", 2018).

When the customers go into the restaurant, they either make their order first at the counter or wait to be served by the waiter. If the restaurant requires the customers to order first, they need to queue up at the counter and make their order. Then, they only find their seats in the restaurant. The another way is the customers find their seat when they reach the restaurant. The waiter will serve the customers and help them to make the order.
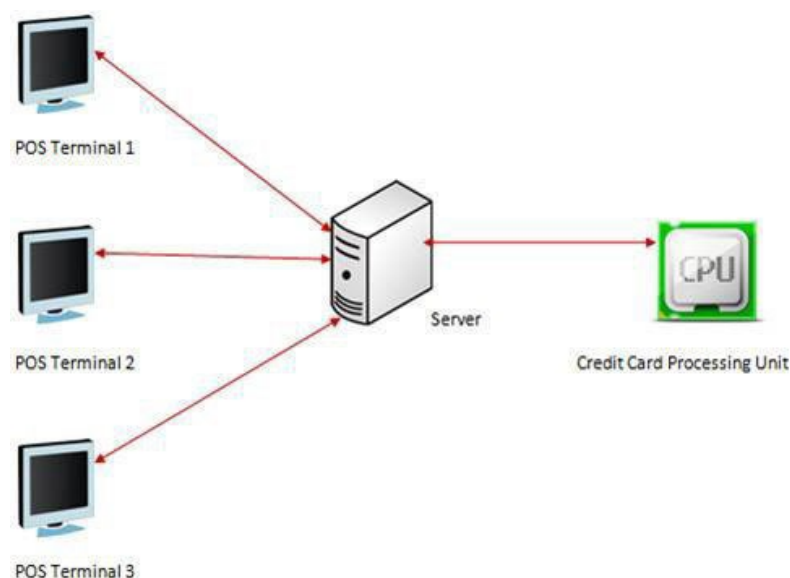

Figure 2-3 POS Architecture Diagram

A restaurant might have more than one POS terminals. All terminals of the restaurant are connected to a file server. The configurations and settings are done on the server, then send back to the terminals. If the restaurant accepts credit card for the payment, third party provider is involved to perform the credit card processing. The data will send to the bank or third party when the staff perform credit card transaction.

The strength of this system is it can reduce the time of taking order. This also can improve the satisfaction of the customers. By using this system, the duration of taking order is fast. It also can reduce the mistakes that will done by the staff. It allows the staff to track the sales of the restaurant. The staff is allowed to generate daily and monthly sales report through this system. The staff also can view the history of all orders.

Limitation of this system is the customers are tired of waiting on the queue. During the peak hours such as lunch time and dinner time, there are a lot of customers in in the restaurant. The customers need to wait for a long time to wait for their turn. Some of the customers might lose their patience and walk out from the restaurant.

The differences of this POS system and proposed system is POS system requires the customers to queue up at the counter to make their order. This system also allowed to be used by the staff only. The customers do not use the system directly, but they make the order through the staff. However, the proposed system let the customers to use the system themselves. They place their order themselves through the system.

Comparison Between Similar Systems

System / Function	MMCall	Poster POS	Domino's Pizza	Proposed System
Require staff to perform transaction	Yes	Yes	No	Yes
Fully automated	No	Yes	Yes	No
Portability	Yes	No	Yes	No
Menu management	No	Yes	Yes	Yes
Online ordering	No	No	Yes	Yes

Table 2-1 Comparison between existing systems with proposed system
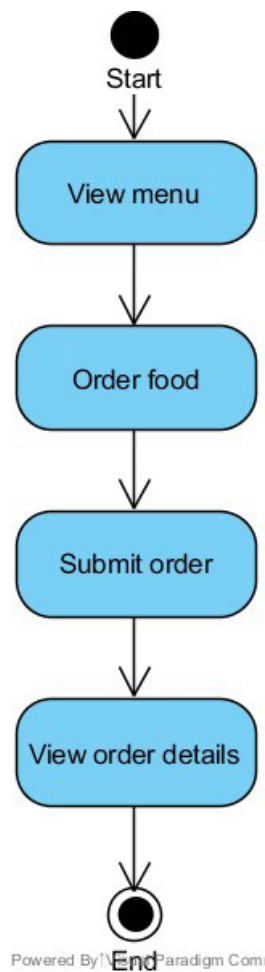
Activity Diagram

Figure 3-1 Activity Diagram for Customers to Place Order

The customers can view the menu through the device that prepared by the restaurant. After they made their decision, they can order the food through the device. The customers need to enter the table number and the quantity of the food in order to order the food. After the customers press submit button, the staff and chef can view the order details of the customers.
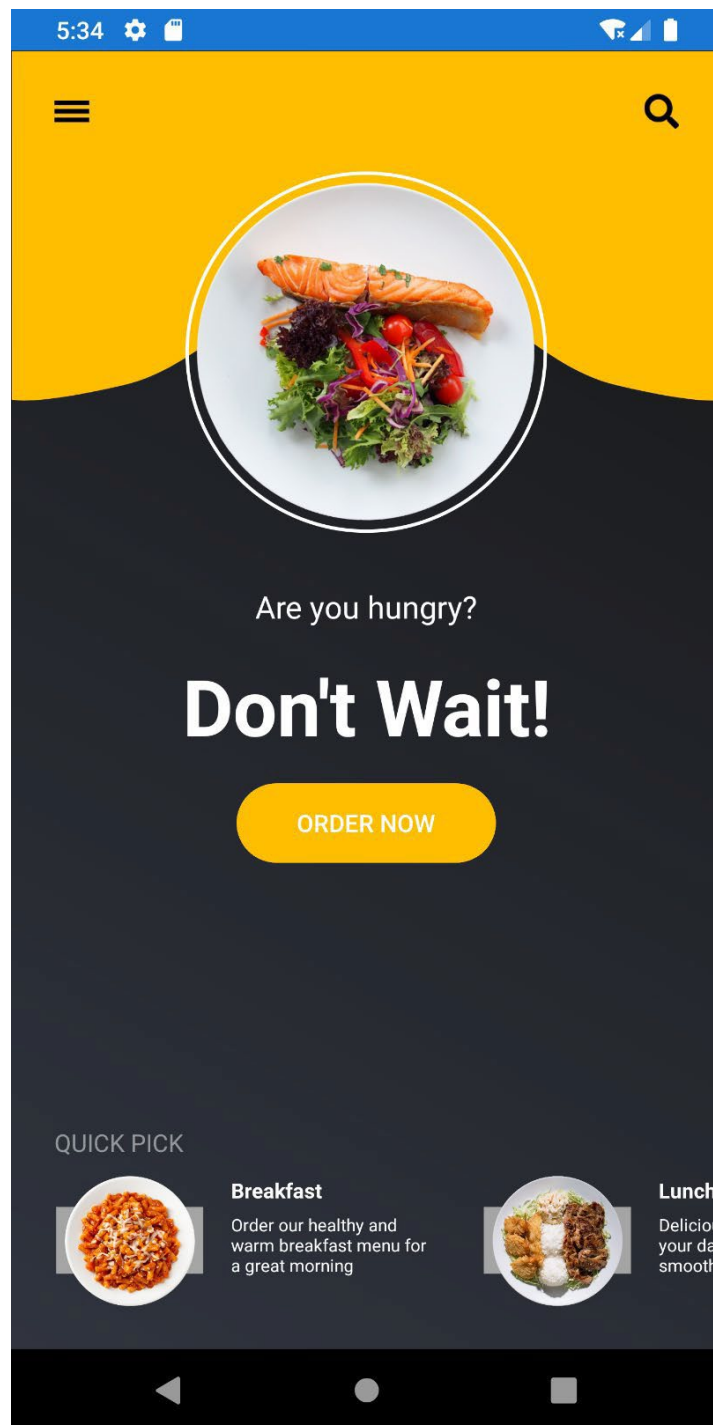
User Interface Design

Figure 3-1 Home Page

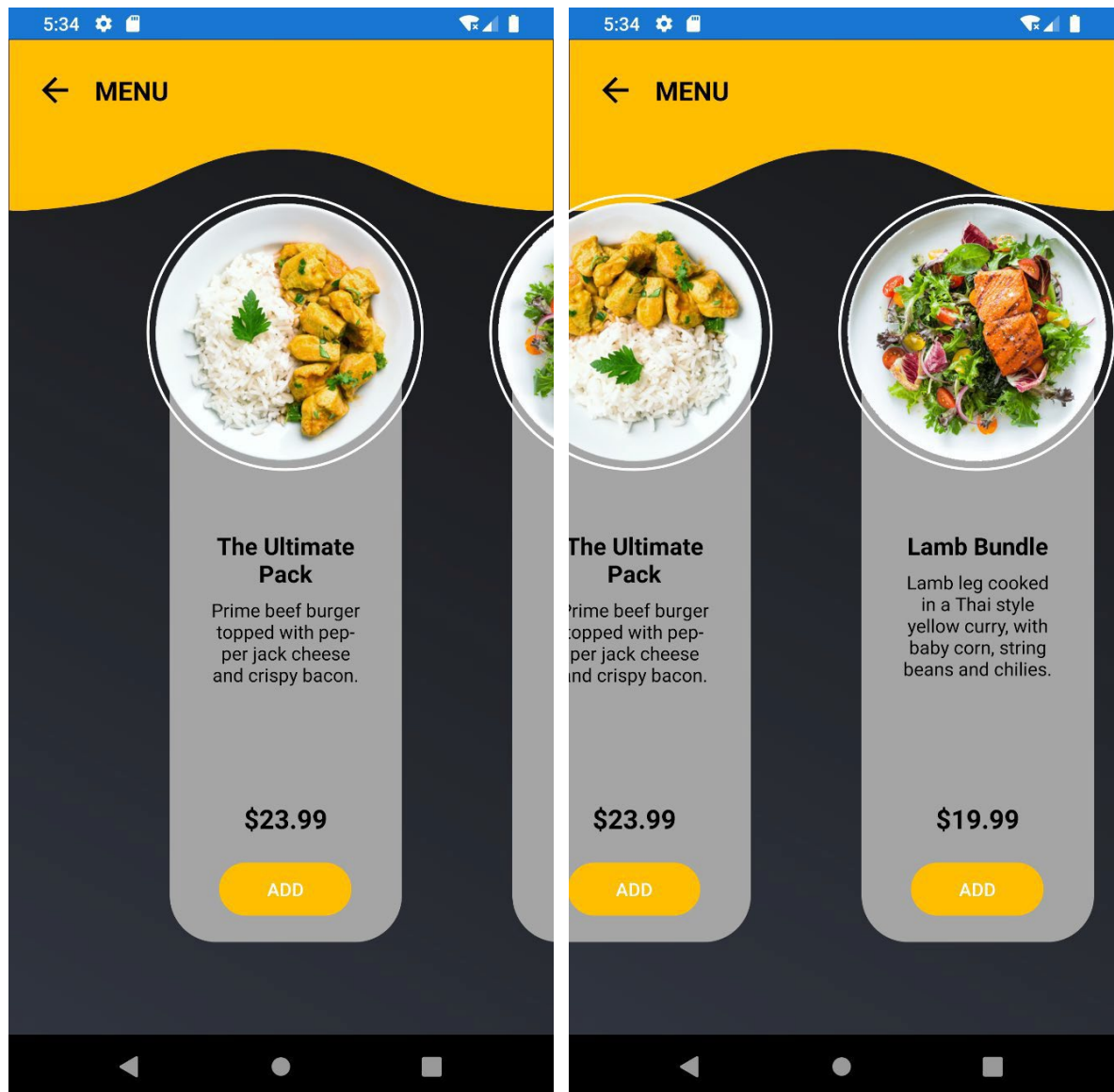This is the home page of the system. The customers can click on the place order button to view the menu..

Figure 3-2 Menu Page

After the customers click the place order button, this page will be displayed to the customers. The customers can choose the category to view the food. If the customers wish to order the food, they can click on the order button.

Methodology

The methodology that used to develop this system is Throwaway prototyping. Throwaway prototyping model is fast and cheap to design. It is suitable to use when the needs of the users are unclear. By using this model, it can ensure that the system requirements are validated and that they are clearly understood. Once the requirements are cleared, the systems will be developed from the beginning. The actual prototype can be discarded when the appropriate knowledge has been required. Throwaway prototyping can develop a system in a short time compare with other methodologies. When using this methodology, the user can receive the feedback from the end users and keep on working to develop a system that match the requirements of the end users.
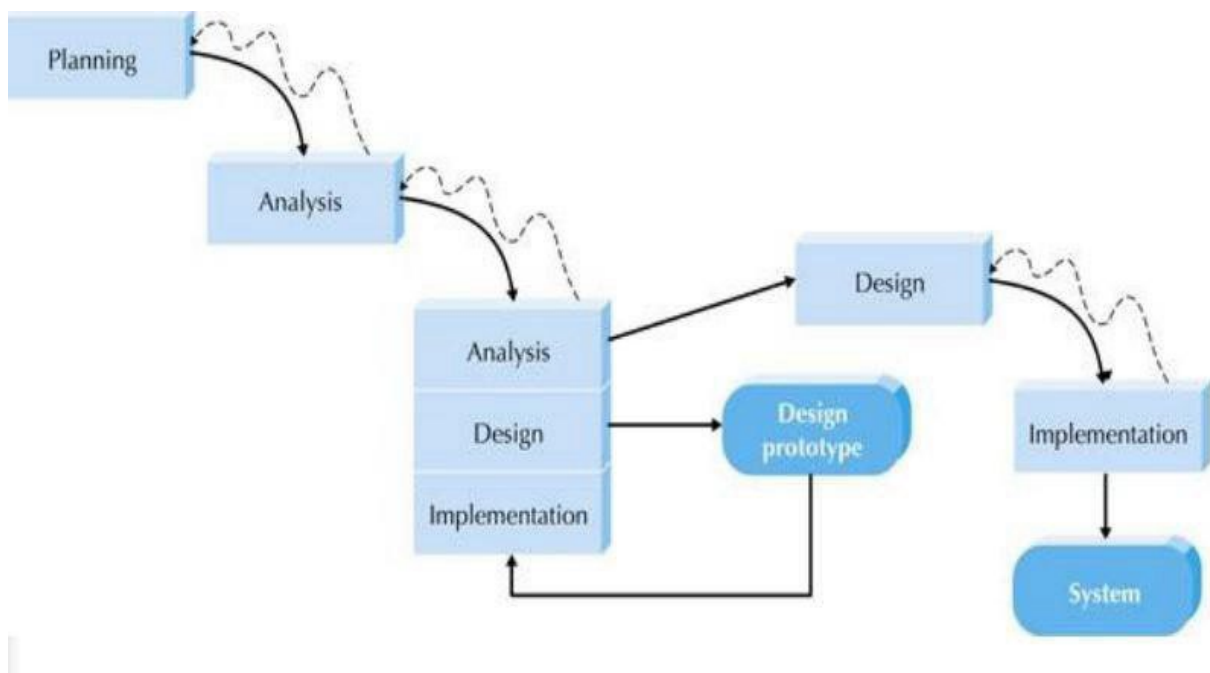

Figure 4-1 Diagram of Throwaway Prototyping model

Tools

- Xamarin.Form

Xamarin is an ***open-source platform*** for building modern and performant applications for ***iOS***, ***Android***, and ***Windows*** with .NET. Xamarin is an abstraction layer that manages communication of shared code with underlying platform code. Xamarin runs in a managed environment that provides conveniences such as memory allocation and garbage collection.

Requirement

- Pc
- Visual Studio
- Operating System(windows11pro)

Conclusion

Nowadays, the innovation of technology brings a lot of convenience to the people. Many company use management systems to grow their business as it is efficient for both sellers and customers. The food and beverage industry also started to follow the trend to use management system for their business.

Many restaurants that still using traditional ordering system will face few difficulties and problems such as careless of waiter, ugly handwriting of waiter, give wrong bill payment to the customers. All of these problems will cause the dissatisfaction towards the services of the waiter and the restaurant. This will also affect the brand image of the restaurant.

The traditional ordering system also difficult to update the latest information to the customers. The staffs are required to remember the latest information so that they can inform the customers. If the staffs forgot to inform to the customers, the customers might disappoint at the services of the restaurant.

In conclusion, this system helps to increase the productivity and efficiency of the restaurant. It reduces the manual work of the staff. By having this ordering system, the customers can make their order through the system. Then, the order will pass to the kitchen. The chef will start to cook when they see the order of the customers. Everything is done by the system and the staff just need to serve the food to the customers and wait for the customers to make the payment.

Project Discussions

Restaurant ordering system is developed to benefits the restaurant by reducing the workload of the staff. This restaurant ordering system solve many problems of traditional ordering systems. The first objective of this system is to develop a system that include the preparation time of food. In this system, the customers can view the preparation time of food. Therefore, they can plan their schedule wisely after their lunch or dinner.

Furthermore, to ensure the customers can cancel their order is also one of the objective of this system. By using traditional ordering system, to cancel the order includes few steps. By using

this system, the customers can just click on the cancel button to cancel their order. When the chef not yet start to prepare their food, the customers are allowed to cancel their order. This can increase the satisfaction of the customers.

Moreover, third objective of this system is to design a user-friendly system that provides latest information to customers. The staff and chef can change the menu according to the availability of the food ingredients. Having a user-friendly system is also important as it will affect the brand image of the restaurant. The user interface of this restaurant ordering system is clean and clear. The dashboard for staff and chef also clean and neat.

Future Work

More and more restaurants start to implement own ordering system. It is because the system helps to enhance the productivity of staffs. Restaurant ordering system not only benefits the restaurant, it also benefits the customers. The customers can make their order in an efficient and fastest way.

In future, the system can be improved by generate a QR code. By having this QR code, the restaurant does not need to provide the device to let customers make the order. The restaurant only need to link the QR code with the system. When the customers walk into the restaurant, they can use their own phone or device to scan the QR code. After scanning the code, they can view the menu and place the order.

Moreover, the system also can be improved by accepting different types of payments such as credit cards and debit cards. By implementing this function, the customers do not need pay the bill by cash in the counter. They can pay the bill through online payment gateway.

Furthermore, sometimes it is difficult to call the staff when the customers wish to request for something. The staff might not hear the voice of customers as they are busying serve the food. Therefore, a feature that can call staff through the system should be implemented. When the customers click on the button, the staff will immediately know which table is calling them.

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RESTAURANT ORDIRING SYSTEM

INTRODUCTION

Nowadays, people like to dine in at restaurant for their meals. Without restaurant ordering system, the customers faced a lot inconveniences such as need to wait to be served, receive incorrect bill and many more. Restaurant ordering system should be apply into the restaurant to provide a better service to customers.

OBJECTIVES

. Keep track record of customers

Ensure food order in sequence

User-friendly system

METHODOLOGIES

Throwaway Prototype
Development Model

RESULTS

The customers can view menu and place the order. The staff can manage the menu. The chef can change the status of customer's order.

CONCLUSION

This system allows customers to make their order without wasting time. They can view the menu and make the order and do not need to wait to be served.