

# Online Food Ordering System with Short Message Service Notification

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## Abstract—

**O**nline food ordering systems is one of the most popular online businesses nowadays. Various type of food can be ordered through online shopping such as fast food, bakery, vitamins and others. People like to shop online as it will save shopping time and they can place the order anytime and anywhere. However, the existing online food ordering systems still have lacking of some aspects for e-commerce that are important for customer satisfaction. Customer would find their experience most enhanced when the online system give flexibility for the customer to choose the delivery method and receive the notification on the ordering status. Therefore, the online bakery system, Cakes by Fara (CBF) is developed as a solution. CBF is an online food ordering system for bakery that implements the Short Message Service (SMS) technology to notify users when the order is ready for pick up at store or delivered and give flexibility in delivery options to the customer. Rational Unified Process (RUP) method is used as the methodology for the system development.

**Keywords—** Online food system, Short Message Service, E-business, notification

## I. INTRODUCTION

Online business, also known as e-business or electronic commerce, refers to transaction and the activities that been performed by customers and seller over the internet[1]. The process is quite similar with normal business, but the difference the online business is facilitated by the web-based technologies. Electronic markets have the advantages to get more profit compared to the traditional way since the peoples nowadays are more interested to do shopping online rather than going to the shop. By doing online business, the product can be market everywhere and it will reduce the operation cost. the Examples of online business that are eBooks, food ordering, flight ticket, hotel booking and others.

Online food ordering systems are one of the most popular online businesses products. Various type of food can now shop through the internet such as fast food, bakery, vitamins and others. Customers able to view and select their favourites food from the list, add to cart, choose the delivery types, make payment and the order is complete. However, most of the existing online food ordering systems still do not have the notification and delivery services features which are important for customer satisfaction.

The aim of this paper is to develop an online food ordering system for bakery with a short messaging system (SMS) that capable to notify on the status of order and give flexibility in delivery options to the customer.

## II. LITERATURE REVIEW

E-commerce representing not only the ability to buy and sell goods and services through the digital medium such as the internet, but also the ability to automate the entire process of selling and buying. There are a number of features for e-commerce that are important to run a business including searchable product catalogue, customer account manager and SMS notification service[2].

Study by [3] on online shopping customer experience shows that the customer would like the retailers to improve on some online features such as online tracking ability, flexibility on delivery options and number of shipping options. Tracking services to the customers can be made via online system or through the email/ short messaging system (SMS) notification. The survey also found that the experience of the online shoppers can be improved by having delivery notifications to acknowledge the customer regarding the delivery time and ability to select the preferred delivery location. Customers also expect a flexibility of delivery options. The delivery option usually is limited to self-pick up or delivery only. The survey also indicated that tracking is also important for customers to track their order status. Customers want a notification or text alerts that notify the customer when the order is ready to be pick-up or the time of delivery because it will become problem if the customers are not at their place when their orders is delivered.

The technology of SMS is define as a communications protocol used to deliver a text message, up to 160 characters, via Global Systems for mobile Communication (GSM) enabled mobile phones[4]. The SMS services required a information on customer's mobile phone number based on the registration process. The SMS is analyzed and send to the

different processing center mobile phone according to the specified service code [5]. In addition, the sender message is stored in a central short message center which then forwards to destination mobile. In case of recipient is not available, the message is stored and will be send later on. SMS gateway is a device or service offering SMS transit. It can transform messages to mobile network traffic from other media or vice versa, allowing sending and receiving SMS messages without the use of a mobile phone.

### III. REVIEW IN EXISTING ONLINE BAKERY

The analysis is conducted to review the existing online system in terms of delivery services, SMS notifications, date for order delivery and options for delivery features. Table 1 shows the result of the comparison analysis for three online bakery system.

Table 1: Comparison of existing bakery online systems features

	Bakery 1	Bakery 2	Bakery 3
Delivery Services	X	X	✓
SMS notification	X	X	X
Date for order delivery	X	X	✓
Options for delivery	X	X	X

As can be seen from the table, the existing bakery online system still lacking of the SMS notification and options for delivery features. Bakery 1 and Bakery 2 do not provide delivery services for their customers. They only provide self-pickup method only. The order confirmation and pickup date for Bakery 1 need to be provided through phone. On the other hand, customers for Bakery 2 need to print the order details and bring to the selected store for pick-up. Only Bakery 3 provide delivery services and the information on date for order delivery. Thus, the proposed online food ordering system for bakery, Cakes by Fara (CBF) will consider all these important features in improving the customer satisfaction level.

### IV. METHODOLOGY

Rational Unified Process (RUP) is web enabled and program development methodology that guides to align object-oriented development activities. RUP recognizes the full benefits of the Unified Modeling Language (UML) and optimizes its usage. UML is an object oriented approach which uses graphic notation and diagram such as use case, sequence diagram and class diagram to depict the whole system. This technique is suitable to be used to analyze and design this system. RUP establishes four phases of development, each of which is organized into six workflows that must satisfy defined criteria before the next phase is undertaken. Four phases of development in RUP in this system are as follows:

#### 1) Inception Phase

The main objective of the inception phase is to determine the objectives and scope of the system to be developed.

#### 2) Elaboration Phase

The purpose of the elaboration phase is to analyze the problem domain, develop the project plan. Requirements analysis and preliminary system design are also carried out in this phase.

#### 3) Construction Phase

In this phase, developer develops the system using programming language PHP ,CSS and JavaScript. Every use case involve in this system are implement by coding development.

#### 4) Transition Phase

During this phase, system testing has been carried out to ensure system meets all requirements specification and goals defined in inception phase.

### V. SYSTEM DEVELOPMENT

The case diagram provides a representation about the system in diagram to show how the actors interact with the functions of the system. Actor is a person that takes part actively in the system within an organization or environment. There are three actors involved in the system which are non-registered user, registered user and administrator. Figure 1 shows the use case diagram for customers. Non-registered users are the people who have limited access to the system whilst registered users are the people who have more privilege to access the system. Non-registered users are able to view product, add to cart and view chart or order details only. Registered users are able to purchase product, receive SMS notification, edit profile, view purchased product details, cancel order, print receipt and view order status history.



Fig. 1 Use Case diagrams

Administrator is the person who in charge of controlling and maintaining the system. Admin is able to manage order status by changing the order status from pending, paid deposit, paid-full, and complete. Admin also able to send notification via SMS once the customer order is complete and ready to be delivered or pick-up. Figure 2 shows the activity diagram for SMS notification for administrator.

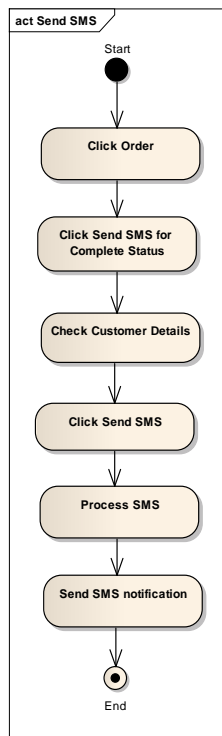


Fig. 2 SMS notification activity diagram

There are five menus for customers - Home, Order History, View Product, Contact Us and Edit User Profile. From View Product menu, customers are able to view the list of products and add to cart as shown in Figure 3. The details of cakes including category and price of the product can be view by clicking at the image of the cake.



Fig. 3 List of products

Figure 4 shows the interface of the chart when the check-out button been clicked in the previous figure. From this menu, the customer is able to set the date of pickup or delivery and choose the method of receiving the product either via delivery service or self-pickup. The customer's delivery address needs to be provided if the customer choose the delivery service to the different address used during the registration.

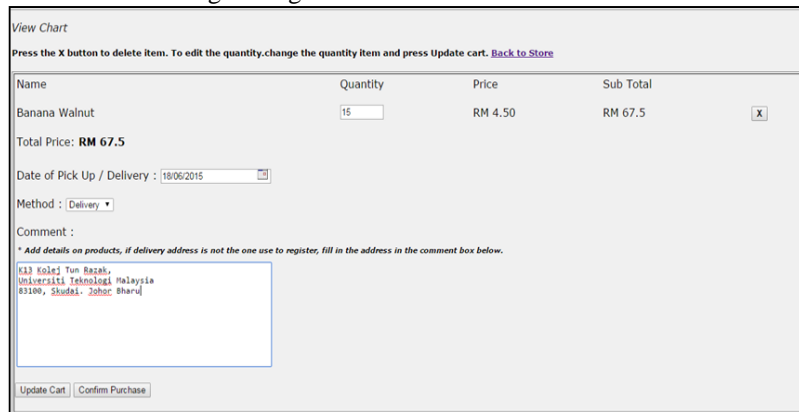


Fig. 4 Purchase product details

Administration is able to view the list of order made by the customers from the orders menu as shown in Figure 5. Admin can view the details of order by clicking at View Details button and Send SMS to customers when their order is ready.

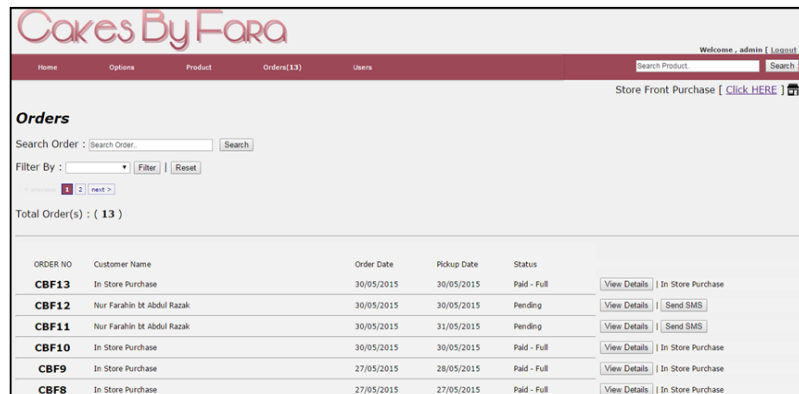


Fig. 5 Order menu

Administration will update the status of customer order according to the situation from the menu shown in Figure 6. Pending status is set when customer just made order without payment. The status will change to cancel when customer cancelled their order. Paid-Deposit status is set when the customer has made deposit payment for the purchased products and Paid-Full status is set if when the customer has complete the payment. Complete is the status to notify the customer that the order is ready and the notification also been made via SMS to inform the customers that the product is ready to be pick-up or delivered.

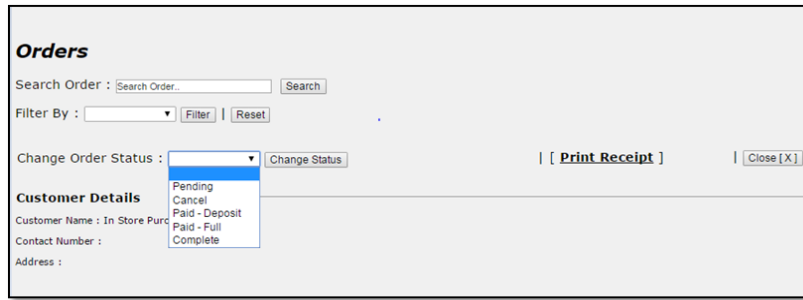


Fig. 6 Change order status menu

Figure 7 shows the example of SMS notification message received by the customer.



Fig. 7 SMS notification

## VI. CONCLUSIONS

The online bakery system with Short Messaging Services (SMS) notification is able to improve the performance of existing system by including the delivery services, SMS notifications, date for order delivery and options for delivery features. The notification is made using SMS by using the registered phone number to notify the customer when the order is ready to pick up or delivered. This system can be enhanced to produce a better online system by adding the email notification features for order confirmation with official receipt.

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