

Web based Online Bakery System with Short Messaging Service and Email Notification

Nur Farahin A.Razak, Noorfa H. Mustaffa , Nor Haizan Mohamed Radzi, Roselina Sallehuddin, Erne N. Bazin

Department of Computer Science,

Universiti Teknologi Malaysia,

Malaysia

nurfarahin@yahoo.com, noorfa@utm.my, haizan@utm.my, roselina@utm.my, erne@utm.my

Abstract— Online shopping is becoming trend nowadays. People like online shopping compared to the traditional way to save their cost and time. Cakes By Fara (CBS) is an online bakery ordering system where various types of cakes are the main product to sell online. The paper is aiming to develop a web based online bakery system using Short Message Service (SMS) as well as email notification technology for order confirmation, order status notification and verify of customer's status of registration. There are three main users for the system which are registered customer, non-registered customer and administrator. Registered customers have more privilege in the system compared to nonregistered customers as they able to purchase the product online and received the notification through email and SMS. Rational Unified Process (RUP) methodology is used to develop the system.

Keywords—e-commerce; online shopping; web based online system; bakery system

I. INTRODUCTION

Electronic commerce or e-business is the business transaction and the activities such as buying and selling the products, services or information that been performed via internet[1].

People now are busy with their daily work and have no time to go for shopping at the shop. They are prefer online shopping compared to the traditional way as they can find the desired product, compare various products, placed the order and made payment online at anytime and anywhere.

Food is one of the most popular products that sell online including fast food, bakery and vitamins. Customers are able to buy their favorite food quickly without need to leave the house. However, most of the existing online foods ordering systems still have weaknesses in term of the notification of order and delivery service. Customers require notification or text alerts regarding the delivery time for the product ordered to make sure they are available when the orders is delivered. The tracking service can be performed directly either via email or text messaging.

Hence, the web-based bakery online system called Cakes By Fara (CBS) is developed that cooperate the Short

Messaging Service (SMS) and email technology for notification.

The organizations of this paper are as follows. Section II provides the overview of important aspects for online shopping system. Section III describes the methodology adopted to develop the system, the design and the user interface of the systems. Conclusions and future works are presented in section IV.

II. LITERATURE REVIEW

Some aspects of customer satisfaction have grown over the past decade. In delivering the best customer experience, the overall online shopping process should be enjoyable and simple. The E-commerce process architecture consists of several features including access control and security, catalogue management, search management and event notification [2].

Result from survey conducted by [3] revealed that the tracking ability is a significant factor with customer satisfaction. The online shoppers would like to track their order status directly either from the retailer's website or through the text or email notifications.

Short Message Service (SMS) has gained popularity with the increases of the mobile device users. The service is available on Global System for Mobile Communication (GSM) networks that enable the mobile device users to send and receive the short messages up to 160 characters.

E-mail is the most dominant method of computer-mediated communication (CMC) that used in the organizations as it more reliable and efficient [4]. According to [5], the best communication technique to implemented should be based on timing where SMS should mainly be used for critical, urgency and important information that requiring the user to take an action such as delivery schedule whilst email is more appropriate to be used for deliver a basic information to customer which is not time-sensitive such as confirmation of successful signups and orders.

While doing online business, delivery services is an important services that retailer should provide. This is because not all customers who purchase their product have time to do self-pickup. Hence, online shoppers also need to provide a variety of delivery or shipping options such as self-pick-up, rescheduling or re-routing the delivery location [3]. Regardless of the value or importance of items purchased, customer would find their experience most enhanced by receiving automatic delivery notifications. The experience of the online shoppers experience can be improved with the delivery notifications to acknowledge the customer regarding the delivery information. The proposed system takes into account this aspect in order to develop a good online shopping that can satisfy the customers.

III. SYSTEM DEVELOPMENT

Rational Unified Process (RUP) is implemented as the methodology to develop the proposed system. RUP establishes four phases of development (inception phase, elaboration phase, construction phase and transition phase). The features that required in the system are determined at the inception phase. The flow of the proposed system is designed by using the use case diagram and sequence diagram at elaboration phase and the developer transform the design to the systems using PHP, CSS and JavaScript programming language at construction phase. Finally, the testing been carried out at transition phase to ensure the system meets the requirement defined in inception phase.

The customers for the system are categorized into non-registered and registered customers. The non-registered customer only be allowed to view the products at the product menu and they need to register in order to purchase the product. The registered customer also has privilege on the system to check their order history and received the order and delivery notification.

The bakery store owner is act as an administrator of the system and has full control of the system in term of maintaining the database of the system and the web application performance. Administrator can manage product by add, edit or delete product, upload image of the product, add or edit the category of the product, view order details by customers, able to send email and SMS notification, change order status, print receipt and view list of registered customers. Figure 1 shows the use case for administration.

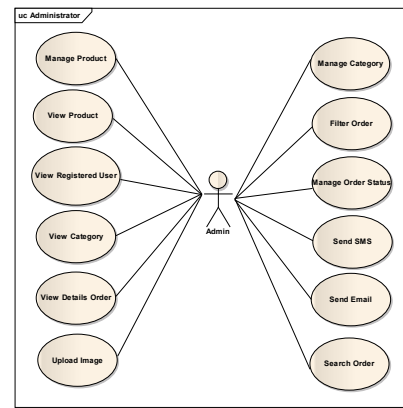


Fig. 1. Use case diagrams for administrator

The notification will be delivered by administrator to the customers via SMS once the order is ready for delivery or pick-up at store. Furthermore, administrator is also able to send email to customers for verifying the customer's email after registration process and when the order status has been change. Figure 2 and 3 show the sequence diagram of the process to manage the order status and SMS notification.

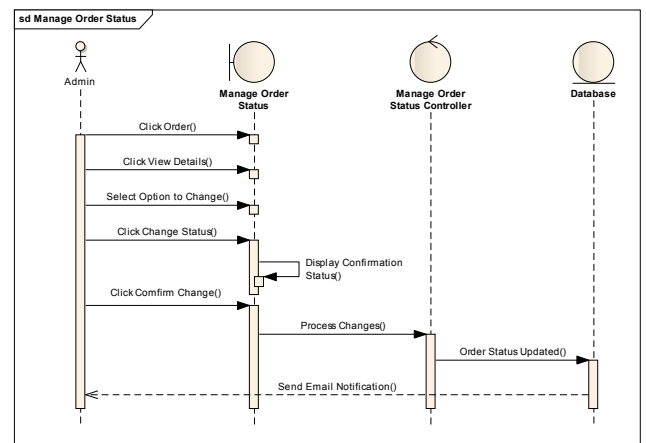


Fig. 2. Manage order status sequence diagram

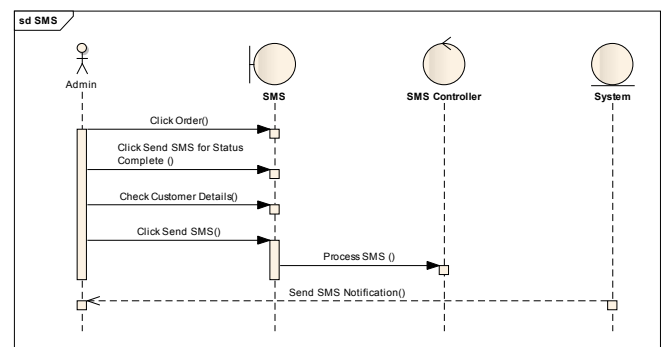


Fig. 3. SMS sequence diagram

There are five main menu that can be accessed by the administrator including Home, Options, Product, Orders and Users menu as shown in Figure 4.

Admin have full privilege in monitor and handling the system. Store Front Purchase menu is also available in the system to record the order from the customers who walk in to premise and buy cake directly from the store. Admin will key in the details in this section as references.



Fig. 4. Menu options for administration's site.

A new customer has to register in order to purchase the product. Once the registration is completed, email will be automatically sent to the customer's email with their login credential as shown in Figure 5 for validation.

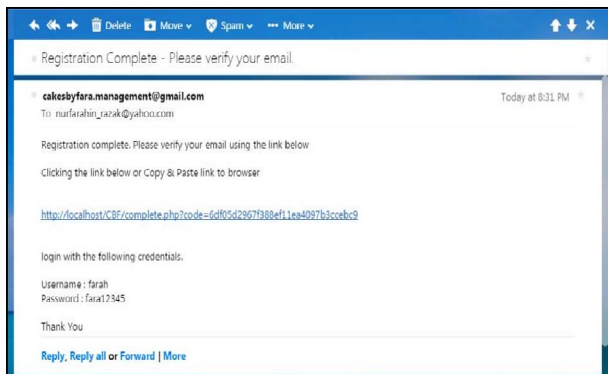


Fig. 5. Email notification for validation.

Customers are able to view the list of products from the View Product menu as shown in Figure 6. The details information of cakes such as the category and price can be view by clicking the image of cake. To purchase the product, customer just needs to click the "Add to Cart" button.

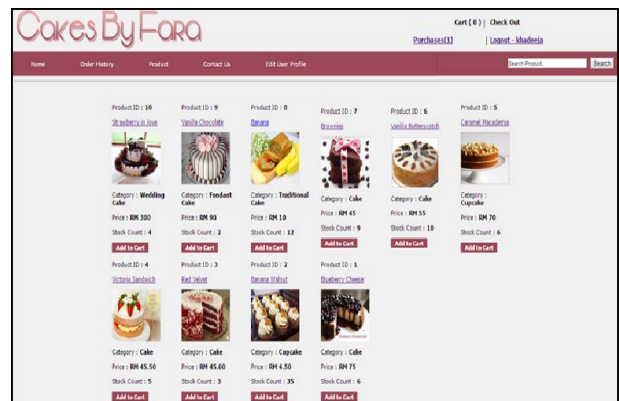


Fig. 6. Menu options for customer's site.

After customers have confirmed purchase, an email will automatically send to their registered email account as in Figure 7.

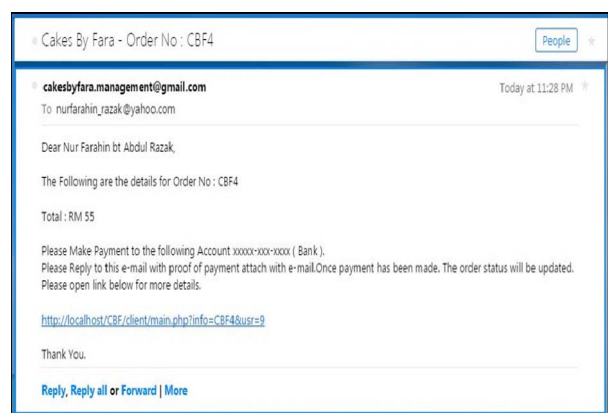


Fig. 7. Purchased email notification

The list of order made by customers can be viewed by the bakery owner via order menu site as shown in Figure 8. The list includes both the order made by customers through online and customers who did in store purchase.

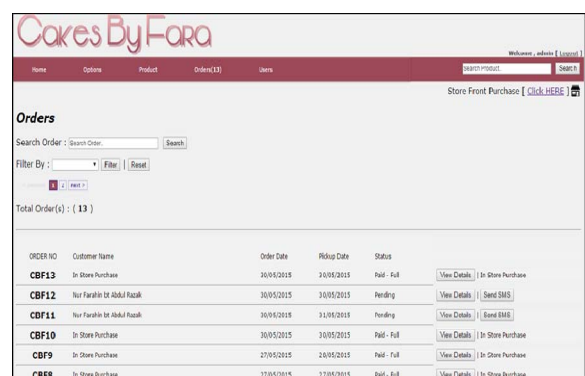


Fig. 8. Order menu site.

Admin is also able to change order status depending on the situation. There are five options include Pending, Cancel, Paid-Deposit, Paid-Full and Complete. Pending option is when customer just made order without make payment. Cancel is when customer cancelled their order, Paid-Deposit means customer has made deposit payment, Paid-Full if customer has complete their payment and Complete option is when the order is ready. Email is sent automatically to the specific customer every time the status been changed by admin as in Figure 9.

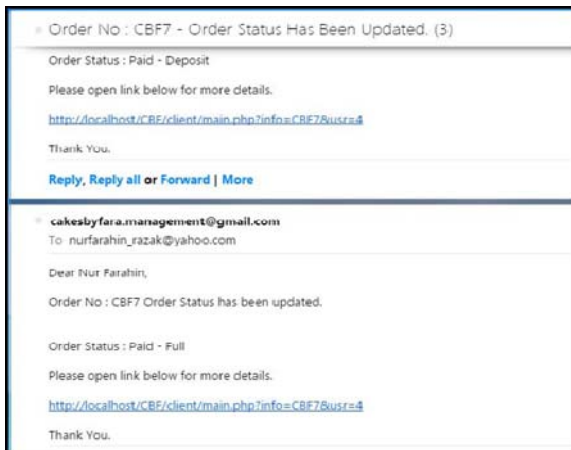


Fig. 9. Order status email notification

Once the order is ready, admin is able to send SMS to customers via SMS function as shown in Figure 10.

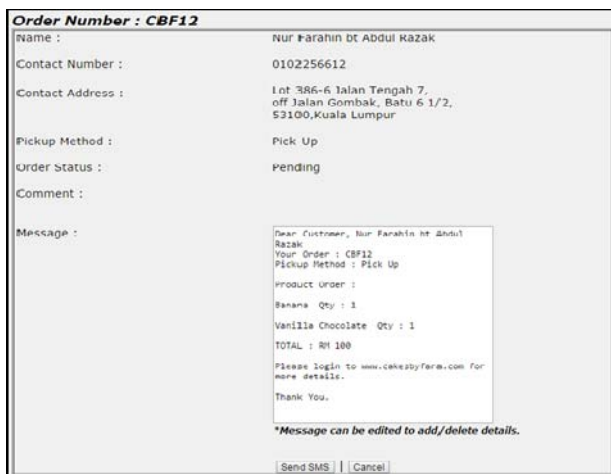


Fig 10:Send SMS menu

Customer will received the SMS notification of delivery or notification of pick up based on the delivery option choose during the order placement as shown in Figure 11.



Fig. 11. SMS notification

IV. CONCLUSION

The web based online bakery system with Short Messaging Services (SMS) and email notification has been developed by cooperating the variety of delivery options as well as notification services. The notification is delivered to customers via SMS in order to notify the customer regarding the delivery status whilst the email notification is used to verify the customer's status of registration, notify order confirmation and order status. The system can be extended further by include the payment gateway to complete the process of online ordering.

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