A Smart Approach to Facilitate Cafeteria

I Swami, NDas

1 Department of Computer Engineering
2 Department of Electronics and Communication Engineering
1,2 LJ Institute Of Engineering And Technology Ahmedabad, Gujarat- 382210
swami.ishita.10@gmail.com, nimish.das@ljinstitutes.edu.in

Abstract. With the dawn of digital age, the paperless technology has gained prominence. Besides this automation is providing solution to lowered costs and lessening of man-power cost. Nowadays people don’t want to waste their time in canteen by being just there and waiting in long queue to give their food orders to canteen staff. During lunch time if any customer visits the canteen, due to limited time he/she cannot return to his/her working place. This paper enables the end users to register online, read and select the food items from e-menu card and order online by selecting and adding the food items in food cart by using web application. The purpose of making a web application is to replace manual payment by electronic payment. The system will have GUI interface and less user training is required. The system has been developed using Incremental Rapid Application Development (RAD) model and the website has been designed and developed using PHP, CSS, HTML, Bootstrap, Ajax and MySQL.

Keywords- incremental RAD model, web application, e-menu.

INTRODUCTION

Like automation in other businesses, the canteen business is also witnessing this change. Earlier, the customers had to make long queues near the counter before they ordered their meal. Besides this counters needed an employee for taking the order and generating the bill then customers started ordering their meal through intercom but this had many limitations and it made very inefficient for customers and canteen management staff as every time a customer called the canteen staff a more skilled man-power was needed to explain about the menu, pricing and other details. A lot of time was thus wasted in taking an order. To overcome the limitations, we have tried to propose a system where customers can now order through our website. The system administrator will make updation in the menu and price on frequent basis. There will be graphical representation of items so that customers can easily decide what to order.

1. PROBLEM STATEMENT

Customers from our college have to make WhatsApp group and through this they have to place their order to canteen staff. It may happen that canteen staff may not see the order in time this may delay the service. For payment customer either has to visit the canteen and stand in long queue sometimes or canteen staff has to collect cash from each customer personally.
2. LITERATURE REVIEW

P. Jadhav et.al [1] discussed about the paper-based system and it is being used extensively for taking orders and records are maintained on paper. This system had many limitations like a minor change would mean reprinting of the entire menu card for customer it is time consuming.

S. Sarkar et.al [2] discussed about the paper-based system and use of wireless systems like menu, FIWOS, WOS that were PDA based. But these PDA based systems also had limitations like, they did not provide real time feedback to customers, they were costly and the menu cards weren’t catchy as they did not have the support for images.

B Muniraja, J Rajanikanth et.al. [3] discussed about the canteen facility that is provided in almost every campus. The paper has discussed the faults in the payment process. In it normally card or credit card methods are used which have their own faults. quoted drawback in the payment process. Sometimes the canteen owner records the order details on paper and bill calculation are made at the end of month. The authors used the concept of recharge card through postpaid and prepaid methods.

Kirti Bhandge et.al. [4] implemented a food ordering system for different types of restaurants in which user will be able to make order or make custom food by using android application for Tablet PCs. The front end was designed using JAVA, Android and at the backend MySQL database was used.

3. DEVELOPMENT METHODOLOGY

3.1. Software Development Process Model:

Incremental RAD model is suitable for our system as the requirements are clear. Key feature of this model is that each module can be completed and released as and when requirement arise. With less investment the system can be developed and delivered in less time.[5].
3.2. Development Tools:

The proposed system is designed and implemented by using design components like HTML, Bootstrap, JAVASCRIPT, CSS, PHP and MYSQL database with an aim to provide a reliable, convenient and accurate Food Ordering System that satisfies customer’s needs and is able to accommodate huge number of orders at a time and automatically compute the bill.

3.3. Modelling and Analysis Using Software

In our application, we require database connectivity to get all information about users of our application. We provide this connectivity through JDBC calls as it allows fetching data from database, update any information that is stored in database, delete any data from database. We have used phpMyAdmin which is a free software tool written in php and is intended to handle the administration of MYSQL for managing database, creating tables, fields, relations, indexes, users, permissions etc. for analysis purpose to further refine the design before investing more time and resources.

3.4. System Design

Flowchart:

![Flowchart of Canteen System](image)

**Figure 2.** Flowchart of Canteen System
Algorithm:
1. Start
2. (Do you have an account on the website) then go to step 7. Else go to step 3.
3. If the user is a student then go to step 4. Else go to step 5.
4. Enter enrolment number as username and password.
5. Enter employee email id as username and password.
6. Submit and go to step 7.
7. Login
8. Enter valid id and password.
9. If user entered valid details then go to step 10.
10. Select menu items from website and add to cart and go to step 13.
11. Repeat steps 10 to 12 (Do you want to add or subtract menu items from cart)? If yes, go to step 12 and then go to step 13. Else go to step 13.
12. User can subtract/add menu items from cart and go to step 13.
13. Place an Order.
14. Repeat steps 14 to 18 (Do you want to reserve a table?). If yes go to step 15. Else go to step 16.
15. Check for table availability. If available, go to step 18. Else go to step 16.
16. Repeat steps 16 to 18. (Do you want your meal delivered?) If yes go to step 18. Else go to step 17.
17. Cancel order.
18. Apply for bill payment.
19. Stop.

4. IMPLEMENTATION

4.1 Reliability of The System:

As colleges in our university have different break times thus customers would be ordering in queuing system so customers would get their order on time and food would also not get wasted (being late) and there would be no congestion. If there are unmanageable orders at a time then the users who are late in ordering would get the notification ‘order after sometime’.

4.2 Working Methodology:

The proposed system which has less human to human interaction and more human to machine interaction is implemented in three modules:

(1) Registration Module (2) Place Order Module (3) Checkout Module (4) Admin Module.

Registration Module:

When the user visits the website for the first time, he can register himself by entering the registration details.
Figure 3. Registration Page

Login Module: Once the registration process is over the customer can simply login to the website by entering valid username and password.

Figure 4. Login Page

Home Page of the Website: Once the customer has successfully logged in to the website, they will be redirected to the home page of the website.

Figure 5. Homepage

4.2.1. Place Order Module:
Menu Page:
Once the customers have successfully logged in to the website, they will be directed to the menu page and can place order through our website by selecting and adding the food items from different categories to their cart. Once the order has been placed the canteen staff would execute the order and the customers would get the notification that the meal is ready.
Figure 6. Menu-Chinese

Figure 7. Menu-Thalis

Figure 8. Menu-Mixed Foods
Deliver Meal at My Location: If the customers want to enjoy their meal at their location, they can enter the shipping details on the website and the delivery staff of the canteen will deliver the food at respective locations.

4.2.2 Checkout Module:

After the customer has ordered the meal, they need to make payment either through Cash on Delivery/Debit Card/on the spot payment.
4.2.3 Admin Module:
Admin will first login to the admin panel and manage the processes. He changes the prices and does the modifications required in the system.

User Management:
Admin will manage the details of users of the website.

Delivery Staff Management:
Admin will first login to the website and will add, update and delete the details of delivery staff of the canteen.
Figure 14. Delivery Staff Management

**Dish Management:**
Admin can add, edit and update dish details.

Figure 15. New Dish Addition

**Cart Management:**
Admin can make updation to the cart and delete items from the cart.

Figure 16. Cart Management

**Order Status Management:**
Admin will be able to view the status of the orders of the customers.
5. CONCLUSION

Our system has been developed around the objective of saving time primarily. The system is efficient not only for customer but also for the canteen staff. The products and costs can be easily edited. It is economical as well as secure. It reduces cash handling and provides better reporting of available stocks and sales. The aim of reducing the man power is also fulfilled.

References

[1] P Jadhav, P. Teli, S. Korade, V. Chavan, “Implementing Digital Restaurants and Inter-Restaurant Navigation Using Smart Phones”, IJCSMC, Volume 4, Issue 2, pp. 319-324, February 2015.

[2] S. Sarkar, R. Shinde, P. Thakare, N. Dhomne, K. Bhakare, “Integration of Touch Technology in Restaurants Using Android”, IJCSMC, Vol 3, Issue 2, pp. 721-728, February 2014.

[3] B. Muniraja, J. Rajanikanth, “In-Time Billing Process for Canteen Management System” International Journal of Emerging Trends in Engineering Research (IJETER), Vol. 3, No.6, pp. 200-203, 2015.

[4] K. Bhandge, T. Shinde, D. Ingale, N. Solanki, R. Totare, “A Proposed System for Touchpad Based Food Ordering System Using Android Application”, International Journal of Advanced Research in Computer Science Technology (IJARCST), Vol. 3, No. 1, pp. 70-72, 2015.

[5] P Beynon-Davies1, C Carne1, H Mackay2 and D Tudhope1 “Rapid application development (RAD): an empirical review” European Journal of Information Systems 8, pp. 211–223,1999