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Food Chain Based Canteen Automation System

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Abstract:- Nowadays there is not much time for customers to waste in the canteen and to wait for the waiter to order. Most people use the canteen during their breakfast and lunch, but they have little time to consume and head to their offices and schools. So, this application allows them to save their time and order food as they wish, without always waiting for the waiter. The traditional method includes paperwork, which conserves different files and manuals. Sensitive knowledge is risk-filled and a repetitive procedure is preserved in files and manuals. The project highlights the path from integrating the materials to creating a new web world, including a structure demonstrating how to gradually implement Internet technologies as competencies and trust grow [1]. So, there was a need to develop an application, which could be used for online ordering as well as internal purpose of the organization to manage employees, products, inventory, and orders. It not easy to maintain a manual system, where we could maintain privacy of a customer but also maintain internal functioning of organization. The canteen automation system allows customers to register their self for future reference but they can also select food they like from menu through mobile by clicking the food chain link near to their place. The order immediately become available to chef's screen and he can assign it to concern unit.

Keywords:- EMS, HRMS, Inventory Management, Product Management, Customer Feedback etc.

I. INTRODUCTION

Nowadays computers have become an important part of life, basically, we use computers in accessing information. In this era, we can see that advancement in technology is increasing day by day due to this organization have to face some difficulties and challenges. We can see a great contribution to the world wide web(www) for creating a global information system [2]. This mechanism can be used in organizations for sharing information.

Many organizations like to prepare and deliver food in a small duration after placing orders rather than reserving a table. People like to place order online but there is some disadvantage that customer faces like delay, quality and to get unordered food. Necessity to hire more employees gets increase because somebody will take orders and someone would deliver and more vehicles would be required for them. To overcome these types of problem, the canteen automation system not only helps to order food but helping to maintain internal function of an organization like their employee and stores. Suppose a HR manager would like to maintain employee's salary and related activities and customer would like to place order by clicking on web page link and a store keeper would like to maintain inventory. Solution for all is the canteen automation system, where they can use their concerned module.

The main benefit of this method is that the purchasing procedure for the consumer and the canteen is substantially streamlined. As the consumer enters the ordering website, an accessible and updated menu is provided for all available choices and rates are automatically adjusted, depending on the chosen options. The item is then applied to their order after making a pick, and the customer may check the information at any time before checking out.

Suppose a customer visits on organization's webpage and where then the clicks on ordering module then a menu card appears with amount, according to preference customer can make a selection of an item, after ordering the food customer need to review the cart's details before signing out the form system.

Then the software shows the instant confirmation of orders that shows the accuracy and operation are performed in minimum time duration by the system.

Software also shows the automated progress of process from ordering to delivery by the canteen. Once ordering done the entire information of order can be retrieved from database for all accomplish stages. Software will show which process takes how much time and which customer like which food. By analysing these types of data, Canteen can improve their functioning but also can increase their sales.

II. LITERATURE SURVEY

[3] Canteen management system using the E-wallet

In this paper, the machine will take orders and show them on monitors in the kitchen via online request. The web framework will use HTML5, 2 Java files, two and a boot strap for the interface and a backend JSP. Suitable security aspects need to be introduced in order to avoid attacks by utilizing the 2048 bit encryption method from El-Gamal. We build a web application to place orders in advance. In order to increase the request, an ORDER ID is given to send the order to the service counter. The order is sent at once. Payments may be made in cash or in the counter via e-wallet. El-Gamal is a shared key algorithm for asymmetric encryption. The

safety of this algorithm lies in the problem of discrete logarithm calculation. Accessories such as charging, billing and reimbursement would be carried out by decrypting the database values and then doing the actions on the decrypted values. The values are encrypted and retained in the database after this process has been completed. For encryption, a 2048-bit key is used. An Ajax request is made on the user side to receive a servlet cipher text, so that the confidential data exchange between the consumer and server is encrypted.

[4] Cloud Based Canteen Management System

This paper proposes a forum for both the canteen as well as cloud customers to automate the entire thing more conveniently. There is no hardware however Cloud Computing technology needs installations. In relation to the possession of specific components, cloud storage is highly cost-effective. It removes the gap between the canteen and its use to the cloud-based program. The device offers a radio frequency ID card for each consumer purchasing at the counter. In addition, a modern way of purchase and payment is from a mobile computer, where consumer account deductions are rendered directly, helping to reduce lines. Internet transactions and e-wallets may be used to recharge balances. The desktop site is hosted on the cloud and the mobile app. The management of a canteen business can be done efficiently overall. Long queue waits are not essential, orders may be more quickly positioned accordingly. No paper-based records ought to be maintained. Just once is data transfer to the cloud possible. The whole business of the canteen is streamlined. The other approach entails paying with an intelligent card which only concerns payments.

[5] In-Time Billing Process for Canteen Management System

Canteen admin shows in-time payment for the canteen management device that the clients that can be students or workers and employee of an organization will collect an RFID. It's an efficient system. For people who go to the canteen frequently, it can be really helpful every day. It is no longer necessary for you to carry the currency. Any consumer registered will obtain a wallet, and every individual will be able to recharge the amount he needs. This project states that only invoices for the canteen must be issued and that the shipment must cease producing all days. We may adjust the whole operation of the canteen completely with this device.

III. PROPOSED SYSTEM

We offer this framework with the Cloud Computing technology in order to solve the inconveniences of the standard system and provide an effective canteen ordering system to the customer [2]. Oracle 12c for frontend and Oracle pl/sql for backend will be used for the framework suggested. In general, this system is advantageous so customers don't have to wait in the line for a while by submitting orders straight to the kitchen and preparing orders in advance.

Objectives of the proposed system:

The main aim of the system is to manage stores, product, employee, customer, and orders. It will help organizations to manage customers in such a way so that their food habits analysis would help organization to increase business.

- To order food instantly and rapidly.
- To make it comfortable for people who have limited time
- To make it cost efficient
- Less utilization of paper work

A. *Modules*

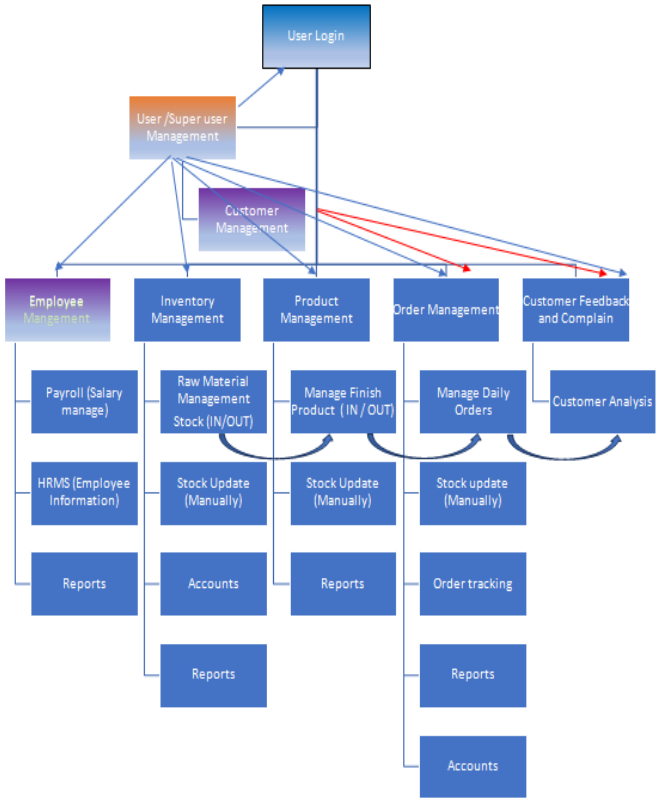

Figure 3.1 shows the different modules of the proposed system. The system mainly comprises the five different modules i.e. Employee management, Inventory management, Product management, order management and customer complain/ feedback.

1) **Employee Management**

Organization can have multiple food chains in a city and might have many employees' work in. To manage employee personal information, salary, PF, increment and bonus, we need employee management system. Such system helps to manage and growth of organization and saves lots of administrative time.

2) **Inventory Management**

To prepare a finish product we need raw materials, we manage stocks through inventory module. It helps us to know what is left in the stock to prepare any food. It helps to know the breakeven points of raw material and alarm us what are the immediate requirement and where it is required.

3) **Product Management**

A product can be prepared with the help of raw material, whatever we prepare reduce the inventory and show

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us the available ready food to consume. Food can be made for lunch, dinner and breakfast and would be available to customer when they place orders.

4) **Order Management**

When customer places order finish product stock shows the available food and help customer to pick the food. Order management help the concern unit to ready food to deliver, If the order is placed on FIFO basis. It also helps customer to track orders.

5) **Customer Feedback/ Complain**

Customer can rate food unit and give their feedback. They can suggest what need to be done in case of any complain. By the feedback we would know the areas, where organization should work to improve and that would help to grow business.

Access of various modules:

1) Administrator: - Administrator can have access to all modules

2) User: - User can have access to specific modules According to their department.

3) Customer: -Customer can access the order screen and feedback /complain module.

B. **Hardware and Software requirement**

- i5 processor-based computer or higher
- Memory: 8GB RAM
- Hard drive: 100 GB
- Internet connection
- Oracle 12c
- Pl/sql, Oracle forms and report
- Toad

C. ***ALGORITHM***

a) ***CUSTOMER RATING ALGORITHM***

Customer Rating Criteria

Poor	25
Good	50
Very good	75
Super	100

IF PERCENTAGE >30AND PERCENTAGE <=40 THEN
RATING = 1
ELSE PERCENTAGE >40 AND PERCENTAGE <=50 THEN
RATING =2
ELSE PERCENTAGE >50 AND PERCENTAGE <=60 THEN
RATING =3
ELSE PERCENTAGE >60 AND PERCENTAGE <=70 THEN
RATING =4
ELSE PERCENTAGE >70 AND PERCENTAGE <=80 THEN
RATING =5
ELSE PERCENTAGE >80 AND PERCENTAGE <=90 THEN
RATING =6
ELSE PERCENTAGE >90 AND PERCENTAGE <=100 THEN
RATING =7
ELSE
RATING =0
END IF

b) ***PERFORMANCE RATING ALGORITHM***

IF PERFORMANCE> 40 AND PERFROMANCE<=50 THEN
AVERAGE
ELSE IF PERFORMANCE> 50 AND PERFORMANCE<= 70 THEN
GOOD
ELSE IF PERFORMANCE>70 AND PERFORMANCE<= 90 THEN
VERY GOOD
ELSE IF PERFORMANCE>90 AND PERFORMANCE<= 100 THEN
SUPER
ELSE
POOR
END IF

D. SYSTEM DEVELOPMENT

Figure 3.2 shows the GUI of the module selection when the application is open.

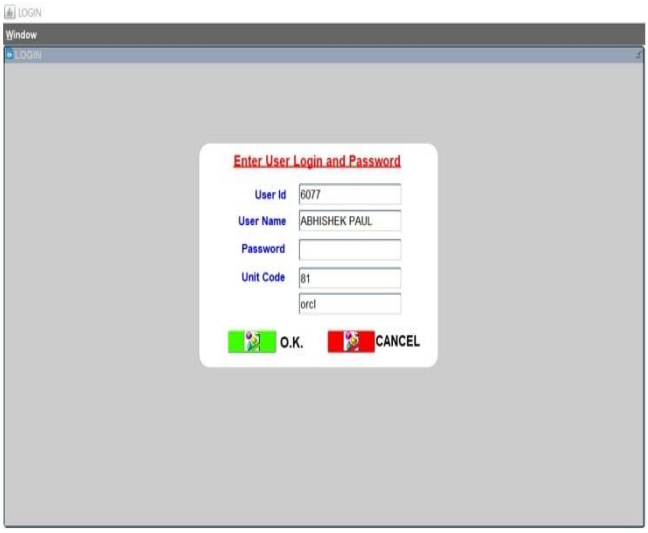

Figure 3.3 login screen of system after selecting the module.

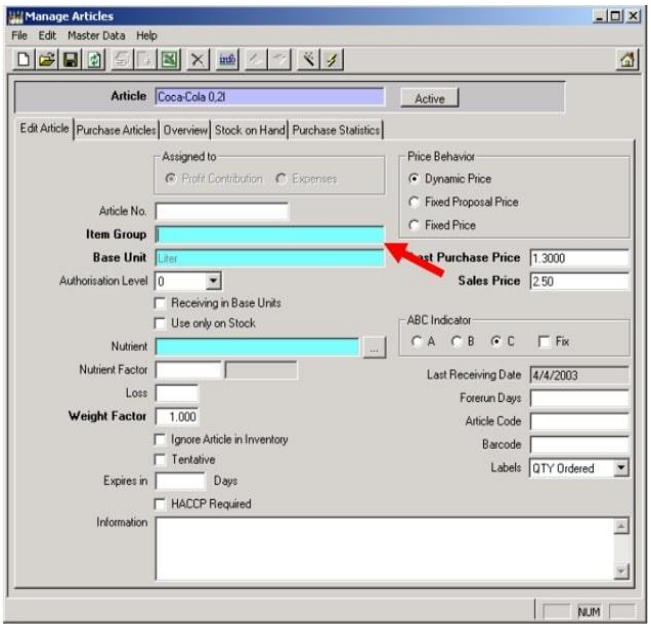

Figure 3.4 Item master that will be used to manage the raw material of the proposed system.

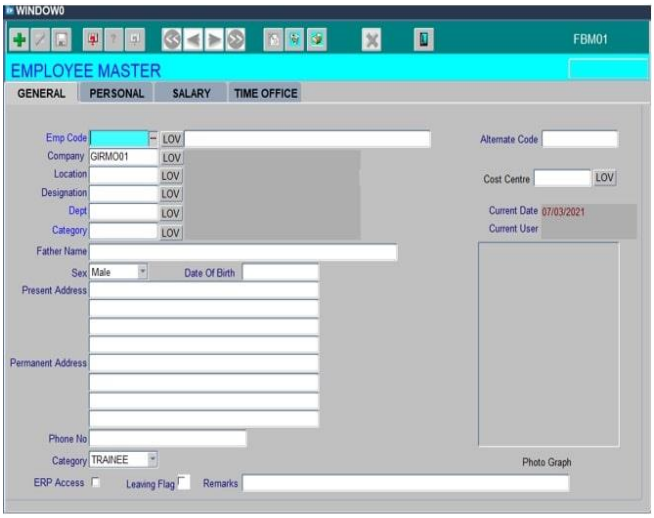

Figure 3.5 The employee master that will be used for employee management.

E. Work Flow Diagrams

I)

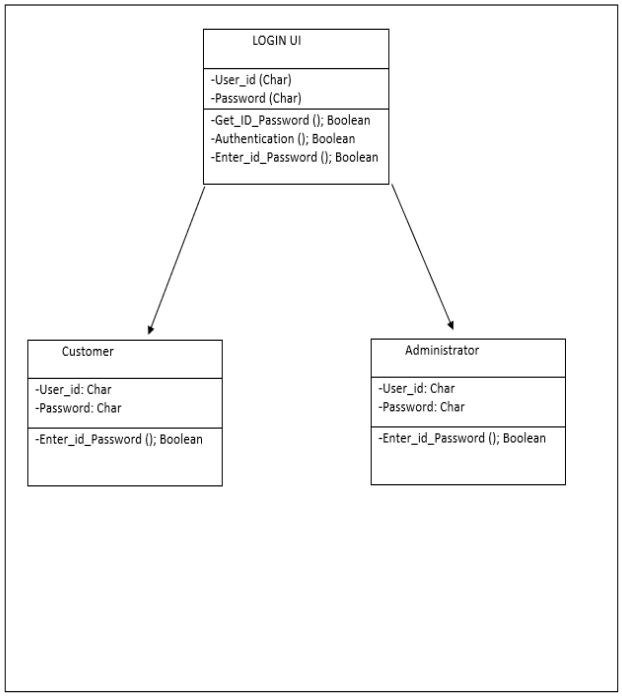

Figure 3.6 User /Customer/ Adminstrator login information

II)

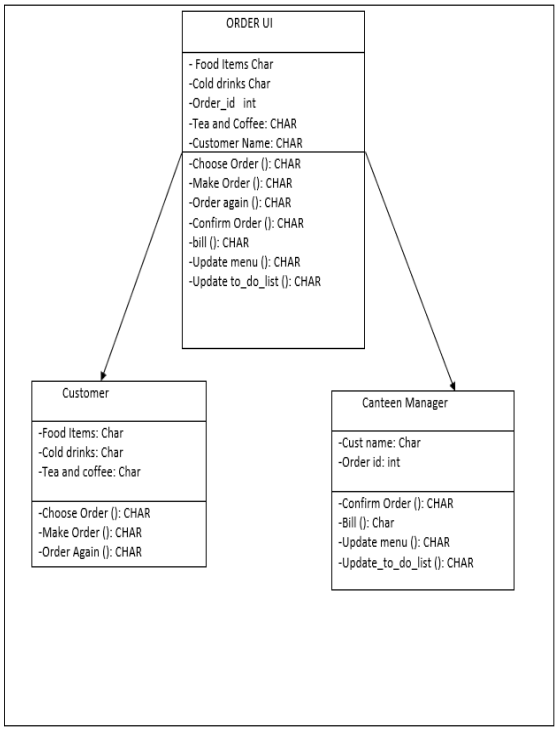

Figure 3.7 Customer order / Approval information

III)

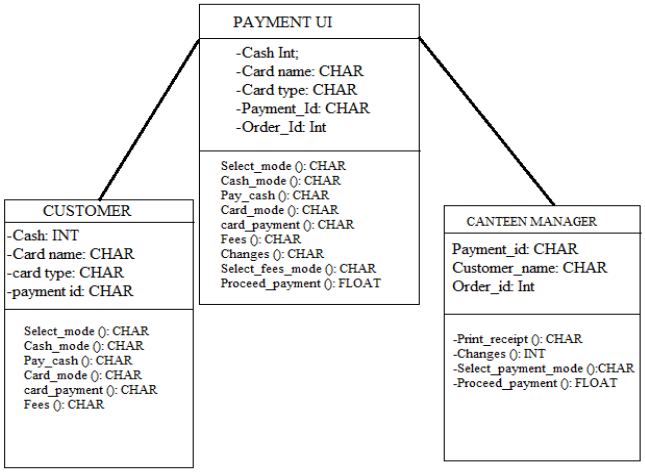

Figure 3.8 Customer payment approval information

F. ADVANTAGES

1) Proper security of data
2) Data accuracy is ensured
3) Data entries are minimized
4) Minimize the processing time required for modules
5) Minimum time required for processing
6) Good efficiency and service
7) Interactive and User efficient
8) Requirement of time is minimum

G. LIMITATIONS

1) Requirement of proper internet connection.
2) Requirement of System like desktop and laptop for ordering.

H. APPLICATIONS

This application is applicable in food chains, cafeteria and restaurants.

I. SYSTEM ARCHITECTURE

Canteen automation system is three tier architecture applications. We use oracle database as backend, Oracle 12 application server as middle tier and client will use the web URL to connect the application. Below is the presentation of the architecture.

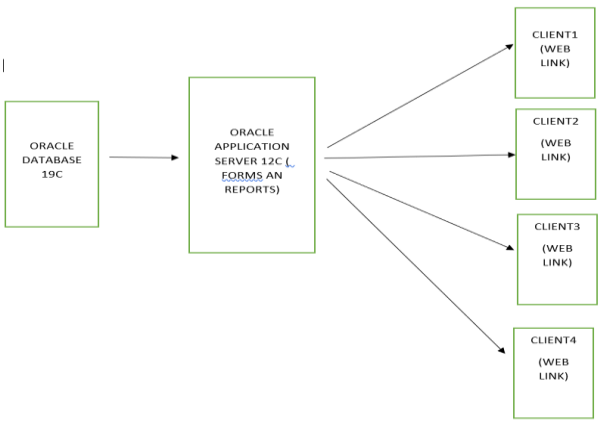

Figure 3.9 System architecture of the proposed system

H. SURVEY OF CUSTOMER DEMANDS REGARDING THIS SYSTEM

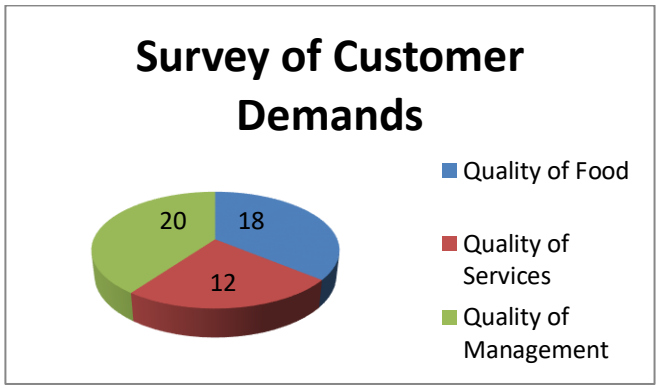

Figure 3.10 Survey of customer demands

There are three major surveys conducted on the quality of food, quality of service, quality of management. Through the analysis of demands raised by customers according to their experience we came to the conclusion that there are some improvements which are required in this system.

IV. RESULT

This system will help to improve food quality, service, variety and pricing. This will also help to find new customer as per their food habits in a particular area. This system is generic and could be placed easily on cloud and artificial intelligence to increase the sales and turnover of the organization. Other utility module like Employee Management, Stores, Product Management makes system so useful.

V. CONCLUSION

The research on canteen automation system involves many phases like employee management system, Inventory management and product management. In primary phase the system designed at module level. The module is created on the basis analysis is done during the identification of various software present in the market. Different modules are developed to fulfill the need of a food company having many units in the city or a country.

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