



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

BON APPETITE

ONLINE CANTEEN MANAGEMENT SYSTEM

¹Mannat Doultani, ²Deepika Gambani, ³Arya Telavane, ⁴Jayesh Dhanrajani, ⁵Hitika Hemnani

¹Assistant Professor (Project Mentor), ²Department of Computer Science, ³ Department of Computer Science, ⁴ Department of Computer Science, ⁵Department of Computer Science

¹Name of Department of 1st Author,

¹ Vivekananda Education Society's Institute of Technology, Chembur, Mumbai

Abstract: *It has been observed that the canteen that we manifest in our day to day lives, while in an educational institution has many drawbacks such as long serpentine queues, congestion due to the rush in peak hours etc. We propose an automated system which would surpass the current hassle by an automated web based system which will maintain, manage and process orders of customers in a speedy way using a website and its stored database. The project Canteen Management system helps the users to book their food earlier. The users have to book their food on the e-menu card. As soon as they book their food the order will be sent to the chef for preparing it. The existing system consists of the manual system that involves the paper work of the billing system and maintaining the files too. In the proposed system the payment is online and the e-menu will be available for the users. The users will have the username and the password through which they can book. This project will help in demonstrating the route from adapting materials to developing an online environment. This brings all necessities in one place that benefits both the user and the canteen owner smartly. We apply principles and techniques of recommendation systems to develop a content-based filtering model with the help of customer ratings.*

Index Term:- e-menu, account, ordering, online payment, recommendation system.

1. INTRODUCTION

Lots of time is spent in queues at a college canteen. The proposed software is effective in cutting the amount of time spent in the queue to send orders straight into the kitchen, placing orders before and with the option to use a UPI payment system that reduces time spent in tendering changes. This time can be used for any other purpose that must be relevant. The online canteen system contains e-menu cards that contain the details of the food. The user initially has to create an account for the utilization of the service. It will provide the list of different canteens and their various items menu list. The customer can select the desired item and can pay the amount through an online payment gateway system. Immediately after booking the order, the canteen people will get the information of the order and they prepare the order. In the existing system there will be queues and the manual work load will be there. In the proposed system there is no need for the paper-work. The data can be stored in the database. The food will be ready in advance and the customers need not to wait near the delivery place. The digitalisation of the canteen system will be helpful in providing the better service to the users and the time consumption will be reduced. The languages used in this system are Django, SQLite database. Initially the menu will be entered by the admin to the site along with the price. The updation and deletion of any item can be done. At last the user's feedback will be taken to improve the service and to make it available to everyone. The online system will help be helpful for the food makers to prepare the food as early as possible. As a result there will be quick serving to the customers.

The aim is to automate its existing manual system by the help of computerized equipment and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. Basically, the project describes how to manage for good performance and better services for the clients.

The objective of the system is to automate all the activities of the canteen right from purchases to delivery of food/beverage items. The system should maintain a detailed account of all provisions bought and food served at the canteen. In addition to this, it should also maintain the daily expenses incurred by the staff. The system should provide an interface to payroll for deductions. Several inquiry facilities should also be provided to view the expenses incurred/ planned menus/cash payment etc.

2. LITERATURE SURVEY

1. Title: CANTEEN MANAGEMENT SYSTEM USING E_WALLET

Authors: Shubham Zunjar, Rahul Yadav, Rutuja Markad, Sneha Patil

In this project, the system can take orders at the counter and through online application and display them on monitors in the kitchen. The website has facilities like recharge, payment, and refund also.

2. Title : YELP FOOD RECOMMEDATION SYSTEM

Authors :Gina Pai,Sumedh Sawant

The project have applied principles and techniques of recommendation systems to develop a predictive model of customers' restaurant ratings. Using Yelp's dataset, they have extracted collaborative and content based features to identify customer and restaurant profiles.

3. Title : RECOMMENDER SYSTEM BASED ON USER REVIEWS

Authors :Li Chen,Guanliang Chen and Feng Wang

In this paper,they have provided a comprehensive overview of how the review elements have been exploited to improve standard content-based recommendation, collaborative filtering, and preference-based product ranking techniques.

4. Title : A REVIEW PAPER ON RESTAURANT MANAGEENT SYSTEM

Authors : Prof. N. M.Yawale , Prof. N. V. Pardakhe, Prof. M. A. Deshmukh, Prof. N. A.Deshmukh

The system is implemented to reduce the manual work and enhances the accuracy of work in a restaurant. This system manages and maintains the record of customers and their order online.

5. Title : A SURVEY ON RESTAURANT RECOMMENDATION SYSTEM BASED ON FEATURE SELECTION AND CLASSIFICATION METHOD

Authors : Shreya Joshi , Jigyasu Dubey

In this paper,the restaurant recommendation system provides users with accurate and effective restaurant information based on the user's profile information and preference. This paper analyses the various approaches and challenges of existing techniques.

3. EXISTING SYSTEM

The existing system is basically a cash and paper-based system. It takes a lot of time for the payment and methodology as the customer pays the actual amount and waits for the alteration. Order can be placed by paying by cash. Since the existing system is paper based it can be manipulated easily thus, it lacks data integrity. Also there is a queue at the cash counter and orders may get mismanaged. The disadvantages of the current system can be overcome in an automated, cloud based canteen management system. What we propose is a Canteen Management System, which is a technique of ordering foods online applicable in any food delivery industry. The main advantage of this system is that it greatly simplifies the ordering process for both the customer and the canteen.

4. ARCHITECTURE OF PROPOSED CANTEEN MANAGEMENT SYSTEM

The objective of this project is to automate the canteen management system and speedy delivery of orders. This application will help to simplify the ordering method for each client and also the canteen. This web-app also aims in recommending dishes to the customer based on their previous order. It is an application for college students to order food online via a webapp from the canteen to avoid long queues during break time. Figure4.1.1 shows the overall flow of the proposed system.

PROPOSED SYSTEM

This paper talks about developing a Web Application named "Bon Appetite" using Django Framework that automates the canteen management system, provides facility to order food online to students as well as staff and recommends food items to individual customers based on their previous orders. It will help

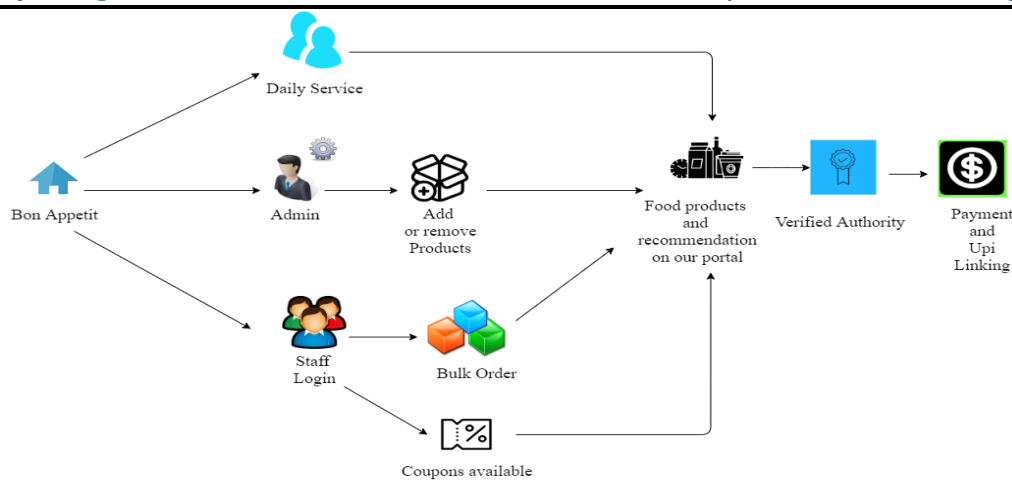


Fig. 4.1.1 BLOCK DIAGRAM

to simplify the ordering method for each the client. The System has facilities as Canteen Menu, Cart, Orders, Quantities and Users along with Admin. The proposed system also takes care of managing the order details, availability details, order details, payment details and user details. It also displays the information and description of the canteen orders, products, payment and users in the admin section.

It also recommends food to the user based on the previously ordered food.

5. MODULE DESCRIPTION

The system consists of three modules

- 1.Admin
- 2.Student
- 3.Staff

The Figure5.1.1 shows the modular diagram of the system

The functionalities provided by the system are as follows-

5.1 Admin Module- The admin can update the menu list. Only admin has access to the database. He can add food items accordingly.

5.2 Student Module-Students can view food items from the website and place orders. According to their previous orders placed the system recommends food items to them.

5.3 Faculty Module-Faculty other than ordering food items have facilities

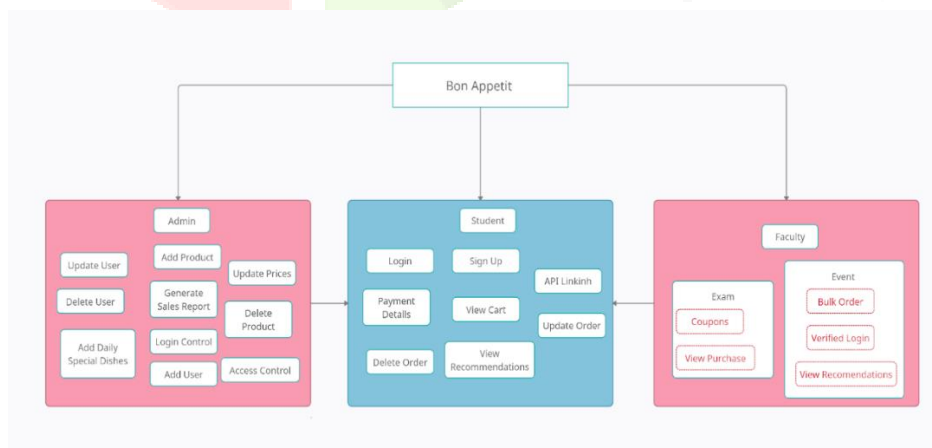


Fig. 5.1.1 MODULAR DIAGRAM

wherein the faculty member can place bulk orders for events that take place as well as redeem coupons if available.

5.4 Place Order -One can place orders using the online ordering feature. The online ordering feature shall be available to users who login to our website .

5.5 Make Payment- Paying for orders is done using payment gateway . Online orders can be paid only through payment gateways like Google Pay,PhonePe or paytm.

5.6 Order placed- This message is displayed in the screen when the order is placed and the chef accepts the order.

5.7 Food Recommendation System- The system also recommends food items to students based on their past history. We investigated different machine learning recommendation models and finally implemented **content-based filtering** using Scikit-learns CountVectorizer. We used Countvectorizer from Scikit-Learn to find similarity between items based on their title, category and tags. We are providing recommendations on the basis of Cosine Similarity function, on their previous orders based on the IMDB formula.

$$\text{similarity} = \cos(\theta) = \frac{\mathbf{A} \cdot \mathbf{B}}{\|\mathbf{A}\| \|\mathbf{B}\|} = \frac{\sum_{i=1}^n A_i B_i}{\sqrt{\sum_{i=1}^n A_i^2} \sqrt{\sum_{i=1}^n B_i^2}}$$

Cosine similarity is a measure of similarity between two non-zero vectors of an inner product space. It is defined to equal the cosine of the angle between them, which is also the same as the inner product of the same vectors normalized to both have length 1. The result of cosine value is between 0 and 1. If the result is 1, it indicates the two vectors are exactly the same.

We used Count vectorizer from Scikit-Learn to find similarity between items based on their title, category and tags. To bring all these properties of each item together, we create a "soup" of tags. "Soup" is a processed string corresponding to each item, formed using the constituents of tags, tile and category. we are using Demographic Filtering i.e., Suggesting the items that are well-received and popular among the users. Most trending items and items with the best rating rise to the top and get shortlisted for recommendation

food_id	title	canteen_id	price	num_orders	category	tags	soup
95	Special Mango Milkshake	1	35	80	drink	veg,unhealthy	veg,unhealthy special mango milkshake drink
98	Cold Coffee Milkshake	1	35	500	drink	veg,unhealthy	veg,unhealthy cold coffee milkshake drink
67	Chocolate Grilled Sandwich	1	35	50	sandwich	veg,unhealthy	veg,unhealthy chocolate grilled sandwich
28	Veg Momo	1	35	50	momo	veg,unhealthy	veg,unhealthy veg momo

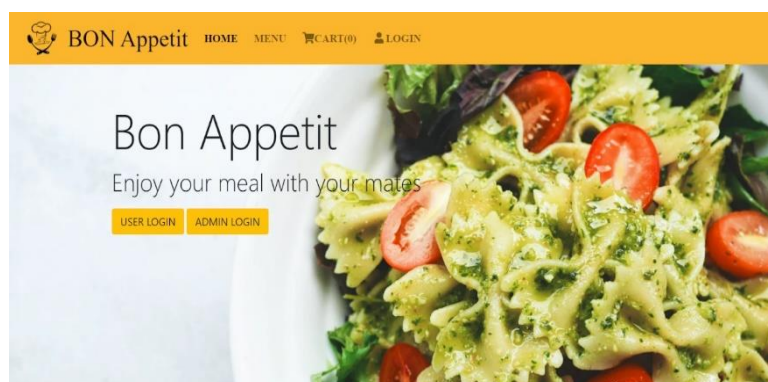
Our model gives various output like personalised recommendations for each user based on their past orders.

	title	canteen_id	price	comment
0	Paneer Tikka	1	60	based on your past orders
1	Chicken Tikka	1	80	based on your past orders
2	Chicken Pizza	1	50	based on your past orders
3	Paneer Tikka Masala	1	35	based on your past orders
4	Dal Makhani	1	45	based on your past orders
5	Shahi Paneer	1	50	based on your past orders
6	Chicken Momo	1	50	based on your past orders

It shows new items added by vendor or today's special at home canteen. After calculating weighted rating based on the IMDB formula Applying weighted rating to qualified items Shortlisted the top-rated items and popular items and displayed them

6. RESULT AND ANALYSIS

As we can see the model gives recommendation based on logged in user's previous orders and if the user has not logged in the model will show a display that reads, please login to view recommendations. Other than that, the data of current logged in user and his order details are successfully saved in the database and the payment model accepts payment via Paytm and the details of same saved. We have made sure that the site is authenticated only for the people of the respective institute.



A] When the user visits the website for the first time, he visits our home page and can see various cards of food items in which there are today's specials etc. User can click on order now and he will be directly redirected to the menu page where all the items available for purchase are displayed.

Fig 7.1.1 HOME PAGE

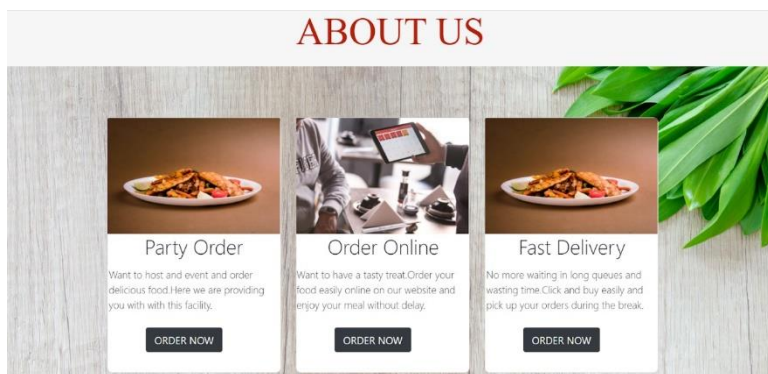


Fig 7.1.2 ABOUT US PAGE

B] Once a user has selected the items that he/she wants to order all the selected items will be displayed in the cart. Users can select whether the order is confirmed or he/she wants to change it. Once the order is confirmed the user needs to click the checkout button. After this user is redirected to the checkout page.

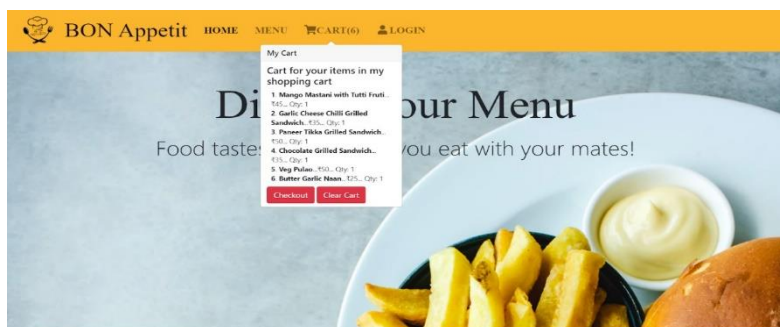


Fig 7.1.3 POP-UP CART

C] The pop-up cart represents the dishes that you have ordered from the menu it has the checkout and clear cart button. The checkout button will lead you to the payment page while the clear cart button will directly clear all your selected dishes that you wish to order

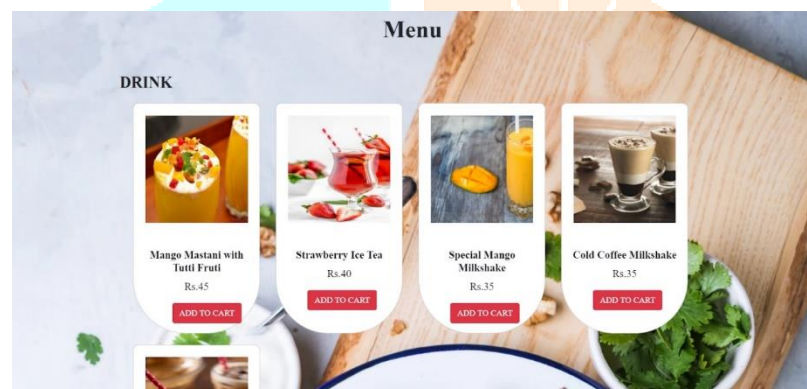


Fig 7.1.4 MENU PAGE

D] The menu gives entire range of dishes available in our canteen. The menu has been separated in various categories like drinks, pasta, etc.

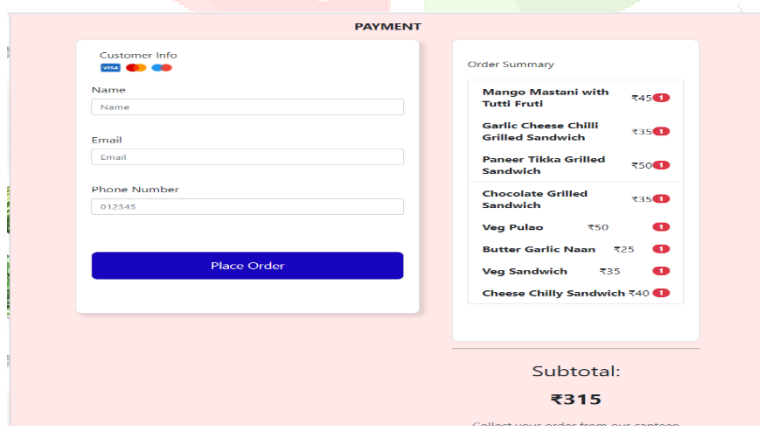


Fig 7.1.5 PLACE ORDER PAGE

E] If the user is an existing user: Then a login page will come where the user has to fill his/her username and password. Once these details are filled, users have to login and if the login is successful then the user can proceed with the payments.

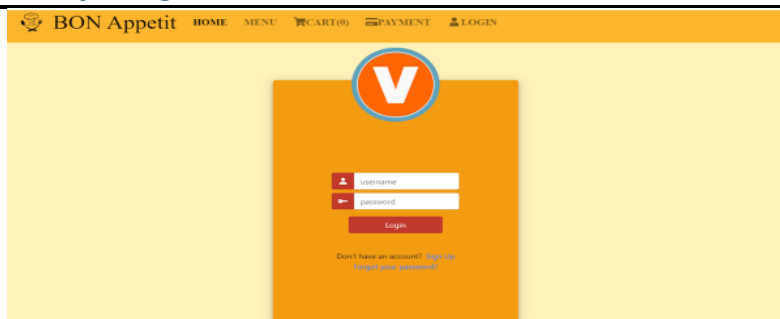


Fig 7.1.6 LOGIN PAGE

F] It's the choice of the user if he/she wants he can login at the beginning of the website. If the User login at the beginning they can use the facility of personalized recommendation of the food which will be recommended based on his or her past order history.



Fig7.1.7 PRODUCT RECOMMENDATION

G] Once the user successfully signs in and logs in, he can proceed to the checkout page and click pay now. After this he/she will be redirected to the payment gateway where he/she can successfully make the payment and enjoy the service.

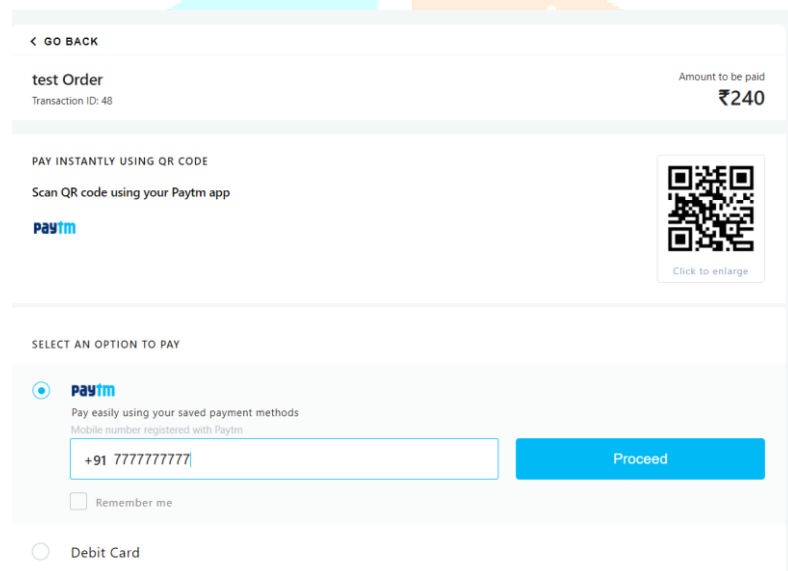


Fig 7.1.10 PAYMENT PAGE

H] Now once the user has placed the order the information directly goes to the admin panel. Once the admin has received the order he can start with the processing of order. But in order to do all these tasks the admin also has to first login himself in the admin login panel. Once the admin is logged in, he can now enjoy the facilities like order history, who ordered, if there's any feedback from customers, customers login and signup history. The admin panel also keeps the record of the person's past order which eventually helps the website to personalize the customer dashboard according to their past order with the help of machine learning.

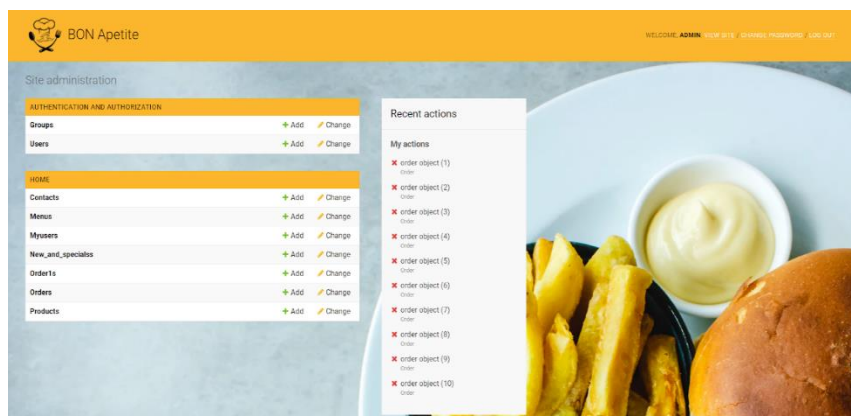


Fig 7.1.12 ADMIN PAGE

I] The admin is the owner of the canteen he has all the rights from adding new dishes to editing the existing menu. The admin can view all the past orders or next orders in a row also we have authorized the system only the person with correct credentials will be able to login and make the changes in this section.

7. CONCLUSION

The advantage of using a canteen management system is that the scale of a canteen does not make any difference. This system can be implemented on small as well as large scale canteen businesses. Due to the user-friendly interface of the application, the particular user can use the application easily. Admin can monitor and maintain track of the entirety going on in his business which gives him better ideas over his business. The user first visits our website and makes an account. The user selects food items and confirms his order. A summary of his order is generated and user confirmation is required. After confirmation the summary is sent to the canteen owner and

then they prepare the food item and let the customer know when they are ready. Meanwhile a bill is generated at the customer side and they are navigated to the payment gateway. In this way our project fulfils ordering, automation and payment

8. ACKNOWLEDGMENT

We are extremely grateful and are indebted to our guide: Mrs. Mannat Doultani (Assistant Professor). for being a source of inspiration and for her constant support of this project. We would like to express our gratitude for her constant constructive criticism and valuable suggestions, which benefit as a lot while developing the project. We also express thanks to our colleagues who have helped to complete our project successfully.

9. REFERENCES

- [1] B Muniraja, J Rajnikanth - In - Time Billing Process for Canteen Management System - International Journal of Emerging Trends in Engineering Research (IJETER), Vol. 3 No.6, Pages: 200 - 203 (2015) .
- [2] Cloud Based Canteen Management System by Tazeen Khan, 2 Daniel Yunus International Journal of Emerging Trends in Engineering Research.
- [3] B Muniraja, J Rajanikanth – time billing process for canteen management system – international journal of emerging trends in engineering research, vol.
- [4]Tan-Hsu Tan, Ching-Su Chang, Yung-Fu Chen, Yung-Fa Huang, Tsung-Yu Liu, “Developing an Intelligent-Restaurant with a Menu Recommender for Customer-Centric Service”, Systems, Man, and Cybernetics, Part C: Applications and Reviews, IEEE Transactions.
- [5]Abhishek Singh, Amit Tanwar, Aditya Sawant, Chaitanya Parulekar, Kunal Yadav, IT Department, MUMBAI University, International Journal on Recent and Innovation Trends in Computing and Communication, ISSN: 2321-8169
- [6]Yelp Food Recommendation System, SumedhSawant and Gina Pai, <http://cs229.stanford.edu/proj2013/SawantPaiYelpFoodRecommendationSystem.pdf>
- [7]ONLINE CANTEEN SYSTEM
[https://www.researchgate.net/publication/333201476 ONLINE CANTEEN SYSTEM](https://www.researchgate.net/publication/333201476_ONLINE_CANTEEN_SYSTEM)
- [8]Recommendation Systems with Machine Learning
<https://artificialintelligence.oodles.io/blogs/recommendation-systems-with-machine-learning/>
- [9]Cashless Canteen Management System
<https://www.ijitee.org/wp-content/uploads/papers/v9i7/G5095059720.pdf>
- [10]Recommender systems based on user reviews: the state of the art
<https://link.springer.com/article/10.1007/s11257-015-9155-5>
- [11]Canteen automation system
<https://www.slideshare.net/100008381806318/canteen-automation-system-updated-revised#:~:text=Page%20%7C%20%202..is%20not%20pleasant%20for%20customers>