

Canteen Automation System

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Abstract – As years have passed, Automation has become a part in almost everything. Automation has improved the overall productivity and also increased efficiency of work. Our proposed system focuses on a similar objective.

Colleges, Organizations usually follow a paper-based token system. This includes a lot of paperwork and long waiting times for the consumers to place the order.

Our system provides a Web interface to the admin to create and modify the menu for its respective organization and an application to the consumers for placing the order online without having to stand in long queues and before reaching the food counter saving time. In addition to this the chef can keep track of orders and improve menu based on user preferences.

Key Words: Automation, Web Interface, Application

1. Introduction

Use of internet technology has helped businesses grow and function more efficiently than before. Food businesses have grown significantly by serving a larger audience with digital presence over the Internet. Most of the current systems focus on just restaurants and faster delivery.

Most of the colleges and organizations don't have such systems. As a consequence of which students/workers have to stand in long lines which is not a good experience when you have a short break. In addition to this there are many home-based food businesses which don't get exposure due to less or no digital presence.

Our system provides a web interface to the business allowing it to create a e-menu and other functionalities such as adding, deleting, modifying items. The consumers have the facility to place their order online from the application itself. They will also have a chatbot to solve some of their general queries.

Data analytics helps businesses to grow and gain insights into a consumer's mind such as likes and dislikes of a consumer with the help of the sales. Keeping this mind we would also be providing the business with a dashboard which would give the data analytics of the orders.

1.1 Motivation

As students we have been to the canteen on many occasions and one of the major problems that we have faced and seen others facing is the amount of crowd present at the cash counter. This creates a lot of chaos. I remember once waiting for 10 minutes to let the crowd clear and eventually not even getting the item which I wanted since it wasn't available. In addition to this the COVID situation came into existence. Social Distancing has become very important in the current scenario and with the current system that is followed at these canteens its quite an issue.

2. Literature Survey:

In Paper [1], The project "CANTEEN AUTOMATION SYSTEM USING ANDROID" enables user to register online, read and select the food from E-menu card using the android application.

In Paper [2], the application empowers the clients to enlist on the web, see and select food things from the accessible menu and request food by simply choosing the food that the client needs to have utilizing the application in simple manner.

In Paper [3], they have proposed a web application business that serves people in any situation with ready-made food.

In Paper [4], An automated system is proposed 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.

In Paper [5], the system allows end users to register online, read and select the food from e-menu card and order food online by just selecting the food that the user want to have using android application. The results after selecting the food from the E-menu card will directly appear in the screen near the Chef who is going to cook the food for you.

In Paper [6], this project proposes an android-based restaurant automation system which makes restaurant management easier and allows faster order and delivery of food

In Paper [7], This paper is about a technology that provides quick ordering system inside the restaurant using

restaurant's Wi-Fi and about providing internet access to the authenticated customers.

In Paper [8], The project deals with the development of the online platform for the customers and the owners of the restaurant.

In Paper [9], it proposes a Real-time online food ordering system, food can be ordered in a hassle-free manner. This canteen system enables the end users to register online, read and select their preferred food and order them online through this given website.

In Paper [10], This paper highlights some of the limitations of the conventional paper based and PDA-based food ordering system and proposed the low cost touch screen based Restaurant Management System using an android Smartphone or tablet as a solution

3. Existing System:

Most of the cafeteria/canteen of all colleges and canteens currently follow a token based or a receipt-based system. This makes it harder to keep transaction records both for the user and the admin. Consumers also face long waiting times and crowd chaos.

3.1 Analysis

We conducted a small survey on the current existing system. It revealed that about 44.4% of the people have faced waiting time of about 5-10 minutes and about 27.8% of people who faced waiting time of about 10-15 minutes just to place the order. This is a lot when you have a short break.

Another insight that was revealed in the survey was that about 91% people think that it is better to know the menu and the availability of food before actually visiting the canteen area.

What change you would like to bring in canteen systems if asked?

36 responses

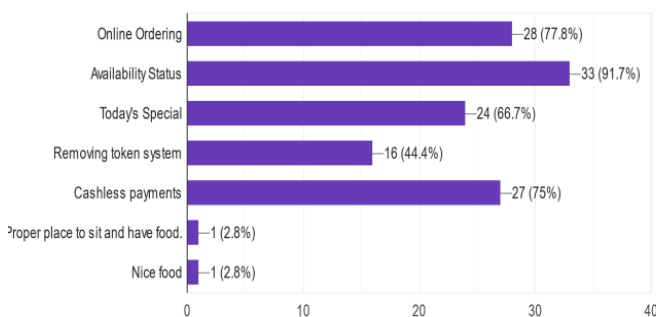


Chart -1: User Preferences for Canteen Automation System

We were also able to collect information as to what the user needs or expects from the system.

Considering all these points in mind the development of the project was done further.

4. Goals of the project:

- Simple User Interface
- Providing Consistently updated Menu to the User
- Faster pace of placing orders
- Keeping track records of all the orders

5. Users and their Functionalities:

1. Admin Functionalities:

- Create Menu
- Add/Modify/Delete Items or Categories
- Update Payment Status
- Update Availability Status

2. User Functionalities:

- Display Menu
- Place Order
- Add to cart
- Order Summary
- Order History
- Favorite

6. Block Diagram

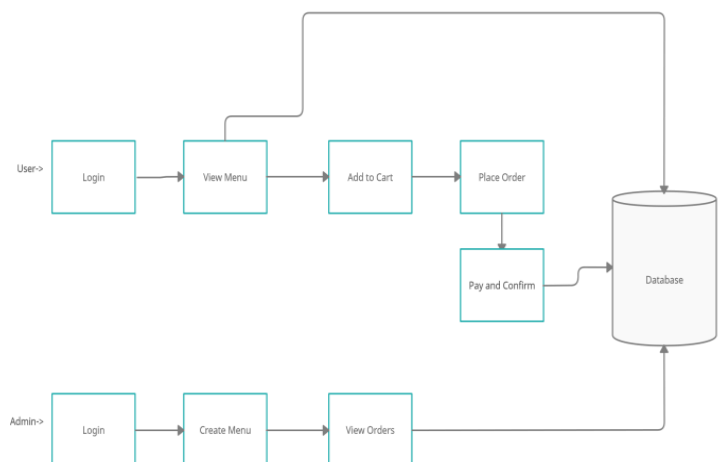


Fig-1: Block Diagram

7. Implementation

1. User-Side Application

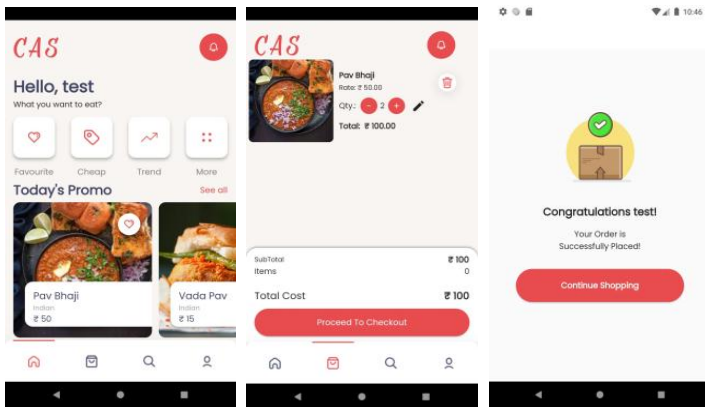


Fig-2: User-Side App Screenshots

The user is displayed with the food items available in the menu. The user can add items to the cart and proceed further with payment to place the order. User can also wish-list an item which are currently unavailable to get notified when it is available in the near future.

3. Admin-Side Website:

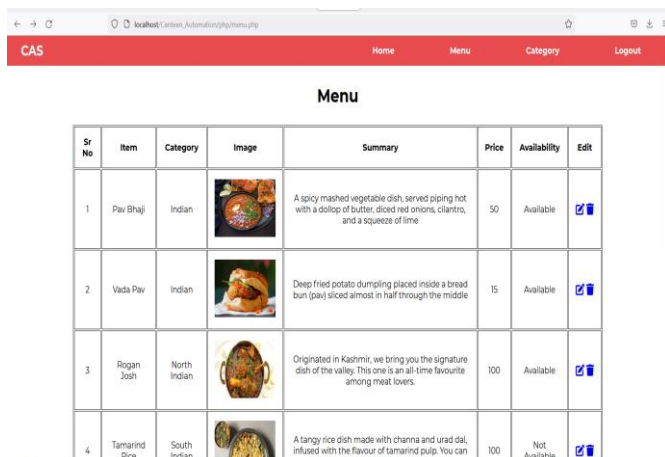


Fig-3: Admin Website Screenshots

The admin side allows the chef to create menu and further Adding/Modifying/Deleting items. The admin dashboard shows the orders placed and completed.

8. Hardware Requirements:

- I3 Processor
- Memory:4 GB RAM
- Hard Drive:1 TB
- Internet Connection

9. Software Requirements:

- Windows 7 or above
- VS Code
- Android Studio

10. Comparative Analysis:

Scenario	Proposed System	Existing System
Place Order	Few Clicks	Wait in-line
Invoice	Paperless Invoice	Paper Invoice
Item availability	No need of physically visiting the place	Visit the place physically
Updating Menu	Menu is updated automatically from the database	Change the Display everyday

11. Advantages over the existing method:

1. Lesser Paperwork
2. Easier for keeping records of orders.
3. Chatbot to help out with queries.
4. Easier Menu updating.
5. Increase in overall sales due to easier order placement and less waiting time.
6. Better user experience.

12. Conclusion:

The development of our project included many phases. We started out with listing the major problems faced by consumers(students/workers) and prioritizing them accordingly. Further, we started with designing an interface for the admin and the consumer. During this phase, we came across many other problems and changes that were needed and were done accordingly.

The user application was developed on Android studio using the flutter framework. The website was developed on Visual Studio Code using Html, Css, JavaScript for frontend and the backend was configured using php and Mysql. We look forward to implement our solution and solve the problem effectively.

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