

Cross Platform Application for Canteen Food Ordering System

Shaina Carl¹, Tanmay Parulekar², Aishwarya Sedamkar³, Kenneth Fonseca⁴

^{1,2,3,4}Department of Computer Engineering
Xavier Institute of Engineering
Mahim, Mumbai

¹shaina.carl7@gmail.com, ²tmparulekar@gmail.com,
³aishwariyasedamkar12@gmail.com, ⁴kenneth.fonseca46.kf@gmail.com

Abstract

Currently almost all canteens across various colleges follow a very basic paper based or token-based system to take orders from their staff/students. To make the system more efficient and error free Canteen Automation System with cross platform application is proposed. The proposed application can be used by staff/students to place orders from anywhere irrespective of the platform on their devices. It enables the users to register online, view and select food items from the available menu and order food by just selecting the food that the user wants to have using the application. The canteen database will be updated after selecting the desired food from the menu card and it will be displayed directly on the canteen screen. The user will have a username and a password, by using which he/she can log in to the system. Payments for the orders placed can be done online through the application. Once the food is ready the users will get a notification about the same. The system reduces time consumption, paperwork, human errors as it is fully automated.

Keywords: Cross-platform application; Flutter; Android app;

1. Introduction

In modern days' usage of smart phones has been increased rapidly and a lot of android apps have been developed for managing college day-to-day activities which reduces delay of time and complexity which gives easiness and flexibility. The current canteen system is a paper based system. All the operations have to be performed manually. The payment process takes a lot of time as the customer has to pay the amount and wait for the bill. After that a coupon is provided to the customer which should be shown at the counter while taking their order. The canteen manager has to store all the records in the registers. Also, the staff has to go to the canteen to order and then wait till the order is ready. This process is time consuming. To overcome these problems faced by the staff as well as canteen employees, in this system food can be ordered by this cross-platform application from anywhere. This application allows different navigations like morning snacks, lunch, etc. Users can select from variety of available options and its quantity. The ordered food will be visible in the canteen end and once the food is ready a notification is sent to the staff. The cross-platform application manages various canteen activities such as taking orders, generating bills and making payments. They can just place their orders from anywhere in college. It reduces the workload of the canteen staff and it is also time saving.

2. Literature Review

2.1. Paper-Based System

The existing system is paper based system. It is the most widely used system. Since the existing system is paper based all the calculations have to be done manually and the data can be easily manipulated. However, this system is troubled with various problems. In paper based system paper is used for taking order, generating bill and records are stored in registers hence there is a risk of papers getting lost or damaged. The payment and billing process is very time consuming. Order records have to be stored in the registers for totaling and verification purpose. If they are lost it becomes difficult to track paper records. A large amount of manpower is required in this system and human errors have to be considered when taking orders. Due to these problems the manual system is less efficient.

2.2. Personal Digital Assistants Based System (PDA Based System)

PDA based systems were developed to automate the canteen system. PDA systems are a good replacement for paper based systems but they are not an effective solution as they increase the restaurant expenditures. It also has certain drawbacks such as a large number of PDAs were required during peak hours and it does not provide proper feedback between customers and the restaurant. One of the biggest disadvantages of PDA systems is the cost which includes the purchasing, upgrading and maintenance cost. They are very easy to handle but difficult to maintain. PDA's are fragile and delicate devices. PDAs do not give customers the facility to order from any location, the customer has to be present in the restaurant to place order. The user interface is not very attractive. It contains only textual information.

3. Proposed Work

To overcome the limitations of the above system, we propose this cross-platform application for canteen food ordering system. It is a cost effective solution. Users can simply place orders from anywhere in college and the order will be received at the canteen end. When the customer opens the application, they are presented with an interactive menu. After making a selection, the item is then added to their order, the customer can review the details of their order at any time. The ordered food will be visible in the canteen end and once the food is ready a notification is sent to the user. As the whole process is automated, it reduces the load on the canteen employees. This system performs and manages all the canteen activities such as placing order, generating bill and making payments. It allows canteen employees to place the orders quickly and prepare the respective orders with minimal delay. This system manages all the details of food items such as its name, description, image, price, etc. Customers have an option of paying the amount monthly. The pending amount will be shown to the users in their account. The canteen manager can view all the orders and the status of the order will be updated in the canteen database. Customers can check their balance, order history and pending amount. Canteen manager can calculate the monthly sales easily without any manual work.

4. Implementation

4.1. Working

Initially, the users need to register themselves by providing their personal details. After registration, the user can login/logout at any time. The canteen manager manages and updates the canteen database as required. Customer can view the menu and add items to their cart, view their profile, view transaction history, give suggestions or feedback. Payment can be done through e-wallet or through cash to the manager. Once the customer confirms the order, the canteen database will be updated automatically and their respective orders will be received at the canteen end along with the customer's information. The specified amount will be deducted from their account and a bill is generated. Customers will receive a notification when their order is ready. After receiving the notification, the customer can come and collect his order from the counter.

4.2. Technology used

Google has developed an open-source which is also a cross-platform mobile development framework called Flutter. A single codebase can create high performance Android and iOS apps along with high fidelity. Flutter applications are in Dart, a language which looks very familiar to Java. Dart language has unique features like hot reloading, in which new versions of the files that were edited at runtime can be injected in a running application. Flutter uses Firebase. Firebase is an app development platform. It provides backend services such as cloud storage, real time database, authentication, crash reporting and hosting for your static files. Data is prolonged locally on the device when there is no internet connection and real time events continue giving responsive experience to the end user. When the device receives connection to the internet, the real time backend database is automatically synchronized with local data changes.

5. Conclusion

This paper proposes the concept of an automated canteen and targets the services in a college campus. The app can be used from anywhere in the campus. All data accesses are authenticated by providing a valid login credentials. This work can be further improved by adding some unique features to the mobile app remotely and determining frequent orders from the previous data.

Acknowledgment

It gives immense pleasure in bringing out this project entitled "Cross platform application for Canteen Food ordering System". Firstly, we would like to thank our guide "Ms. Kirti Motwani" who gave us her valuable suggestions and ideas when we were in need of them. She encouraged us to work on this project.

We are also grateful to our college for giving us the opportunity to work with them and providing us the necessary resources for the project. Working on these projects also helped us to do lots of research and we came to know about so many new things.

We are immensely grateful to all involved in this project as without their inspiration and valuable suggestion it would not have been possible to develop the project within the prescribed time.

References

- [1]"Android Based Canteen Automation" published in the year 2017 by "Kalyani Dahake and Prof. A.D.Bhoi"
- [2]"Cloud Based Canteen Management System" published in the year 2016 by "Tazeen Khan and Daniel Yunus"
- [3]"Smart Connected Campus" published in the year 2017 by "Thota Narendrakumar and Anju S. Pillai " :
- [4]"Design And Implementation Of Android Base Mobile App For An Institute " published in the year 2016 by "Reetesh V. Golhar1, Prasann A. Vyawahare and Pavan H. Borghare"
- [5]"Cross-platform mobile development approaches" published in the year 2014 by "Salma Charkaoui ; Zakaria Adraoui"
- [6]"Cross-platform development for an online food delivery application" published in the year 2014 by "Faisal Bin Al Abid ; A. N. M. Rezaul Karim"
- [7]"Designing and Developing A PDA Food Ordering System Using Interaction Design Approach " published in the year 2009 by "Lim Tek Yong and Alexander Johnson"
- [8]"Automated Food Ordering System with Interactive User Interface Approach " published in the year 2010 by "YongChai Tan and KienLoong Lee"