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Digital Restaurant

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Abstract: *In today's generation there are fields which lack menu display and ordering system. In this, a system will be implemented where order will be taken from an application installed in customers' Android device and the order will be displayed in kitchen. This all is to reduce human labor low power consumption, no need of person to take order. As we have seen in many restaurant such as KFC, Dominos or McDonalds but it is partially implemented. The menu will be displayed on table with the help of Android system or device. Customer can place the order through the device which will be of their choice. The chef in the kitchen will place order on the conveyor belt then customer can pick up their order from the conveyor belt, if suppose customer needs anything they can call the waiter to help them. The payment can be made online with the help of card swipers and to complete their transactions. Entire project has been developed keeping in view of the e-service computing technology.*

Key Words: **WFOS (Wireless Food Ordering System), Smart Phones, Android Mobile, Android Application, Dynamic database.**

1. INTRODUCTION

In last few decades, there is rapid increase in the development. Traditional method of ordering the food through waiters is outdated. So, everything is changed to digital nowadays. Food can be order by the application or the device provided. The GUI is user friendly so that everyone can easily use without any confusions. The main goal is to attract the customers and it adds efficiency of maintaining records of ordering and billing system. This will reduce human labor. May be waiter can make a mistake while taking orders from the customers. And chances of errors are more. The system administrator will have the system rights to add or change the food items, or can change the price of food items anytime. Customers order the food according to their choice and the payment amount will be displayed on the screen. So, payment can be made by cash, credit card or debit card. It will avoid waiting of the waiter to take the orders. It can directly be ordered without wasting of the time. Once customers have their food, one or two waiters will be allocated according to their requirement which will clean the table.

2. LITERATURE SURVEY

1) Paper 1: Ashwini Bankar, Mamta Mahajan(1)

In this paper, it describes how mobile menus system was developed in order to provide a generic, easy to use and platform independent menu system for VR applications. The online survey showed that albeit most people are satisfied with paper-based menus. The communication between customers and servers are through RF module.

2) Paper 2: Sushmita Sarkar, Resham Shinde, Priyanka Thakare, Neha Dhomne, Ketki Bhakare(2)

In this paper, person can have the facility to search service by location that is home location of the person is detected with GPS and according to selected option location of nearby service get searched. As this system using GPS and Geo-hashing algorithm so, it is costly. Here, user must give input in terms of rupees only as this system also provides search by cost. But it means that only Indian user can access this system.

3) Paper 3: Noor Azah Samsudin, Shamsul Kamal Ahmad Khalid, Mohd Fikry Akmal Mohd Kohar, Zulkifli Senin, Mohd Nor(3)

Customer can also book a table in advance before coming for dinner/lunch and can know whether a table is available or not.

4) Paper 4: Priya Jadhav, Priyanka Teli, Snehal Korade, Varsha Chavan(4)

To facilitate more intuitive interface and customization for the restaurant owner to update the menu content on the customer devices. It enables a real time feedback between the restaurant owner and customer on the order status. The system requires laptop for the restaurant owner.

5) Paper 5: Prof. N. M.Yawale, Prof. N. V. Pardakhe, Prof. M. A. Deshmukh, Prof. N. A.Deshmukh(5)

Use a cloud based server for storing the database which makes it inexpensive and also secured. Run the app on android based tablet and not on an iOS based tablet which is more expensive alternative.

3. SYSTEM ANALYSIS

A. Problem Definition

With our project goal is to maximize profit by means of efficiency and decreasing the mistakes take place in the kitchen and to minimize the manpower. To make maximum use of technology so that it can help to reduce the manpower. Our traditional methods of ordering food was totally manpower based which includes pen paper and waiter. The customer has to wait for waiter to placed the order, so that waiter would note down the order from customer. After these waiter update order to the kitchen department, the update is recorded and the bill is made. Throughout the system is simple but it includes human errors which can cause loss of bad reputation. The errors which can occur while noting down wrong order or while making calculations. Sometimes it is difficult to interpret the handwriting of waiter.

To overcome these limitations in manual system we developed food ordering system by using digital restaurant. Our system is made for more efficiency and can help to decrease human errors. Transaction between manager and customer will be efficient systematic. Waiters will be to clean the tables or to guide the customer. Our system can provide better service quality to customer and will attract more customers to get this quality service.

B. Scope

By using this Proposed System,

Easy menu updating: When digital restaurant menu is integrated, all changes on the menu relating to the menu items and the pricing can be managed remotely at the server site application (restaurant manager) so that customer site application also gets updated on the e-menu.

Reduced Dependency on Manpower: Automation always frees up the reliance on staff and reduces dependence on the external forces like the manpower.

Enhances customer experience: The digital restaurant menu is highly beneficial for your restaurant since it helps to make your entire guest experience more comfortable and convenient. With a stellar HD photo displayed on the tablets, it would allow your food items to appear more attractive.

C. Proposed System

Existing system uses a traditional method. A traditional method is pen-paper based. In this method, usually menu cards are present on the table due to which customer can refer that menu card. After referring to the menu card, they call the waiter to take their orders waiter will note their orders by using pen and paper method. So, the chances can be waiter can forget to add the order or the order paper got messed up and many other consequences. To overcome the limitation of existing system, we propose our system i.e., Digital Restaurant. Digital restaurant is the name of the application which is Android-based. Our proposed system will replace the old fashioned pen and paper method. It is a wireless food ordering system which is based on Android devices. In this system, we have two module i.e. hardware module and software module. Software module consists of the application which is android-based application. By using digital restaurant application customer can order their food. Hardware module consists of the automatic device which is Arduino-based. Food will be reached at the particular customer table who has ordered the food with the help of that automatic device.

Components are as follows:

(1) Conveyor belt

In our project we are using belt to transport the food from one table to another which I consists of two motors.

(2) UNO Arduino R3:

UNO Ardunio R3 is been used which will give power supply to belt to move in circular form we can adjust speed as per hour use it can be 3V or 5V.

(3) Adapter:

5 volt adapter which will give power supply to the UNO r3.

(4) Motors:

Motors which will be attached to the belt so that it will help to move a conveyor belt.

(5) Android Visual Studio:

It is a IDE (software) in which we have developed our both the application client side and server side.

(6) Google Firebase:

Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiment. We are using Google firebase for database.

D. Working

Our proposed system consist of two modules, which are as follows: (1) Software module (2) Hardware module.

Software module: It consists of the application which is Android based. By using digital restaurant application customer can order their food two modules i.e. Client module and server module

Client module: Client-side application is used by customer. After arrival of customer, customer have to download digital restaurant application in their mobile or the device provided to order the food. After downloading the application, customers have to register their self by providing the details like name, phone number and password. Once registered on client side application, customer can order their food. Once everything is done, they can logout. As client side application consists of good GUI which can attract the customer and make them order easily. GUI consists of images of foods and their categories.

Server module: Server side application is used by restaurant manager and main Chef. Restaurant manager use this application to view the details like order and payment details. Main chef will also use this application to view the order detail about what customer has ordered. After viewing the order details, main Chef will give orders to other chefs to prepare food. The server side application consist of functions like, Restaurant Manager can add the new food or their categories at server side application which can also be displayed at client side application. Even can upload the images of food under their categories. Restaurant manager can view the order details. At server side only restaurant manager and chef can login. Customer cannot login at server side application.

Hardware module: This module consists of the automatic device which is Arduino based. This device is placed around or beside the table of the restaurant. After placing the food on the conveyor belt this device will start rotating. We here by using infrared Sensor so that food could be reaches to the particular customer. The customer can serve for himself or else the waiter can help him. The infrared sensors will help to recognize the particular table. After sensing the particular table convey belt will stop for two or three minutes so that the customer can pick up their food.

System Flow Diagram:

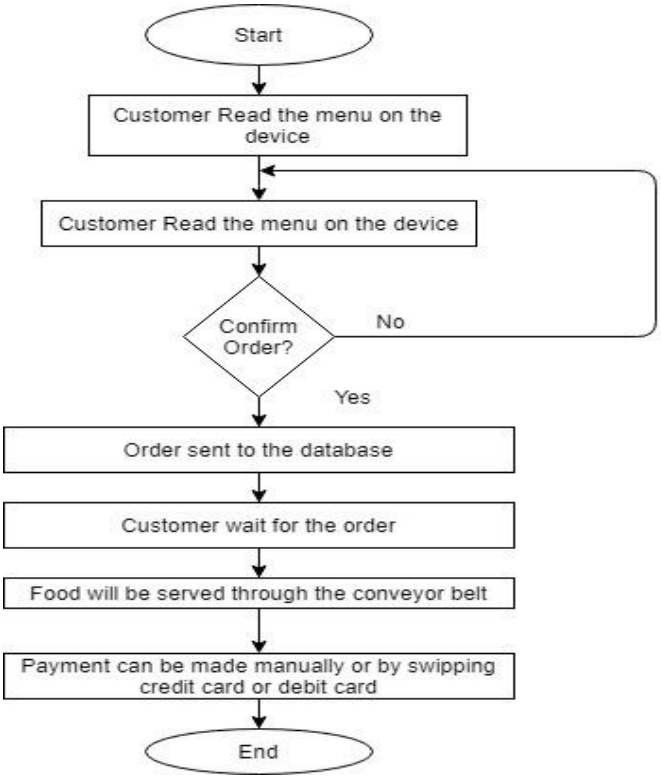

Fig 1: Flowchart

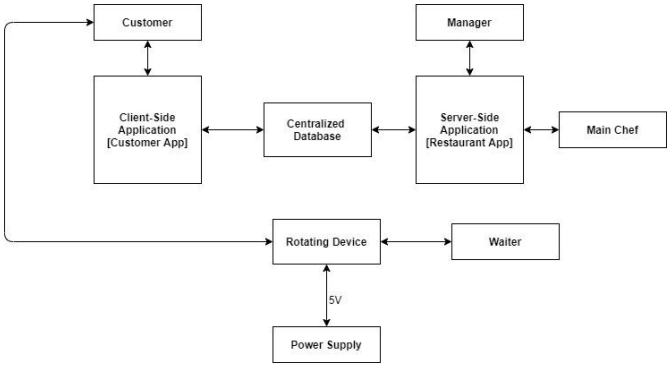

Fig 2: System Architecture

Results:

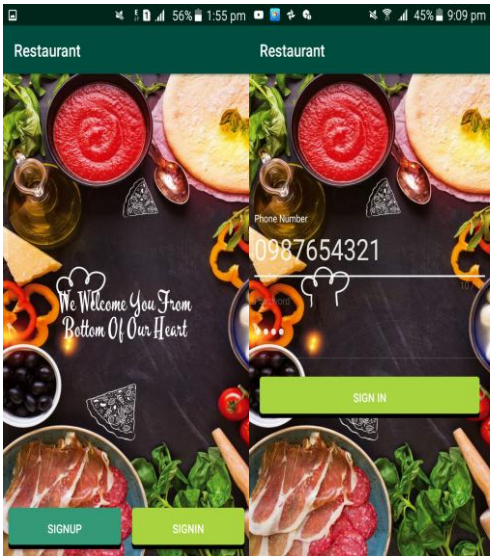

Fig 3 : Register and Login Page

Customers has to register first and then login.

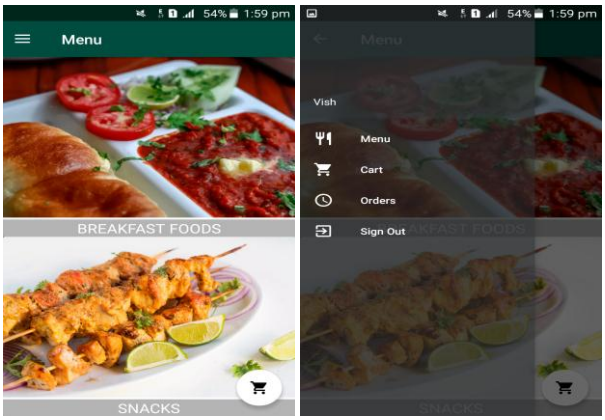

Fig 4: Menu and Home Page

Customer opt the food from the menu according to their choice.

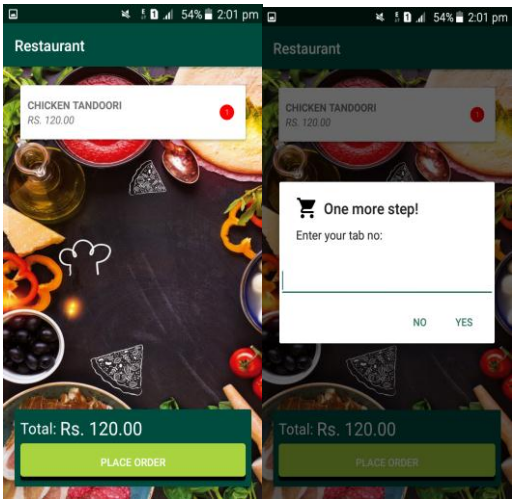

Fig 5:Order Page

After selecting the food, customer has to enter the table number

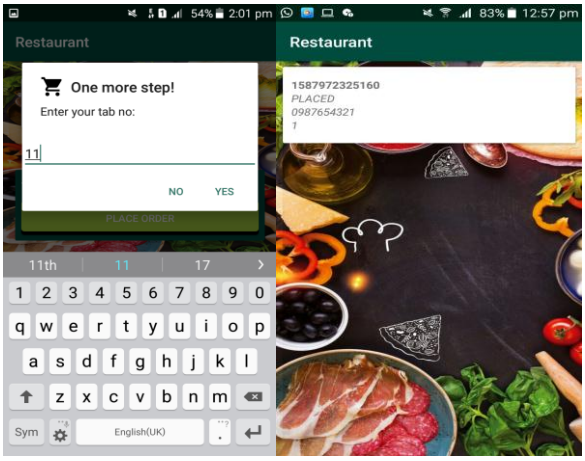

Fig 6: Order detail

Once customer enters the table number, Order details will be displayed at client side application.

Fig 7: Order details at Server side.

Once customer enters the table number, Order details will be displayed at Server side application

4. CONCLUSION

In this digital world each and every field is undergoing a dramatic change due to Information technology. Human labor can be reduced. We have presented digitally food ordering system. System is effective and convenient. Food ordering application is presented with features of Wireless ordering system. The application has the good GUI which will bring more attention to the customers. With private login system, customers can view and make order and receive updates in real-time from the device itself.

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