A PROJECT REPORT

On

DUNZO- FOOD ORDERING SYSTEM

For the partial fulfillment of the award of the degree of

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Rishabh Gupta

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ABBREVIATION

F&B	-Food and Beverages
IOS	-Iphone Operating System
UI	-User Interface
POI	-Point of Interest
GPS	-Global Positioning System
GUI	-Graphical User Interface
AS	-Android Studio
IDE	-Integrated Development Environment
SDK	-Software Development Kit

ABSTRACT

This project is about implementing a food menu application for users to search and upload food information by using a mobile phone. People sometimes may just know what food they wish to eat instead of the restaurants' name. Without knowing any restaurants' names, our food application's search only requires the name of the dish (e.g., Pizza, Dim Sum, etc) in order to get the list of restaurants that serve these items and their corresponding information (e.g., hours, phone number, item's price, etc.). An advantage of using my food application is the system not only includes food information, but any information other users have inputted. When a user wants to input a food item, one can upload the item's picture or a template picture to the server and input the rating and comments about the specific food item. With the rating option, my project calculates a cumulative rating result based around the original and other user's input. As a result, users can search/upload the local restaurants' food without going to the restaurant.

Keywords- Food ordering, restaurants, food, android mobile application

CHAPTER 1

INTRODUCTION

The "Dunzo- Food Ordering System" has been developed to override the problems prevailing in the practicing manual system. This application is supported to eliminate and, in some cases, reduce the hardships faced by this existing system. Moreover, this system is designed for the particular need of the company to carry out operations in a smooth and effective manner.

The application is reduced as much as possible to avoid errors while entering the data. It also provides error message while entering invalid data. No formal knowledge is needed for the user to use this system. Thus, by this all it proves it is user-friendly Food Ordering System, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus, it will help organization in better utilization of resources.

Every organization, whether big or small, has challenges to overcome and managing the information of Category, Food Item, Order, Payment, Confirm Order. Every Online Food Ordering System has different Food Item needs, therefore we design exclusive employee management systems that are adapted to your managerial requirements. This is designed to assist in strategic planning, and will help you ensure that your organization is equipped with the right level of information and details for your future goals. Also, for those busy executives who are always on the go, our systems come with remote access features, which will allow you to manage your workforce anytime, at all times. These systems will ultimately allow you to better manage resources.

Fig 1.1 Healthy Food

1.1 Project Overview

This project works is aimed for developing an efficient food ordering system that can be used in the F&B industry in this pandemic which can help the restaurants to quickly and easily manage daily operational task as well as improve the dining experience of customers. It is believed that still have a lot of restaurants are using the traditional method for food ordering processes. By using the traditional method, it arises a lot of human error while the restaurant's employees deal with large number of customers, this issue will do a great impact to the restaurant in terms of profitability. Thus, this project is to propose a suitable food ordering system for F&B industry to solve the problem that mentioned above. The system will become an important tools use for restaurant to improve the management aspect by utilizing computerized system to coordinate each and every food ordering transaction instead of traditional method. In addition, it can also provide efficiency for the restaurant by reducing time consuming, minimize human errors and providing good quality customer service. In terms of the integrity and availability of the system provided, it can be concluded that this system is a suitable solution for the F&B industry.

Fig 1.2 Food Art

1.2 Project Background

Nowadays, people are more and more frequent to dine-in at restaurant for their meals. At this moment, it arises a lot of troublesome to restaurants which are still using traditional food order method as their food order process.

The traditional food order method is not efficient enough for restaurant to deals with crowded situation in their restaurant which is not allowed in this pandemic. The traditional food order methods can be classified into 2 categories which are paper based and verbal base. For paper-based food order method, the waiter will record down foods that customers order and pass the food order paper to the kitchen for further process. This is the method that implement by most of the restaurants in Kampar. In addition, this method still considers efficient if restaurants are not

crowded, but however it will arise a lot of human errors while restaurants are crowded of customers such as food serve not in sequence, missing of food order paper, mistake in record down the food name and etc.

Second, verbal base food order method is even worse than paper base food order method. Because, verbal base food orders method requires employees to remember all the customers' food order by relying on their memory and then employees will reach the food order message to the chef in kitchen physically. Verbal base food order method contains the weaknesses such as causing the employees unable to memorize all the food order during the restaurant is crowded of customers and the problems that mentioned above. Thus, this kind of weaknesses will do a great impact to the restaurants' profitability.

As a conclusion, this proposal is written to propose an efficient food order system to enhance and improve the existing traditional food order management system and provide convenience, availability and integrity to restaurants. At the end of the project, it will be very useful and did a huge contribution for restaurants to deals with crowded situation during operation hours.

Fig 1.3 Traditional Restaurant System

1.3 Objective

The main objective of the project is to manage the details of Food Item, Category, Customer, Order, Confirm Order. It manages all the information about Food Item, Confirm Order, Food Item. The project is totally built for owner as well as client side. The purpose od the project is to build an application program to reduce the manual work for managing the Food Item, Category, Customer. It tracks all the details about the Customer, Order, Confirm Order.

1.4 Scope

It may help collecting perfect management in details. In a very short time, the collection will be obvious, simple and sensible. It will help a person to know the management of passed year perfectly and vividly. It also helps in current all works relative to Food Ordering System. It will be also reduced the cost of collecting the management & collection procedure will go on smoothly.

CHAPTER 2

PROBLEM ANALYSIS

2.1 Existing System

In the past, a person had to rely on either their own experiences or on a recommendation from a friend in order to find a good restaurant. However, recent advances in technology have created new avenues for finding a good place to eat. Today, one can simply pull out their GPS and look up a POI. Alternatively, one can plan ahead and use their home computer to look up restaurants through their favorite search engine. Lastly, one can pull out their cell phone and look up the right place by using special phone applications.

Fig 2.1 Existing System

2.2 Feasibility Study

After doing the project, study and analyzing all the existing or required functionalities of the system, the next task is to do the feasibility study for the project. All projects are feasible – given unlimited resources and infinite time.

Feasibility study includes consideration of all the possible ways to provide a solution to the given problem. The proposed solution satisfies all the user requirements and should be flexible enough so that future changes can be easily done based on the future upcoming requirements.

A. Economic Feasibility

This is a very important aspect to be considered while developing a project. We decided the technology based on minimum possible cost factor.

- All hardware and software cost has to be done by the organization.
- Overall, we have estimated that the benefits the organization is going to receive from the proposed system will surely overcome the initial costs and the later on running cost for system.

B. Technical Feasibility

This included the study of function, performance and constraints that may affect the ability to achieve an acceptable system. For this feasibility study, we studied complete functionality to be provided in the system, checked if everything was possible using different type of frontend and backend platform.

C. Operational Feasibility

No doubt the proposed system is fully GUI based that is very user friendly and all inputs to be taken all self-explanatory even to a layman. Besides, a proper training has been conducted to let know the essence of the system to the users so that they feel comfortable with new system. As for our study is concerned the clients are comfortable and happy as the system has cut down their loads and doing.

CHAPTER 3

DESIGN

3.1 Goal and Requirements

For most businesses, getting new customers is just as important as keeping old ones. If we can assist restaurants in providing more information to their potential customers, it would most likely encourage new customers to visit those restaurants.

This application would encourage users to utilize our system as long as their phones have internet data services. With our food phone application, users are able to type full or partial names of food items and search for it in the range.

Our food application, by listing all items in the menu, allows users to know how much they need to pay before they make decisions on whether they want to walk into the restaurant or not. Besides, when users want to order food by phone rather than walking into the restaurant, they can check all desired food items from the restaurant's menu with pricing, ratings, and pictures.

Furthermore, the application helps with propagating food information by allowing users to upload more pictures to the server as well as store more comments and ratings each of the food items.

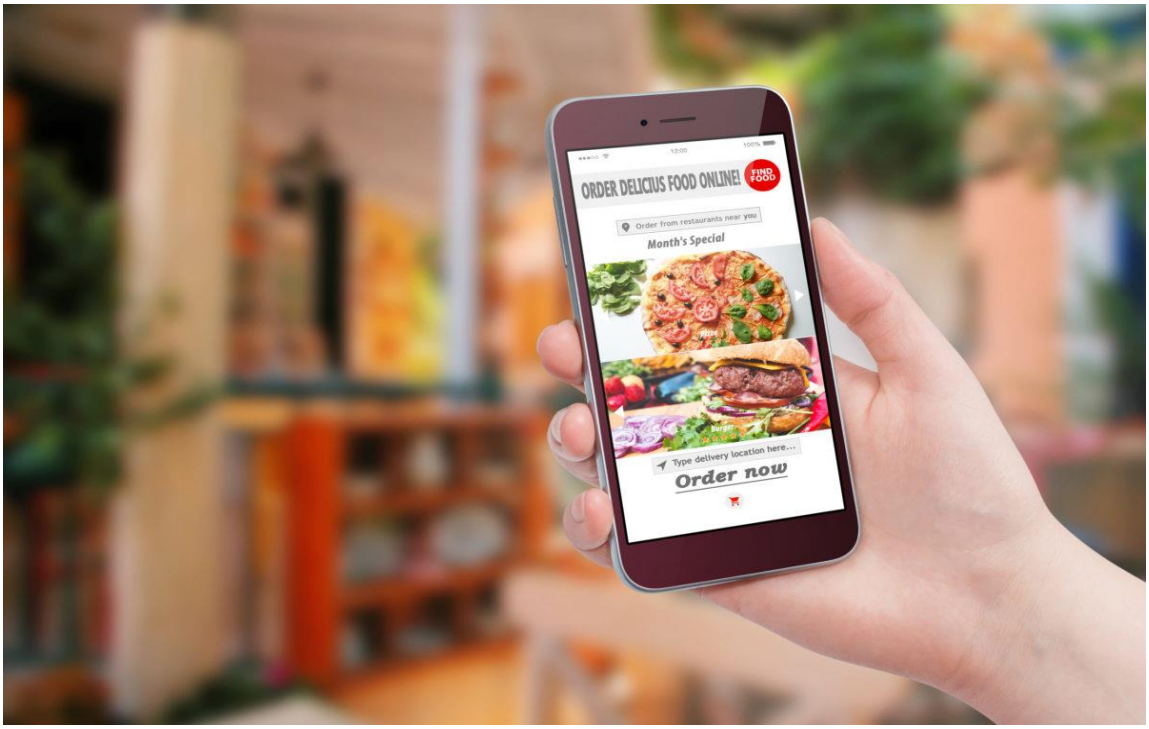


Fig 3.1 Food Ordering System

3.2 Architecture

The project is based on as shown in Figure 3.1 below:

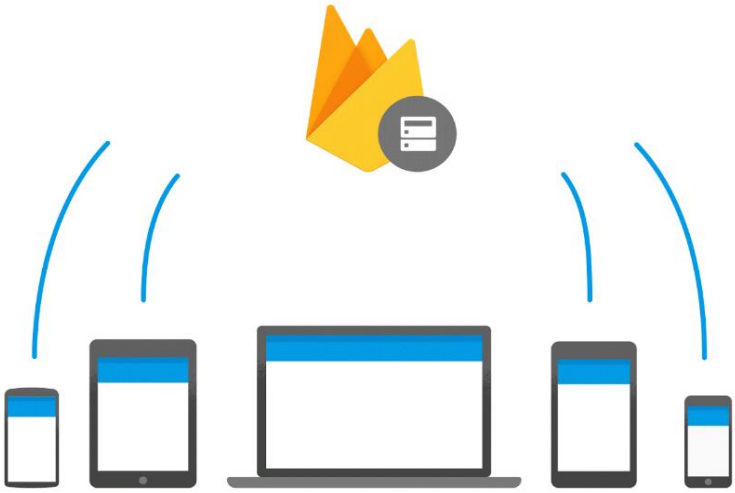


Fig 3.2 Architecture

The developing environment includes two android phone one act as client and one for server-side application. because this project is based on a relatively small-scale database, in order to reduce the number of hardware components, the database is set up on the Firebase. We are using Firebase and its services for storing. For the client, we just need a android phone for the testing. This project is written in (Android) Java language.

3.3 Supported Features

This section is going to describe the main functionalities of this application. Our new phone app includes the following features: searching food from a defined category, getting the menu of a particular category, uploading pictures and comments to the server through an Android phone.

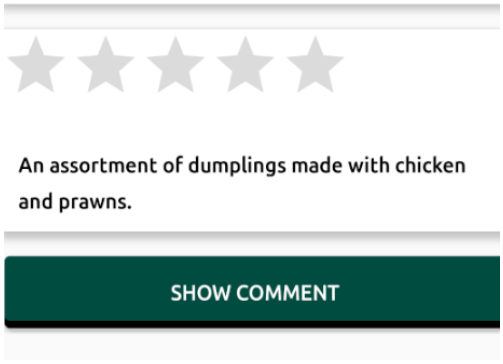


Fig 3.3 Supported Features

Search Food

When users are looking for a specific food item, they input either partial or full name of the food. For example, you can just type “noodle” and search for all noodle items from the menu. The search result will contain a list of food. If the user picks any of the food items from the list, the phone will display the selected food item with detail information such as food pictures, ratings, comments, and the information of the restaurant.

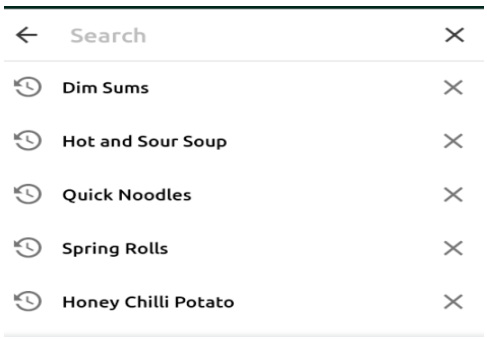


Fig 3.4 Search Food Menu

Get Menu

Getting a menu is one of the most important features for this phone application. When a user launches the application, a list of food categories will be displayed in the phone from which user can select any category to choose desired food or they can search. Each food contains detail information which helps user to have better idea so that they can order the food from the phone.

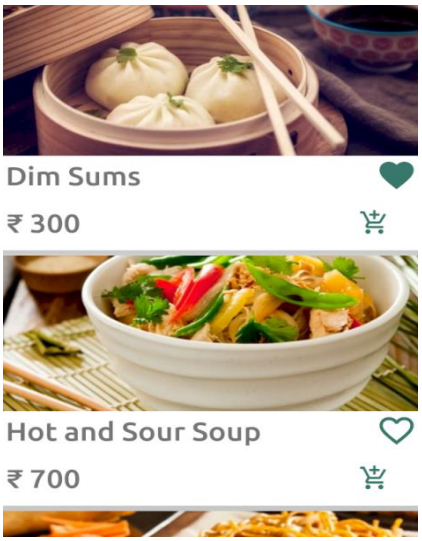


Fig 3.5 Menu

Upload Picture

Another useful feature is that the owner can take a picture with the phone, and upload it to our server. Allowing users to have this feature can definitely motivate owner to use our food application more frequently.

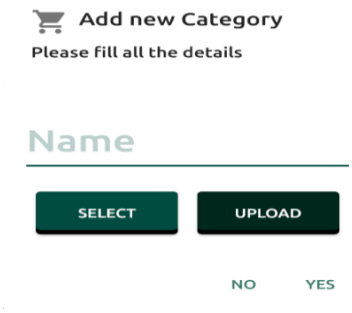


Fig 3.6 Upload Picture

Comment

With the picture, rating and comment features available on the phone, this phone application is better suited for users to give instant feedback about the food items. Users can also rate the food items using the phone application.

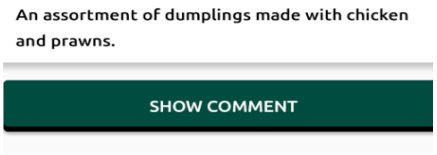


Fig 3.7 Comment

3.4 Design Consideration

Platform

In many markets, Android is one of the earliest significant software platforms for open source mobile applications. Its operating system is Linux kernel-based and user applications are built in Java by using the Android SDK. Due to the simple set up, open sources and the code being based on regular Java syntax, developing Android has big potential market in the near future. One of the big comparators is the iPhone. In order to develop applications on the iPhone, a Mac OS is required. In order to develop Android application, programmers can develop code on both Mac and Windows systems. This makes Android applications more flexible.

By installing the Android add-on Android SDK, we can develop and run the appropriate version of Android phone applications on both of the emulator and the real Android Google phone. The Android emulator is pretty easy to set up and use. For most of the features for our food application,

we can use the Android emulator. Besides, we can also see all the debug messages from Android Studio when we are testing both on the emulator and on the real phone.

Fig 3.8 Android

Application Functionality Design

When using this application, client is not allowed to use their phone to create a new food or category. This is because we want to avoid people entering incorrect information to our system. For example, we do not want somebody to input the wrong price/food item to affect a restaurant's reputation. Besides, incorrect information could cause our users to lose their trust in our system, discouraging them from using it. On another hand, users are allowed to input information such as comments, ratings. This is a nice feature to encourage users to give some feedback, and rate the food items they just ate. With real users' review and ratings, our phone application's information will be more trustable.

Another thing to encourage users using our application is having a user-friendly phone application UI design. When we want to develop a phone application, the user interface is one of the most important factors and must be handled delicately. Our application, however, gave users a comfortable UI to work on. For example, all of our buttons and text message are big and easy to click. For multiple items, we tried to use a lot of list view with a scrollable bar on the side so that the users can have more active space to view each item.

Another example the project uses is the menu buttons in order to save the screen space. If a user does not push the menu button, the bigger size of the screen could be displayed to the user.

CHAPTER 4

IMPLEMENTATION

4.1 Technology Used

Android Studio

Android Studio is certainly a step ahead of Eclipse, which lost its position in less than a year as the main IDE for android application development and became died out. There has been a huge publicity around it among android for developers ever since Android Studio was announced in 2013, and without doubt AS meets up to nearly all expectations.

Android studio IDE is useful for making *android* applications only. You cannot make applications in languages that are not supported by the IDE. But it is definitely the best IDE available for making Android apps because it's designed by Google supported by JetBrains.

XCODE is also a good IDE but like Android studio it supports the development of iOS applications only.

Visual studio on the other hand supports a wide range of languages and can be used for many purposes.

Fig 4.1 Android Studio

Firebase

It provides a host of features and modules that an app developer needs, as a service thereby eliminating the need to create these from scratch.

It includes everything from a scalable database to powerful analytics libraries. Firebase is in no way a replacement for backend development activity, but it is rather a platform to help backend developers and engineers enhance the experience of the app without stressful coding and architectural planning.

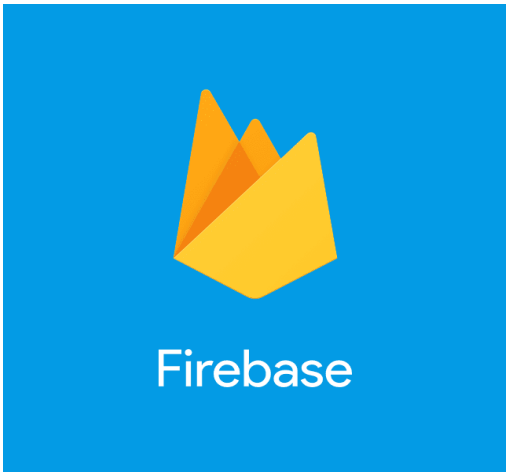


Fig 4.2 Firebase

4.2 Database

For restaurants and their menu's storage and user logging information, it is necessary to have a database set up for the system. Since this system's database is simple, Firebase Realtime Database is used for this phone application.

Fig 4.3 Firebase Realtime Database

4.3 Notification

For notification, we have used cloud messaging. Firebase is Realtime database and is async database, any change/addition from Firebase, all the client gets the notification when only one user order is updated. So, we used cloud messaging for notification purpose. We have also created discount and new food item adding notification which can be subscribed or unsubscribed by client any time they want.

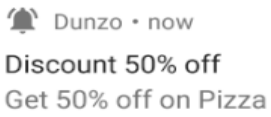


Fig 4.4 Notification

4.4 Upload File

Another responsibility is accepting files (picture files) from server. We have used Firebase Storage to store images of the food. It can store any format of image.

Secondly, since the uploaded pictures will display on the phone screen, for a better performance, Firebase provide the high picture resolution which beautifies the UI. This can save lots of space for the server phone and downloading and uploading time from the firebase to transfer files is too easy.

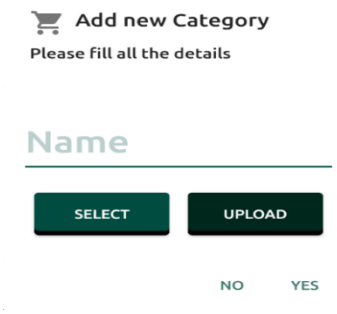


Fig 4.5 Upload File

4.5 Java Android

Since this is a phone application, the Java Android is the most crucial part for the project. It directly interfaces with users, handles all user input events to trigger internal functionalities for the phone and display user understandable output to the screen. Besides, this module tried to take the advantages of Android smart phone's advance features which will be described in the following sections.

Fancy List View

By default, we can only create a simple list view on the phone. The list is only text message which are stored in an array variable. When we need to create a fancy list view, it is necessary to extend the FirebaseRecyclerAdapter in order to add customized style of into the list view. In this way, we can add different components dynamically to the list and display them on the phone at runtime.

Fig 4.6 Fancy List View

Navigation Drawer

We have created navigation drawer which allows client and owner to navigate to other features easily from the main screen. All the features are listed on the navigation drawer.

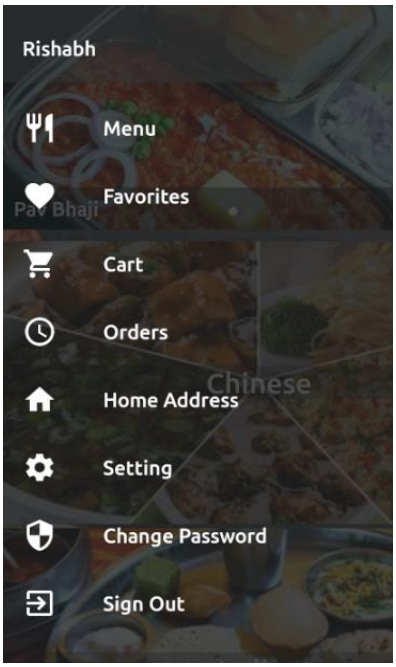


Fig 4.7 Navigation Menu

Material Design

We have used material design for edittext, counter floating action button, elegant number button, etc to make UI more attractive and easier to use for the user.

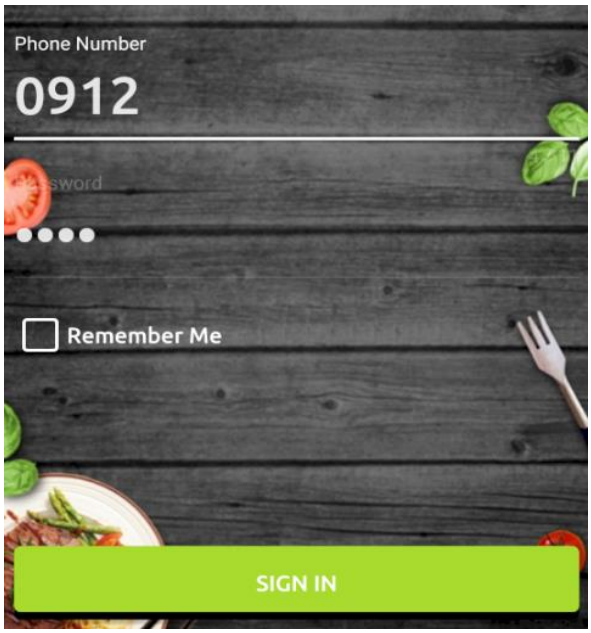


Fig 4.8 Material Design

Swipe to delete

We have used swipe to delete feature to make our UI more attractive to the consumer. Through which user can easily delete the item easily.

Fig 4.9 Swipe to delete

Cancel Order

We have used this feature so that user can cancel their order until it is ready. We also ensured that once the order is ready client cannot delete the order.

Fig 4.10 Cancel order

CHAPTER 5

TESTING

5.1 Unit Testing

First of all, unit testing will be the first testing method that used to test the developed system. It consists of testing activities that test the system module by module which has not been integrated as a whole. By doing unit testing, developer are able to identify error and bug easily since it is finding the error and bug through a unit part of the system rather than finding error through the complete system. In addition, developer will test the unit part of the system with the validation and the correctness of data value. Valid and invalid input will be entering to test and ensure the system processes perform with an expected result.

5.2 Functional Testing

After conducted the unit testing, functional testing will begin to test the developed system. Functional testing is performed to verify that the system application processes that perform and functioning appropriately according to the design specifications. In functional testing, the core system application functions will be tested with several test cases in order to ensure that the entire system functioning as a whole and perform task that with the expected results.

5.3 System Testing

System testing of the software and hardware is a testing conducted on a system which is complete, integrated system that works as a whole. System testing is a critical testing procedure that must be conducted by software developer before the system released. During system testing it can evaluate the system's compliance with its specified requirements according to the system design. Furthermore, several testing activities in system testing test not only the design of the system, but also the behavior and the believed expectations result from the customer. In addition, various complex test cases that used to test the system are according to the business process requirements which are collected from the user. Meanwhile, errors or bugs that detected during the testing is required software developer look into it from the initial step of the business process to the end of the process to ensure it have expected result in order to solve the errors or bugs to determine the degree of system stability.

5.4 Acceptance Testing

Last but not lease, acceptance testing also known as user acceptance testing would be the final testing procedure that perform to test the developed software system. In acceptance testing, the testing activities are different compare to the testing activities that mentioned previously because the tester that tests the system will be the final user which do not have knowledge about the system

logic. If the final user encountered an error while using the system, system developer are required to maintain the system as soon as possible and release a new patch for the existing system to recover the error. Meanwhile, final user will use the system that visualized as to support their real business routine operation; therefore, software support team are required to stand by to provide technical support while final user need any help or support that regarding the system. If there is no errors detected by the final user while using the system for a long period, the development job of developer is consider as complete and the system will be a final system product.

Fig 5.1 Application Testing

CHAPTER 6

PERFORMANCE

6.1 Performance

Network Performance

We measure network performance by measuring the time it takes a client to finish downloading food information based on different numbers of results the server return. In order to measure the elapsed time, we connect the phone to our development computer to read out log message from the phone application. We log the timestamps before and after a download. The less time it takes the higher performance this application provides. However, we believe any performance bottleneck for the download times should be related to network conditions. Overall, the performance of our system is very acceptable from a usage perspective.

Convenience of UI

We measure convenience of UI by comparing the number of steps we need to go through in order to search for one specific food item. The fewer steps it takes, the better UI design the system is because fewer steps indicate ease of use. Test result showed that our application gave the best search results whiling requiring the least user interactions. Other application can return irrelevant result while requiring many user steps at the same time. As a result, a search bar specific for food item is a valuable feature when we are looking for a food item by phone.

CHAPTER 7

SYSTEM EVALUATE AND DISCUSSION

7.1 Proposed System Completion

The proposed system is designed and developed to solve all the problem statements which are stated in chapter one of this report. First of all, the developed system provides a feature that is able to solve the problem of difficulties in food order ticket tracking and achieve the project objective of prevention of food serves not in sequence. By using the system, it allows staff to placed order ticket through using the system and the system will automatically queue the food order information according to the first come first serve basis and kitchen staff is able to follow the food queue to serve customer accordingly. It also eliminates all the manual processes that involve in the traditional method of delivering food order ticket. In addition, the developed system allows manager to update all the food information as it is needed. This feature helps restaurant to eliminate duplicated physical menu card which contain misleading information and also allow staff and customer to view the latest updated food menu information through using the system. By doing so, it helps restaurant to solve the problem which regarding difficulties in updating menu card information, difficulties in providing appropriate updated food information and the potential of increase cost of operation as the system will automatically refresh all the updated information that is edited by manager. Furthermore, the project objective which regarding provides convenience for both employees and consumers has been achieved because the system allow consumer to view all the updated information through the mobile phone client devices and it reduce the number of manual work which restaurant staff need to be performed. Last but not lease, the project objective of assisting restaurant to plan ahead has been achieved due to the system allow manager to generate several types of report in order to assist the restaurant to plan ahead. By analyzing the generated report, manager is able to carry out a planning for the next business routine of the restaurant in order to improve the restaurant operation efficiency. In a nutshell, the system has fulfilled all significant outcomes that according to all the problem statements and project objectives that are stated.

7.2 System Strength and Limitation

System Strength

The system provide customer with good dine in experience as it allow customer to view food information and place order through using the mobile phone device. The mobile application also provides ease of use because it has easy understandable graphic user interface and minimal instruction to follow while place order through the application. Next, it helps restaurant staff to serve their value customer in minimal delay. Furthermore, the system can be implemented with low cost and is affordable for most of the small medium enterprise restaurant, because the hardware requirements are not required to be high end powerful in order to support the system. Lastly, server

and client are communicating within the restaurant which is intranet therefore it does not need to have internet access.

System Limitation

The system is not compatible with IOS mobile devices as the mobile application is developed in Android environment. Therefore, for IOS mobile phone user may not able to install the application in their mobile phone and experience the system. Meanwhile, the restaurant has prepared some Android mobile devices which are used to resolve the issue that mention above. Next, due to the mobile phone client devices are required to connect to the wireless intranet in order to communicate with the server. It is very important to identify a suitable location that used to install and set up the wireless access point in order to ensure the wireless signal coverage is able to reach the entire restaurant area. Another Limitation is that there is no system for shipping restaurant.

Future Enhancement

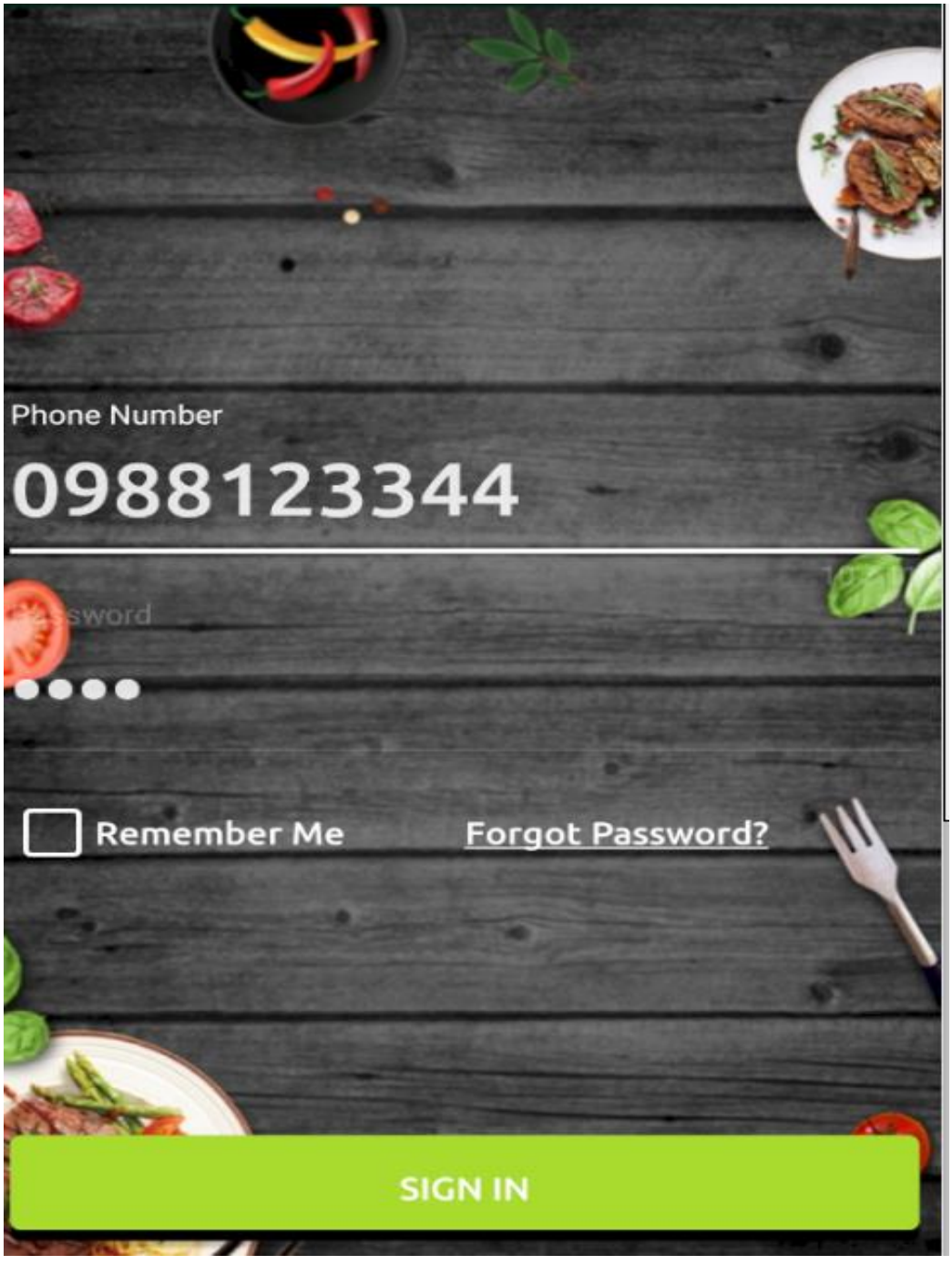
The system can implement a feature which is real time notification from the mobile phone application to the service desk. This feature enable customer to request customer service through using the mobile application rather than verbally call restaurant staff to approach them. In addition, the mobile application also can implement a feature that allow customer to update the food serve status. For example, customers fine dining at the restaurant they can request the food to be serve through using the mobile application and if the customer finish the main course and feeling full, the customer may request do not serve the following food through using the mobile application. Last but not lease, the mobile application may implement some mini game that is able to entertain customers while they are waiting for the food to be served.

CHAPTER 8

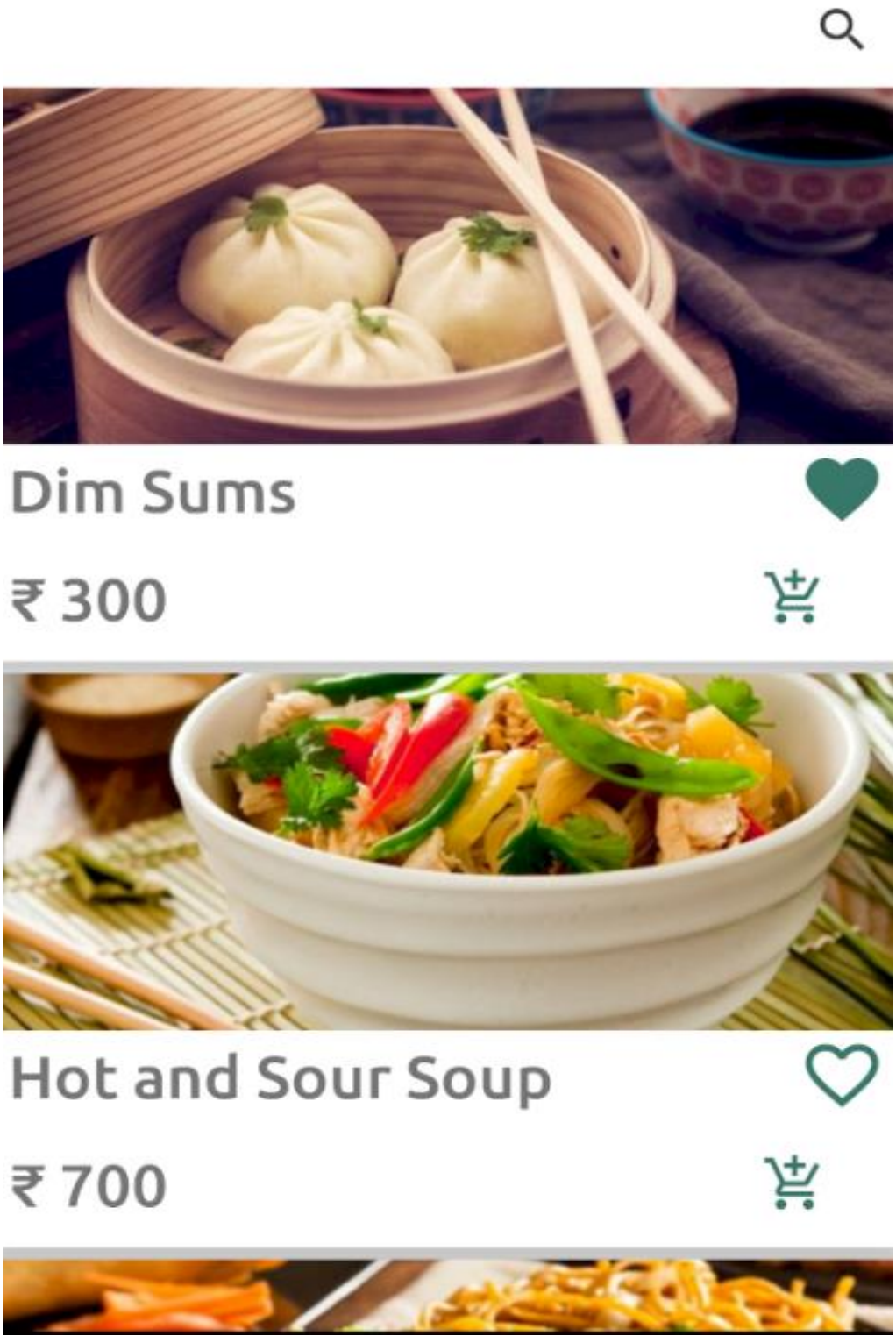
USER MANUAL

8.1 Manual for Client

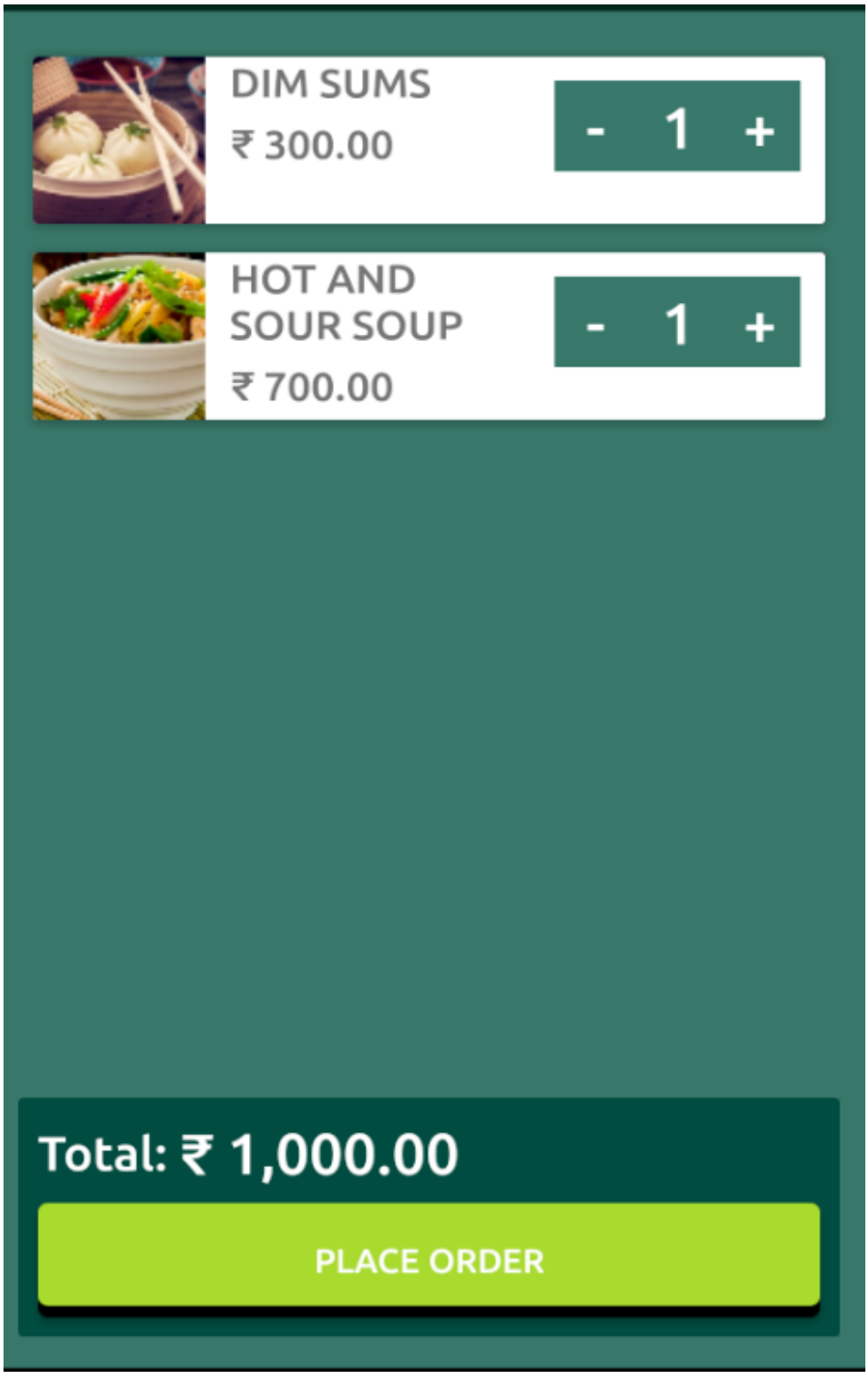
STEP 1: Register/Login in the app wth phone number and password.



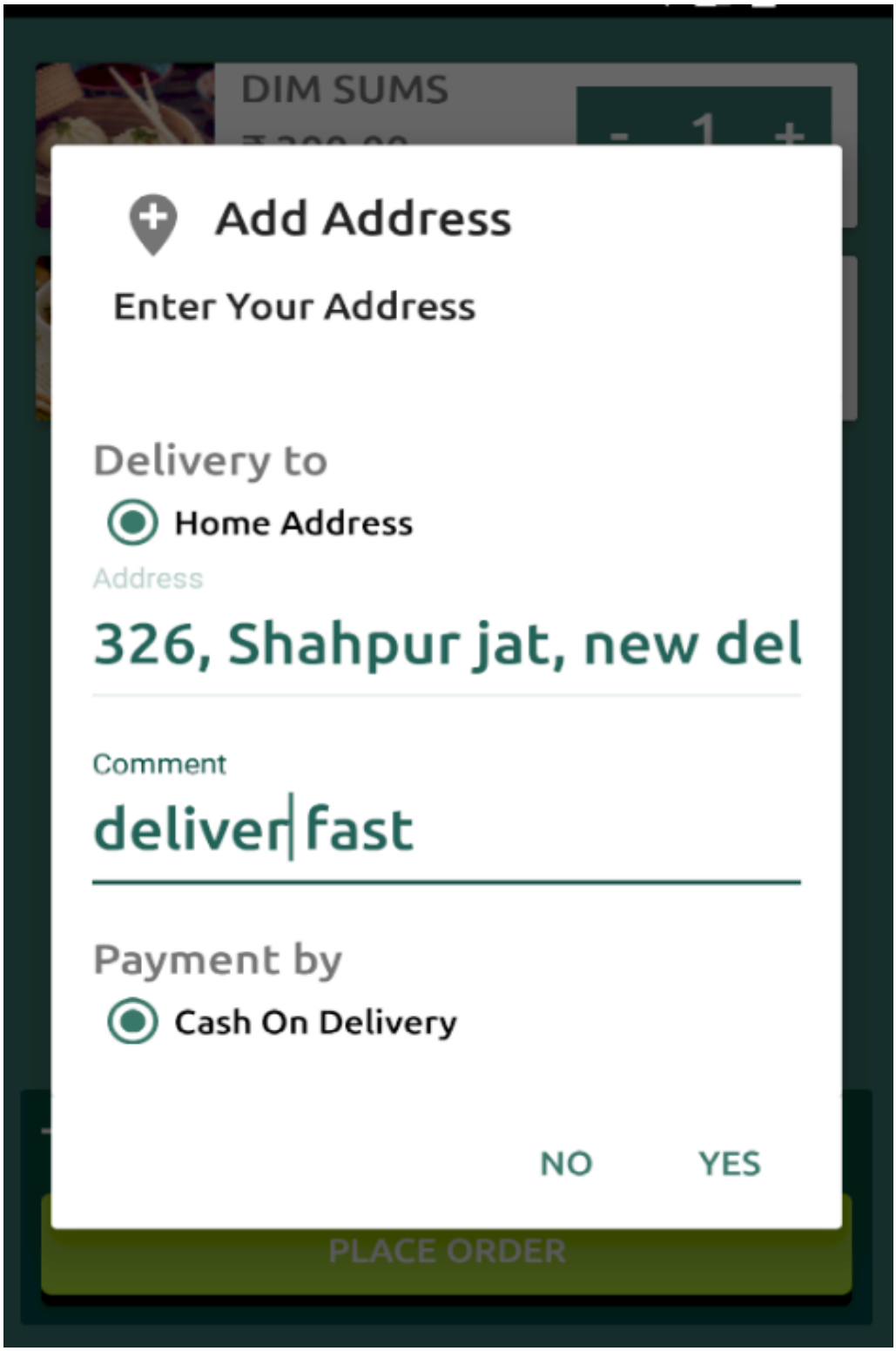
STEP 2: Choose your food item from menu OR you can search from search bar.



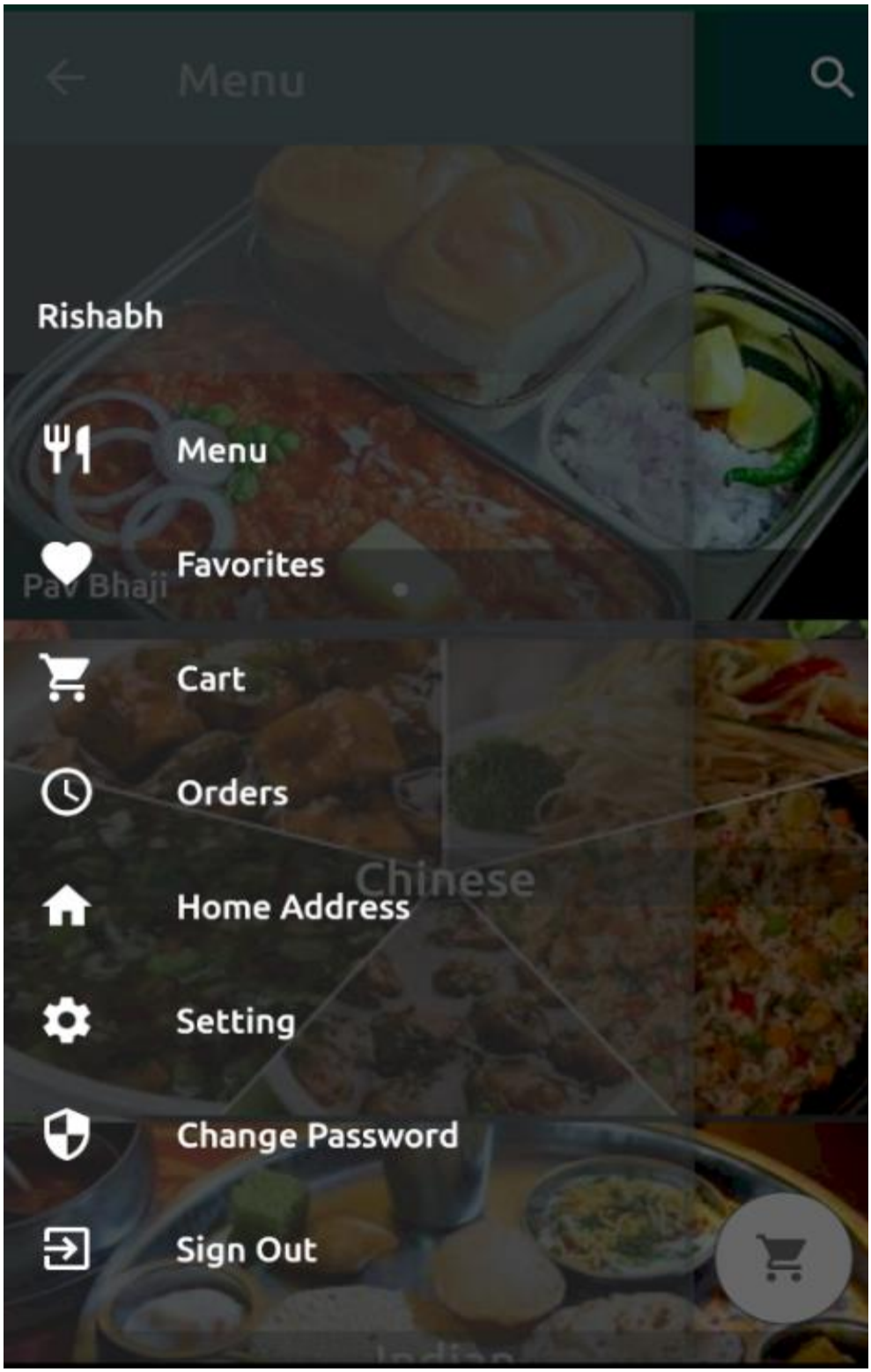
Step 3: Press on the Add to Cart Button and go to cart. You can remove it complete by swiping right to left and can increase and decrease the quantity of the food item. Click on the “Place Order” Button to place the order.



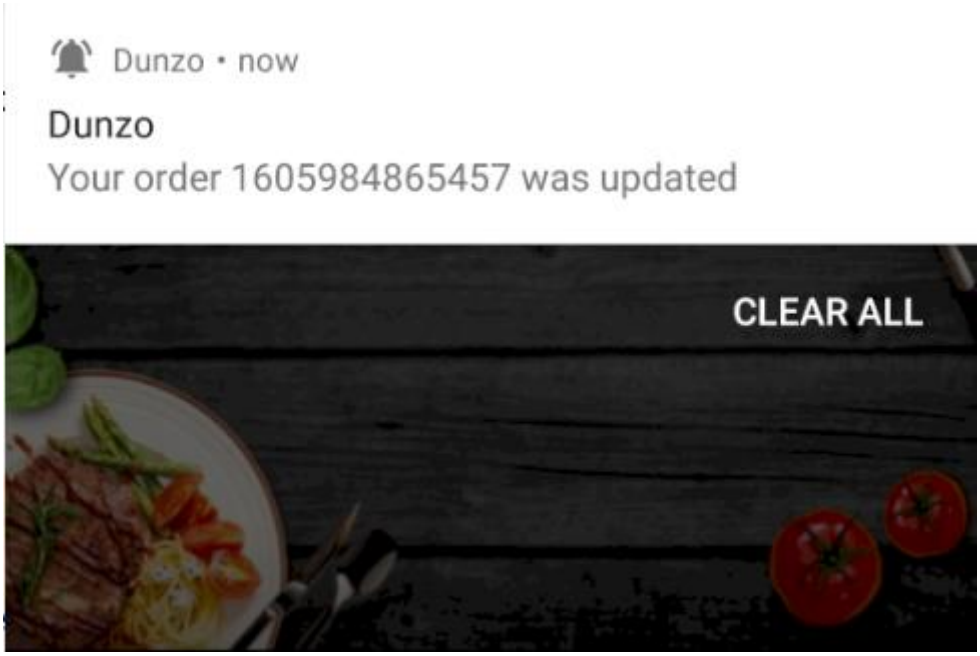
Step 4: Fill your complete address OR you can select your home address. Choose the payment option and place your order.



Step 5: You can navigate to other features using navigation menu such as Favorite foods, Cart, Your Orders, subscribe to discount and new item system, you can also save your home address, change your password, Sign out.

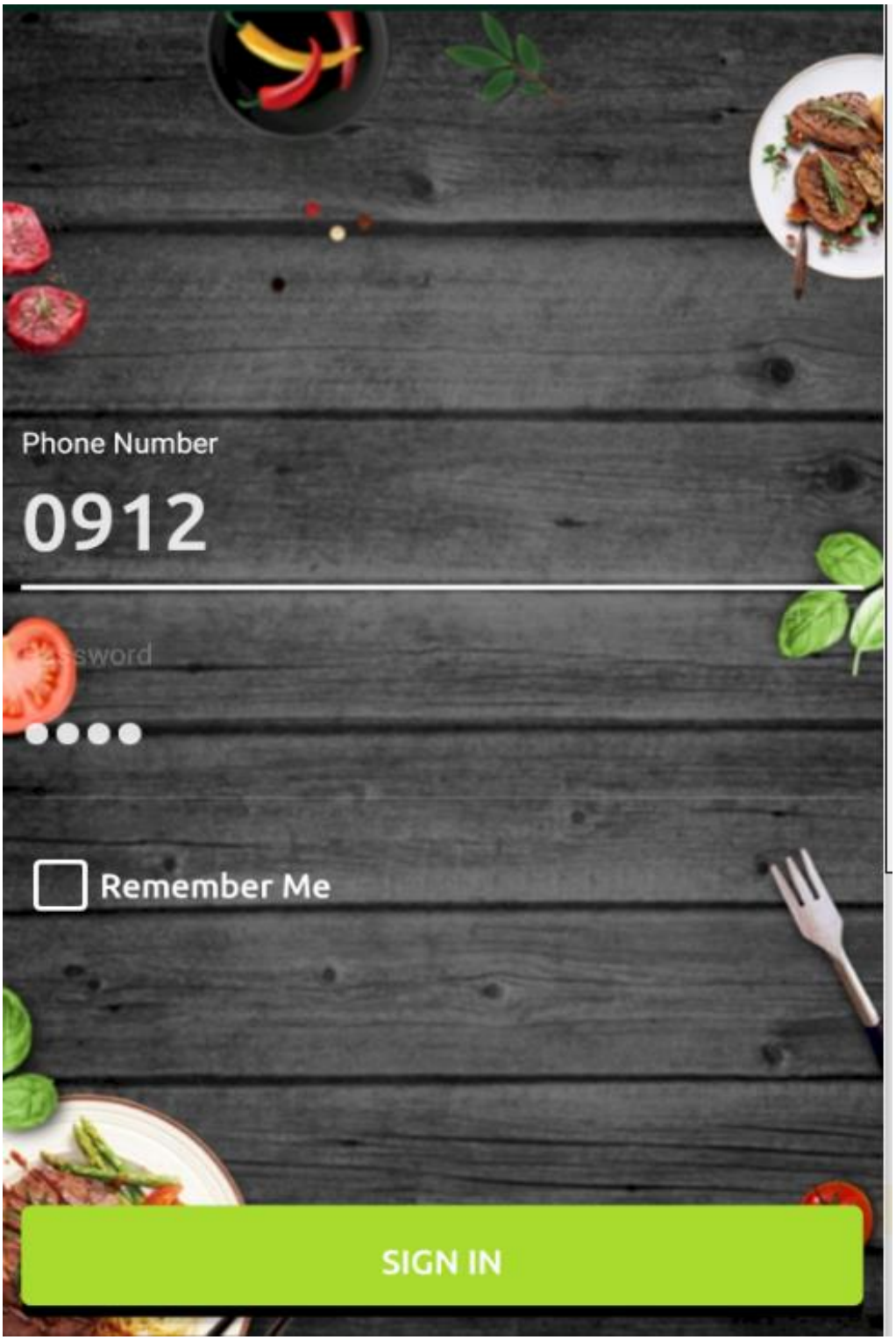


Step 4: If there is a change the status or a new offer is released user will get a notification of it.

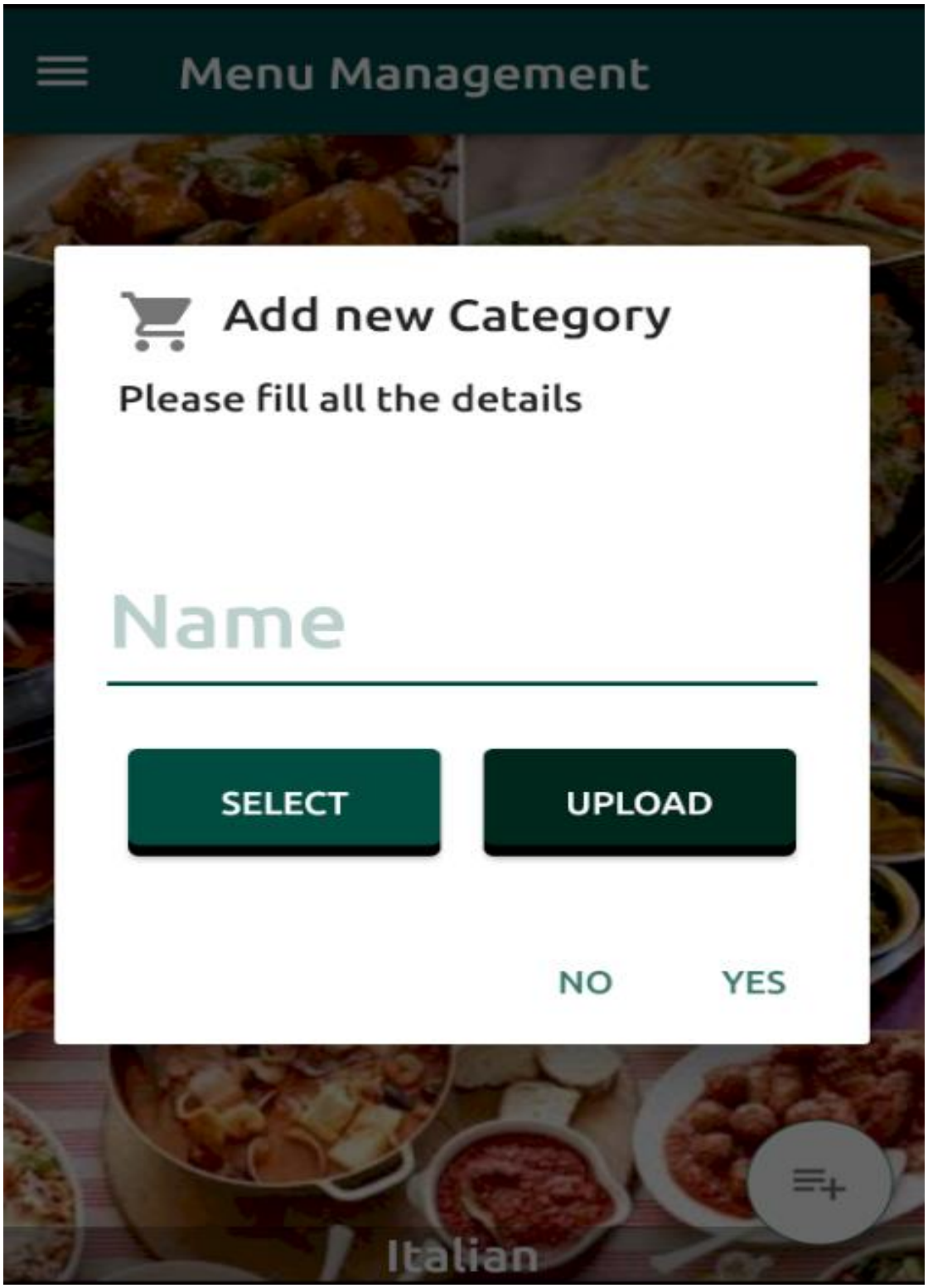


8.2 Manual for Owner

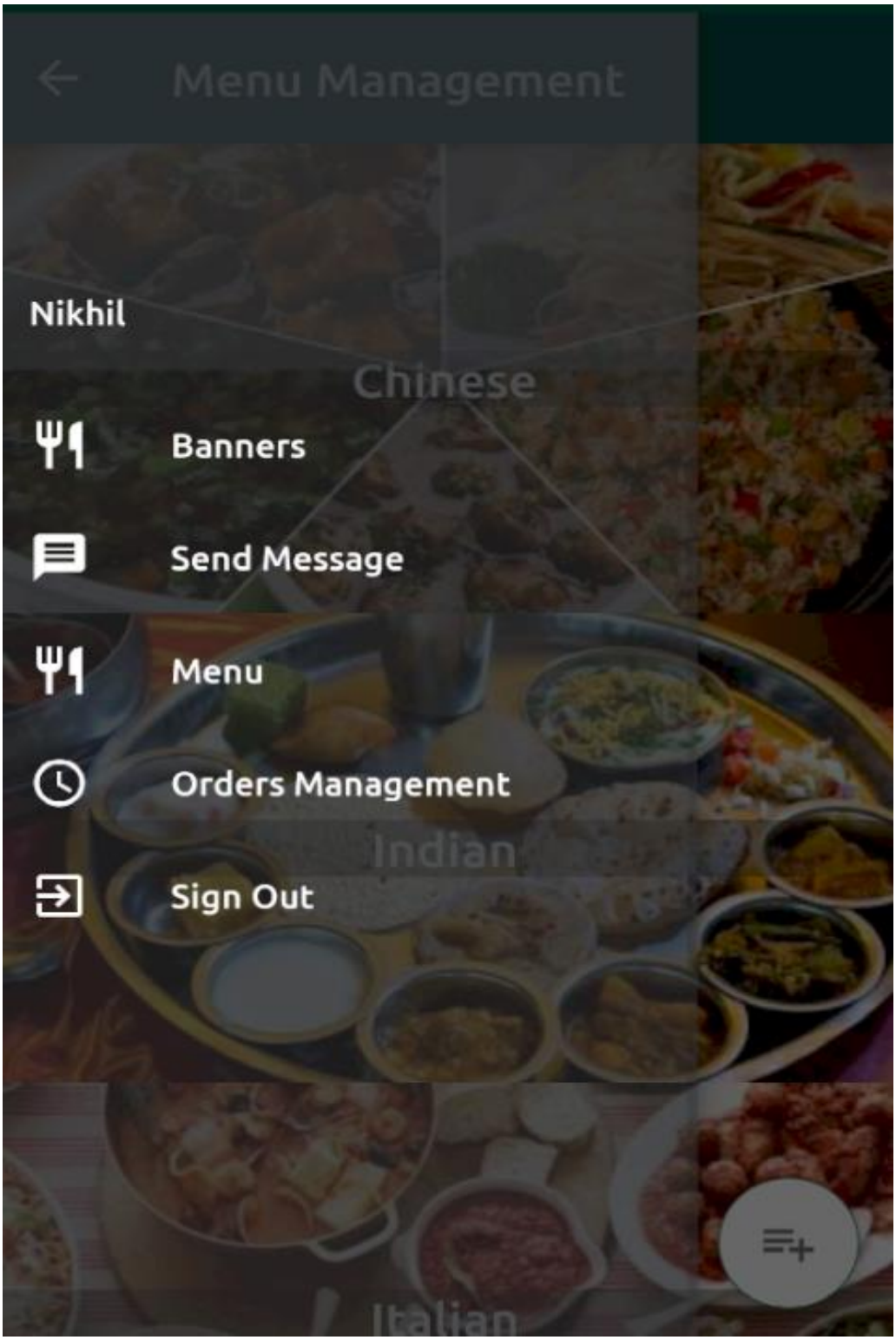
Step 1: Owner can only login in the help of confidential provided by the Administrative.



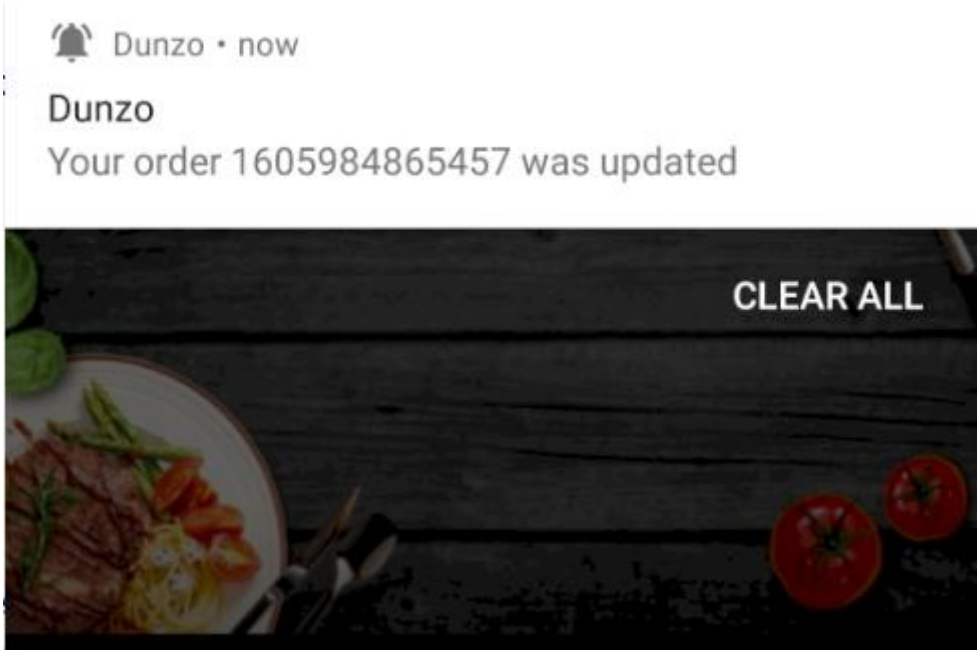
Step 2: Owner can add new item or category in the menu using the floating button provided. Owner can name and select the image from the phone storage.



Step 3: Owner can also navigate to other features like order management, banner management, discount and new item system management, etc.



Step 4: If there is a new order placed Owner will get a notification of it.



CHAPTER 9

CONCLUSION AND APPLICATIONS

Conclusion

After a decade, the advancement and innovation of technology help people to manage their task easily and efficiently. In many other industry area have been used management system to assist their business grow long time ago, therefore it is also a trend that cause F&B industry to make use of a management system for their business. At the end of this project, the system can reduce and replace the human manpower task, reduce the time consume for each transaction and generate report for further management purpose by fully utilizing the system.

Obviously, the propose system can help improve the productivity of the restaurant and thus directly did an impact to the profitability of the restaurant. Furthermore, it can also help restaurant to reduce the cost of operation in term of manpower, because the system have already facilitate majority of the business process by using the system. Therefore, it is believed that the system can lead the restaurant's business grow from time to time.

On the other hand, the technology nowadays allows the portability requirement easy to achieve. Therefore, portability has become one of the factors that have to take into consideration in the system development process. Because portability brings a lot of benefit to user while they using the system such as it provides convenience, accessibility, easy to communicate and etc. Hence, portability has done an impact to the social that everybody is much more preferable to complete their task with portable device.

In order to fulfill these all requirement, our proposed method is combined the food ordering system which is in mobile platform into the restaurant management system which is in computer platform. The integration of both features which develop a system that can let user to have an experience of portability which is user can process their food ordering through using their smart phone or tablet. Besides, restaurant manage their daily operation management through using the computer platform it is because computer have some other features such as it has a wider screen, other compatible system that can help to manage the restaurant and some other driver that needed to communicate with that necessary hardware.

Application

Online food ordering software designed specifically for food to go retailers, restaurants and takeaway. Online sustenance requesting is quickly expanding as clients take pleasure in the comfort of requesting online. Get our online food ordering app and add a new channel for sales.

Benefits of using online food ordering or restaurant ordering app is reduced labour costs, reduces walk away & long queues. This online ordering system for restaurants is designed for multisite food to go chains and independents like Restaurants, cafes & coffee shops, Fast food, take away, other catering services.

Getting your business online opens up many more sales which will improve your reputation in market. With your online menu, existing clients will have an awesome new advantageous approach to order and new clients will soon discover you through famous web search engines. The system is branded to match in with your existing website. We help entrepreneurs to grow their business in digital world.

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