Online Food Ordering System

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Abstract— Food Industry has always been a profitable industry not only for manufacturers, suppliers, but also for the users, distributers. The online food delivery system is the need of hour because of the recent changes in the industry and the increasing use of the internet. A Real-time online food ordering system for the customer is our proposed system. The traditional queueing system drawbacks and disadvantages are overcome by our system application. Food can be ordered online in a hassle-free manner through our proposed system from restaurants as well as mess services. The food order taking methods from customer are improved by our system application. A Food Menu is set up online and as per their wish customers can simply place their order through the proposed system. Also, customers can effortlessly track the orders with a food menu. Users can rate the food items over the feedback system provided by the system. Also, restaurants and mess services are recommended to the new customers based on the user ratings through the proposed system and for the improvements with the quality, the restaurant/mess staff will be informed. For the initial implementation of the system application pay-on-delivery payment system is used. Separate accounts are maintained for each user for more secured ordering by providing an ID and a password.

Keywords: Automated Food Ordering System, Cloud Computing, Dynamic Database Management, Internet of Things, Smart Phone

I. INTRODUCTION

An online food menu is set up by the proposed food ordering system and as per their will customers can easily place the order. Also, customers can easily track the orders with the food menu. The management improve food delivery service and preserves customers database. Motivation to develop the system is from the restaurant management system. To get the services efficiently the users of the system provides various facilities. Restaurants as well as Mess facility is considered by our system for the customers. Mostly mess users are person who are shifted to new cities and this can be considered as a motivation to our system. Another motivation can be considered as the increasing use of smart phones by the customers, so that any users of this system get all service of the system. The system will be designed to avoid users doing fatal errors where users can change their own profile also where users can track their food items through GPS and where users can provide feedback and recommendations to Restaurants / Mess service providers.

There's a need for the system due to lack of a full fledge application that can fulfill the customer requirements by providing him food from restaurants/mess service. For the students studying in different cities, our system will be very helpful.

The flexibility to the Customers/Users to order from either Restaurants or Mess is provided by our system. Recommendations to the customers is also provided from the restaurants/mess owners which are updated daily. There will be no limitation on the amount of order the customer wants by ordering food from our system. As a Startup Business for the developers the same system application can be used. Real time customer's feedback and ratings are provided by our system with the comments to the restaurants/mess owner. It gives appropriate feedbacks to users, so if there is any error happened, then there will be a feedback dialog toward users.

To avoid users doing fatal errors and inappropriate action our system application is designed. Input will be taken by the user from the graphical user interface. The major attributes such as name, address, and email-Id, mobile no, other personal related values will give input to the dataset. The User/Customer's Order, Bill, Feedback and Recommendation will provide the output. For the initial implementation of the system we have considered 2 restaurants and 2 mess services in 5 areas.

II. LITERATURE REVIEW

In [1] an automated food ordering system is proposed which will keep track of user orders smartly. Basically, they implemented a food ordering system for different type of restaurants in which user will make order or make custom food by one click only. By means of android application for Tablet PCs this system was implemented. The front end was developed using JAVA, Android and at the backend MySQL database was used.

In [2] Customer using a Smartphone is considered as a basic assumption for the system. When the customer approach to the restaurant, the saved order can be confirmed by touching the Smartphone. The list of selected preordered items shall be shown on the kitchen screen, and when confirmed, order slip shall be printed for further order processing. The solution provides easy and convenient way to select pre-order transaction form customers.

In [3] there was an attempt to design and implementation of digital dining in restaurants using android technology. This system was a basic dynamic database utility system which fetches all information from a centralized database. This application improved the accuracy and efficiency of restaurants as well as human errors. Earlier drawbacks of automated food ordering systems were overcome by this system and it requires a onetime investment for gadgets.

In [4] an application of integration of hotel management systems by web services technology is presented. Ordering System Kitchen Order Ticket (KOT), Billing System, Customer Relationship Management system (CRM) are held together by the Digital Hotel Management.

Add or expand of hotel software system in any size of hotel chains environment was possible with this solution.

In [5] research work aims to design and develop a wireless food ordering system in the restaurant. Technical operations of Wireless Ordering System (WOS) including systems architecture, function, limitations and recommendations were presented in this system. By providing higher quality customer service and reducing human errors to improve the management aspect for restaurants, pervasive application will be a valuable tool due to the high demands of handheld devices such as PDAs.

In [6] along with customer feedback for a restaurant a design and execution of wireless food ordering system was carried out. It enables restaurant owners to setup the system in wireless environment and update menu presentations easily. Smart phone has been integrated in the customizable wireless food ordering system with real-time customer feedback implementation to facilitate real-time communication between restaurant owners and customers.

In Paper [7], the purpose of this study was to investigate the factors that influence the attitude of internet users towards online food ordering in Turkey among university students. A Technology Acceptance Model (TAM) developed by Davis in 1986 was used to study adoption of Web environment for food ordering. Trust, Innovativeness and External Influences are added to the model as main factors along with TAM.

In Paper [8], the research work aims to automate the food ordering process in restaurant and also improve the dining experience of customers. Design implementation of food ordering system for restaurants were discuss in this paper. This system implements wireless data access to servers. The android application on user's mobile will have all the menu details. Kitchen and cashier receives the order details from the customer mobile wirelessly. These order details are updated in the central database. The restaurant owner can manage the menu modifications easily.

In Paper [9], this research works on efforts taken by owners of restaurants to adopt information and communication technologies such as PDA, wireless LAN, costly multi-touch screens, etc. to enhance dining experience. 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.

III. PROPOSED SYSTEM

To overcome the restrictions of above system, based on Internet of Things an Online Food Ordering System is proposed. The use of mobile technology has revolutionized as the Android devices have gained popularity in the automation of routine task in wireless environment. For mobile devices such as smart-phones and tablets android is a Linux built operating system. As a general Objective of the study to develop a reliable, convenient and accurate Food Ordering System is considered. As an objective, a system that will surely satisfy the customer service will be considered. To design a system that can accommodate huge amount of orders at a time and automatically compute the bill is one of the key objectives. One of the important objective is to evaluate its performance and acceptability in terms of security, user-friendliness, accuracy and reliability. One of key objective is to improve the communication between the client and customers.

The figure.1 represents the simple system architecture of the proposed system: -
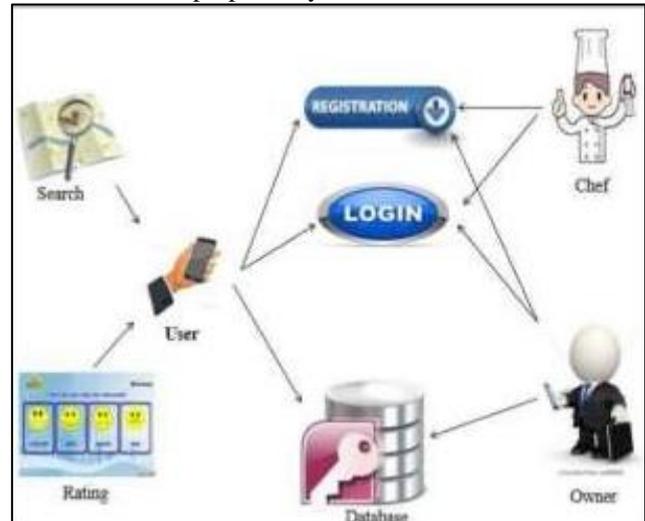

Fig. 1: System Architecture

IV. ARCHITECTURAL DESIGN

The system implementation contains 3 main users: - Service Customer, Proprietor of Mess/Restaurant, and Worker of mess. When a person moved to new city he must find source for clean and superior food, so he/she will explore and select restaurant or mess, or tiffin service based on his category.

The pattern in which user will search the services for a purpose GPS system should be on and a part of Geo-Hashing Algorithm is used. Person can have the facility to search service by location that is home location of the person is detected with GPS and nearby service get searched according to selected option location. Searching by cost is another way.

Search by rating is also possible by our system. List of service is given if matched by the user given ratings when the services that has ratings are checked with it. The search can be carried out by accepting distance from user where it needs to search and displaying service provider within a distance.

A. Requirements definitions

Analyzes based on similar application and determines the necessary features in the application, as well as do the details about the features that will be created with function of each features. Features that are needed in application for customer are as follows:

– New Order: New Order is the main feature of the customer side application that will be used to make orders. An order can be made in two separate ways, the one is by is using My Favourites feature to make an order by choosing one of the top three favourites restaurant and the other one is by using Make a new order feature to make an order by choosing restaurant and menus provided easily.

- Order History: Customer's order history is shown by this feature namely order history.
- Restaurant Profile: Restaurant's profile is shown by this feature. Through this feature customer can make call to the restaurant directly.
- Order Status: This feature is used to show that order status that includes "order received" means that restaurant has received the order, "order confirmed" means that restaurant has confirmed the order, "cooking" means restaurant is preparing the order, "delivering order" means that delivery of the order is done. While the status is on "delivering order" the customer can also show the delivery map.
- Profile Setting: To show and to change customer profile this feature is used that comprise of name, address, email, and phone number.

Features required in website for admin are:

- Resto: Restaurant list is shown by this feature. Admin can modify restaurant data and insert new restaurant including transformation from restaurant active or inactive status through this feature.
- Order: Order list which has been done by each restaurant is shown by this feature.
- Menu: Menu list of each restaurant is shown by this feature. Through this feature admin can also alter each menu.
- Courier: Courier list of each restaurant is shown by this feature. Through this feature admin can also amend each courier data.
- Customer: Customer list in this application is shown by this feature. Through this feature admin can also modify customer profile.

B. *System and software design*

Using the storyboard design, we construct the application design workflow for restaurant, customer, courier and admin side; the user experience design. The use case, class diagram, sequence diagram, activity diagram and database structure design are comprised in the Unified Modeling Language.

- Storyboard design: Designing the user interface is done by storyboard design which includes each interface description.
- User experience design: When interacting with the application, designing the totality of end user perception this design is used.
- UML design: The UML design contains use case to define the system function from each actor perspective then accomplished by explanation in use case narrative, to draw the process of each actor in diagram activity diagram is used, to draw object or class of system with its relationship class diagram is used and to draw the message interaction with its objects base on its order of time sequence diagram is used.
- Database structure design: By the result of class diagram, database structure design is made. Classes that need to be saved in database and its relationship are drawn by this design.

C. *System Implementation*

The implementation of the system application is done in Java, jQuery, HTML and the datasets are stored in MySQL database. We have developed hybrid Android Application using Cordova.

We have developed a web-based application and based on it we have developed the android application. The hardware required for our application includes Android Smart phone and a desktop or laptop with browser and internet connection.

For the initial implementation of the system we have considered 2 restaurants/mess from 5 areas nearby in our datasets.

Implementation of our system consists of a real time feedback system where once you place an order, an email will be sent to the customer regarding the feedback of their order.

According to the comments and ratings of the customer, using Sentiwordnet analysis we provide recommendation to the customers providing the highly rated restaurant/mess first and other respectively. The Sentiwordnet analysis uses the comments mentioned in the feedback and assign a value that can be positive and negative and organize the restaurant/ mess in a fashion. This means the restaurant / mess with the highest positive value will be shown first and vice versa.

V. RESULTS

The result of our system application includes an Android Application as well as a Web-based application. Once a customer place an order for a restaurant / mess, he/she will get the order Id on the screen dynamically.

The customer can check the status of the order through the Order Status interface provided in the GUI of the application. We have developed the system application in such a way that the customer can order the food first and then enter the required credentials while checkout.

Once the order is delivered to the customer, a feedback mail is send to the customer regarding his experience with the entire application. The feedback mail consists of the star rating as well as comments of the customer.
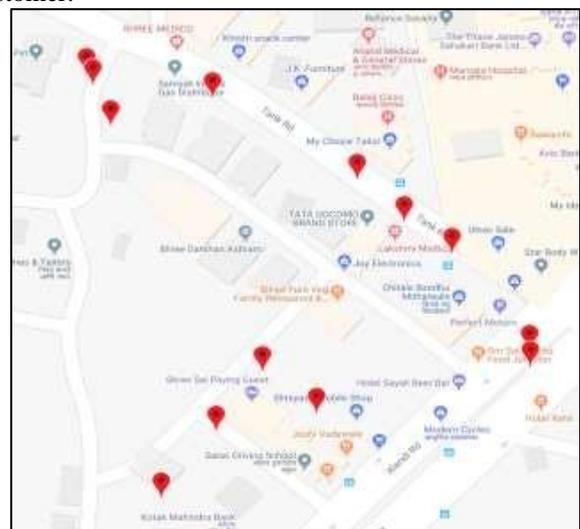

Fig. 2: Customer Tracking

The customer can track his order through the Tracking Interface provided in the GUI of the application. The restaurant / mess owner as well as customer can track the order in our system application. The preview of this tracking system is shown above.

VI. CONCLUSION

The application is based on user's requirement and is user centered. All issues related to all user which are included in this system are developed by this system. If people know how to operate android smart phone wide variety of people can use the application. This system will solve the various issues related to Mess/Tiffin service. To help and solve important problems of people implementation of Online Food Ordering system is done.

It can be concluded that, based on the application: Orders are made easily by this system; Information needed in making order to customer is provided by the system. Receiving orders and modifying its data is possible through the application and it also helps admin in controlling all the Food system.