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Review Article

Unveiling the Top Food Delivery Applications for Seamless Satisfaction

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A B S T R A C T

Objective: The purpose of this essay is to outline the history of meal delivery services as well as how to place an order for food using one of these services. It is assumed that this time period is the era of information technology. People are accustomed to using computers, mobile devices, mobile applications today.

Methods: This study examined all currently accessible meal ordering methods, including manual and digital ones, classified them into 14 groups. Then a thorough explanation of each category followed. Later, a number of frequently used applications were assessed. The technology behind these applications is then emphasized.

Results and Conclusion: According to the study's findings, clients are increasingly using digital applications in their meal-ordering systems. However, there are still significant usability problems with the existing food delivery applications that are accessible. Mobile applications that strictly adhere to usability norms and criteria must be designed.

Keywords: Online Food Ordering System, Mobile Applications, Food Delivery Applications

Introduction

The procedure of ordering and receiving food online involves placing the order online and having the food delivered to the customer at the designated location. Online food ordering platforms and food delivery applications are primarily made for people who lack the time to visit a restaurant. Money is not money, as the saying goes, but time is.[1]

The main benefit of online meal ordering or delivery systems is how amazingly they make the ordering procedure simpler for both customers and restaurant owners. Previously, a manual technique for ordering food was employed.

Customers in this method must visit the restaurant, where the server collects their orders and records them on paper.[2] Mobile food ordering systems have been created for ordering systems. All aspects of food ordering are automated by this technology. People are accustomed to using computers, mobile devices, mobile applications in the modern era of information technology. The use of mobile applications and their creation, on the other hand, is a rapidly expanding sector of information technology. Mobile applications have a significant impact on everyone who uses a smart phone and are essential to our everyday work lives.[3] The first smartphone to hit the market is incredibly basic, just having a clock, alarm, primitive calculator.

Mobile applications are essentially a set of instructions that run on smart phones and do a certain activity. A mobile application was created by a developer for several uses.[2] Mobile applications are simply downloadable, run on the majority of mobile phones, are Simple to use, User Friendly, Affordable, Convenient to Carry. Numerous applications come pre-installed on smartphones, users may also quickly download and install other applications.[2]

Literature Review

Previous and Some Existing Food Order system

Conventional Paper Based System

One of the most popular food ordering methods in the past was paper based. Customers must visit the restaurant under this method, the waiter receives their order after calling, messaging, performing basic computations, among other things. Mobile phones are widely used today. Commonly because of the various features, such as the user's ability to utilize the device for audio, video, games, browsing, chatting, other social network communication. One of the most often developed mobile application categories is for ordering and delivering food on the go.[3]

For individuals who don't have time to visit a restaurant, the Internet food delivery service is amazingly effective. Anyone with a smartphone is able to simply order meals from any location and have them delivered to their house. Payment options include paying with a credit card or on delivery.[3]

Self-Service Restaurant

Self-service restaurant systems were designed to address the shortcomings of manual restaurant systems. The manual technique has many drawbacks, including time and money waste. For a small amount of change in a manual system, a lot of work is needed.[2]

Every customer places an order at the restaurant's service counter under the proposed approach. Customers must make decisions in advance. They can either choose an item from the catalogue, which is displayed as a poster and usually placed behind the order counter.[2, 4]

Self-Serviced Food Ordering

The system that is being proposed combines a hotel management system with online technologies. Any size of hotel chain environment can use the integrated system. This approach boosts the hotel's productivity while reducing waiting times for guests. Customers can access real-time feedback from it.[6]

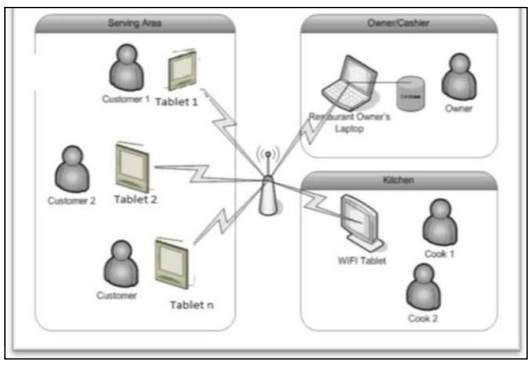

Figure 1

The suggested system makes use of K means and the apriori method. The user-friendly interface of the proposed system. This method offers in-the-moment customer feedback and a user-friendly ordering experience. The system will lower labour costs and streamline the ordering process.[6]

Personal Digital Assistant

The system that is being proposed combines a hotel management system with online technologies. Any size of hotel chain environment can use the integrated system. This approach boosts the hotel's productivity while reducing waiting times for guests. Customers can access real-time feedback from it.[6] The suggested system makes use of K means and the apriori method. The user-friendly interface of the proposed system. This method offers in-the-moment customer feedback and a user-friendly ordering experience. The system will lower labor costs and streamline the ordering process.[6] The smartphone and mobile market provide a wide range of options and lifestyles. Due to its portability, many individuals choose and utilize certain small, smooth phones. Since many people use PDAs, if a customer with an infectious disease uses a PDA, another customer may contract the same disease.[7]

Multi-Touch Technology

Multi-touch technology is an improved form of currently available technology that gives users the ability to perform and manage multiple types of operations simultaneously on a multi-touch screen. Additionally, many people can use the display simultaneously. However, this technology has significant drawbacks. The most expensive types of touch screens now on the market are capacitive and resistive.

Capacitive screens have the drawback of being more expensive and having a shorter lifespan. It could be impacted by the unclean and dusty surroundings. The primary goals of the suggested system are to improve customer satisfaction, reduce human error, boost the effectiveness of the meal ordering process.[8]

Food Ordering System with Zigbee Technology

The ZigBee technology is the foundation of the suggested system. It is a unique type of technology with numerous characteristics, including reliable data transfer, low cost, long battery life, many more. The zigbee technology is separated into two types based on how the network functions. Reduced Function Devices (RFD) and Full Function Devices (FFD). Full-featured detecting hardware that serves as a network coordinator and interacts with other hardware.[9]

For communication with the Full Function Device, the Reduced Function Device is utilized. There is only one Full Function device used in the entire ZigBee network. Data from the RFD is received and then stored in a database.

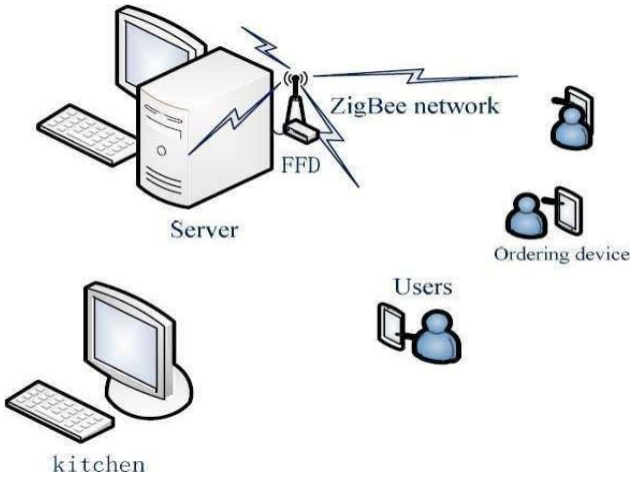

Figure 2

Customizable Wireless Food Ordering System

The serving area, the restaurant manager's desk, the kitchen are the three primary sections of customizable wireless food ordering systems.[10] The CWFOS primarily consists of four parts.

1. Mobile applications for smartphones that are used for customer orders
2. The web-based application for the restaurant manager's laptop
3. The database where the management keeps all of the information
4. The network communication infrastructure that supports wireless technology

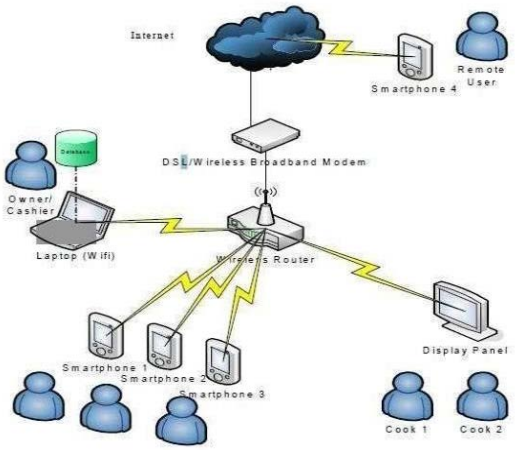

Figure 3

The upgraded system, known as CWFOS, allows restaurants to easily administer the entire system and set the system throughout all surroundings wirelessly. Due to real-time contact between the restaurant owner and various system users, smart phones have been integrated into this system.[9,10]

Wireless Food Ordering System Using K Mean and Apriori Algorithm

The author of this work developed a brand-new method for ordering food that is based on k-means and the apriori algorithm. Customers can order food via an Android touch pad by using the proposed technology. The service area, cashier table, kitchen are the three key locations covered by this system. Each table will have an Android touch screen. The customer can quickly place an order by clicking on any item on the menu list.[11]

The menu for the suggested system is then set up in a striking manner. The manager or owner of the business can also add, alter, remove menu items. Periodically, text messages about savings and relevant deals are delivered to the customer. The customer module and the admin module are the two modules that make up the proposed system. For exploratory purposes, the admin module will make use of several mining techniques such the apriori and k mean algorithms.[11]

Mobile Food Ordering System

A mobile food ordering system is a technology that may be installed on smart phones to offer meal ordering capabilities. It offers numerous helpful features to the users, like a map showing the location of the closest hotel that is open, comprehensive menus, an earlier view of the order. Restaurants are also given the call facility by it. The suggested system is divided into two parts: one for administrators and one for customers. The consumer needs the profile, order, menu, courier features. Resto, order, menu, customer are the features that are required for the admin section.[12] All relevant information is saved in the database after the customer books and confirms the flight.

After making a flight reservation, the consumer will see a confirmation message informing him that his order was placed successfully. Android Studio software design was employed in the creation of the proposed Application. The intuitive layout was created in XML. In the backend, requests were processed, data was stored and managed using PHP and MySQL.[13]

Pizza Hut Digital Order system main aim is to provide the following features

Customer can easily register and place an order to book a ticket for watching cricket in the Amman International Cricket Stadium[15] thanks to the following features:

- User-friendly food ordering system
- Convenient system that allows manager to easily manage the overall system
- Smart delivery system providing helping facility to improve the quality of the delivery services

The proposed system is divided into two parts: a computer-based web application and a mobile application. The mobile application is made for both the iOS and Android operating systems. The process works similarly to how a customer would download an app, choose a menu item, make an order.[15]

The restaurant manager can then handle the information specifics and status of the order before it is sent on to the next step. The hot meal or food item that the consumer ordered will be delivered to them. Customers and restaurant proprietors can both use this application. Users can examine the menu and choose from a variety of foods in the user area.

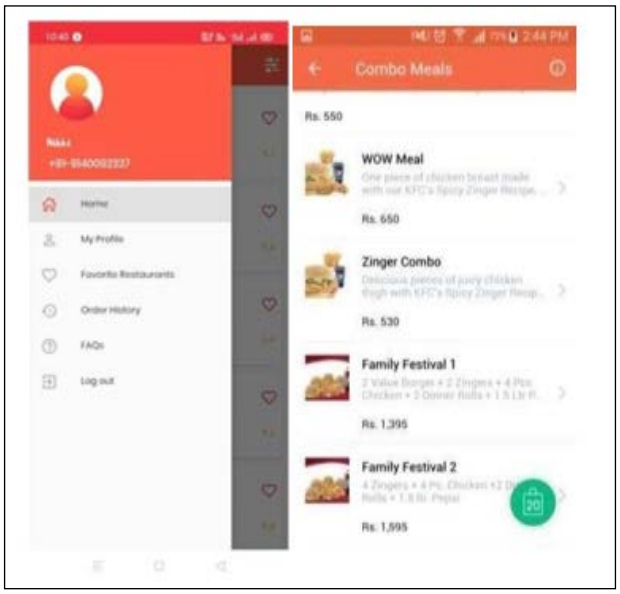

Figure 4

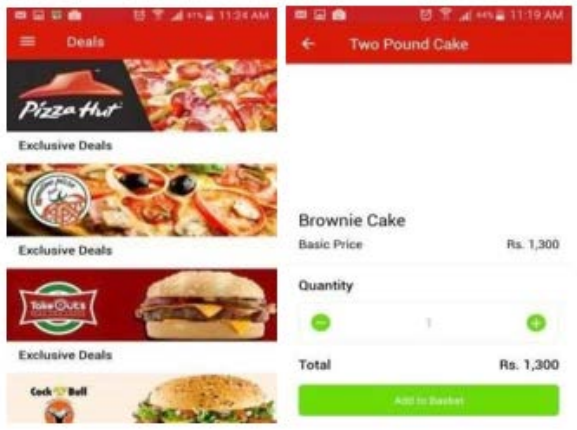

Figure 5

Mobile Bus Ticketing System

The most extensively utilised system in the modern era of information technology is the mobile bus reservation system. The proposed system will shorten the consumers' ticket process. Any smartphone user who wants to reserve seats will have an easier time doing so thanks to this method. Four actors interact with the mobile ticking device to communicate.[16]

In order to check and search the system's availability, the consumer must first book a ticket via this system. This system will be accessible every day of the week, twenty-four hours a day. The administrator, who will oversee the entire system, is the second. The administrator can add, update, delete the bus route as well as the whole destination information.[16]

Figure 6

Digital Table Booking & Food Ordering System Using Android Application

The suggested Application makes it easier for customers and restaurant managers to order food. There are numerous components to the application, including an ordering menu, a billing menu, a restaurant table, home delivery, advertisements. One section of the app is for customers, while the other is for restaurant owners. Customers can use the application to search for a specific food item with pricing and category information. Simply clicking on the food item will add it to the shopping list. The meal products may be changed or removed by the customers.[17]

The detail of available applications and the feature that should be available in mobile applications is given below:

Swiggy Food

An application for meal delivery called Swiggy offers a

variety of information about the different foods and dishes. Anyone with a smartphone and internet access can use this app to order food from thousands of restaurants across the globe. www.swiggyfood.com. It provides people with user-friendly services.

Eat Oye

EatOye is a free food delivery app that is available. It is accessible. Anyone with a smartphone and internet access can use this app to order food from thousands of restaurants across the globe. Customers can get a variety of food items from it. Www.EatOye.com. It provides people with user-friendly services.

Super Meal

Super Meal is an online marketplace and food delivery service that was created specifically to offer online food services. It offers effective service. It offers details on the food's availability, rating, delivery schedule. It also plays a significant role in improving the menu options available to customers. www.supermeal.pk.

Food Panda

With its headquarters in Berlin, Germany, Food Panda is one of the top international mobile food delivery applications. With 4000 partnered restaurants, it operates in 43 countries. Anyone who wishes to place an order must first register before they can access the specifics of the restaurants that are offered. The customer can choose their culinary options and place a food order.

When a consumer replies to a message asking for confirmation of an order, Food Panda sends the order for further processing. Food can be delivered to customers within a set window of time and location (www.foodpanda.com). The brief food panda application is shown below in a number of screens.

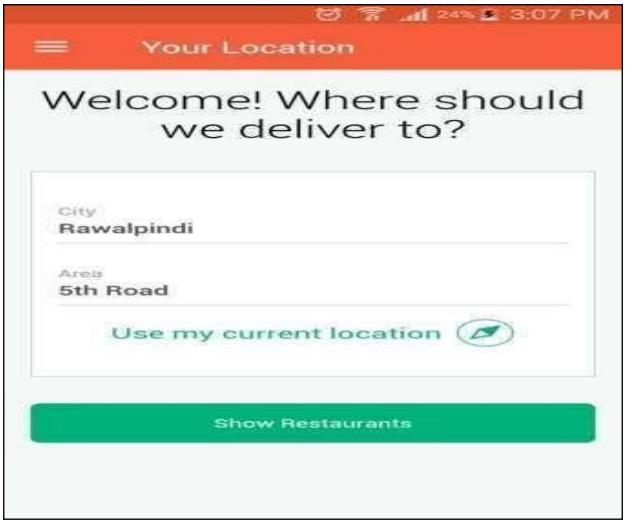

Figure 7

According to Ricky feature which should be in food delivery application are given in the table.

Profile: The function that is utilised to display restaurant profiles is called profile restaurant. The administrator has the ability to edit, delete, alter restaurant data, including whether the restaurant is open or closed.

Order: The primary tool used to place a meal order is called Order.

Order History: The order history feature displays clients' order histories, including their initial and most recent orders.

Menu: The menu function will be utilised to display a list of food items together with their costs.

Courier: The courier feature is utilised to display the restaurants' available courier lists.

Order Status: Order status is a feature that is used to display an order's status. indicates that the restaurant has received the order or is processing it.

Setting the profile

The function known as "profile setting" will be used to modify the customer's name, address, phone number.

Exit

Logging out of the application will be done using the exit function.

III. Development Tools and Used Research Methodology

The following are the tools which were used in the development of previous proposed systems.

JAVA

Java is a high-level programming language that Sun Microsystems created. It was initially intended to be used to create a web application. Java language grammar is identical to that of the C++ programming language. But it is a programming language that is solely focused on objects. Classes and methods make up a Java programme. The Java virtual machine, which powers nearly the whole platform, interprets Java programmes. The creation of java programmes requires the usage of a java software development kit, which normally consists of compilers, interpreters, documentation generators, etc.[18]

MYSQL

The relational database management system MYSQL is open source and free to use. It employs the structure query language. The structural query language, or SQL, is used to insert, delete, modify, access database content. Due to its quick processing, high level of dependability, versatility of application, it is widely employed.[18, 19]

PHP

Peripheral Hypertext Pre-processor, or PHP, is a popular programming language used for many purposes. It was first created for the creation of web-based applications. To construct and produce dynamic websites, the PHP programming language incorporates HTML, or hypertext markup language. It is a freely accessible programming language that works on a variety of platforms, including Linux, Unix, Windows, among others. PHP is simple to learn and comprehend.[19]

Used Research Methodology

Both qualitative and quantitative research methodologies are typically used in the system outlined above. User-based testing is a form of qualitative research technique in which participants are users themselves. In this strategy, customers are asked to utilise the app or product to complete a job or to otherwise freely explore it.[20]

Their actions while utilising the product are watched and noted in order to spot any flaws, mistakes, or challenges. The amount of time needed to complete the work, task completion rates, the quantity and kind of errors are all elements that should be tracked when a user does a task. If the product's shortcomings are found, design suggestions are made to enhance the App's usability.[20]

Usability Heuristics

A small group of evaluators are requested to evaluate an interface using heuristics in order to determine whether a product or app adheres to usability guidelines. It is the most used technique for evaluating usability, involving both professional and non-expert users.

The above-listed applications have done a lot of work within a short period of time with limited usability guideline which mostly applicable to any web or desktop application. We have checked all the guidelines.

1. Visibility of the system status: The system always informed the user through feedback.
2. Match between system and real world: The user should be familiar with the language and images used.
3. User control and freedom: Users should be able to leave the system and have the option to redo and undo.
4. Consistency and standard: The major benefit of usability evaluation is the capacity to adhere to platform convention and allow users to carry out their tasks with ease.
5. Error Prevention: Try to eliminate errors, if they do occur, give the user the right instructions.
6. Recognition as opposed to recollection: The system should have an elegant and straightforward design.

Table 1

	Nielson's Usability Heuristics				
Applications name	**1**	**2**	**3**	**4**	**5**
Food panda	Yes	Yes	No	Yes	No
Swiggy food	No	Yes	No	Yes	No
Toss town	Yes	Yes	No	No	No
Eatoye	Yes	No	Yes	Yes	Yes
Super Meal	Yes	Yes	yes	Yes	No
Food panda	Yes	Yes	No	Yes	No

7. Assist users in identifying, diagnosing, correcting errors: The error message ought to contain both a clear indication of the problem and a suggestion for a fix in plain language.

Table 2

	Nielson's Usability Heuristics				
Applications name	**6**	**7**	**8**	**9**	**10**
Food panda	Yes	No	Yes	No	No
Swiggy food	Yes	No	No	No	Yes
Toss town	Yes	No	Yes	No	No
Eatoye	No	Yes	Yes	No	No
Super Meal	No	No	No	No	No

8. Help and documentation: It is better that the system can be used without documentation. If need the provide appropriate documentation to the users.[22]

By making user-visible things, actions, options, the user's memory capacity is reduced.

A. Flexibility and efficiency of use: The system should be designed so that both novice and experienced users may complete their tasks with ease.

B. Beautiful and simple design: The ten usability guidelines that are largely applicable to any web or mobile application are listed in table II above. We conducted a user study to evaluate these usability standards in the application mentioned above. In all, 12 people participated in this user study. both men and women took part in this user study. Majority of participants are mobile application developers, the remaining participants are regular smartphone users. Participants completed the tasks we gave them and filled out a consent form in which we inquired about the availability of the aforementioned features. The applications that contain the aforementioned feature are indicated by yes, while the others are applications by no. To carry out the tasks and determine whether these rules are available, we employ the five most popular food delivery applications.

We used the five most well-known meal delivery application applications in Table III. The Rickey believes that specific features ought to be present in applications for food delivery. We conducted a user study to evaluate the features of the application mentioned above. There were a total of 12 participants in this user study. In this user study, men and women participated equally. Five of the participants are mobile application developers, making up the majority of participants.

Participants completed the tasks we gave them and filled out a consent form in which we inquired about the availability of the aforementioned features. The applications that contain the aforementioned feature are indicated by yes, while the others are indicated by no.

Conclusions

The proposed systems for meal ordering, food delivery, related applications are all presented in this study. However, there are numerous flaws in every system that has been offered. In the traditional procedure, the waiter takes the customer's order, records it on paper, then delivers it to the kitchen for processing. To overcome the drawbacks of the traditional paper-based approach, personal digital assistants with multiple touch screens were launched, allowing consumers to use those screens to place meal orders. Then came wireless meal ordering systems, which allowed customers to provide comments in real time. Although this technology now allows for mobile meal ordering and delivery, there are still some usability and constraint difficulties.

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