VIRTUAL WAITRESS MENU ORDERING APPLICATION

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Abstract-The purpose of this project is to develop a menu ordering application named Virtual Waitress. In competitive business world, decreasing operational cost and raising productivity become overriding. Particularly, manpower is more expensive for restaurants in India. In this circumstance, an automatic system can help increase process efficiency. This master project concentrates on creating a menu management application and assessing its impacts on business process efficiency and client satisfaction. It's three core things: demand analysis, evaluation and implementation. As a beginning point, a true company's feeling of a restaurant can be recognized according to selection criteria. The consumer survey has been conducted for comprehending the consumer's preferences on using mobile applications. The system is then designed and developed based on identified requirements, user survey and design principles of client-server application. The analysis shows the effects of introduction of the automatic menu ordering system on order processing time and client satisfaction. The results show that average order processing time for food orders is reduced after the introduction of the automated menu ordering system. Also, the customer measured by evaluation forms has an above average score. Therefore, it is deduced statistically that the introduction of the automated menu ordering system reduces the order processing time. Nowadays people are looking forward for a system that will satisfy their needs more comprehensibly. The analysis shows the effects of introduction of the self-ordering automatic menu ordering system on order processing time and client satisfaction. In traditional food ordering system the waiter notes down the order from the customer then places the order to the kitchen and then the billing is done which consumers time and may cause errors. This project aims to automate the food ordering and charging procedure in restaurant process through interactive and smart menu application and to improve the dining experience of consumers.

Keywords-Virtual Waitress, Menu ordering system, Android

1. INTRODUCTION

The advancement in technology has greatly influenced the business transactions. The adoption of digital technology has led to automation in the hospitality industry. Business in hospital industry such as restaurants can be improved with the help of digital systems .The competition in restaurant business have increased with the advancements in food ordering techniques. This project aims to automatic the food ordering and billing process in restaurant as well as to improve the dining experience of customers. Here we discuss about the design & implementation of Smart Menu ordering system with real time with customer's feedback for restaurants. Touch screen provides fast access to any and all types of digital media,

with no text bound interface getting in the way. Faster input can mean better service. Touch screens are practical in automation which has become even simpler with advancement in technology.

The biggest challenge for companies is the reduction of operational costs in addition to increased productivity. Focus on business process efficiency and minimization of human-related errors may influence execution and to reduced error rate caused by the human factor, especially in environments with multiple hops that data or information must pass from customer to employee, and also the other way around. Such an environment may be found in restaurants where a need for high turnover is mandatory in order to achieve high degree of customer satisfaction as well as high level of productivity.

Generally, people go to restaurants for eating delicious food items and enjoying the food/drinks pleasantly. Mostly on weekends the restaurant are fully occupied. At this time, people have to wait for someone from the restaurant to order food/drinks. In addition, waiters are very busy when the restaurant is crowed. Occasionally they may forget to take orders from customers, forget the orders, serve incorrect order and send orders after long moment. When the restaurant presents a new updated menu with some food items and recipes that are new for customers, they do not understand it clearly by just seeing the menu card printed with different food items and beverages.

Since manpower is one of the most important cast factors in restaurants, and at the same time a key reason for altered performance, an automated order taking process might work as a solution. An automated solution may be supposed to ease an increase in overall productivity by reducing the time and effort required in this process, while maintaining customer satisfaction at precisely the exact same amount, or even raising it. Increased customer gratification might, for instance be enabled in multi-language environments, like astronomically immense cities, where it is hard to accommodate customers in their preferred language. Thus, existence of a multi-language-friendly order-taking process might be essential for many customers.

2. PROBLEM STATEMENT

The traditional food menu ordering system is entirely a manual process which involves waiters, pen and paper. The customer has to wait for waiters to take the order. The Waiter notes the orders from Clients and sends orders into kitchen section .This leads to mistakes because the waiter might not understand what the customer had ordered therefore, serving him/her a different menu. This could be so embarrassing because the customer might not take it lightly with the waiter which may lead to misunderstanding It can lead to problems including:

• Mistakes are made when taking the orders of the customer.
• The process of collecting customer's purchases order is very tedious. This makes it impossible to deliver products.
• It leads to lack of understanding between the Clients and the Workers.

To overcome these constraints in existing system, some systems have been designed to automate food ordering procedure. By using Smart Restaurant Menu Ordering System, the ordering system is made more efficient and will assist the manger to prevent human error and improve business growth. In this system, ordering transaction more systematic and system can guide the staff to avoid any order mistakes. The transaction between waiter and cashier will be systematic and efficient. Besides the efficiency, this system can give better quality of service to customers and will attract more customers to get this quality services.

3. LITERATURE REVIEW

Now days, we find that each and every field is based on the use of some kind of technology. Even through developments are being taking place in many fields, we find that the most commonly visited place by every person that is a restaurant is still the same. No advancements have been taken place in the ordering system of a menu in the restaurant and we can still find the earlier paper based systems in many of the restaurant. This system is not fully dependent on hardware and instead of that software will play a major role and it maintains all users' personal information to send messages about offers and combos. This menu ordering system also greatly lightens the load on the restaurant 's end , as the entire process of taking the order is automated .Once an order is placed through the application , all the items are displayed ,along with their corresponding options and their prices in an concise and easy to read manner . This allows the restaurant employees to quickly go through the orders as they are placed with respect to each table number and produce the necessary items with minimal delay and confusion.

3.1 USER SURVEY

Since the customers are arbitrary for this android application, conducting a survey is contributed to the requirements specification from the potential customers end. The usage of the application depends on the user acceptance of application design. Therefore, to accumulate as much information as potential, the project team made the questionnaire to know exactly what the customer prefers.

This first question is to understand the topology of the potential customers in general and what kind of phone should be concentrated for the usability design, development and testing. According to the user survey, iPhone and Android account for 78% of the representative users that are 102 out of 120 responses, and hence should be the primary platform for development and testing. This doesn't infer that the layout may exclude another programs and mobile devices but the most important focus for testing ought to be iPhone and Android.

The next question focuses on the preference of the customer to access the menu ordering application and attempts to indicate the consumer behavior connected to the smartphone use. The question is designed in the kind of a scenario so the user does not answer a default choice but can voice their exact choice. According to the survey, more than half the response would like to use the menu ordering application as a web page on the browser and the second half is comfortable to use the new system introduced as an Android application. Therefore, there is no clear choice from the results concerning accessibility and thus it's determined to take different elements into consideration, not make choice based exclusively on consumer questionnaire inputs. This poll result couldn't make a design choice of having a browser system or produce a program for the possible system.

It is important to know and understand the aspects of customer's choice that are not considered in the objective questions. The question was drafted as "what kind of questions would like to ask the waiter before ordering?" almost half of the survey respondents answered this question. Few of the interesting responses and our interpretations of the same are listed below:

The fantastic layout of this menu ordering application is determined by two variables.

• Display of this menu ought to be clear and not cluttered.

• Loading time of this menu should be quite little.

• Is the food item mentioned in the menu available to the customer at the time of ordering?

• Is the automated self-ordering menu application up-to-date?"

This makes an important point to keep the menu ordering application manageable; maintainable by the restaurant staff   and to update the application data should be needed.

• Who will confirm my order of food/drinks? Why do I see the waiter before the order anyhow, if I can order electronically?"

The notifications of the order status should keep the customer updated and there should be an option in the menu ordering application to call the waiter in case of any exceptions or needs.

4. RESEARCH METHODOLOGY

Research methodology has many research dimensions and methods. The telescopic of research methodology is broader than research method. Methodology is the underlying principles and rules that govern a system or an application's method. On the other hand, it is a systematic procedure for a set of activities. A waterfall model under the software development life cycle (SDLC) is the methodology used to produce the menu ordering system and the customer self- ordering system. It is used by the developers to create and modify the information systems or software.

The waterfall model includes different stages of development. After the completion of one stage, it will logically move to another stage. Errors also occur in current stage or process due the error in the previous stages.

5. PROPOSED SYSTEM

The advancement in Information and Communication Technology has greatly influenced the restaurant business. The competition in restaurant business has increased with the advancement in food ordering techniques. The proposed system "Virtual Waitress" is an android application designed for android devices to place orders. The Application "Virtual Waitress" based on Food Menu Ordering System in android is developed in order to take the food order from the consumers in the cafeteria and restaurants. When the customer opens the android application, they are presented with an interactive and categorized menu, complete with all presented food items and dynamically adjusting prices based on the selected choices. After making a selection, the food item is then added to their order, which the consumer can review the details of that any time

before checking out. This provides instant visual confirmation of what was selected and guarantees that food items in the order are in fact that were ordered by the customer.

The main aim of the proposed system is to increase the efficiency of the food menu ordering system, reduce the human errors and provide high quality services to the customers of the restaurants. In traditional restaurant services mode, a lot of manpower was required in order to handle the management of restaurants like to handle customer inquiry, telling the customers the status of food ordered by them. Through the Virtual Waitress Android Application, the customer will place orders through their mobile phones. The consumer can place the order at any time and can check the bill and if they want to cancel the order, they can easily cancel it and place the new order. The proposed system "Virtual Waitress" allows the customers to choose their desired food items via the smart menu ordering application on the screen of their smartphones. The application when opened first asks the user to enter the table number. After clicking on the proceed button, the customer is directed to the food menu screen. The interactive menu consists of the four categories of items: Starters, Veg, Non-veg and desserts. The customers can choose the type of food item they want to order, that is Veg, Non-veg, starters, desserts, drinks etc. When any of the type of food is selected by the customer, they are presented with the list of the different food items with the prices. The customers can add any number of a specific food item by clicking on the add button and for removing the food item they click on the subtract button. In this way the customers can choose everything they wanted and select. After selecting the food items and proceeding further. The list of all the items ordered by the customer is displayed in a concise and easy to read manner. Along with the finalize list of items ordered, the total price bill of the order is also displayed below the list of finalize items ordered. The customer is then asked to click on the send order option. After clicking on send order option, a confirmation message is displayed in the customer screen to

finally confirm the order. When the customer clicks on Yes button to place the order, her/she is directed to the Thank you activity.

6. SOFTWARE REQUIREMENT

In the software development process, requirement phase is the first software engineering process. This phase is a user-dominated phase and translates the ideas or views into requirements document. Requirement is defined as a sufficiency possessed by the software to solve problems in real world.

- Operating System: Windows 7, 8 and 10.
- PC Web:Chrome, Firefox.
- Platforms:
  - Android Studio
  - Java SE Development Kit (JDK 5 or higher versions) Java Runtime Environment (JRE 6 or higher version)

7. HARDWARE REQUIREMENT

The hardware requirements of the android application Virtual Waitress is as follows:

- Screen Resolution:1280*800 screen resolution.
- Processor:Intel Core I3 Seventh Generation.
- RAM:4 GB RAM Recommended (500 MB for IDE+1.5 GB for Android SDK and Emulator System Images.)
- Hard-disk Storage:2 GB disk space+ at least 1GB for Android SDK, Emulator and Catches.

7.1 Technologies Used:

- Android Software Development Kit.
  Android Studio 9 made by Google and powered by IntelliJ, is an official IDE; however developers are free to use others. Additionally the developers may use any text editor to edit Java and XML files, then use command lines tools(Java Development Kit) to create, built and debug the android application as well as control attached Android devices.

- Java Development Kit:
  This Android build process depends on a number of tools from SDK. The first big piece

we need from JDK is the java: all the source code written in java needs to be compiled before it can be converted to the DEX format.

8. RESULT

The following results can be drawn from this system:

- ❖ It will reduce restaurant's food wastage.
- ❖ It will enable customers to have a visual confirmation that the order was placed correctly.
- ❖ It will ensure correct placement of order through visual confirmation.
- ❖ It will improve efficiently of restaurant's staff.
- ❖ Eliminate paper work and increase level of accuracy.
- ❖ Increase speed of service, sale volume and customer satisfaction.
- ❖ Enhance the convenience of orders for customers.
- ❖ Restaurant owners can reduce manpower to take orders and also reduce the room for order errors.
- ❖ It will also enhance customer experience.
- ❖ Improve the customer retention.

9. CONCLUSION

The conclusion of the proposed food menu ordering application "Virtual Waitress" is based on user needs and is user centred. This system is developed in considering all issues related to all users which are included in the system. This food menu ordering application aims at reducing the manual ordering processing time by introducing a menu ordering application as a solution. With this new application, the customers can place with their smartphones. The proposed system would attract customers and add to the efficiency of maintaining the restaurant ordering and billing sections.

10. SCOPE

In the current formal dining environment, some form of physical static menu is utilized to convey the available food and desserts choices to customers. The physical menus are generally paper-based and hence impose restrictions on the ability of the restaurateur to update the food menu. It pertains to the replacement of paper-based menus by an android application and ordering replacement strategy to alleviate the problems associated with the current method. The android application Virtual Waitress is a food menu ordering application that allows the customers to view the menu on their touch screen, place orders and the application also generates a final bill consisting of the information about the items ordered by the customer and the total amount to be paid by the customer. The food staff, with their touch-display interfaces to the system will also be able to view orders placed by the customer. The food menu ordering system "Virtual Waitress" can be used in small places, medium places and then on a large scale. It is developed to help restaurants to simplify operational and managerial task as well as improve the dining experience of customers. It will also help the restaurant employees develop healthy relationships with their customers by providing good services.

11. REFERENCE

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