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DIGITAL MENU

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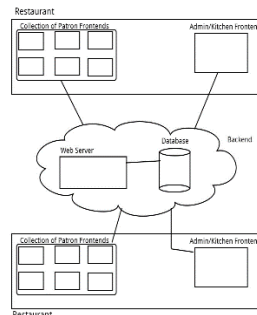
ABSTRACT

This paper proposes effective restaurant management system. The proposed system helps customers to avoid long queue for ordering their food. In this system customers uses android app to order food on their table. On the restaurant side system receives information like table no., item, quantity etc. Restaurants are one of the favourite premises for the people. Customer will make orders and wait for the ordered meals, with no regard to the particular reasons for visiting restaurants. Everywhere, it is common if customers complain for not feeling comfort about the services offered. There will be many reasons leading to the feeling of dissatisfaction including being entertained late in terms of order taking by the waiter and meals serving. The issue of being late arrival could be solved with help of the advancement and development in the technologies of communication. In accordance, this study initiates an integrated and networked system, with the focus is on its ability to solve the above described limitations in taking the order from the customers. This can be named as Digital Ordering System for Restaurant Using Android (DOSRUA). In general, DOSRUA is an integrated system, developed to take care the restaurant management groups by enabling customers to make immediate orders on their own. This will take the less time to serve the orders to the customers. This project deals with digital menu monitoring of the system.

Keywords: Recommendation, Tablet, menu, Intelligent, Android application, restaurant.

I. INTRODUCTION

This project deals with digital menu monitoring of the system. This topic includes scope of the project and the project characteristics. Operating environments and assumption design and implementation contexts or contents. Scope of the project includes features that can be implemented by the developer. Design part includes the method and way of designing the product that is to be implemented. It also explains the construction of the implementation and designing of the project required by the consumer. The existing system in the restaurants is paper based. The traditional menu cards in the restaurants are paper based. Even now, Waiters use paper to take the order of customers in the restaurants. The records are stored on paper order by the customer. As with anything paper based, it is so easy for items to get damaged by Coffee stains etc. or paper being lost due to fire or accidents or just generally lost. There is the wastage of time and money.



As traditional menu cards are paper based, any changes that needed to be made in the menu card will lead to wastage of the papers. As it will require reprinting of all the menu cards. Also, for small changes it is not possible to print all the menu cards again. There is no power to dynamically make any changes in the menu card. It is not efficient to access a particular record from the stack of papers. This system is time consuming, from the customer's

point of view. As one has to wait until the waiter comes to take the order, one has to call waiter number of times till the waiter notices it, there can be misinterpretation while the waiter is writing your order on paper it can take or notice any mistake, and it might be possible that you are served with a wrong dish. There have been improvements in the management of restaurants.

Python is a general purpose programming language. Hence, you can use the programming language for developing both desktop and web applications. Also, you can use Python for developing complex scientific and numeric applications. Python is designed with features to facilitate **data analysis** and visualization.



It has a very small foot print so it can be embedded in hardware. It is a very simple language so many people use it in their hobbies or other simple things like server automation. **Python** has several great libraries for building web applications, such as; Flask, Pyramid and Django.

In current formal dining environments, some form of physical static menu is utilized to convey the available food and beverage choices to customers. Said menus are generally paper based and hence impose restrictions on the textual real estate available and the ability a restaurateur has to update them. This document specifies the requirements for a restaurant paper menu and ordering replacement strategy to alleviate the problems associated with the current archaic method. Three related concepts are encompassed by the general scope of the Restaurant Menu and Ordering System.

The first pertains to the replacement of paper-based menus using an electronic format, the second relates to a complementary electronic strategy for the front of house handling of a customer's order and the third surrounds the process of transferring said electronic orders to the kitchen for preparation. It should be noted that while the suggested strategy incorporates the use of various hardware components, the primary focus of the presented SRS relates to the constituent software elements. The following are the features which can be a part of the proposed system: Ordering, Waiting, Billing, Table Reservation, Home Delivery, KOT, Advertisement.

Design and Implementation Constraint The proposed system should be written in an object oriented language with strong GUI links and a simple, accessible network API. Front end can be designed by using Rapid Application Development Tool (Indigo Eclipse). The system must provide a capacity for parallel operation and system design should not introduce scalability issues with regard to the number of tablets or displays connected at any one time. The end system should also allow for seamless recovery, without data loss, from individual device failure. It is worth noting that this system is likely to conform to what is available. With that in mind, the most adaptable and portable technologies should be used for the implementation. The system has criticality in so far as it is a live system. If the system is down, then customers must not notice, or notice that the system recovers quickly (seconds). The system must be reliable enough to run crash and glitch free more or less indefinitely, or facilitate error recovery strong enough such that glitches are never revealed to its end-users.

II. LITERATURE SURVEY

Over the years, technology has tremendously revolutionized the restaurant industry. But much of the innovation has been with point-of-sale (POS) operations. Yet other areas of a restaurant are ripe for innovation, such as the menu .[4] Traditional restaurant service requires waiters to interact with customers directly before processing their orders. However, a high-quality recommendation service system would

actively identify customers and their favourite meals and expenditure records.[1] There is a famous saying that “People eat with their eyes”.[6] The e-Menu provides additional information about menu items and drinks than a traditional paper menu. With interactive pictures it gives additional information about the food item. Tablets are said to eliminate order-taking errors from the waiters. In the kitchen, there is less confusion as everything is now written clearly. Developers of similar applications maintain that customers who seat at tables outfitted with tablets spend about 10% more than those at other tables (“people buy more when they can do so instantly, without waiting for service”).[9] With the visuals, you know exactly what you’re going to get in your plate. The service goes quicker. Tablets are said to allow cutting the labour expenses. Customers feel more involved in the process. Restaurants can build their e-reputation and customer community in live. The restaurant menu, as we know it, has evolved from its humble beginnings on carte chalkboards and imageless print to today’s detailed, colorful displays. With the emergence of digital tablets and user-friendly touch screen technology.

Accordingly, to it, the proposed system consists of Wi-Fi module as it is newest technology, the database will be online database, if there are any modifications in dishes then the restaurant manager can update it. There will be notification on mobile if any modifications are take place in restaurant. The customer can pre-order the dish from home in addition he can also reserve the table. The customer can also search the dish by name and develop the outcome for it, in available restaurant.



Fig 1.1: Proposed system

The technologies which are used to implement the system are:

- 1) Android version 2.2.3 (Smart Phone) and Android version 2.2 – 4.0 for Tablets is required.
- 2) Java SE 6 Programming Language is used to develop the software.
- 3) Eclipse Indigo is used as a Rapid Application Development Tool (RAD) or as an Integrated Development Environment (IDE) for coding the software.
- 4) JSP/SERVLET is used for Remote Database Access from the main system of the restaurant.
- 5) SQLite is a light weight Database which is going to be used for database access from handheld device or the tablet.

Software Quality Attributes:

- 1) Using Android is very flexible as the developed product could be deployed on tablets as well as android driven mobile phones which are available in abundance.
- 2) Though maintenance is required, it is negligible.
- 3) The devices on which Android run are highly portable.

Rather than having all of its functionality built into its core, Python was designed to be highly extensible. This compact modularity has made it particularly popular as a means of adding programmable interfaces to existing applications. Van Rossum's vision of a small core language with a large standard library and easily extensible interpreter stemmed from his frustrations with ABC, which espoused the opposite approach[31]. While offering choice in coding methodology, the Python philosophy rejects exuberant syntax (such as that of [Perl](#)) in favor of a

simpler, less-cluttered grammar. As Alex Martelli put it: "To describe something as 'clever' is *not* considered a compliment in the Python culture.[50] Python's philosophy rejects the Perl "there is more than one way to do it " approach to language design in favor of "there should be one—and preferably only one—obvious way to do it .

Python's developers strive to avoid premature optimisation , and reject patches to non-critical parts of the CPython reference implementation that would offer marginal increases in speed at the cost of clarity[51]. When speed is important, a Python programmer can move time-critical functions to extension modules written in languages such as C, or use px, pya just compiler. Cython is also available, which translates a Python script into C and makes direct C-level API calls into the Python interpreter. An important goal of Python's developers is keeping it fun to use. This is reflected in the language's name—a tribute to the British comedy group [16] and in occasionally playful approaches to tutorials and reference materials, such as examples that refer to spam and eggs from a famous of the instead of the standard. A common neologism in the Python community is *pythonic*, which can have a wide range of meanings related to program style. To say that code is pythonic is to say that it uses Python idioms well, that it is natural or shows fluency in the language, that it conforms with Python's minimalist philosophy and emphasis on readability. In contrast, code that is difficult to understand or reads like a rough transcription from another programming language is called *unpythonic*. Users and admirers of Python, especially those considered knowledgeable or experienced, are often referred to as *Pythonists*, *Pythonistas*, and *Pythoneers*.

III. RESTAURANT MANAGEMENT SYSTEM

3.1. Menu Selection:-

User can select menu from the list of category. He can cancel the order before 15min from the order placed. User can also cancel the item before placing the confirm order. This preliminary Survey will provide us with detail description of already existing apps based on food ordering system. There are many such applications already present, but each one of them have some pros and cons.

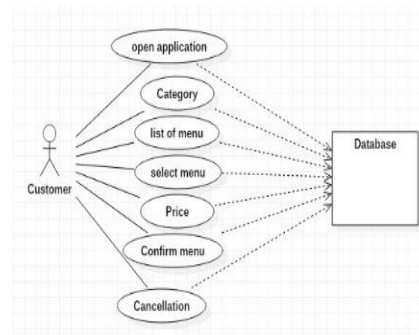


Fig 3.1: Menu Selection

3.2. After menu selection: -

After confirmation of the order, will be go to manager .Manager will after the data and will pass to Kitchen, in which chef will see from where the order is placed, what is menu.

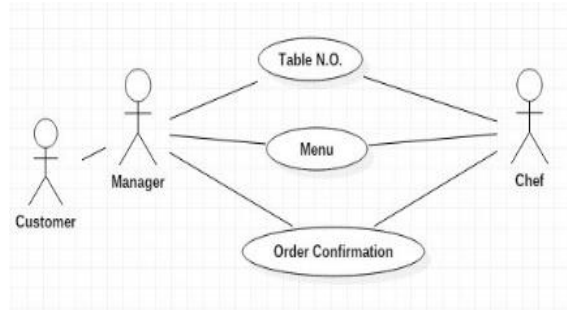


Fig 3.2: After Menu Selection

3.3. Payment: -

After menu section, bill will be generated figure shows how the payment will generate. As the technology is getting advanced day by day, people need food fast and easy way of getting hotels and selected food. So, FOOD ORDERING SMART SYSTEM provide us all facility of getting food in time and easy to understand the people.

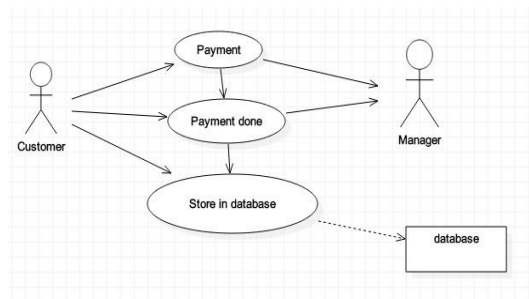


Fig 3.3: payment

The existing system is paper based. The traditional menu cards in the restaurants are paper based. Waiters use paper to write the order of customers. The records are stored on paper. As with anything paper based, it is so easy for things to get damaged by Coffee stains etc, or paper being lost due to fire or accidents or just generally lost. There is wastage of time, money, and paper. As traditional menu cards are paper based, any changes that need to be made in the menu card will lead to wastage. As it will require reprinting of all the menu cards. Also, for small changes it is not possible to print all the menu cards again and again. There is no power to dynamically make any changes in the menu card. To access a particular record from the stack of papers is not efficient. From the customer’s point of view, this system is time consuming. As, one has to wait until the waiter comes to take the order, one has to call waiter number of times till he notices it, there can be misinterpretation while the waiter is writing your order on paper, and it might be possible that you are served with a wrong dish. There has been improvements in the management.

This project deals with Digital ordering system for restaurant. This topic includes scope of the project, project characteristics, Operating environments, Assumption and dependencies, design and implementation constraints. Scope of the project includes features that can be implemented. Design part includes the method and way of designing the product. It also explains certain constraints on designing and implementation.[1]. The next advancement was “QORDER”: the portable ordering system for Android devices. Here the waiter no longer approaches the table with his notepad, but rather with the QOrder hand held device. He enters order information on the touch screen and then sends it to the kitchen in real time for processing. Simultaneously, your POS system receives the sales information for later billing. QOrder utilizes WIFI to easily reach to your most remote corner spot in your establishment. Once the guests wish to leave, the waiter prints the receipt out on his belt printer and processes payment with the handheld unit much like he would on the POS system[3].



Fig 3.4: Flow of Data

PAR PixelPoint Company uses this software for managing the restaurant. The system consists of the company's software and hardware. This network system is compatible to TCP/IP, enabling information sending through both wireless and conventional networks [4].

LRS Restaurant Server Pager Starter Kit

This system improves the food-ordering service quality in restaurants and reduces the waiting time of clients. The on-site paging system is used at UHF frequency or the frequency range of 467 MHz for sending the order data [5].

3.4. Mobile application: -

Android application designed for the use of customers who enters in the restaurant. In this app customers can choose food items they wish to order while comfortably sitting at their own place.

3.5. SOFTWARE :-

This is restaurant app is programmed in python language. In this app orders sent by customers are received and displayed in tabular format. Besides this app also displays the stock available with them. Thus helping restaurant with effective stock management as well.

3.6. Performance:-

Performance requirements define acceptable response times for system functionality.

- The load time for user interface screens shall take no longer than two seconds.
- The log in information shall be verified within five seconds.
- Queries shall return results within five seconds

Safety : Table presents the identified non-functional safety requirements that directly relate to the entire subject proposed system.

3.7. Operating Environment:-

Android operating system is the open source operating system. There are thousands and thousands of developers are there at sites trying to make android a better a operating system. There are so many eyeballs looking over the code every day. So the loopholes are quickly patched and fixed. Therefore, android is secured. It always encourages your creativity. Unlike the iphone OS, Android user interface has been constantly refining and over the years. With Android 4.0 Google has made the user interface much more polished and modern. Apple charges people who want to develop applications for the App store. So android prevails.



3.8. Assumptions and Dependencies:-

The implementation will prove a capacity for standalone program/application deployment and not require customized embedded firmware to be written. It is further assumed that tablet PCs of sufficient processing capability and battery life will be utilized. The SRS assumes that none of the constituent system components will be implemented as embedded applications. The surface computers employed by the system should facilitate being utilized/left on for extended periods (sufficient for daily use) and that they are programmable in the same fashion as x86 architecture computers. Finally, it is further assumed that the deployment environment is capable of supporting an IEEE 802.11 wireless network for system communication. The maximum distance of transmission is within 50-100 meters, about the range of Wi-Fi.

The users of the tablets and displays are managers and chefs respectively and they should be able to use the system and further be able to train others with minimal training themselves. They must be able to explain all elements of the user interfaces except the server. Supervisors also fall into the same category, though they will have to learn other sections of the system (refunds etc); these should not be of notably greater complexity than the standard functions. This class of user would be expected to have a high-school certificate education or equivalent. Highly skilled user: The initial installation and configuration of hardware and the constituent proposed system components (especially the server) is guaranteed to require someone with notable computer experience, including extensive experience with network and operating systems to complete it. The software should not be needlessly complex, but it is still expected not to be entirely 'plug and play'. This class of user is expected to have a graduate certificate or equivalent, as well as extensive computer experience.

3.9. Software Quality Attributes:-

- 1) Using Android is very flexible as the developed product could be deployed on tablets as well as android driven mobile phones which are available in abundance.
- 2) Though maintenance is required, it is negligible.
- 3) The devices on which Android run are highly portable.

IV. RESULT

Customer has a quality service. It has an Effective stock management for restaurant users. Helps in Proper customer order management.

V. CONCLUSION

This restaurant management system helps restaurants deliver quality customer service. Besides it also helps restaurant manage stock, receive order based on available stock

REFERENCES

1. M.H.A. Wahab, H.A. Kadir, N. Ahmad, A.A. Mutalib and M.F.M. Mohsin, "Implementation of network-based smart order system," *International symposium on Information Technology* 2010.
2. Cormac O'Connell, *Restaurant Assignment*.
3. "QOrder" *The portable ordering system for Android devices*.

4. PARPixelPoint “PixelPoint POS Brochure”,
5. Advanced Analytical, Inc (October 2004) “LRS Restaurant Server Pager”,
6. Billpro Pocket® and Billpro POS for Restaurant
7. GHIRS: Integration of Hotel Management Systems by Web Services
8. Wei-Meng Lee , Beginning Android Application development by “wrox”
9. Mark Murphy , Beginning Android 3, by “Apress”.
10. [Tan-Hsu Tan, Ching-Su Chang, Yung-Fu Chen, Yung-Fa Huang, TsungYu Liu, “Developing an Intelligent e-Restaurant With a Menu Recommender for Customer-Centric Service”, Systems, Man, and Cybernetics, Part C: Applications and Reviews, IEEE Transactions.
11. Tomoko Kashima, Shimpei Matsumoto, and Hiroaki Ishii, “Recommendation Method with Rough Sets in Restaurant Point of Sales System”, PIMECS 2010 Vol III
12. Ali Akhtarzada, Cristian S. Calude and John Hosking, “A Multi-Criteria Metric Algorithm for Recommender Systems”, CDMTCS-400
13. Bini, Ola (2007). *Practical JRuby on Rails Web 2.0 Projects: bringing Ruby on Rails to the Java platform*. Berkeley: APress. p. 3. ISBN 978-1-59059-881-8.
14. Lattner, Chris (3 June 2014). "Chris Lattner's Homepage". Chris Lattner. Retrieved 3 June 2014. *The Swift language is the product of tireless effort from a team of language experts, documentation gurus, compiler optimization ninjas, and an incredibly important internal dogfooding group who provided feedback to help refine and battle-test ideas. Of course, it also greatly benefited from the experiences hard-won by many other languages in the field, drawing ideas from Objective-C, Rust, Haskell, Ruby, Python, C#, CLU, and far too many others to list.*
15. <http://www.deploid.com/tablet/ipad/>
16. <http://aptito.com/Why-Aptito>
17. <https://www.menupad.com/features>.
18. <http://www.waitersrace.com/tablets-and-e-menu-debates-around-the-restaurants-tables>
19. <http://www.touchbistro.com/features>.
20. Kuhlman, Dave. "A Python Book: Beginning Python, Advanced Python, and Python Exercises". Section 1.1. Archived from the original on 23 June 2012.
21. http://en.wikipedia.org/wiki/Jaccard_index
22. KhairunnisaK, *The Application of Wireless Food Ordering System* MASAUM Journal of Computing, Volume 1 Issue 2, September 2009.
23. N. M. Z. Hashim *Smart Ordering System via Bluetooth in International Journal of Computer Trends and Technology (IJCTT) volume 4 Issue 7 Month 2013.*
24. K. A. Wadile *E- restaurant management system using robot in international journal of informative futuristic research. 2015*
25. *Jump up to: Why We Created Julia*". Julia website. February 2012. Retrieved 5 June 2014.