

Wireless Restaurant Ordering System

Indraneel Guha, Rashmi Adatkar, Dinesh Patel, Paresh Vaghasiya

Abstract -Conventional method that usually been used in restaurant is by taking the customer's orders. The project was proposed with the ZigBee technology as the communication medium and peripheral interface controller (pic) as the hardware which implements faster ordering system. The aim for this project is to build and design both hardware and software for the ordering and delivering system at restaurants by using keypad, display screen via ZigBee communication. The project also targeted to receive information that works around 50m away with the specific location. The project was able to solve the lack number of the worker, reduce the lateness and the error on ordering foods by the customers. For the future target, using touch screen display and compress the device to more compact device are recommended as the nowadays demand to interact young generation for using this system.

Index terms- ZigBee, PIC, Wireless Sensing Network, Touch technology.

I. INTRODUCTION

This restaurant system is ideal for all catering environments being a pizzeria, a fast-food, fine dining, a cafeteria or any other food-service. The restaurant system can be installed on any computer running Microsoft Windows. You do not need any special expensive hardware to run the system. It can even run on any Pentium computer. This projects aims to design and develop a wireless food ordering system in the restaurant. The project application will become an important tool for restaurants to improve the management aspect by utilizing PC to coordinate food ordering could increase efficiency for restaurants and caterers by saving time, reducing human errors and by providing higher quality customer Service, With the combination of simple design and readily available emerging communications technologies, it can be concluded that this system is an attractive solution for the Hospitality industry. A micro controller based wireless restaurant order taking transmission system. It's required MCU, LCD module, RF data Modem ET.

II. PURPOSE

1. Wireless systems save TIME and MONEY.
2. Allows for faster and more efficient service.
3. Each server can handle more tables.
4. Possible reduction of wait-staff.
5. Waitress helps to increase your sales volume
6. Creates speed of order taking.

Manuscript Received on March 2015.

Indraneel Guha, Student, BE- EXTC, K.J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai

Rashmi Adatkar, Professor, EXTC Department, K.J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai

Dinesh Patel, Designation: Student, BE- EXTC, K.J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai

Paresh Vaghasiya, Student, BE- EXTC, K.J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai

III. PRESENT SCENARIO

1. The waiter takes order from the customer into his tablet, the customer can visualize the order and bill, administrator has the authority to change the menu and has authority to view daily, weekly or monthly report on profits and lastly the kitchen staff can prepare and serve the order.
2. Apart from these functions there are some limitations in this system like Provisions have to be made to accept different types of payment like credit cards, debit cards, checks, tips, donations etc.
3. More features could be added like online booking of tables and ordering of food items.
4. There can be a provision that accepts feedback from the customers and a registration form so that next time the customer can order his previously ordered food item.

IV. BLOCK DIAGRAM

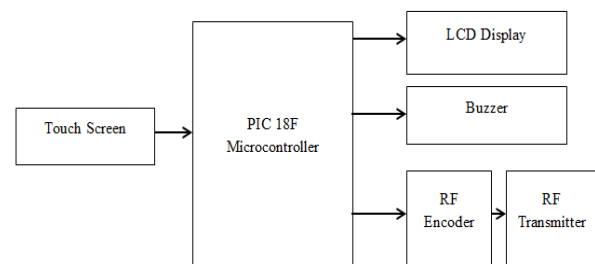


Fig. 1 Transmitter Section

Peripheral Interface controller (PIC) is the IC which was enveloped to control the peripheral device, dispersing the function of the main CPU. PIC has the calculation function and the memory like the CPU and is controlled by the software. However the throughput, the memory capacity isn't big. It depends on kind of PIC but the maximum operation clock frequency is about 20MHZ and the memory capacity to write the program is about 1K to 4K words. The clock frequency is related with the speed to read the program and to execute the instruction. Only at the clock frequency, the throughput cannot be judged. It changes with the architecture in the processing parts for same architecture; the one with the efficiency, the function is limited but can compose the control unit only by the PIC even if it doesn't combine the various IC's so, the circuit can be compactly made. More information please refer Data sheet Of PIC 16Fxx. calculation part, the memory, the input/output part and so on, are incorporated into one piece of the IC. The efficiency, the function is limited but can compose the control unit only by the PIC even if it doesn't combine the various IC's so,

the circuit can be compactly made. More information please refer Data sheet Of PIC 16Fxx. higher clock frequency is higher about the throughput. The point, which the PIC convenient for is that the calculation part, the memory, the input/output part and so on, are incorporated into one piece of the IC.

The Receiver section block diagram is as shown below:

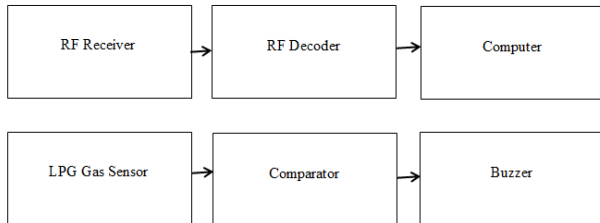


Fig. 2 Receiver Section

This both sections together forms the final block diagram of the project as follows:

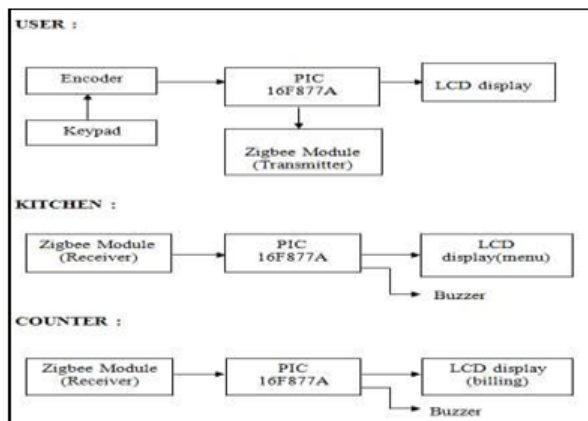


Fig. 3 Block Diagram of Smart Ordering System

The system uses a keypad 4x4 for the customer to make orders. At the User section, the customer will make an order by inserting the menu code on the keypad. This code comes together with the menu. The PIC16F877A will decrypt the data to be sent to the Kitchen section by ZigBee communication. ZigBee module at the Kitchen section received and decodes the data and it will display the menu that had been chosen by a user at the screen in the kitchen.

V. METHODOLOGY

The person at the reception is empowered to allot the suitable table to the customers, via a tablet. As soon as table is allotted, customer is directed to his/her table with steward waiting for them to take his order. Customer sees the categorized menu card in the digital form on the tablet. Waiter or waitress inputs the orders into the handheld tablets. The orders are sent to the kitchen via Wi-Fi. The kitchen staff sends notification whether the food is available or not. When kitchen staff sends a notification that the food has been prepared, the waiter in the kitchen serves the food at the respective table. If there is a need for modification in the food menu, the manager modifies the menu. The menu gets changed in the database. The changed menu then gets updated on the waiters as well as on the customer's tablet.

Multi-Touch Technology

It refers to a surface that senses touch such that it has the power to identify the occurrence of more than two points of contact with the surface.

Wi-Fi / WLAN architecture of Android

It shows the how the user can connect or disconnect to the Wi-Fi network.

Wi-Fi over Bluetooth

There are many systems that implemented to automate the ordering systems at the restaurants. There are many techniques which can be used to implement such a system. Some of them use WLAN (Wireless Local Area Network) and Bluetooth.

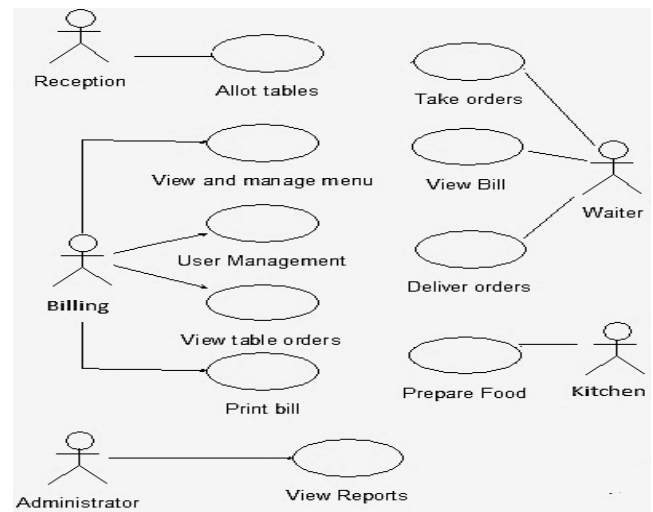


Fig. 4 Overview of the Method

VI. IMPLEMENTATION

The waiter takes order from the customer into his tablet, the customer can visualize the order and bill, administrator has the authority to change the menu and has authority to view daily, weekly or monthly report on profits and lastly the kitchen staff can prepare and serve the order.

Apart from these functions there are some limitations in this system like Provisions have to be made to accept different types of payment like credit cards, debit cards, checks, tips, donations etc.

More features could be added like online booking of tables and ordering of food items. There can be a provision that accepts feedback from the customers and a registration form so that next time the customer can order his previously ordered food item.

VII. FUTURE SCOPE

1. Provisions for changing the menu.
2. Provision for viewing daily, weekly or monthly report on profits and lastly the kitchen staff can prepare and serve the order.
3. Provisions to accept different types of payment like credit cards, debit cards, checks, tips, donations etc.

4. Online booking of tables and ordering of food items.
5. Provision for accepting feedback from the customers.

VIII. CONCLUSION

Egresses progressively and revolutionized the restaurant business industry and other fields. It is convenient, easy and effective thereby improving the restaurant staff's works performance besides providing quality of service and customer satisfaction.

Addresses many hindrances in food ordering process and management of restaurants by lessening the time of customer and management for ordering of food and cost for the pen and papers.

REFERENCES

1. Khairunnisa K., Ayob J., Mohd. Helmy A. Wahab, M. ErdiAyob, M. IzwanAyob, M., AfifAyob "The Application of Wireless Food Ordering System," MASAUM Journal of Computing, Volume 1 Issue 2, September 2009, PP 178-183.
2. Khairunnisa K., Ayob J., Mohd. Helmy A. Wahab, M. ErdiAyob, M. IzwanAyob, M., AfifAyob "The Application of Wireless Food Ordering System," MASAUM Journal of Computing, Volume 1 Issue 2, September 2009, PP 178-183.
3. Captain Pad retrieved information from <http://www.captainpad.com/about-captainpad> pda.html on 10 September 2012.
4. J.Mustafa, R.Kothari, R.Naik, and A.Slatewala," Touch & Dine A Multi-Touchable Restaurant System," in UACEE International Journal of Computer Science and its Applications-Volume 1: Issue 1 [ISSN 2250-3750].
5. Multi-Touch information retrieved from <http://www.scribd.com/doc/28414813/Multi> Touch-Technologies on 10 September 2012.
6. Android Wi-Fi Diagram Fig.[1] retrieved from <http://www.innovantesindia.com/wordpress/2011/04/01/wifi/on> 10 September 2012.
7. H.Kulkarni, S.Dascalu, F.Harris, "Software Development Aspects of a Mobile Food Ordering System."