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Wireless Hotel Ordering System

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ABSTRACT

To bring a change in the ordering of the desired menu in a hotel or a restaurant we have decided to generate a system called as the Touch-screen based wireless hotel ordering system. This is the method by which any person can select the desired items by their choice which are present in menu display & place an order for it by a single touch on the menu display screen. This order will be transferred to the kitchen section with the help of the zigbee module and announced & further it will also be provided to the manager section for the billing of the order. A feedback will be provided to the customer section from the kitchen section and the ordered menu will be provided to the customer.

Keywords: Touchscreen, ARM 7 LPC2138, ZigBee.

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I. INTRODUCTION

In today‟s world we have automation in all sectors except menu card and ordering system. In hotel and catering industry new technologies are always welcomed and are being used by the people. Billing standards are already upgraded in restaurants by using the computers and giving printed bills instead of handwritten. The customers of restaurants or hotels are always concerned of the time consumed along with the money and taste. The older methods of ordering menus in the hotel industry includes more human efforts for getting the order from customer by giving them the printed menu cards on their table, as well as billing is a great task by giving a special attention to their orders. The menu card and ordering system using a graphical LCD for menu and display and ordering menu using joystick will get a great response from hotels. As it will save time of customers, and it will reduce the human efforts of waiter of collecting menus from customers from their table along with that, waiters will get rid of their great task of giving special attention on each table. This system is smarter to communicate. ZigBee will provide a faster and accurate data transmission in a low cost. The system which is proposed in the paper can be used even by an illiterate people. This system can be used by all range of hotels and restaurants, as its cost of installation is cheaper due to the use of ZigBee communication which is used as a wireless interface and graphical LCD and joystick as customer interface.

II. LITERATURE REVIEW

Available Systems in Orderings:

- Paper based menu card
- Self-service food ordering KIOSK technology
- QORDER
- Computerized ordering system Out of this we can notice

QORDER-

Other Advancement in menu ordering in hospitality industry is QORDER which is a portable ordering system. It is a portable handheld device that runs the complete QMP POS software on android device .It requires a WIFI to connect the remote corner. This system also involves waiter as in case of paper based menucard system. In this, the waiter no longer approaches the table with his notepad instead with the portable device known as QORDER, and then takes the order from customer. He then sends the order to kitchen for further processing. Once the customer finishes, the waiter prints the bill.

This technique is somewhat advanced because the portable QORDER device uses wireless technology to communicate when large number of people visits restaurant at the same time, the work load on waiter along with QORDER device customer needs something then he have to call waiter. This ordering system is totally depends on manpower approaching customers to take order. Due to limited number of portable devices and manpower this system leads to failure. An error while taking order can still occur and the customer ends up with unsatisfactory experience. Also important thing to be noted in this system is that the customer doesn‟t get fully customized order.

III. PROPOSED WORK

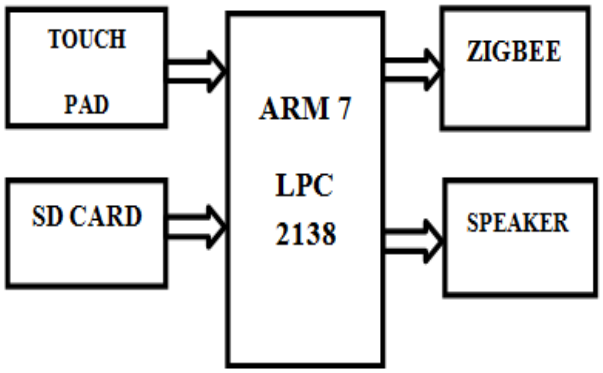
The above mentioned traditional menu ordering and catering systems are time consuming and susceptible to human errors which can be reduced but can‟t be avoided. The problem with the self service ordering system is that self service restaurants are more popular in metro cities. So in smaller cities there are hardly any self service restaurants available. Many a times these self service systems take unreasonable amount of delays to deliver the order. The problem with the recently developed zigbee based system is its high cost and limited range.

Our aim is to develop a cost effective system which could work in small restaurants that are not willing to invest huge amount of money in these systems. The newly suggested system is emphasized on increasing user friendly interface, simple navigation and low cost, increasing service range of wireless communication used and decreasing order processing time. This is done by efficient use of LCD, Touchscreen, Zigbee, and ARM7 .

In the proposed system, Zig-bee is used to transmit the data from transmitter to the receiver. There are two ARM Micro-controllers each at transmitter (customer table) and receiver (kitchen). Whenever a customer comes to a table, with kitchen. However, the problem arises during rush hour increases. Customers may have to wait for an arrival of waiter so that they can place their orders. Also if during the meal they can select their order with the help of a touch screen provided. This touch screen displays MENU items with its corresponding images or pictures, so the customer has the choice of selecting the item with its picture. As soon as the customer selects the item, it will be displayed on the LCD provided in the receiver section and order will be announced in the kitchen.

There has been improvements in the management of restaurants. Each waiter is assigned a group of tables, after taking orders for a table the waiters enter the orders (a list of dishes and drinks ordered by the diner or group of diners) into the system at the PC. The waiter usually knows of any dishes that are unavailable before taking an order. The system must confirm the availability of dishes. Should an item not be available the system must allow the waiter to change or even delete a customer‟s order. Dishes to be prepared are sent to the kitchen, drinks orders to the bar. Starters and main course orders are usually taken together. Drinks and desert orders may be taken separately. Kitchen staff sees the dish orders on their screen, prepare them in an appropriate sequence and confirm preparation to the system when complete, similarly with the bar. When a waiter sees the completion indications on his terminal he collects the items and takes them to the table. The waiter can also check on the status of dish and drink orders. At the end of the meal the waiter will have the system print a bill, and he will enter the details of payment for it. The management can give discounts. The system keeps track of the numbers of customers served by each waiter and the amount of money taken by each waiter.

3.1) BLOCK DIAGRAM AT CUSTOMER’S TABLE:

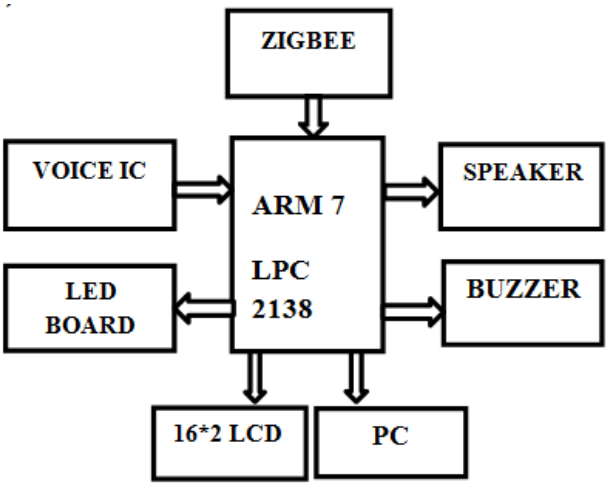


3.2) ALGORITHM FOR TRANSMITTER SIDE:

1. START
2. Initialization
3. Display the message and menu card on screen.
4. If order is placed then go to the step 6.
5. If order is not confirmed then go to step 3.
6. Buzzer beeps for the confirmation of order.
7. Order send in the kitchen.
8. STOP.

3.3) PICTORIAL VIEW AT TRANSMITTER SIDE

3.4) BLOCK DIAGRAM AT RECEIVER SIDE:



3.5) ALGORITHM FOR RECEIVER SIDE:

1. START
2. Wait for arrival of order.
3. If order is received then go to the step 5.
4. If order is not received then go to the step 2.
5. Buzzer beeps and glows that no. of LED from LED board from which no of table order is received.
6. Display order on LCD.
7. Announcement of order in kitchen.
8. Provide the order to the customer.
9. Send bill to customer as well as Manager‟s table.
10. STOP

3.6) PICTORIAL VIEW AT RECEIVER SIDE

IV. SOFTWARES REQUIRED

A. Kiel software
B. Embedded „C‟
C. Flash magic

We use Kiel software to write the program and execute it, program is written in the embedded „c‟ language, after completion of executing the program hex file program is dumped into the controller using flash magic.

V. ADVANTAGES

1. It reduces customer‟s time for waiting. So customers don‟t have to wait for the waiter to take the order.
2. Thus it saves the time.
3. This project is users friendly and fast.
4. System is flexible.
5. This system requires less power.
6. Ultra low power consumption.
7. Compact in size.
8. Wireless connectivity.
9. Easy and fast to install.
10. Low cost with high performance.
11. Fast response.
12. No need of a person to take order from the table
13. Long life.
14. Highly sensitive
15. Useful for even illiterates and dumb people.
16. Can be used with any language.

VI. LIMITATIONS

1. Status and feedback of order is not obtained. 2.
2. Limited distance (Generally confined to a hall).
3. System may not work properly if touchpad/kit suffer a defect.
4. Also may become a drawback if end users are not able to use the touchpad devices.

VII.APPLICATION

1. Touch screen based Wireless ordering project can be used in hotel for the customers. By using this project customer can give the order immediately.

2. With little bit modification this project can be the used in library. In some libraries, users are not allowed to enter inside library. In this case if any user needs books then he/she has to give book names to the librarian. Then librarian finds out the books and gives it to user. In such situations, this project can be used by the users of library. They can select books they want to order and they can press confirm button. Then the books information will displayed on the computer of the librarian.

3. In Restaurants, Hotels, Canteens, etc.

VIII. CONCLUSION

The implemented system of restaurant menu ordering system is a modern and smart solution for menu ordering methods in any kind of restaurant. The system will reduce the manual efforts and also gives more accuracy in calculating the bill for each individual table.It is a low cost alternative to be used by middle and low level restaurants also.

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