
TOUCH SCREEN BASED ORDERING SYSTEM & DISPLAYING SYSTEM FOR RESTAURANTS

Jilesh Bhadesia, Sanika Devlekar, Samita Bhandari

Student, Universal college of engineering, Kaman rd., Vasai

Student, Universal college of engineering, Kaman rd., Vasai

Faculty, universal college of engineering, Kaman rd., Vasai

Abstract

In this generation, we have advanced in almost all the areas except one field where there is still lack of technology. It is the hotel management system and services and so far there is no step being taken to introduce technology in this area. The above stated project works mainly on the method by which anyone can select any items by their choices which are in the menu display and that order will be sent to the pc of the manager using zig-bee module & that ordered item will be served to that customer. With the information we have received; we are engaged in an iterative design cycle to develop a final graphical user interface for our touch screen based ordering system & displaying system.

Keywords—Avr16 Microcontroller, Touch screen, LCD display module, FSK UART RF Module

1. INTRODUCTION

A prototype for customer self-ordering system in restaurants or hotels is developed in this paper. Here, FSK UART RF Module is used to transmit the data from transmitter to the receiver. A customer at the table can choose their order with the help of a LCD with touch screen provided. This LCD displays MENU items with their respective cost, so the customer will select one of the item with its picture. When an item is selected, the same data will get displayed on the PC provided at the receiver end. Menu card is displayed at the customer's table. Customer selects various items on the touch screen. The electrical signal is then given to the computer which is controlled by the person in charge or the manager. The manager is able to see the order for which the customer is waiting, he is responsible to order the chefs in charge and hence the order is complete. Once after the food is over, the payment can be done either by the credit card or by cash. This certainly does not require any man power, which overall generates delay in the process.

2. DRAWBACKS OF EXISTING SYSTEM

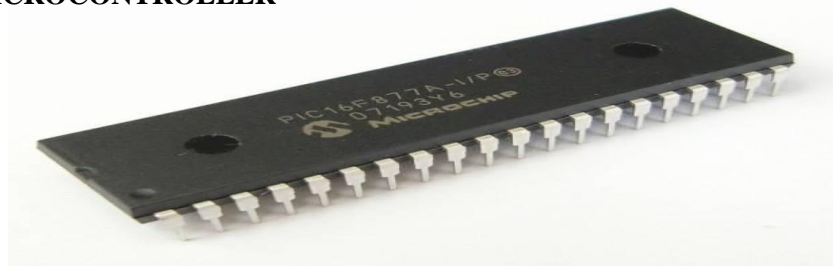
Stress can take place on human finger when used for more than a few minutes at a time. The touch screen can suffer from the problem of fingerprints on the display. The user has to sit closer to the screen as compared to the external keyboard. The screen can be covered more by using hand. It poses a great problem for the people who are illiterate. In previous version the screen used was graphic LCD. Major disadvantage of this system was the lack of clarity of screen and the need of photos of the menu or any food item, so in our project we are using color touch screen to increase the graphics and to make it more attractive. Power consumption will be more. Unemployment increases as this reduces the staff workers. There is a possibility of mal-functioning of touch screen and LCD if not properly maintained. Drawback of this system is that it is very costly.

3. LITERATURE REVIEW

Jingjing Wang[1] presented the design and achievement of wireless ordering food system. This paper presented in-depth on the technical operation of 4*4 matrix keyboard to realize data input. N. M. Z. Hashim et-al[2] proposed the smart ordering system via Bluetooth (SOS). It uses a small keyboard to make orders and Bluetooth for transmission. Prof. Sagar Soitkar et-al[3] presented the touch screen based digital menu ordering system using AVR. This paper dictates the method of low cost, efficient and easy to access the system for digital menu ordering system for restaurants. Asan, N. Badariah et-al[4] developed zigbee-based smart ordering system. The smart ordering system is proposed orders using hand tools used to make an order in a restaurant. Bhanu Siramshetti et-

al[5] later on took one step ahead. They further extended the service with zigbee based E-menu ordering system. The development of the E-menu ordering is based on the software-hardware platform on ARM7(LPC2148), using zigbee for short spectrum radio communication technologies. GuHui et-al[6] developed the design of touching wireless ordering dishes system based on WinCE. It overcomes the drawbacks of PDA based system. Terminals in hand have a large storage, high speed of data processing and friendly screen. Kiran Kumar reddy et-al[7] employed combination of Bluetooth technology along with android phone. An android application was designed containing food item details in restaurant. The input unit was smart phone/tablet and output section was PC. Cloud-based server for storing the data base was used which made it inexpensive and secure

4. PIC 16F887 MICROCONTROLLER



This is the heart of our complete project. It is responsible for all process being executed. It will monitor & control all the comprising devices or components connected in this unit

4.1 Features:

- 8192 Words of system programmable (ISP) flash 256B of ISP EEPROM
- 368B of SRAM Watchdog
- SPI
- 16-bit Timer with extra features 4 pulse width modulation
- 14 channel 10-bit ADC UART
- Standby Current:50nA @ 2.0V, typical
- Operating Current: 11 μ A @ 32 kHz, 2.0V, typical
- :220 μ A @ 4 MHz, 2.0V, typical

5. TOUCH SCREEN

A touch screen is an electronic device consisting of a display that can detect the presence and location of a touch within the display area.

5.1 Resistive Touch Screen

Resistive LCD touch screen monitors depend on touch overlay with a flexible top section and a rigid bottom section separated by insulating dots, attached to a touch screen panel.

5.1.1 Four – Wire Resistive Touch Screen

Technology

In terms on manufacturing & simplicity four-wire resistive technology is the best. To determine the x and y coordinates it uses both the upper and lower sections in the touch screen "sandwich". The primary disadvantage of four-wire technology is that one Coordinate axis (usually the y axis), uses the outer section, the coversheet, as a uniform voltage factor. The constant flexing that occurs on the outer coversheet with use will eventually cause microscopic cracks in the it's coating, due to which it's electrical characteristics (resistance) changes, which degrades the linearity and accuracy of the axis.

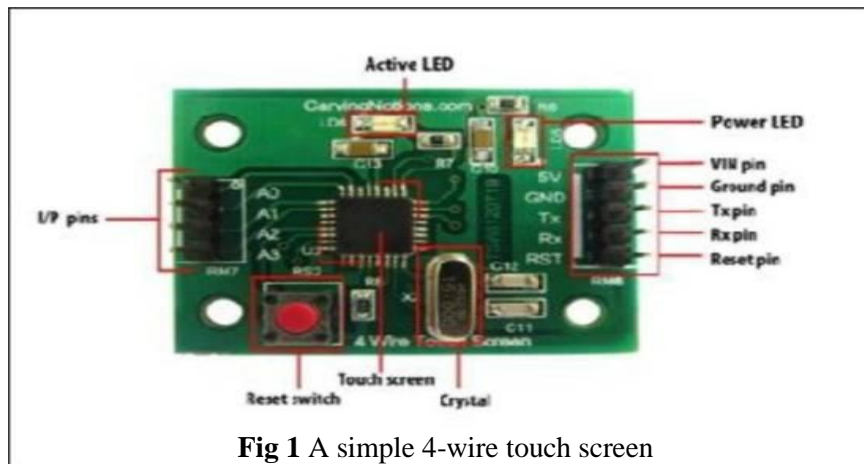
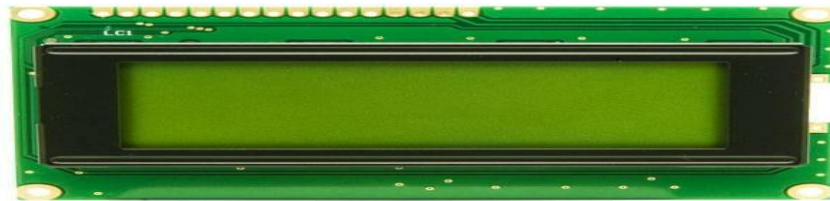


Fig 1 A simple 4-wire touch screen

6. LCD DISPLAY MODULE



Display format: 16 x 4 characters Duty cycle: 1/16
5 x 8 dots includes cursor
+ 5 V power supply (also available for + 3 V)

7. Zigbee Module



Zig-Bee is a standard that defines a set of communication protocols for low data-rate short-range wireless networking. Zig-Bee based wireless device operates in 868 MHz, 915 MHz, and 2.4 GHz frequency bands. The maximum data rate is 250 Kbps.

7.1 Key Specifications:

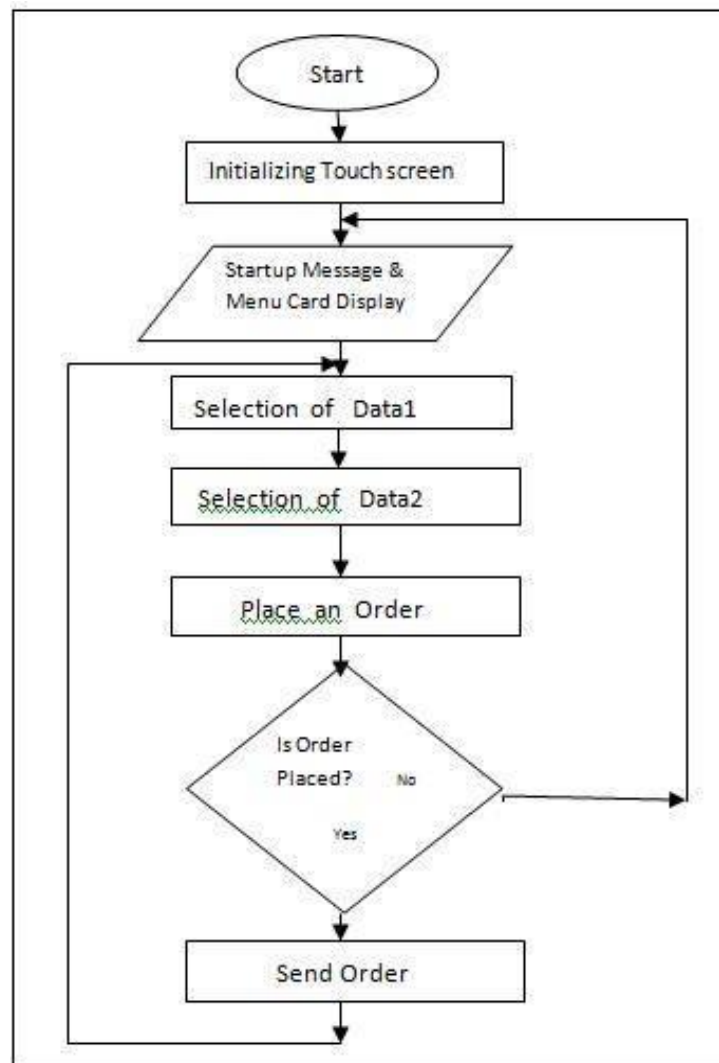
1200 bps – 1 Mbps interface data rate 2.4 GHz frequency band
Industrial temperature rating (-40C to 85C) Transmit power 60 mW (+ 18 dBm)
Supply voltage: 2.7-3.6V DC, transmit current: 205mA,
receive current: 47 mA Power-down current

8. ALGORITHM

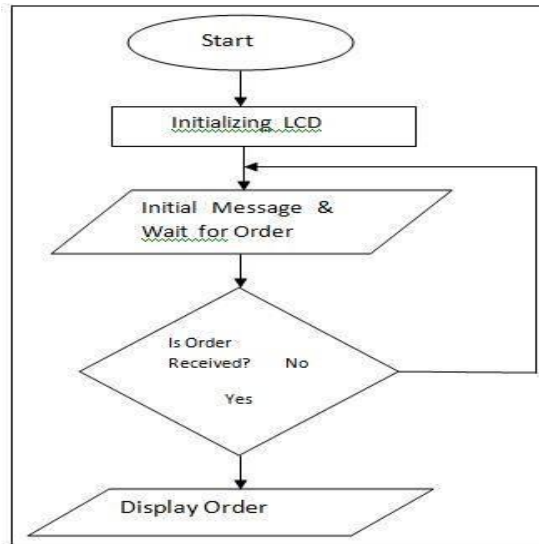
1. Initialization of peripheral devices like LCD module & touch screen
2. Initialization of serial port of UART of microcontroller at 9600 bit/sec.
3. Touch screen & LCD module with calibration
4. Logical division of touch screen into 9 locations.
5. Wait till user tapping.
6. Get tapping coordinate X, Y & resolve the location we have tapped.
7. Generate a code for command based upon location & send to serial port.
8. Repeat the above all steps.

9. FLOWCHART

9.1 Transmitter Section



9.2 Receiver Section



10. CONCLUSION

Nowadays, most of the people have enough knowledge about computers, due to which our project can come handy and prove useful for people of all classes because it is simple, fast, and appealing; thus attracting more and more customers. By using such systems at the restaurants, it will be easy and much comfortable to place any kind of order of our choice for both customers' as well as for the management staff. However it will also reduce the number of staff in a hotel; which reduces the cost as well as reduces the mistakes; which can be caused by them. This system will also help the customers to place right order for any kind of cuisine by simply browsing and survey about the various dishes before placing an order and which in turn will help them to have their choice of Food/Dish without having any confusion and can enjoy their meals satisfactorily.

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