

ZIGBEE BASED E-MENU ORDERING SYSTEM

B.Hari kumar¹, D.Reshma², k.Sruthi³, K.Chandrasekharreddy⁴, B.Lakshmi⁵

¹²³⁴⁵ Electronics and communication engineering
Brindavan Institute of Science and Technology Kurnool.

Abstract - Typically in a restaurant food order process involves several steps for ordering the food where firstly customer starting from browsing the paper based menu and then inform to the waiter for ordering items. This project is designed to overcome all these disadvantages and comes up with a better solution .By placing a touch panel on each and every table where customers are there, all the items can be displayed over it. Such that customer can know the item before selecting it. Whenever he/she selects the item automatically it will be displayed on the PC at the counter. This will be done using wireless technology zigbee, and the item cost will be displayed on the LCD which is connected to the microcontroller at the table.

INTRODUCTION:

In this paper the self ordering system is developed in restaurants or hotels. Here, zigbee is used to transmit the data from transmitter to the receiver. A customer can choose their order with the help of a LCD with touch screen provided. This LCD displayed MENU items with their respective cost, so the customer will select one of the item. When an item is selected, the same data will get displayed on the PC provided at the receiver end. Menu card will be displayed at the customer's table. Whenever the customer order the item, the electrical signal is then given to the computer which is controlled by the person in charge or 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.

II. LITERATURE REVIEW:

Existing Food Order Process

1) FULL SERVICE RESTAURANT: Tradition food order process used in most full-service restaurants starting when a waiter brought the guests the paper-based menu, and then

waiting for the guests to choose items from the menu and inform the waiter the order items. The process typically required the guests to be seated in the restaurant and a waiter to assist the ordering .One of the most widely used food ordering system is the conventional paper based system. In this system all records are stored on paper. The main drawback of this system is papers can get easily lost or damaged. There is also wastage of money, time and paper. Paper-based systems do not provide any form of dynamicity. Even a small change requires the re-print of entire menu-card. Also large amount of human efforts are required, this system is not work properly because it has some error and from a customer's point of view it is time consuming.

2) SELF SERVICE RESTAURANT: This process required the guests to place order at the service counter in the restaurant. The guests shall have decision in advance, before presented at the counter, of which menu items to order. Menu catalog is mostly presented as posters placing behind the order counter.

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 (GLCD). 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. AVR 16 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.

3.1 Features:

- 16KB of in system programmable (ISP) flash
- 512B of ISP EEPROM
- 1kb of SRAM
- Analog comparator
- Watchdog
- SPI
- 16-bit Timer with extra features
- 4 pulse width modulation
- 8 channel 10-bit ADC
- UART
- 2-wire orientated serial interface

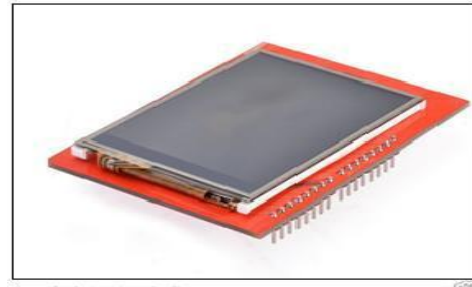
4. TOUCH SCREEN

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.

4.1 Resistive Touch Screen

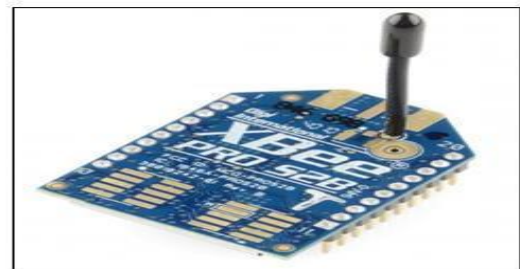
Resistive LCD touch screen monitors depend on touch overlay with a flexible top section and a rigid bottom section separated by insulating dots, attached to a touch screen panel.

5. LCD DISPLAY MODULE



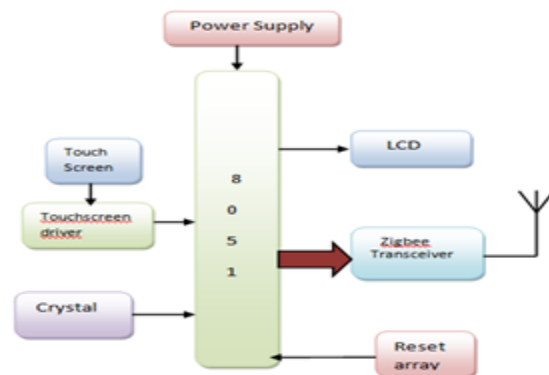
- 2.4 inch diagonal LCD TFT display
- 240 x 320 resolution- 18-bit (262,000) color
- 8-bit digital interface(additional 4 control lines)
- Uses digital pins 5-13 & analog 0-3.
- Works with Arduino UNO R3
- 5V compatible. Use with (3.3V)
- Onboard 3.3V at 300mA LDO regulator
- 4 white LED backlight. 4-wire resistive touch screen

6. ZIGBEE MODULE

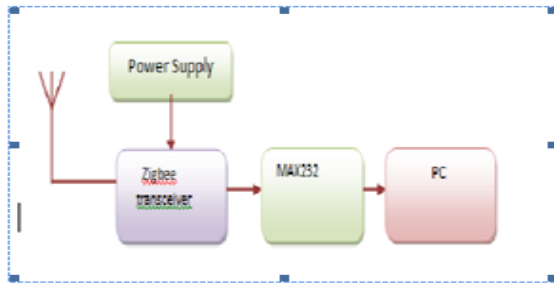


BLOCK DIAGRAM:

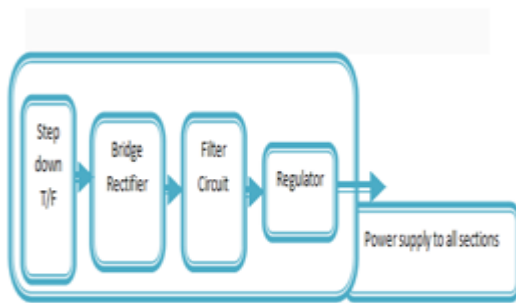
TRANSMITTER:



RECEIVER:



POWER SUPPLY:



CONCLUSION:

In this paper, we have presented a digital restaurants and inter-restaurant navigation using smart phones to customers. Instead of using PDAs to interface with customers, we are using smart phones to customers. Instead of using PDAs to interface with customers, we are using smart phones or tablet to provide necessary interfaces for customer to view and order menu. With private login system, customers can view and make order and receive updates in real-time and collect receipts right from the smart phone itself. It allows customers to navigate the places or directions in restaurant and also it allows restaurant owners to manage orders from customers immediately whenever he or she logged in into the system. Our experience in developing digital restaurants and inter-restaurant navigation using smart phones shows the capabilities of wireless communication and smart phone technology in fulfilling and improving business management and service delivery. This system is convenient, effective and easy so that it improves the performance of restaurant's staff.

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