Development of Wireless Ordering System for Hotel

Ajinkyakumar Jadhav¹, Snehal Gaherwar², Aniket Patil³, Amit Bilapatte⁴, Jatin Patil⁵

¹,²,³,⁴,⁵Electronics & Telecommunication Department, Brahmadevada Mane Institute of Technology, Solapur, India

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 advanced menu 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 touch screen display with the help of the zigbee module & 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—Arduino, touch screen, zigbee module.

I. INTRODUCTION

Technology is such a term which can change the complete operation of a particular system. In today’s world we find that each and every field is based on the use of some kind of technology. In such a world wherein developments are being taking place in many field, but we find that the most commonly visited place by every person that is a hotel, is still the same. No advancements have been made in the ordering system of a menu in the hotel. We will still find the earlier paper based systems in many of the hotels.

People visit a hotel in order to have a tasty food in less time and of their desired choice. A customer requirements are very necessary while considering the hotel business. If we analyse the different types of customer requirements, we will find that they are almost the same. The customer needs a good service, good quality food, less time consumption, no confusion in placing and receiving an order, quick billing with no errors. All this can be made possible with a new type of system named as the touch screen based ordering system for hotels.

II. PROPOSED SYSTEM

A. Block Diagram

Figure shows the basic block diagram of our proposed system which we are going to implement.
7) EEPROM 1 KB
8) Clock Speed 16 MHz
9) It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator.
10) The Arduino Uno is a microcontroller board based on the ATmega328

The menu ordering system allows multiple users to interact with the touch screen simultaneously. Because of this reason number of customers can use this system. There is no additional circuitry required for this type of operation.

The touch screen is an advanced technology. The main purpose of this project is to implement a wireless touch screen menu ordering system using zigbee module for restaurants. The traditional system used by the restaurant was time consuming, less reliable, and involved wastage of paper. All this disadvantages can be eliminated by using this advanced type of wireless system. By using this system the customer can get faster access and better service in less time, hence it can be said to be a less time consuming system. The restaurant can get more profit by the use of this system.

Users can simply move things on the screen scroll them, make them bigger and many more. [4]

**Types of Touch screen Technology**

Let us now give an engineer’s eye to this revolutionary technology. A touch screen is a 2 dimensional sensing device made of 2 sheets of material separated by spacers. There are four main touch screen technologies:

1) Resistive
2) Capacitive
3) Surface Acoustical Wave
4) Infrared

Type of Touch Screen Technology used in system the touch panels themselves are based around four basic screens technologies: resistive, capacitive, surface acoustical wave (SAW) and infrared (IR). Each of those designs has distinct advantages and disadvantages.

**III. RESISTIVE TOUCH SCREEN**

Resistive LCD touch screen monitors rely on touch overlay, which is composed of a flexible top layer and a rigid bottom layer separated by insulating dots, attached to a touch screen controller. The inside surface of each of the two layers is coated with a transparent metal oxide coating of indium tin oxide (ITO) that facilitates a gradient across each layer when voltage is applied. Pressing the flexible top sheet creates electrical contact between the resistive layers, producing a switch closing in the circuit. The control electronics alternate voltage between the layers and pass the resulting x and y touch coordinates to the touch screen controller. The touch screen controller data is then passed on to the computer operating system for processing. Resistive touch screen panels are generally more affordable but offer only 75% clarity and the layer can be damaged by sharp objects.
I. Four-Wire Resistive Touch Screen Technology

Wire resistive technology is the simplest to understand and manufacture. It uses both the upper and lower layers in the touch screen "sandwich" to determine the x and y coordinates. Typically constructed with uniform resistive coatings of it on the inner sides of the layers and silver buss bars along the combination sets up lines of equal potential in both x and y.

Advantages-
1) Touch screens have advantages over other devices
2) Touch screens are the fastest pointing devices.
3) Touch screens have easier hand eye coordination than mice or keyboards.
4) No extra work space is required as with other pointing devices
5) Touch screens are easy in public access and in high volume usage.

Disadvantages-
1) User's hand may obscure the screen.
2) Screens need to be installed at a lower position and tilted to reduce arm fatigue.
3) Some reduction in image brightness may occur. They cost more than alternative devices. Screens get very dirty.
4) These devices require massive computing power which leads to slow devices and low battery life.

D. ZIGBEE Module

The past several years have witnessed a rapid development in the wireless network area. So far wireless networking has been focused on high-speed and long range applications. However, there are many wireless monitoring and control applications for industrial and home environments which require longer battery life, lower data rates and less complexity than those from existing standards. What the market need is a globally denied standard that meets the requirement for reliability, security, low power and low Cost.

Fig.2 Zigbee Transceiver Modules [7]

Specifications:
1) Indoor/urban range: 133 ft (40 m)
2) Transmit power: 1.25 mw (+1 dbm)
3) Receiver sensitivity (1% per) : 97 dbms
4) Serial data interface: 3.3v cmos uart
5) Configuration method: API or at commands.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Bluetooth</th>
<th>GSM</th>
<th>Zigbee</th>
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<tbody>
<tr>
<td>Range (in m)</td>
<td>1-10+</td>
<td>1000+</td>
<td>1-75+</td>
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<tr>
<td>Battery life (in days)</td>
<td>1-7</td>
<td>1-7</td>
<td>100-1000+</td>
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<tr>
<td>Bandwidth (kbps)</td>
<td>720</td>
<td>64-120</td>
<td>20-250</td>
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<tr>
<td>Application</td>
<td>Cable replacement</td>
<td>WAN</td>
<td>Monitoring &amp; Control</td>
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IV. CONCLUSION

Hence by this complete study of the ordering system that we will implement, we have learned about the touch screen technology, Arduino board, zigbee module, etc and also we are learning how to interface these modules with each other and the required coding for it.

REFERENCES

[3] “Comparative study of touch screen technologies” by malik vishwas