RESULT ORIENTED PAPER ON IMPLEMENTATION OF TOUCHSCREEN DIGITAL MENU CARD FOR HOTEL

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ABSTRACT

A new design scheme of the digital menu card ordering system applied to the middle and small hotel is proposed. The development of the touchscreen digital menu card based on the ATMEGA 328 and Wi-Fi communication technologies. It has advantages of low power, high reliability and user friendly interface. This is the method in which any person can select the desired items/order by their choice which is present in the menu display and the order place by the touchscreen panel which is place on the each and every table. This order will be transferred to kitchen section display on the LCD with the help of the RF module and further it will provide to the counter section for the billing of the order. A feedback (food) will be provided to the customer section from the kitchen section.

Keyword: *ATMEGA 16, Touchscreen panel, LCD display, Wi-Fi Module, RF Module, Encoder, Decoder.*

1. INTRODUCTION

Many times in the hotel we have to wait for a waiter to take our order of food. This create problem when there is rush in hotel especially in festival seasons and generally on weekends. Main intension of our project is to avoid such problems and to give solutions to such problems. In the project a touch screen panel will placed on every table. Whenever a customer comes to their table then they will select the desired order menus from the touch screen. Suppose users have selected menu numbers 1,2,8,4 and so on and once he/she is done then he/she can press the confirm key. At that time information will be sent to the kitchen of the hotel. All this information will be displayed on a computer display.

For this purpose we have used a RF transmitter from customer table and RF receiver at kitchen side. So orders will be directly sent to the kitchen and users don't have to wait for the waiter and at the same time LCD will display the total billed amount directly to the user. The customer needs a good service, good quality of food 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 digital menu card for hotel.

2. BLOCK DIAGRAM

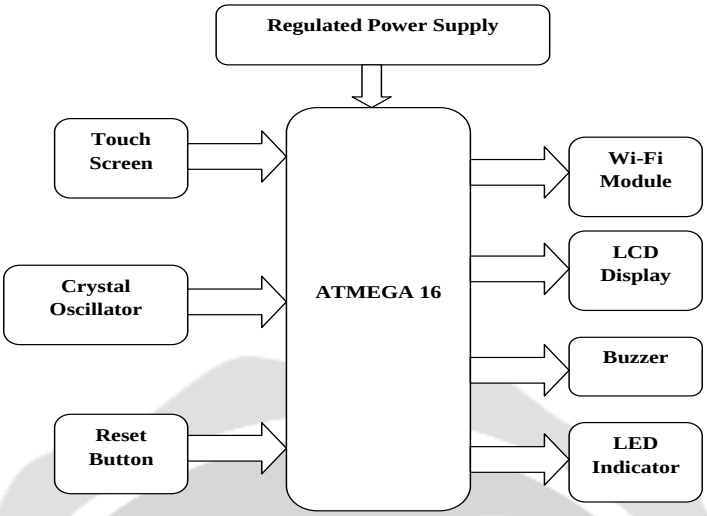


FIG (1) : Block Diagram of Transmitter and Receiver

3. RELATED WORK

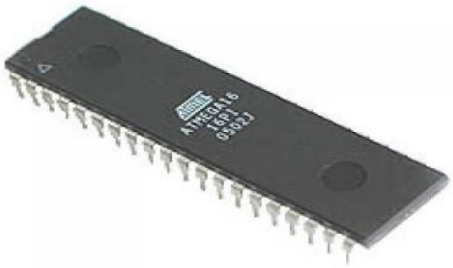
In this wireless handheld ordering system there will be touch screen panel place on the customer tables. In that the more numbers of transmitter section (master) but only one receiver section (slave). In this the data from the different slaves will be transmitted to the receiver section through RF module. In this, we have one receiver section and more than one transmitter sections (customer section). In the customer section (slave) we have one LCD, ATMEGA 16, RF module transmitter and at main section we have one controller, buzzer, LCD, PC, Wi-Fi receiver. When the customer take seats and he orders the requirements by using LCD on which the items are displayed in images format, and when the customer selects the item, the input from the touch screen will be sent to the controller of ports 1 the data from the controller will be in analog form and controller will convert the analog data to digital data by using in built ADC. The controller receives the data in digital form and according to user input the controller will display the data (images) on LCD which is connected to the port0 and sends the data to the RF module through the transmitter pin then the Wi-Fi module transmits the data to the receiver section RF module.

The receiver section RF module receives the data transmitted by the transmitter section and sends the data to the controller 10th pin and as soon as the data has received, the controller will make the port2 high to which the buzzer is connected. When it is made high then the buzzer will blow which indicates data has received and the controller in mean while display the data (order by the customer which) on the LCD is connected to the controller to the port1 pins and the controller will send the data to different section of server and it will display the data on PC as table no, items ordered by the customer for billing with the help of the Wi-Fi module.

4.1 HARDWARE REQUIRED

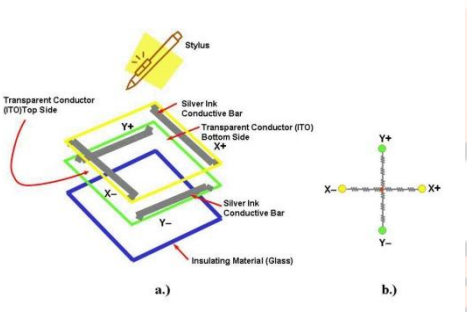
A] ATMEGA 16

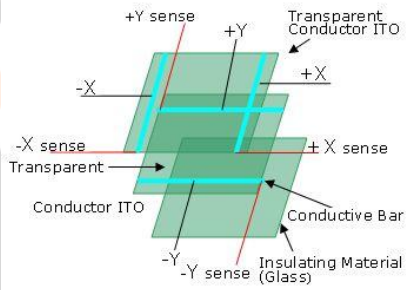
A microcontroller is a single chip, self-contained computer which incorporates all the basic components of a computer on a much smaller scale. Microcontrollers are often referred to as single chip devices or single chip computers. In functional terms, a microcontroller is a programmable single chip which controls a process or system. Microcontrollers are typically used as embedded controllers where they control part of a larger system such as appliance, automobile, scientific instrument or a computer peripheral. Microcontrollers are designed to be low cost solutions therefore using them can drastically reduce part and design costs for a project.



B] TOUCHSCREEN PANEL

Touch screen is the latest technology which has led to tremendous advancements in the display screen of any type of system. The operation of a touch screen is based on the use of the sensor. When the person touches at any point on the screen, a contact6 is made in layers of the touch screen and the particular option that has been touched by the user is selected. This is based operation of touch screen. In olden days the touch screen was only being used in a mobile phone but now days it is being used at various places for e.g. in banking sector we use Automatic Teller Machine(ATM), Personal Digital Assistants (PADs), Smart Phones and Displays. A touch screen is type of display screen that can detect the presence and location of a touch within the display area.

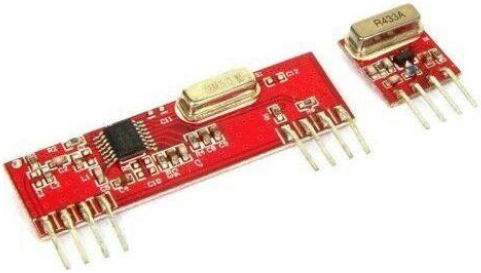




C] RF MODULE

RF Transmitter Module:

This circuit utilizes the RF module receiver and transmitter for making a wireless remote, which could be used to drive an output from a distant place. RF module, as the name suggests, uses radio frequency to send signals. These signals are transmitted at a particular frequency and a baud rate. A receiver can receive this signal only if it is configured for that frequency.



A four channel encoder/decoder pair has also been used in this system. The input signals, at the transmitter side, are taken though four switches while the outputs are monitored on a set of four LEDs corresponding to each input switch. The circuit can be used for designing remote appliance control system. The outputs from the receiver can derive corresponding relays connected to any household appliance.

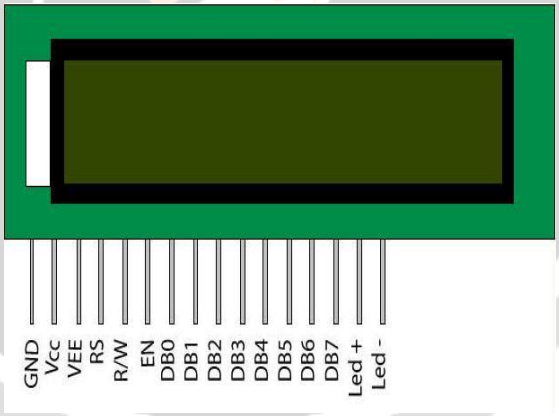
D] HT12E (ENCODER)/HT12D (DECODER)

HT12E is an encoder integrated circuit of 212 series of encoder. They are paired with 212 series of decoders for use in remote control system application. It is mainly used in interfacing RF and infrared circuits. HT12E converts the parallel input into serial output. These 12 bit are divided into 8 address bits and 4 data bit.

HT12D is a decoder integrated circuit that belongs to 212 series of decoders. This series of deciders are mainly used for remote control system application, like burglar alarm, car door controller, security system etc. it is mainly provide to interface circuits. They are paired with 212 series of encoders. The chosen pair of encoder\decoder should have with number of addresses and data format.

E] LCD DISPLAY

The Liquid Crystal Display screen is an electronic display module and finds wide range of application. A 16*2 LCD display is very basic module and is very commonly used in various devices. A16*2 LCD means it can display 16 character per line and there are 2 such lines. In this LCD each character is displayed in 5*7 pixel matrix. This LCD has two registers are used name as command and data.



The command register store the command instruction given to the LCD. A command is an instruction given to the predefined task line initializing it, clearing its screen, setting the cursor position, controlling display etc. The data register stores the data to be displayed on the LCD. The data is the ASCII value of the character to be displayed on the LCD.

4.2 SOFTWARE REQUIRED:

A] Keil Software

B] Embedded system

C] Flash Magic

We use Keil 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.

5. PROJECT MODEL

6. APPLICATION

1. Touch screen based wireless ordering project can be used in hotel for customer can give the order immediately.

2. It reduces customer's time for waiting. So customers don't have to wait for waiter to take the order. Thus it saves the time.

3. This project is users friendly and fast.

4. With little bit modification this project can be the used in library.

For example:-

In some libraries, users are not allowed to enter inside the library. In this case if 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 situation, this project can be used by 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.

7. RESULT

After customer takes seats, the customer selects the item required from the menu displayed on LCD, the customer selects the item using touchscreen then the data will be send to the controller then the controller ask for the quality required then the customer selects quality required displayed on LCD then the controller receives the data and transmit the data to the kitchen section though the RF module and the kitchen section receives the data with the help of the RF receiver and the data is displayed on the LCD contain the information like item ordered by customer and quantity as shown in fig.

8. CONCLUSION

Hence by this complete study of the touchscreen digital menu card for hotel in that we will implement, we learned about the touchscreen technology, ATMEGA 16, Wi-Fi module, etc. and also we are learning how to interface these modules with each other and the required coding for it.

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