# Smart Menu System in Restaurant

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## ABSTRACT

Smart Menu System in Restaurant is an idea of mechanization of menu requesting framework in lodgings and cafés. Rather than an individual need to go to physically and enter the request put in each table, the proposed framework carries a requesting framework with electronic menu. With this kind of eatery, the kitchen individuals can get orders from each table remotely. This framework includes a transmitter segment at client table and beneficiary segment at kitchen table. In this plan an electronic framework gathers orders from each table with electronic menu card and sends through remote correspondence.

Utilizing a network keypad, the things to be requested can be chosen. These arranged subtleties are gotten by a remote collector in the café kitchen and things list is shown in a presentation unit so individuals in the kitchen can supply those arranged things subsequent to setting them up. Subsequently the time defer experienced by the client normally during appearance of carrier to gather the request and pass to the kitchen is diminished definitely. The framework is constructed utilizing PIC16F877 microcontroller, Liquid precious stone presentation and 2.4 GHz open band remote handset modules for correspondence. The entire framework can be worked inside a scope of 30m indoor.

**Keywords:** Touch screen, R Ftransceivers, Smart Restaurant, PIC16F877, Menu Ordering.

## INTRODUCTION

### a) Background

The café business has survived numerous years with many changes. Yet at the same time in any case this area of client service and communication technique has not worked on such a great amount since a very long while of years. The manner in which we do everything has changed yet at the same time the majority of them are immaculate albeit a large portion of them have different burdens, which can be essentially improved by this computerized approach.

The proposed advanced based menu requesting frameworks for eateries which can plan to advance this present circumstance. Today's shoppers are completely adjusted to connect with innovation and PC framework in numerous other everyday life angles.

The vast majority of the times innovation is liked than customary frameworks since they help to particularly give a helpful and quick help.

### b) Motivation

Customer assistance and fulfillment is clearly the most import areas of restaurant industry. The most difficult errand for most of café chiefs is to participate in a cordial manner to the help staff and clients. What's more, it is additionally difficult to rouse consistently individuals since client support in the majority of the eateries will be extremely distressing.

The vast majority of this sort of pressure happens in conditions when one client support part needs to deal with such a large number of clients simultaneously. Hence this article expects to help the innovation required for an eatery staff which can permit them to zero in on the significant and cordial client support.

By adjusting this strategy in a café will work on the general insight of the client in appositive manner and backing to return for the following outing. Giving kitchen association, business interaction of receipt the executives and handling of request is the fundamental focal point of this article. Likewise, this framework gives as computerized method for the board for each cycle in a restaurant.

## PROPOSEDSYSTEM

When utilized for few moments of time a sort of pressure can happen on human finger. Contact screens can likewise experience the ill effects of the issue of fingerprints to be engraved on the showcase. Moreover, the client must be in near the screen contrasted with an outside console for getting to the menu capability. In profoundly enlightened regions the client needs to cover the screen by hand which is an irritating issue and an extraordinary issue for the ignorant individuals.

To advance a most financially savvy framework that can work in little eateries that could rouse the people who are not willing in putting tremendous measures of assets in this kinds of frameworks. Likewise, this framework will give a helpful, practical and quicker client care for choosing and requesting of things that are conceivable through the keypad menu which are shown in a PC screen gave in the eatery kitchen.
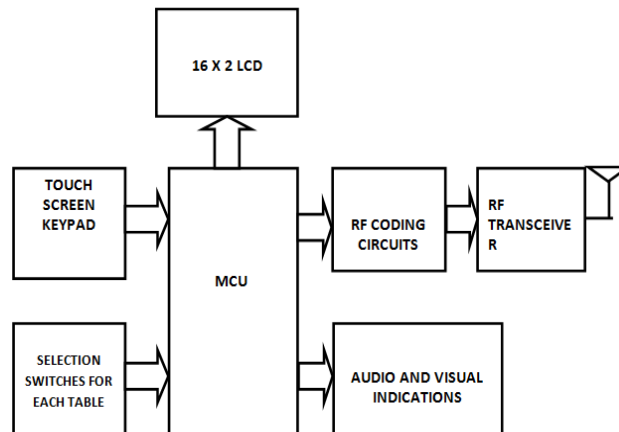
*a) Block Diagrams*

i) **Transmitter section**



**Figure 1: Transmitter Block**

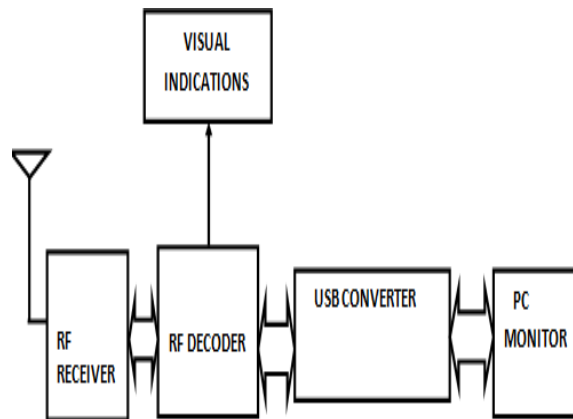ii) **Receiver section**



**Figure 2: Receiver Block**

*b) Working Principle*

To defeat the limits and downsides in the as of now followed frameworks of cafés, a computerized menu card based requesting framework is planned. This framework can give a programmed, quick and proficient consideration for every client on table by permitting them to pick the orders straightforwardly to the kitchen utilizing the electronic menu card at each table.

i) **Transmitter section:**

At the transmitter end at each table an electronic menu card is given which comprises of a MCU, keypad, encoder, LCD and a RF transmitter. The food things are shown in the LCD screen with their cost list by the MCU. The clients can pick the rundown of things by utilizing INC and DEC buttons. In the wake of choosing the things to put in the request they need to press the SEND key. The information from the keypad is perused by a microcontroller which gives relating computerized result to an encoder. The encoder encodes the dynamic pieces from the information pins to a paired coded yield signal. The RF module works in a radio recurrence from the scope of 30MHz to 300GHz as per the module type. Here a 2.4GHz band RF handset module is utilized. This recurrence is usable for RF signs to go through bigger distances with no weakening even there is any snag between the transmitter and collector. Additionally, this RF module is generally solid with low power utilization and can interface with different clients.

ii) **Receiver section:**

A receiver unit will be set in the restaurant kitchen which comprises of a RF collector module alongside a RF decoder. This framework is associated with a PC show and visual pointer through microcontroller. The coded parallel data from the RF transmitter is gotten by the RF beneficiary and given to the decoder. The decoder disentangles the collector input and gives a four-bit computerized double information at the result. The PC screen shows the got food menu chose by the client at the screen utilizing a unique programming program introduced. Visual sign and caution to the kitchen individuals likewise furnished with a sound and visual alarm.

## HARDWARE REQUIRMENTS

### a) Microcontroller Unit

PIC16F877A microcontroller is utilized here which goes about as the core of this framework. It coordinated the contributions from keypad to the LCD screen and RF modules. It is a low power CMOS gadget which can perform better with low power utilization and quick guidance execution. It is generally usually utilized because of its high level elements and large number of accessible information yield pin count. A wide reach rang of equipment point of interaction is upheld by this 40-pin microcontroller. It has a high program memory of 4kb and RAM of 256 bytes. It likewise has a sequential connection point port permitting speaking with PC or PC gadgets through sequential correspondence.
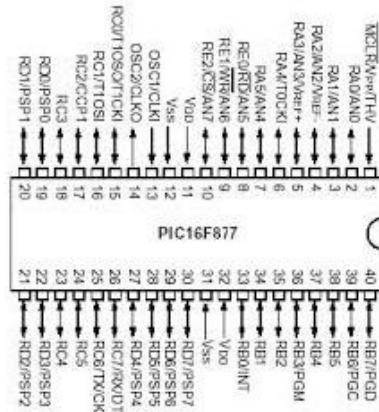
**Figure 3: Microcontroller PIC16F877A**

The working scope of PIC microcontroller is down from 2v to 5.5v as most extreme. The glimmer memory can be customized up to multiple times. Inbuilt ADC can be utilized to interact resistive touch screens and furthermore keypad interface without any problem.

### b) Liquid Crystal Display (LCD)

The LCD utilized here is a HD 44780 fluid precious stone alpha numeric presentation. Fundamentally it is a 16x2 spot grid show module with a top notch LCD board, double LCD driver IC, 16 persons and 2 lines support alongside backdrop illumination to make deceivability clear in both constantly time utilization. It comprises of an information memory Ram and a person generator ROM which produces text and numeric information relating to the information bits get. This LCD can be connection point in either 8bit or 4bit mode for diminishing pin count. It very well may be effectively communicating with a microcontroller or microchip.

### c) Buzzer

A buzzer is utilized for delivering discernible caution to the café individuals. Here we utilize a peizo electric type buzzer. It has an inbuilt driver and oscillator circuit for delivering sound recurrence sign and drive the stomach of the ringer. This ringer has high increase and an extensive variety of working voltage from 3v to 24volts which makes it reasonable for practically all assortments of utilizations.

### d) Touch Screen Panel

A resistive touch screen board is utilized here which makes out of a few layers of slim film resistors isolated in miniature level space with two slight electrical layers. These resistive layers face each other with a little hole between them. At the point when client contacts the surface the layers beneath the screen come into contact with one another decreasing the obstruction between the layers at that position.
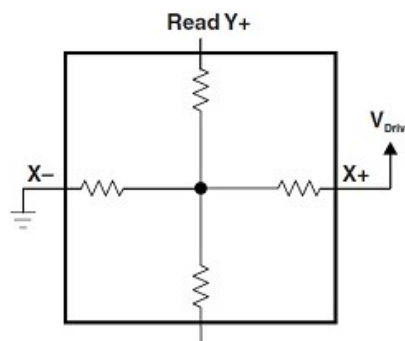
**Figure 4: Touch Screen**

The screen in the top surface has a covering underside and underneath it is an equivalent sort of resistive layer on top of the substrate. One layer likewise has associations along its sides to the next layer along top and base. One layer applies the voltage and the other gets the voltage. Whenever an

item like pointer tip or fingertip pushes down the top external surface, then the two layers will interact with one another at the association point. The association focuses are organized ina line by section like a network cluster. The resistive boards act like a couple of voltage dividers with detecting each hub in turn. The mark of tension on the screen can be perused by the quick exchanging of the layers which produces change in yield voltages from the X and Y-hub of the two boards. The primary advantage of this kind of touch screen is it comes for minimal price; endure harsh use and long life.

*e) RF Module*



**Figure 5: RF Transceiver**

The RF handset module utilized here is CC2500 Zigbee module which is less expensive and has a working scope of 30 meters with an installed high increase fix recieving wire. It gives a fast correspondence speed of up to 48000bps of uplink and downlink information. It likewise has an inbuilt sequential point of interaction chip which prepares it to use with UART of any microcontroller or other sequential specialized gadgets. It likewise has security highlights for information insurance and has network capacity to for interfacing with numerous gadgets. The working recurrence is 2.4GHz which gives higher transfer speed to information.
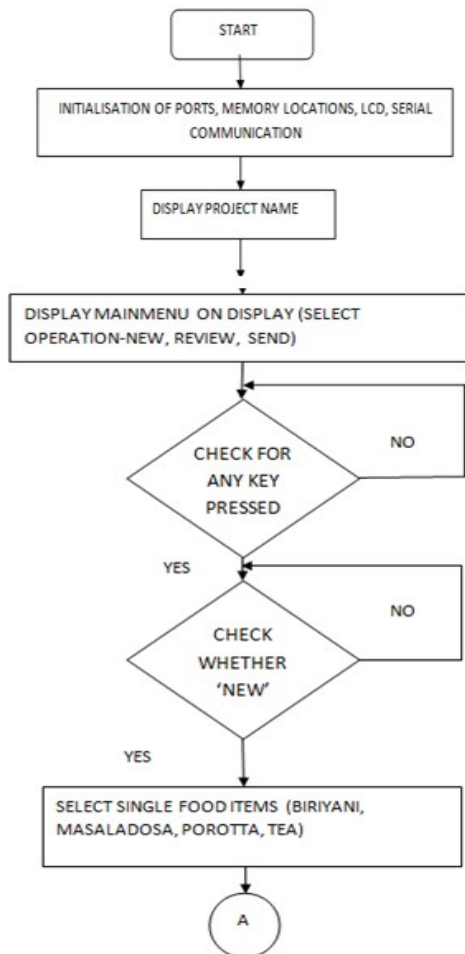
## SOFTWARE REQUIRMENTS
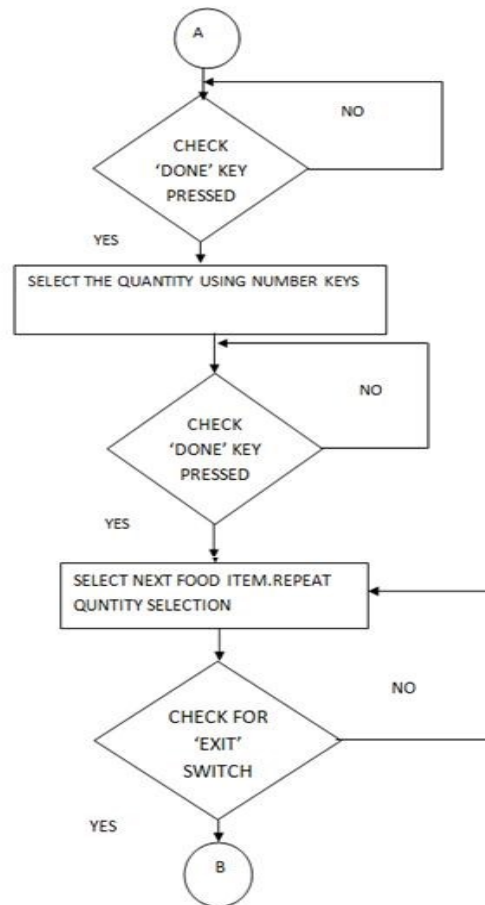
**a) Flowchart**



**Figure 6: Menu Display Flowchart**



**Figure 7: Menu Selection Flowchart**
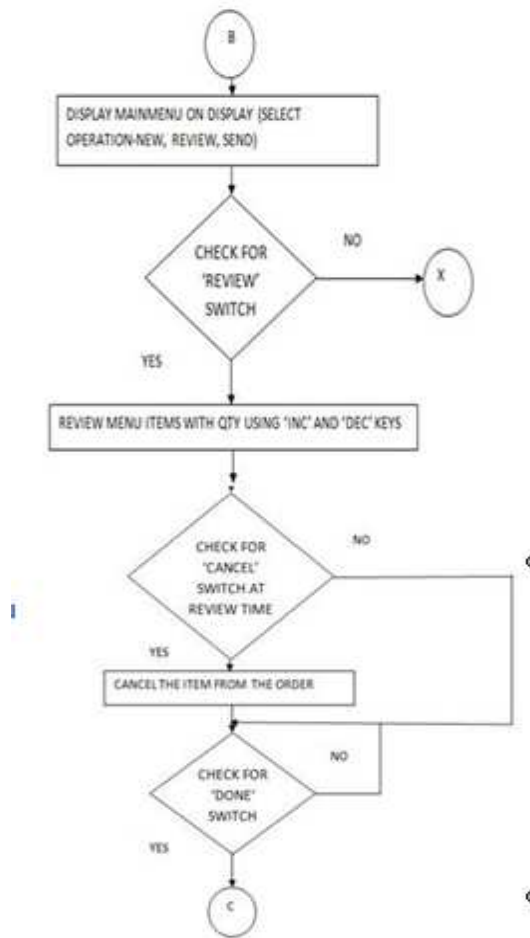
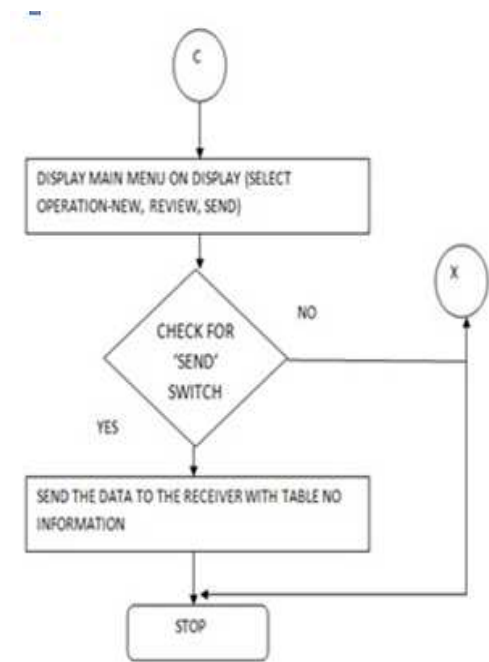**Figure 8: Menu Selection Review Flowchart**          **Figure 9: Order Send Flowchart**

## RESULT

The equipment model is planned and tried with a touch screen menu alongside LCD show be put on each table. Presently the rundown of menu things and cost is shown on the screen. At the point when the client chooses the menu the beneficiary gets menu request and caution in a PC programming show set in kitchen. As per the client utilize the menu can be chosen, requested and furthermore be dropped involving „INC" and „DEC" capabilities in the touch screen.

In the collector side set in the kitchen a product window show the orders picked by the client alongside the table number.

## CONCLUCION

The down to earth execution of the electronic menu card framework will be useful for individuals in cafés to pick the food things expected to them utilizing a simple touch interface. The inn individuals might get to the arranged menu things from a similar spot and furthermore the charging is made simple since the rundown of menu and conveyed food things are put away in the PC programming alongside the table number. This framework will be extremely helpful for inns, resorts and cafés to make their wok quick and handle more clients with quick purchaser administration. Because of prudent plan this model equipment can be intended for continuous use with least speculation for all scope of private venture associations.