# SMART RESTAURANT FOOD MENU SYSTEM

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***Abstract - In the last years the restaurant industry has lived through many changes. Anyway, there is an area that was not improved since several decades. While technology is changing the way we do almost everything, menu cards are still mostly untouched - although they have several disadvantages that can be improved significantly by a digital approach. The Digital Menu for Restaurants project aims to improve this situation. Consumers today are adapted to interact with computer systems in many aspects of their day today life. Sometimes we even prefer them to traditional methods, especially when they help to provide fast and convenient service. Enable a super efficient wireless ordering process for your fine dines restaurant, garden restaurant, cafe or food court. Dyne Wi-Fi POS empowers your floor staff with powerful but easy to use technology in their palms. Staff can be more attentive to the guest needs rather than expend energy running back and forth to the kitchen with IOTs. We can see these automation system partially when you for KFC or McDonalds or Dominos. There when we order they are noted in the system and it is sent to their kitchen. When our order is ready our token number is announced. With this system we don't need to wait for the server to take the order. A tab is provided with menu instead of a paper menu.***

***Key Words: SOC (System On Chip), Rx (Receiver), Tx (Transmitter), Liquid Crystal Display (LCD).***

## 1. INTRODUCTION

There is a major scope in enhancing the visual experience by replacing paper menu with electronic menu card. To avoid delay in ordering process, wireless communication can be used here to replace the waiter who manually delivering the order to kitchen. Currently due to a increased literacy, awareness of advance communication technology among people, they are crazy about the latest technology and they are eager to automated their routine tasks. So introducing new technology and new approach in conventional food ordering system will lead to improved experience of a customer. It reduces customer's time for waiting. So customers don't have to wait for the waiter to take the order. Thus it saves the time. This project is users friendly and fast. For this wireless notice board project 16×4 LCD acts as display device. ESP01 module acts as a communication device. Push button output will go to arduino device then after processing arduino it will send message to LCD. Message will also go to ESP01 module through UART communication that is RX and TX. The code where written in such a way once the message reached it will display it in the LCD. Wi-Fi technology is being used to send message in working area.

### 1.1 Components used in Smart Restaurant Food Menu System

**Arduino Uno:**

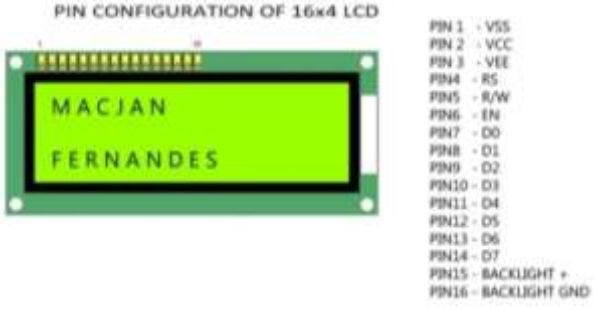
Arduino Uno is a microcontroller board based on the ATmega328P . It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.


**ESP-01 (8266):**

The ESP8266 ESP-01 is a Wi-Fi module that allows microcontrollers access to a Wi-Fi network. This module is a self-contained SOC (System On a Chip) that doesn't necessarily need a microcontroller to manipulate inputs and outputs as you would normally do with an Arduino, for example, because the ESP-01 acts as a small computer.

**Liquid Crystal Display (LCD)**:

A 16x4 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments and other multi segment LEDs. The reasons being: LCDs are economical; easily programmable; have no limitation of displaying special & even custom characters (unlike in seven segments), animations and so on.




**Push Button Switch:**

Push Button Switches consist of a simple electric switch mechanism which controls some aspect of a machine or a process. Buttons are typically made out of hard material such as plastic or metal.

### 1.2 Working

For Smart Restaurant Food Menu System project 16×4 LCD acts as display device. ESP01 module acts as a communication device. Push button output will go to arduino device then after processing arduino it will send message to LCD. Message will also go to ESP01 module through UART communication that is RX and TX. The code where written in such a way once the message reached it will display it in the LCD. Wi-Fi technology is being used to send message in working area.

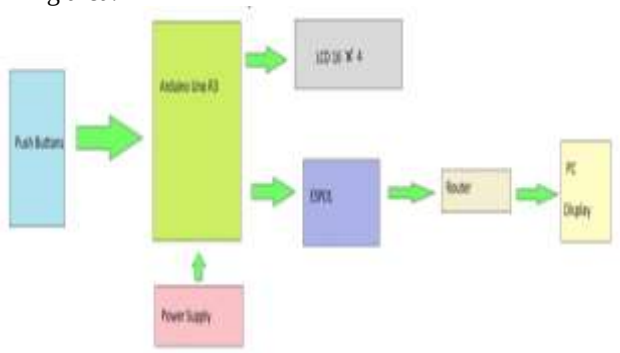


**Fig-1:** Block Diagram of Smart Restaurant Food Menu System

## 2. SOFTWARE IMPLEMENTATION

Firmware implementation deals in programming the microcontroller so that it can control the operation of the IC's used in the implementation.

In the present work, we have used the Altium Designer software for Printed Circuit Board (PCB) circuit design, the Arduino software (IDE) software development tool to write and compile the source code, which has been written in the C and JAVA language. The Arduino compiler has been used to compile code into HEX file into the Arduino.

### 2.1 Software Tools Required

- ARDUINO 1.6
- B4J for UI
- PROTEUS
- ALTIUM DESIGNER for PCB design

ARDUINO 1.6 is specifically use for compiling program, B4J and PROTEUS are the two software tools for virtual simulation.

### 2.2 Programming code description

The ATmega328 on the Arduino Uno comes preprogrammed with a bootloader that allows us to upload new code to it without the use of an external hardware programmer. It communicates using the original STK500 protocol (reference, C header files).We can also bypass the bootloader and program the microcontroller through the ICSP (In-Circuit Serial Programming) header using Arduino ISP or similar. The ATmega32U2 (or 8U2 in the rev1 and rev2 boards) firmware source code is available in the Arduino repository. The ATmega16U2/8U2 is loaded with a DFU bootloader, which can be activated by:

On Rev1 boards: connecting the solder jumper on the back of the board (near the map of Italy) and then resting the 8U2.

On Rev2 or later boards: there is a resistor that pulling the 8U2/16U2 HWB line to ground, making it easier to put into DFU mode.

## 3. FUTURE SCOPE

- We can add graphical LCD (also called as GLCD) under this touch screen. Thus this project will become more interactive. Users can select option 1 and then the sub option under that option 1 will be displayed.
- We can add printer to this project so users can immediately get printout of the bill. If the users want printout then he/she can select the option to get the printout.
- With a little modification we could even add COUNTERS increment and decrement of food items.
- We can even add billing process with this system so as the customer get their bill directly on their table.

## 4. CONCLUSION

There one of the most import areas for the restaurant industry is obviously the customer service. To engage friendly and obliging service staff is most challenging for the majority of restaurant managers. But this is not the only issue in this area. It's also hard to motivate people every day, because the customer service in restaurants might become very stressful. Most of the stress occurs as soon as one customer service member needs to take care of way too many customers at once.

That's why this project aims to support processes needed for the restaurant staff and allow them to focus on the important part friendly customer service. Adapting this aim for the customers this project increases the overall experience at the next trip to a restaurant. The project is focused on the order process; the kitchen organization and business processes like invoice management. It provides a digital management system for each of these processes.

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