

ECOFRIENDLY AND SMART RESTAURANT SYSTEM

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Abstract- Nowadays people are searching forward for a system that will fulfill their necessities progressively understandably. The majority of the restaurant enterprises are searching for any application that improves the feasting knowledge just as that expansion the benefit. In the conventional requesting framework, the server notes down the request from the client at that point submit the request to the kitchen and after that, the charging is done which consume time and may cause blunders. This undertaking plans to robotize the sustenance requesting and charging process in the eatery just as to improve the eating background of clients. The goal is to save the time of customers by giving workplaces like the opening summary at the get-together, propelled sustenance mentioning, minute e-charging and brisk halting organization which will result in purchaser devotion and in the long run advantage the restaurant. This modernized structure saves time, reduce human mix-ups, diminish work and gives buyer faithfulness, therefore valuable for both dinner and customer.

The structure digital based mentioning system, contact-based electronic mentioning system, robotized mentioning system, remote sustenance mentioning system

Keywords- Arduino Uno, Bluetooth, Motor Driver

1. INTRODUCTION

Individuals' way of life has been expanded and completely changed because of innovation. It has completely changed the customary strategies for doing day by day

exercises, in this way making life less demanding and viable. Yet, it isn't much clear in the sustenance segment explicitly in nourishment requesting and serving zones in inns, eateries, bistros, etc.

Even today likewise the eateries utilize the regular manual procedure of utilizing server holding on to take request with pen and paper. In this customary pen and paper approach the server records the request as indicated by the clients which at that point is given to kitchen gourmet experts, tracks it and afterward makes bill. This procedure is basic and normal however may result in human mistakes. The server may botch in noticing the client arranges or may give late request taking and late sustenance serving which may result in client's disappointment and eatery misfortunes. To explain this disadvantages in manual procedure a robotized contact based computerized savvy framework is proposed in this paper to deal with the general sustenance requesting and serving process.[1]

The accompanying segment clarifies the improvement of advanced shrewd framework utilizing remote innovation for correspondence with unified database for record and an android application for putting request without any sitting tight for server. The objective is to spare time of clients by giving offices like opportunity list at gathering, computerized nourishment requesting, moment e-charging and quick stopping administration in this manner gainful for both eatery and client. This work means to give high end food experience to the client. This framework furnishes productivity and exactness with cost adequacy for eateries. Methodology for Paper Submission.[1]

2. WRITING SURVEY

Early numerous methodologies were created over customary pen and paper strategy such like Personal Digital Assistant(PDAs), KIOSK system, PC based sustenance ordering, and so forth., to oversee consequently the nourishment requesting technique. These frameworks are appealing, easy to use and simple to work yet at the same time don't meet the desires. Following clarifies the above methodologies in detail.

3. ARDUINO MEGA 2560

It is an open-source figuring stage dependent on a basic I/o board and an advancement situation. Arduino can be utilized to create remain solitary intelligent articles or can be associated with programming on your PC. The open-source IDE can be downloaded for nothing (presently for Mac OS X, Windows, and Linux) Arduino Mega is made out of Atmega 2560 microcontroller It has 54 computerized information/yield pins, sixteen simple data sources, four UARTs (equipment sequential ports), a gem oscillator of 16 Mhz, a USB association, a power jack, an ICSP header, and a reset catch. It contains everything that is expected to help the microcontroller.[2]

4. RESISTIVE TOUCH SCREEN

The 4-wire Resistive Touch Screen comprises of a conductive base layer of either glass or film and a conductive highest film layer, isolated by amazingly little, straightforward spacer spots. A voltage is connected over the conductive surface. Any sort of test can be utilized to apply weight against the best film will actuate the screen. At the point when plentiful touch weight is connected to the highest layer, the film will flexes internal and reaches the base layer bringing about a voltage drop. This adjustment in voltage is identified by the microcontroller. By substituting the voltage motion between the best and base layer, the x and y directions of the client's touch are figured.[3]

5. FEATURES OF ARDUINO MEGA 2560

- Microcontroller ATmega2560
- Operating Voltage 5V
- Input Voltage 7-12V
- Digital I/O Pins 54(of which 15 provide PWM output)
- Analog Input Pins 16
- DC Current for 3.3V 50 mA
- Flash memory 256 KB of which 8 KB is used by bootloader
- SRAM 8KB
- EEPROM 4 KB
- Clock Speed 16 MHz

6. HC-05 BLUETOOTH MODULE

HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup.[4]



Fig. 1: HC-05 Bluetooth Module

FEATURES OF HC-05 BLUETOOTH MODULE

- Typical -80dBm sensitivity
- Up to +4dBm RF transmit power
- Low Power 1.8V Operation, 1.8 to 3.6V I/O
- PIO control
- UART interface with programmable baudrate
- With integrated antenna
- With edge connector

7. WORKING PRINCIPLE OF LCD

A touch screen is a 2D touchy gadget that is developed of two sheets of materials isolated marginally by a spacer. A typical development is a sheet of glass giving a steady base layer and a sheet of polyethylene (PET) as an adaptable best layer. The two sheets are covered with resistive material; normally a metal compound called Indium Tin Oxide. The ITO is meagerly and consistently sputtered o to both the glass plate and the PET layer.

Small knocks called spacer spots are then added to the glass side, on best of resistive ITO covering ,to shield the PET film from drooping, causing an inadvertent or false touch. At the point when the PET film is squeezed, the two resistive surfaces meet. The situation of this gathering can be perused by contact screen controller circuit. The controller peruses the X and Y position all the time so the client may include his stylus/finger quickly over the touch screen and information will be caught.

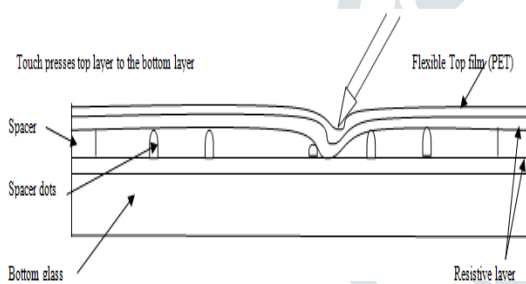


Fig. 2: Touch screen construction

8.1 SYSTEM DESIGN

The activity of the entire framework can be seen through the square graph. The Fig. 2 underneath demonstrates the task square chart. 3.5" TFT LCD Touch in addition to show is utilized as the info and yield for the framework plan.[5]

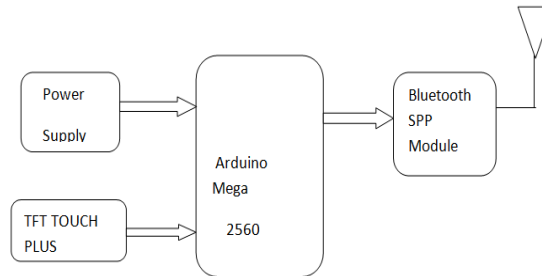


Fig. 3: Block Diagram of the Transmitter Section

8.2 SYSTEM PROCESS FLOW

8.2.1 Transmitter Section

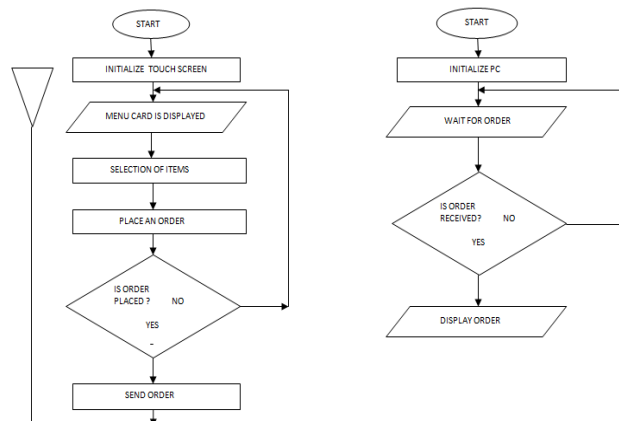


Fig. 4: System process flow at transmitter and receiver section

8. METHODOLOGY

The methodology used will be divided into two parts as system design and system process is as follows,

- System design
- System process flow
- Transmitter section
- Software development

The framework utilizes a tft contact module which is set on each table for the client to make orders. Request is made by choosing thing made accessible in the menu code on the touch lcd show. At that point, the code is unscrambled by utilizing arduino mega 2560. Later it transmits the information through bluetooth correspondence once request is affirmed.

The prepared information is sent to the PC in kitchen segment for requesting reason, and to the director segment for the charging reason. This framework will be done after the client finished their requests.[6]

8.2.2 SOFTWARE DEVELOPMENT

The software Arduino IDE was used in embedded C language. The Embedded C language is used to write a source codes for this arduino mega 2560 which is then will be compiled. When the program can be successfully run no error in the source code, then the arduino mega will be programmed.

9. SMART CAR PARKING

Creating WSN applications for autos had differed difficulties. Among them was recognizing and following quick moving cars. Our keen vehicle leaving framework was created to permit the recognition of a vehicle when left in the arking area and convey the equivalent to the server with the end goal of conveyance [8]. There have been distinctive undertakings chipping away at savvy stopping frameworks. Among them were Guangdong AKE Technology Co., Ltd of China and Georgia Institute of Technology.[7]

The Guangdong AKE Technology Co., Ltd, China is a cutting edge endeavor with information securing and data handling as its center innovation. The organization has created indoor, open air and urban keen stopping framework just as stopping the executives frameworks. The indoor leaving framework utilizes ultrasonic module and camera as sensors to peruse the item, vehicle and impart the equivalent to the framework through the RS485 correspondence link. The framework forms the information procured from the sensors and showcases the yield through RED and GREEN sign to the framework clients. A similar idea is utilized in the open air stopping framework, then again, actually it utilizes a geomagnetic sensor which distinguishes the difference in attractive field in the designated territory and imparts the equivalent remotely to the server giving the status of the stopping region to the client. The urban stopping framework utilizes comparative sorts of the identification sensors as outside frameworks for checking the accessibility of the stopping in the assigned parking garage. The main contrast is that the status of the parking garage can be conveyed through the LED-based signage, or exchanged over the

web, and status can be seen through a versatile application or a web server.[8]

10. REQUIREMENT ANALYSIS

In this area, we examine the prerequisites of planning a remote sensor organize for a brilliant vehicle leave framework. In spite of the fact that the traditional necessities of a vehicle leave framework can be effectively fulfilled, despite everything we have to address all the more difficult issues by taking favorable circumstances of remote sensor arrange. In the accompanying, we show some vital prerequisites of a vehicle leaving framework and after that dissect the practicality from the perspective of remote sensor systems.

The shared objective for all vehicle leaves is to pull in more drivers to utilize their offices from the business perspective. Along these lines, their fundamental offices are required to satisfy the accompanying traditional prerequisites:

- (1) The area of the vehicle park ought to be anything but difficult to discover in the road arrange.
- (2) The passage of the vehicle park ought to be anything but difficult to find.
- (3) The quantity of parking garages ought to be plenitude and a parking area ought to acquire a huge space enough to leave a vehicle in.
- (4) Easy to exit and to reemerge by walking.

In any case, a brilliant vehicle leave framework ought to give more accommodation and computerization to both the business and clients. It ought to likewise fulfill the accompanying necessities:

- (1) The framework ought to give a lot of educational directions or rules to assist drivers with finding an accessible parking garage.
- (2) The framework should give ground-breaking capacities to encourage overseers and supervisors to deal with a vehicle leave.

As per the above necessities, a shrewd vehicle leave framework ought to limit human activities and supervisions, in order to lessen the expense of labor and the lost from human error and to improve






effectiveness. Likewise, the vehicle leave framework is required to give higher precision, heartiness, and adaptability in activities, more comfort to clients, lower cost of working and keeping up generally speaking framework.

11. AN OVERVIEW OF OUR SYSTEM

In this segment, we depict the plan and work stream of our savvy vehicle leave framework. To start with, we will present the equipment segments utilized in our framework. Second, we will talk about the structure and foundation of the framework dependent on the remote sensor arrange.[9]

11.1 HARDWARE COMPONENTS

Table 1: List of Components that have been used in Project

Component	Diagram	Level	Works
Ultrasonic sensors		Sensor level	Detection during the exit
LEDs(Red and Green)		Display level	Display the the car (occupied or
XBEE (series 2)		Sensor level	Wirel communi between ro co-ordir
Arduino Mega		Programming level	Configurati programmi main se
Arduino Uno		Programming level	Communica programmi router & ser compon

The reason why we choose these components:

Ultrasonic sensors are financially savvy and accompanied better exactness. Xbee radios can impart remotely between one another and it can transmit motion over huge separation (indoor limit 40m and outside limit 120m). Arduino Mega module can function as a server, it tends to be helpful for keeping up website page and has vast store limit. Arduino Uno module can fill in as a switch, it has better memory the executives and it's perfect with XBee radio. Driven can be unmistakable from each heading and it is control effective.[10]

12. SMART IRRIGATION SYSTEM

As of now, the structure part expends around 33% of the complete worldwide vitality, and a significant measure of this utilization is specifically related to HVAC frameworks (Homod, Sahari et al. 2014). In this way, the structure part bears a noteworthy obligation

regarding coordinating between interest also, vitality supply and in this way a purpose to save vitality emerges (Sakulpipatsin, Itard et al. 2010, Sovacool 2010).

Vitality safeguarding in the structure part can be accomplished by two different ways; in particular by improving the effectiveness of sundry inventions, for example, enlightenment and Central air frameworks, as well as by lessening the structure loads using regular ventilation and shadings. Be that as it may, it was discovered that vitality saving commitments because of ideal controls of shadings is trivial contrasted with characteristic ventilation by (Xu, Jia et al. , Xiaoyan, Qingshan et al. 2011)

12.1 MATERIALS AND METHODS

Development Designs and Documentation Overview

The proposed framework comprise of four units Sensor unit, Zero intersection location unit, Controller unit, and Actuator unit (fig 1).

The sensor unit comprises of Human Presence Finder (MEMS D6T from OMRON), Light Dependent Resistor (LDR from Sunrom Technologies) and thermistor (LM35 from Texas Instruments) for the body, lux, and temperature location separately. The Zero Crossing Finder unit comprise of the ZCD made out of 2 diodes, resistor, and a capacitor to change the 240V AC sine wave to 5V AC square wave. Control unit comprises of the microcontroller Arduino Uno from ARDUINO. Actuator unit comprises of the controlled gadgets (light, fan, and air conditioner), two transfer drives (1 post 5A thin sort from Fujitsu) and an optoisolator/dimmer (MOC 3021 from Motorola).

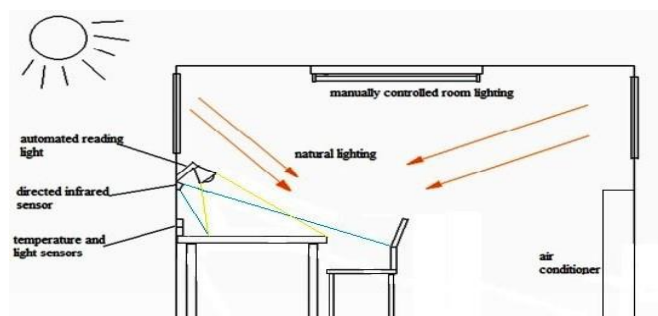


Fig.5.The structure of the Intelligent Energy-saving system.

13. CONCLUSION

There is an extraordinarily smart revolution in technology because of its highlights like minimum cost and convenience. This technology permits us quicker and progressively helpful access to the world. Restaurant automation is a progressive idea and is certain to overwhelm individuals. This framework is helpful, successful and simple along these lines improving the execution of the restaurant's staff. It will also provide the nature of administration and consumer loyalty. It will without a doubt change the manner in which people feast and their eating propensities. It would prompt expanded incomes; give the client a superior understanding of the sort of nourishment they wish to have, give them an extraordinary touch experienced.

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