

Eatery Automation for Wireless Menu Dish Requesting using Zigbee

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Abstract: Mechanization is the Technology Concerned with Application of Mechanical, hardware and PC based frameworks to work and control generation. Because of headway in innovation we have seen atomization of numerous things. We have seen an atomized candy machine which will serve a hot or sodas, Chocolates & many things. There is computerization of tickets on railroad station. So into day's reality due expanded interest and rivalry we have to serve the general population as easy to understand as quick as would be prudent. In eateries menu cards are accessible on each table. we can allude it and submit our request to server. In any case, we never seen hindrances of this traditional technique. You have to trust that the server will take care of you. Indeed, even it winds up troublesome for the eatery chief to keep the changing costs on menu card. In the meantime, adding the new menu to a similar card winds up dreary employment for any individual who is in charge of this activity since changing menu card inside less time may result in cost rise. To conquer these issues, this framework introduced on each table for requesting the menu. These units will function as slave units and will be associated with focal unit which can be kept at directors table.

Keywords: virtual reality, Zigbee module, PIC Microcontroller, LCD Display, Server system

1. Introduction

Inns are one of our most loved premises where a large portion of us make the most of our ends of the week and celebration seasons with family and companions. The clients need to sit tight to arrange the ideal things and hang tight for the arranged nourishment. The real grievance from the clients would be their disappointment about the administrations offered at hotels. Thus, this task centers around taking care of these above issues. This names the framework as Digital Ordering System at Hotels utilizing Virtual Reality. Henceforth, this is an incorporated framework for empowering the clients to quickly make arrangements by their own. This will limit the quantity of minutes to hang tight for dinner serving.

Till date, in Catering administrations all the cooperation among clients and the board has experienced orderlies.

This methodology requires an expansive number of administration staff and administration work force, which expands administration costs. As of late, India's providing food industry has grown quickly and rivalry has likewise turned out

to be extreme. Accordingly improving administration norms has accepted extraordinary significance. Conventional eatery the board procedure isn't adequate to adjust to the quick paced present day life. Subsequently by improving the request framework in eateries we can improve the standard of administration, cut expenses and spare HR. Accordingly, the remote self - administration request the executives for shrewd data framework comes into being.

In eateries menu cards are accessible on each table .we can allude it and put in our request to server. Be that as it may, we never seen disservices of this customary strategy. You have to trust that the server will take care of you. Indeed, even it winds up troublesome for the eatery supervisor to keep the changing costs on menu card. In the meantime adding the new menu to a similar card winds up dull employment for any individual who is in charge of this activity since changing menu card inside less time may result in cost rise. To beat these issues, this framework introduced on each table for requesting the menu. These units will fill in as slave units and will be associated with focal unit which can be kept as the directors table.

The motivation behind this undertaking is to present a remote Zigbee based requesting frameworks for eateries. Contrasted with customary eatery framework, by utilizing this framework client show signs of improvement administration, eatery staff co- works all the more proficiently with less working slip- ups and endeavor proprietor subsequently gets more business benefit. GLCD-Touchpad Based Restaurant Ordering and Automatic Serving System is an idea with another inventive thought in the field of Hospitality Industry. The idea of this undertaking has considered as a primary concern on watching remove cheap food out lets, M.C. Donald counters, Sub Way counters, Punch screens at different drive-thru eateries and so on. In eatery most things are recorded in menu by names as it were. They don't have brief or natty gritty portrayal of any dish, so dreading how might they taste, what might be the fixings, we end up requesting ordinary things. Considering these issues, we thought of a thought of having advanced requesting framework.

The idea is we can peruse the menus/sub- menus by just fingertip. The things would be all around characterized and descript and the chose request will be served over the transport line to the specific table.

This project provides a low-cost, convenient and easy to use system for automating order placement system for restaurants. Each table of restaurant has a menu display unit which is powered by microcontroller. The client will scroll menu list using keypad provided along with. Customer could order his food or drink just using this keypad. Our aim is to build an automated order system using ZIGBEE.

2. Design and hypothesis

A. Block diagram



Fig. 1. Transmitter section

This transmitter section consists of a virtual reality projector with a camera, server system and a Zigbee transmitter which is interfaced with the receiver section consisting of PIC Microcontroller, Zigbee receiver and LCD display.

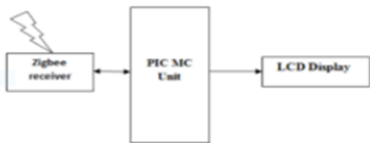


Fig. 2. Receiver section

The dispatch section having the zigbee receiver its receive the data's and given to the kitchen room. The VR projection device is in this module, the menu in the form of projection.

B. PIC microcontroller

PIC is a made by microchip technology, from the family of Harvard architecture microcontrollers derived from the PIC1640 originally developed by general instructions microelectronics division. The name PIC raised to as Peripheral Interface Controller. This system uses a PIC microcontroller kit which consists of power jack for the supply of 9V DC power. It consists of 5 ports say port (A, B, C, D and E) where the LCD is connected to port B. Crystal oscillator of 4MHz frequency is used to generate periodically oscillating signals. A regulator is used to control the flow of current and voltage. This kit consists of MAX232, an integrated circuit that converts the signals from RS232 to serial port for TTL compatible digital logic circuits. It acts as a level shifter which converts the TTL to BIN and BIN to TTL.

At every hand held terminal a microcontroller is used to interface with the LCD, Keypad and ZigBee module. A microcontroller is the core of the project. The Coordinator is interfaced with the management center PC. The manager deals

with the customer's menu information. The Coordinator is interfaced with the management center PC. The manager deals with the customer's menu information.



Fig. 3. PIC Microcontroller

C. Virtual reality

Virtual Reality simply means a computer technology that use software to produce the realistic images, sensations and other sounds that reproduce a real environment, and stimulate a user's physical presence in this environment. Virtual Reality simply means the effective interaction of human and machine. This aims to move beyond the standards of interaction with mouse and keyboard which we are doing it on our daily basics. This is unnatural way, which forces us to adapt to the demands of technology. But the virtual does totally opposite. It allows someone to fully immerse in the highly visual world.



Fig. 4. Virtual reality

D. ZIGBEE technology

On the off chance that we look at changed remote innovations we see that GPRS has long range yet battery life and limit of system is little. Bluetooth has incredibly little scope of correspondence and set number of gadgets can be associated. Wi-Fi has too incredible a power utilization. Then again ZigBee is a remote sensor arrange innovation, which has numerous favorable circumstances, for example, information transmission security, high unwavering quality, adaptable systems administration, minimal effort and long battery life. The upside of this is, to empower an implanted framework to structure effectively, rapidly and flawlessly include with the microcontroller by UART to the application. It is anything but difficult to connect with the PC or Laptop by the USB Driver. By running the setup application, we can alter the separation by survey the camera picture accessible in the PC or Laptop in which the enhance association should be possible. At whatever point the picture is contacted, a solitary character will be

coordinated to the UART. These pictures are ceaselessly checked and caught by the camera and send to the server framework. The caught pictures are as sections which are contrasted with the database and sent with the opposite end where the things are shown on the LCD screen. ZigBee works generally in rest mode and accordingly there is substantial power sparing. Gear is moderately modest and effectively accessible. Regardless of whether one hub quits working the system can will at present keep on working as it can discover elective ways to exchange information.

3. Literature review

The common system has beleaguered with various problems. The most common blooper is waiters making mistake with customer's orders. At times, a waiter can forget to add a precise item, make a changes, or disremember to give the order to kitchen. Customer have to wait for waiter to take their order. They must rely on the waiters to remember their order and specific details. They may also give wrong bill. Restless and intolerant of delays customer also call frequently to find out the status of their order. Waiters need to frequently check that order is done or is in process. Chef needs to make sure that waiters know that food is ready. In case waiter doesn't know that order is ready this cause the food got cold over time. Busboy always checks for table to which need cleaning. Intelligent restaurant is created to reduce the work load of waiters and to improve the efficiency. In particular, the article begins by providing a brief overview of the evolution of virtual reality. In addition, key elements of a virtual reality system are presented along with a proposed taxonomy that categorizes such systems from the perspective of technologies. The main objective of this paper is to provide a comprehensive review of the current status of virtual reality systems and the CAVE, in particular. We believe that experts as well as new comers to the field of virtual reality, the CAVE, and human-computer interaction, would benefit from this review. For a large number of disasters caused by human errors in current industry, the result of this study contributes a guide to fully consider human factors in maintainability design through virtual environment and is beneficial to designers and engineers of industrial application fields. Self-service ordering information system uses Zigbee based wireless technology. In order to improve quality of service and business of the hospitality industry by consolidate technology the subject of this research is virtual reality (VR), and its role in destination marketing.

4. Related work

When the customers enter into the restaurant they get E-tag from the counter. They can choose any seat from this E-tag and then put that E-tag on sensing module on the table. This module will give all the information to system by Zigbee. From this tag system identify the position of the Customer. Then waiter will serve the food according to the priorities. The proposed system is a basically a combination of wireless communication system,

a database, and an android application to place the order. The android application is used by the touch screen device which fitted at the table. This android application contains all the information related to menu like picture of food item. The ordered details are sent to the kitchen and the cashier by wireless system. Android application at the manager side is used to update the menu a central Database, view and manage table wise customer's orders, and receive feedbacks from the customer. The proposed paper highlights some of the limitations of PDA based food ordering system and given the solution by multi-touchable E-restaurant system. Customer has to give the order using multi touchable dining table. This order is send to all parts of the restaurant. In kitchen chefs can make food according to order. Cashier can make a bill. Manager also used this to evaluate business status like making changes to the food item. Adobe Flash Action Script 3, PHP scripting and My SQL database was used to build this system. In addition, typical mouse and keyboard input paradigms often result in less user-friendly configurations, especially when it comes to dealing with 3D data sets.

5. Modules

The restaurant automation wireless menu dish ordering using zigbee involves four independent modules: Transmitter section, dispatch system, kitchen area and manager area.

A. Transmitter section

The information transmitted through this module the might be it is called projection module. The VR projection gadget is in this module, the menu as projection. On the off chance that you going to choose the menu and pieces of information. The figures exchange to dispatch area. Zigbee is the WSN for this venture. Requesting table is the transmitter in our framework from which client can give their request. Rundown of menu is appeared to the client on the table. From that menu client need to choose their request utilizing touchpad. In the wake of giving all the request client need to affirm their request, after affirmation that request is send to the kitchen and at the supervisor's place. This all transmission is finished by utilizing Zigbee Module.

B. Dispatch system

The dispatch section having the zigbee receiver its receive the data's and given to the kitchen room. The receiver station consists of a Zigbee module interfaced to a computer. This station is used for checking the status of each order, updating the menu, introducing new offers and calculating the total bill amount.

C. Kitchen area

Kitchen area is the receiver side of the system. In kitchen buzzer gives information about the new order placed by the customer also order is display on the LCD in the kitchen. Whenever order is received at the kitchen reply is given to the customer immediately and food serve according to the first

come first serve basis.

D. Manager area

On manager computer all the information of orders given by customer is received. It also includes the information of food material available after every order in the kitchen. For security purpose login ID and Password is needed. Manager can change its Password. Manager can manage all the activity in the restaurant using this system. Manger can add any new food item. Bill is also display at manager side.

6. Conclusion

The usage of this framework will result in efficient and improving the proficiency of the procedure through which a request is placed. This framework will lessen working costs, labor prerequisite and improve use of human resources. This framework will upgrade the eatery's administration show by making it computerized, clever and increasingly straight forward. Remote innovation is ending up increasingly more prevalent on account of its minimal effort and convenience. This innovation permits us a quicker and increasingly helpful access to the world. ZIGBEE innovation furnishes the world with an assortment of remote applications. The Restaurant Automation not just gives the clients an understanding into how their sustenance is being readied yet additionally the dietary substance that it conveys. Unfortunately, the clients can really observe their sustenance even before it's conveyed to them. The Restaurant mechanization is a progressive idea and is certain to overwhelm individuals. It will without a doubt change the manner in which individuals feast and their eating propensities. It would prompt expanded incomes; give the client a superior understanding into the sort of nourishment they wish to have, give them an extraordinary touch experienced.

The framework furnishes with minimal effort, helpful and simple to use for request position in eateries. Present days, because of improvement of innovation individuals know about touch screen interface. It is effectively available by client to work by specifically contacting the presentation screen. By

utilizing this framework eatery staff coordinates all the more proficiently and the coincidental blunders are decreased. It will be simple and much agreeable to submit any sort of request of client's decision. This framework is easy to use, great and simple subsequently improving the execution of eatery staffs. This framework additionally guarantees great nature of administration and consumer loyalty. The proposed framework can possibly pull in clients and furthermore adds to the status of keeping up the eatery requesting areas. Aside from this refreshing of menus should be possible effectively. Contingent on the family and ROM size of the microcontroller, the extent of the menu rundown can be differed. In this manner our task gives an approach to decrease client time.

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