

INTELLIGENT E –RESTAURENT BILLING SYSTEM

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ABSTRACT

Today's era is said to be the world of technology. So many efforts have been taken by restaurant owners also to adopt information and communication technologies such as PDA, wireless LAN, costly multi-touch screens etc. to enhance dining experience. This paper highlights some of the limitations of the conventional paper based and PDA-based food ordering system and proposed the low cost touch screen based Restaurant Management System using an android Smartphone or tablet as a solution. The system consists of a Smartphone/tablet at the customer table contains the android application with all the menu details. The customer tablet, kitchen display connects directly with each other through Bluetooth/wifi . Orders made by the customers will be instantly reach the kitchen module. This wireless application is user-friendly, improves efficiency and accuracy for restaurants by saving time, reduces human errors and provides customer feedback. This system successfully overcomes the drawbacks in earlier automated food ordering systems and is less expensive as it requires a one-time investment for gadgets.

INTRODUCTION

The project is aimed at evaluating the performance of an operating system on an embedded system. Before delving into its implementation, an introduction is needed to the parts involved in the project. The whole report is centered around the field of embedded systems and the use of Linux to run applications on them. Hence an introduction to Embedded Systems and using Linux as an OS in them is provided.

EMBEDDED SYSTEMS

An embedded system is a special purpose computer system that is designed to perform very small sets of designated activities. Embedded systems date back as early as the late 1960s where they used to control electromechanical telephone switches. The first recognizable embedded system was the Apollo Guidance Computer developed by Charles Draper and his team. Later they found their way into the military, medical sciences and the aerospace and automobile industries.

EXISTING METHOD

In the Existing System, people used to come to restaurant, they will check the menu, and

they order what they want. Customer used to wait for sometime before the order. Waiter wait for some time to take the order from customers and they ordered in the kitchen, this process can take too much time to items received by the customers.

PROPOSED SYSTEM

In proposed system, we discuss about the integration of touch technology in restaurants using android. This system is a basic dynamic database utility system which fetches all information from a centralized database. The growing number of restaurants and population of restaurant-goers have emphasized the need to enhance the working of hospitality industry. The tablet at the customer table contains the android application with all the restaurant and menu details. The customer tablet, kitchen display and



- Broadcom BCM2837 64bit ARMv7 Quad Core Processor powered Single Board Computer running at 1.2GHz
- 1GB RAM

the cashier counter connects directly with each other through Wi-fi or Bluetooth .

RASPBERRY PI 3

“Pi is a single-board computer”. Pi is a small scale computer in the size little bigger than a credit card, it packs enough power to run games, word processor like openoffice, image editor like Gimp and any program of similar magnitude. Pi was introduced as an educational gadget to be used for prototyping by hobbyists and for those who want to learn more about programming. It certainly cannot be a substitute for our day to day Linux, Mac or Windows PC.

- BCM43143 Wi-Fi on board Bluetooth Low Energy (BLE) on board
- 40pin extended GPIO
- 4 x USB 2 ports
- 4 pole Stereo output and Composite video port
- Full size HDMI

CSI camera port for connecting the Raspberry Pi camera DSI display port for connecting the Raspberry Pi touch screen display Micro SD port for loading your operating system and storing data Upgraded switched

Micro USB power source (now supports up to 2.4 Amps)

Expected to have the same form factor has the Pi 2 Model B, however the LEDs will change position

GSM MODULE

GSM (Global System for Mobile communication) is a digital mobile telephone system that is widely used in Europe and other parts of the world. GSM uses a variation of Time Division Multiple Access (TDMA) and is the most widely used of the three digital wireless telephone technologies (TDMA, GSM, and CDMA). GSM digitizes and compresses data, then sends it down a channel with two other streams of user data, each in its own time slot. It operates at either the 900 MHz or 1,800 MHz frequency band.

BLUETOOTH

Bluetooth is a wireless technology standard for exchanging data over short distances (using short-wavelength UHF radio waves in the ISM band from 2.4 to 2.485 GHz) from fixed and mobile devices



HC-05 SUB-MODULE

HC-05 Sub Module

These modules are based on the Cambridge Silicon Radio BC417 2.4 GHz Bluetooth Radio chip. This is a complex chip which uses an external 8 Mbit flash memory. These low-cost Bluetooth Sub-modules work well with Arduino and other Microcomputers.

- HC-05 is a more capable module that can be set to be either Master or Slave
- HC-06 is a Slave only device. (It looks physically just like the HC-05)
- These small (3 cm long) modules run on 3.3V power with 3.3V signal levels, they have no pins and usually solder to a larger board. (See example below)
- The module has two modes of operation, Command Mode where we can send AT commands to it and Data Mode where it transmits and receives data to another Bluetooth module.
- "Breakout" Boards that make these easy to use are available and recommended. These mount the sub-module like that shown on the right on a slightly larger board.

WORKING PRINCIPLE

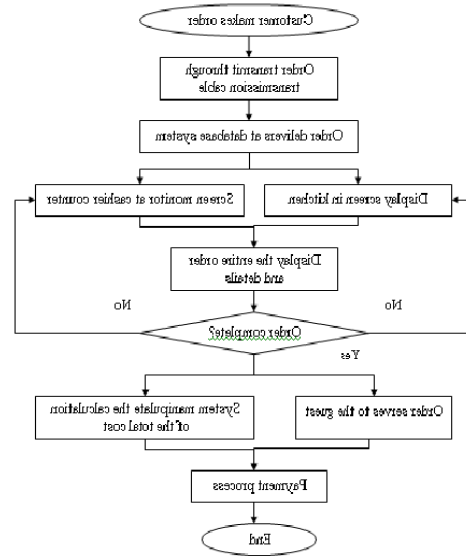
Wi-Fi is a high speed internet connection and network connection without use of any cables or wires. The wireless network is operating three essential elements that are radio signals, antenna and router. The radio waves are keys which make the Wi-Fi networking possible. The computers and cell phones are ready with Wi-Fi cards. Wi-Fi compatibility has been using a new creation to constituent within the ground connected with community network. The actual broadcast is connected with in sequence in fact it is completed by way of stereo system surf as well as the worth of wires with monitor to classification prone. Wi-Fi allows the person in order to get access to web any place in the actual provided area. You can now generate a system within Resorts, library, schools, colleges, campus, personal institutes, as well as espresso stores as well as on the open public spot to

help to make your company much more lucrative as well as interact with their own customer whenever. Wi-Fi compatibility can make surf with stare to company using their inspiring cable television much a smaller amount force down.

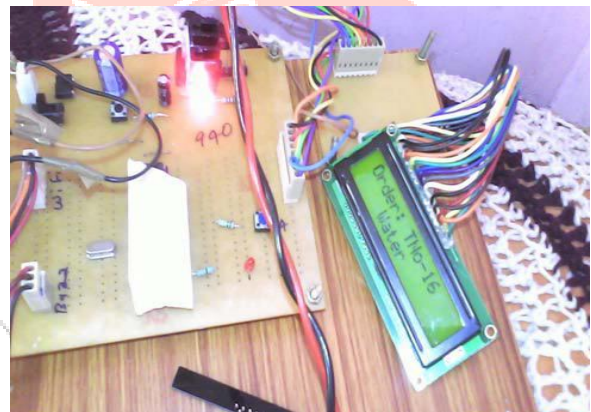
The radio signals are transmitted from antennas and routers that signals are picked up by Wi-Fi receivers, such has computers and cell phones that are ready with Wi-Fi cards. Whenever the computer receives the signals with in the range of 100-150 feet for router it connect the device immediately. The range of the Wi-Fi is depends upon the environment, indoor or outdoor ranges. The Wi-Fi cards will read the signals and create an internet connection between user and network. The speed of the device using Wi-Fi connection increases as the computer gets closer to the main source and speed is decreases computer gets further away.

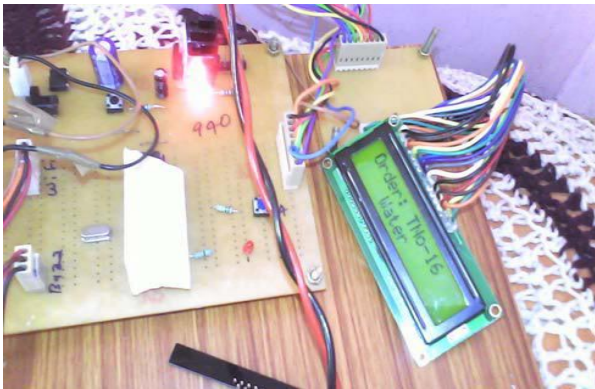
Many new laptops, mobile phones have inbuilt Wi-Fi card you don't have to do any thing which is one of the best thing. If it is a free- based type of network connection the user will be promoted with a login id and password. The free base network connections also well in some areas. The Wi-Fi network connection is creating hot spots in the cities. The hot spots are a connection point of Wi-Fi network. It is a small box that is hardwired in to the internet. There are many Wi-Fi hot spots available in public places like restaurants, airports, and hotels offices, universities etc

FLOW CHART



RESULT





human errors and provides customer feedback. This system successfully overcomes the drawbacks in earlier automated food ordering systems and is less expensive as it requires a one-time investment for gadgets.

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CONCLUSION

E restaurant is developed in order to provide easy interaction between customers through wireless technology. Customers will get a reply message of available menu items when he sends an enquiry message. With the keypad (at every table) the customers can order their items, these messages are sent to the cashier section wirelessly where he acknowledges with the total amount for the order. This amount (acknowledgment) will be displayed on the LCD at the respective Table section.

FUTURE SCOPE

The conventional paper based and PDA-based food ordering system and proposed the low cost touch screen based Restaurant Management System using an android Smartphone or tablet as a solution. The system consists of a Smartphone/tablet at the customer table contains the android application with all the menu details. The customer table, kitchen display connects directly with each other through Wi-Fi. Orders made by the customers will be instantly reach the kitchen module. This wireless application is user-friendly, improves efficiency and accuracy for restaurants by saving time, reduces