

Smart Restaurant Menu Ordering System for using Raspberry PI 3B

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Abstract— E-Menu is an interactive menu for restaurants, hotels and other entertainment venues, viewed on a networked LCD screen located on tables, offering patrons a full range of ordering and interactive entertainment services. Patrons want good, efficient service, they would not like to wait around to order food or drinks, to receive their order or ask for the bill. Wireless hotel menu system is designed to accommodate the needs of various of properties viz hotels, models, resorts clubs, small, hotel franchisees and club's small hotel franchisees and clubs. Wings Front Desk Hotel Software is the modern solution which has a whole range of integrated modules to cover every aspect of property management. The generalized version of Wings Front Desk, Hotel reservation software is state-of-art technology and extremely easy to use in nature. With the information we received from our users in the User Needs and Analysis report we have engaged in and iterative design cycle to develop a final interactive graphical interface for our electronic menu system.

Index Terms— Raspberry PI, Power Supply, Touch Screen, Laptop or mobile.

1 INTRODUCTION

Touch screens as a popular user interface are more and more common. Applications span from public information systems to Customer self-service terminals. Thus, as a Logical step, more and more devices today Feature this kind of user interface, e.g., Bank Automatic teller machines (ATMs), personal Digital assistants (PADs), mobile phones and displays. A touch screen is a display that can detect the presence and location of a touch within the display area. Let's one do so without requiring any intermediate device, again, such as a stylus that needs to be held in the hand. Such displays can be attached to computers or, as terminals, to its networks. Therefore, it is very suitable for restaurant & time saving. It enables one to interact with what is displayed directly on the screen, where it is displayed, rather than indirectly call the waiter & ordered the menu. These devices also allow multiple users to interact with the touch screen simultaneously. Touch based interfaces have been around for a long time in consumer electronic devices, and even longer in research labs, but it has only been recently that the wider public has taken a keen interest in this mode of humancomputer interaction. The touch screen is an assistive technology.

2 FUNCTIONAL DESCRIPTIONS

Some related works for the smart ordering system based on Web Server are reviewed in this section. This paper discussed about the comparison with the traditional enterprise management mode, wireless self-service ordering management information system realizes the intellectual and information listed restaurant management. The touch screen display of taste and food prices to customers for their input orders directly with touch. This system completes automatically receive data, storage, display, and analysis. Ordering by LCD display device name restaurant food items and by touching the LCD can be distinguished customers the price, quantity. Customers can order their meals with it immediately. In the system, the Web Server technology as the communication medium and ARM 11 processor's as the hardware which implements faster ordering system. It consists of a GUI interface at customer's table as a remote control and monitor at kitchen display the ordering information systematically. The system uses a small module (raspberry board with touch screen and stylus) which is placed on each table for the customer to make orders. Order is made by selecting the menu item on touch screen. This data comes together with the menu. A signal will be sent to the order section by Web Server communication, and automatically will be displayed on a screen in the kitchen.

3. BLOCK DIAGRAM DESCRPTION

Fig1 shows block diagram of the system. The whole system is divided into two areas which are User area, Kitchen area. The system uses a 3.2-inch touch screen for the customer to make orders. At the User section, the customer will make an order by selection the menu item category on the LCD. This menu comes together with the different item along with prices and quantity require, when the user finishes his selection and presses the send button the data will be sent to the Kitchen section by Web Server communication. Web Server module at the Kitchen section received and decodes the data and it will display the menu that had been chosen by a user at the screen in the kitchen. The processed data is to be sent to the kitchen Monitor display for ordering purpose this system.

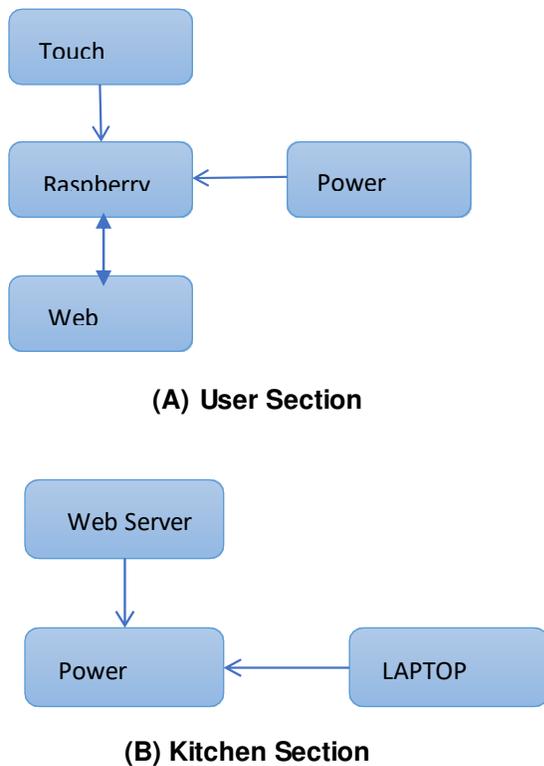


Fig .1 Block Diagram of System

SOFTWARE

Tkinter is a Python Building to the TK GUI toolkit. It is the standard Python interface to the TK GUI toolkit, and is Python’s de facto standard GUI. Tkinter is included with standard Linux, Microsoft Windows and Mac OS X installs of Python. The name Tkinter comes from TK interface. As with most other TK bindings, Tkinter is implemented as a Python wrapper around a complete TCL interpreter embedded in the python interpreter. Tkinter calls are translated into Tcl commands, which are feed to this embedded interpreter, thus making it possible to mix Python and Tcl in a single application.

HARDWARE

A. Raspberry Pi 3 B (ARM 11)

Specification:

- Quad Core 1.2GHz Broadcom BCM2837 64bit CPU
- 1GB RAM
- BCM43438 wireless LAN and Bluetooth Low Energy (BLE) on board
- 100 Base Ethernet
- 40-pin extended GPIO
- 4 USB 2 ports
- 4 Pole stereo output and composite video port
- Full size HDMI



Fig.2. Raspberry Pi Board B.

B. Touch Screen



Fig.3. Touch Screen Module.

Specification:

- This module is 3.5" TFT LCD with 262 color 480x320 resolutions.
- Moreover, this module includes the 5V-3.3V power conversion circuit and Level conversion circuit.
- This Module can directly insert into the Mega2560 Board, it also includes the SD card socket and SPI FLASH circuit.
- Support Mega2560 directly inserted. With Full-angle IPS TFT panel.
- On-board level conversion chip for 5V/3.3V MCU. Compatible with 3.3/5V operation voltage level.

5. RESULT



Fig. 4.1 User Section

Fig. 4.1 Shows User Section where customer placed their order. In this console customer can see food items with price and select quantity. Also, same time Bill will generate.

Fig. 4.2 Kitchen Section

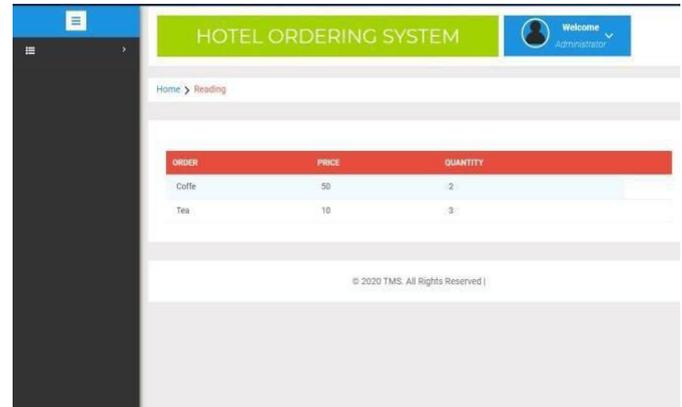
Fig. 4.2 Show Kitchen Section where order was received with their quantity.

6. CONCLUSION

This paper proposes a set of Intelligent and smart ordering system based on Web Server. We designed and developed a prototype system that allows user to make order by inserting the menu by them and it solved the problem which is faced by the restaurant's entrepreneur in the attempt to organize the restaurant more efficiently skilled and capable. Furthermore, it also can improve human resource utilization and speed up the management in restaurant. Besides that, it reduces the lateness and the error on ordering foods by the customers by restaurant.

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