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Hotel management system using Raspberry Pi

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ABSTRACT

In this Era Automation plays an very important role in different fields. Automation is becoming more and more popular day by day due to its various advantages. The development in the embedded system has proved to a reliable solution in monitoring and controlling the environment monitoring system. This can be achieved by local networking or through remote control or through mobile. The Raspberry pi is a single-board computer which has recently more popular. It has powerful hardware and also upgraded power system with 4USB ports. So we are using the Raspberry pi for controlling the environment of Hotel. The hotel management system is a web based application that allows the customer to order the food from its remote location which is in the hotel itself.

Keywords: Raspberry Pi, LCD display, Etc.

1. INTRODUCTION

The convergence of wireless and mobile technology can facilitate ubiquitous platform for implementing different application in different field such as Food ordering system. In hotels food ordering procedure requires waiters to note orders from customer, bring orders to the kitchen and write the receipts and then deliver the food from ordered menu. Due to advancement of wireless technology there are several different connections are introduced such as WIFI, Ethernet and each of connection has their own unique specific application. Raspberry pi is a credit-card-sized single board runs on Linux operating system which can support to many programming languages such as python, Java etc. This system is for creating local instances which can be accessed only by customers and make food order through mobile.

Nowadays, most of the hotels and restaurants take online orders of food from the applications like zomato and Swwigy etc.

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Many hotels and restaurants either facilitate pre-ordering or even delivery services in the local areas. In this project, an Hotel Management System is designed where a customer can order food items from remote location which in the hotel itself using a mobile app and a Raspberry Pi based Server manages to cater menu items. The customer is acknowledged when their order will be ready.

The current situation of Covid-19 makes our developed module as essential thing in Hotel Management. The problems are those, which are affecting the hotel in its daily routine work and hard work of the waiter and staff members of hotel. Store the high memory data and increase the speed of process are must. And we are going to give the solution on this problem by using this system.

1.1 Proposed Methodology

A. Block Diagram

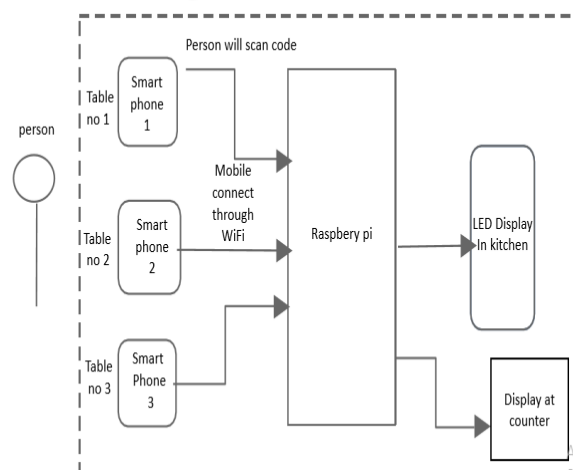


Fig. Block Diagram of Hotel Management Using Raspberry Pi

B. Component Description

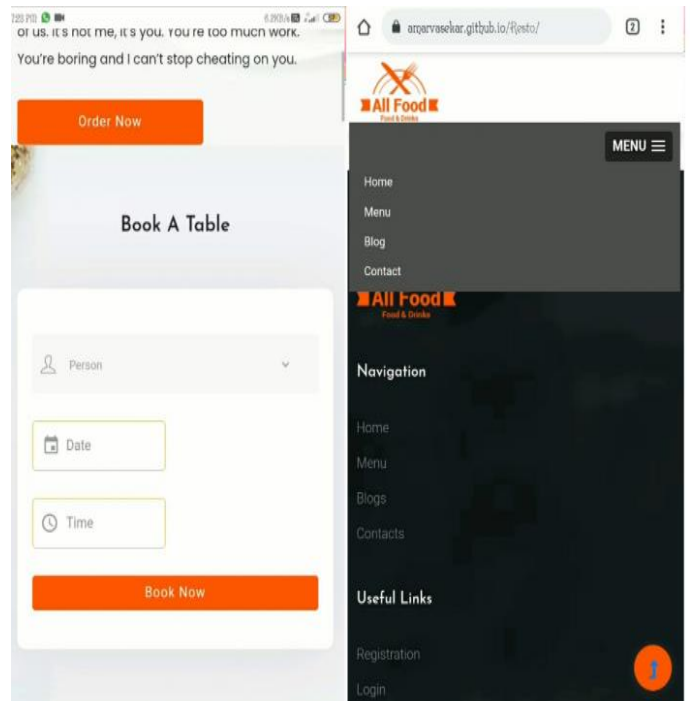
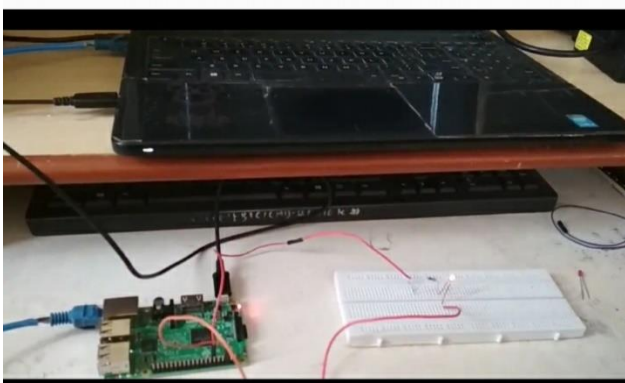
Raspberry Pi: The Raspberry Pi 4 offers ground-breaking increases in processor speed, multimedia performance, memory, and connectivity compared to the prior-generation boards, while retaining backwards compatibility and similar power consumption. The Raspberry Pi 4 provides desktop performance comparable to entry-level x86 PC systems. The Raspberry Pi 4 comes in three on-board RAM options for even further performance benefits: 2GB, 4GB and 8GB. This product's key features include a high-performance 64-bit quad-core processor, dual-display output via two Micro HDMI ports, up to 4K resolution, hardware video decoding at up to 4Kp60, up to 4GB of RAM, dual-band 2.4/5.0 GHz wireless LAN, Bluetooth 5.0, Gigabit Ethernet, USB 3.0, and PoE capability. Due to the higher power requirements, the Raspberry Pi 4 requires a 3.0A USB-C power supply (sold separately). If you have an existing power supply that is rated at 3.0A, you may utilize a micro USB to USB-C adapter to utilize your existing Micro USB power supply to power the Raspberry Pi 4. The standard HDMI port that were part of previous generation Raspberry Pi generation boards is replaced on the Raspberry Pi 4 by two Micro HDMI ports to provide dual monitor support. A 4K60P Micro HDMI to HDMI cable is required (or two cables for dual monitor operation).

LCD Display: This 5 Inch Touch Screen HDMI Interface TFT LCD Module is a mini panel-mountable HDMI monitor. Small and simple, yet you can use this display with any computer that has HDMI output, and the shape makes it easy to attach to an electronic product. It features efficient operation by equipping Backlight Power switch with which you can control the backlight whether to be on and off to save power. It has 13×2 Pin Socket from where one can get 5V Power from raspberry Pi to LCD and at the same time, transfer touch signal back to Raspberry Pi. It also features extended interface which is the replica of 13×2 Pin Socket.

Smartphone: It is used to display our menu card which is stored on Raspberry Pi on your Mobile. Our requirement is only that the mobile has WIFI connectivity in it.

C. Algorithm:

1. Person enters into hotel.
2. It gets connected to the WIFI of the hotel.
3. Then the menu card will be displayed on the screen of person.
4. Through that customer will give his order.
5. This data will be sent to display through Raspberry Pi in the display which is at the kitchen.
6. The chef will take the order and make food item.
7. The waiter will serve the food to the customer.
8. The bill will be displayed on the mobile screen of the customer & it will be paid in online.



2. CONCLUSION

Now-a-days a Hotel Management System has the advantages of Modernization. The software has done the work more easily. The every Customer checks in or check out which can easily see the System. The Hotel Management System can provide the service to the customer through online basis. Customer able to give his order in online way at remote location. Customer able to pay his bill through online way. It will be easy to maintain physical distancing in between management member and customer

3. REFERENCES

- [1] **AzahSamsudin, Shamsul Kamal:** In this paper, a customizable wireless food **Noor** ordering system with real-time feedback to customers. Instead of using PDAs to interface with customers, we leverage smart phones to provide necessary interfaces for customer to view and order menu. With private login system, customers can view and make order and receive updates in real-time and collect receipts right from the smart phone itself. It allows restaurant owners to manage orders from customers instantaneously whenever he or she logged in into the system.
- [2] **Rajesh Bag, Satyajit Bhowmick:** In this paper, a system has an ability to serve every customer by food supplying, room servicing and also detect an authorized person having Bluetooth batches at different departments. This system records entry time, exit time and duration spent in a specific department by an authorized person. The main advantages of this system are low installation cost and low maintenance cost. The designed system lacks some security features. As the system stores hotel service and employee information, the system needs to be secure enough from outside attackers
- [3] **Ar Kar kyaw, Hong Phat Troung, Justin Josef:** have discussed in paper 'Low cost Computing using Raspberry Pi 2 module B 'that the environment using Pi is very efficient to use as computing the system. The Pi provides the operating system and result of paper the research is in to test-bed setup of low cost and analysis of collected data from pilot test.

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