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Coffee Vending Machine with QR Code

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ABSTRACT: Vending machines are widely used and recognized around the world. Compared to traditional shopping, vending machines are simpler and more convenient. With the rapid development of the digital economy, joint venture vending machines have become common. These days, QR codes have become common with the advent of smartphones and the Internet of Things. QR code payments are accepted globally. To create cashless mobile payments, vending machines use QR codes as payment authorization methods. This work shows a coffee vending machine with a QR code integrated with cloud computing and a payment gateway that allows users to order and purchase products through digital payments. This allows users to select and order items from a vending machine through an IoT gateway installed on the actual vending machine by establishing a connection between the user and the device. Initiate and accept digital payments. Finally, once payment is complete, the seller's cashier opens the vending machine counter to deliver your order. These results show that the company is working to improve the customer experience through digital and personalized payments and commercial smart coffee vending machines with QR codes.

KEYWORDS: QR code, Vending Machine, CoffeeVending, Payment

I. INTRODUCTION

Coffee has become an important part of the daily lives of millions of people. Energize me in the morning, pick me up in the afternoon, and strengthen our relationship by sharing a cup. In recent years, the coffee industry has changed dramatically under the influence of innovation and technology. One of the most important developments is the integration of QR codes into coffee vending machines, offering customers an easy and interactive way to enjoy their favorite coffee. The use of QR codes in cafes is an important development for the coffee industry, providing a link between traditional craft and digital solutions. This article begins the journey of exploring and analyzing this phenomenon by providing a comprehensive review of the integration of QR codes into coffee vending machines. It covers many aspects of this innovation and demonstrates its importance to consumers and businesses. This review article aims to analyze the phenomenon of coffee vending machines supporting QR codes from different perspectives. It will explore the technological aspects, addressing the mechanics and functioning of these machines. Moreover, it will delve into the user experience, examining how QR codes enhance convenience, customization, and accessibility in the coffee-consumption process. The analysis will also provide insight into the impact of QR code- enabled coffee vending machines on business models, business models, and security considerations. Since technology plays an important role in our lives, it is important to understand the importance of QR codes on coffee vending machines. In exploring this new trend, we aim to better understand how QR codes are changing the coffee industry and how this change is changing the way we enjoy a cup of joe every day.

II. LITERATURE SURVEY

This article introduces the concept of the "QR code coffee shop", which is a good way to ensure your customers avoid awkward moments when purchasing at the vending machine. By scanning a QR code with their smartphone, they can pay for their coffee quickly and easily, without having to search for coins or banknotes. Free payments also mean less time spent withdrawing money from machines.

[1] "Control Panel of Beverage Vending Machine – IJACEN, Volume 2, Issue 8, August 2014" This ATM card is the main card required to order drinks. Once the financial institution verifies the PIN, once the order is withdrawn, the machine asksfor the ATM number and the customer account's PIN. Finally, drinks were given to the customers.

[2] "Vending Machine –IJSETR, Volume 4, Issue 4. April 2015" The system has designed and manufactured an automatic paper vending machine and payment can be made ready for it in the following cases: one rupee (Indian Rupee - Enter INR), placing two rupees will send two notes. After putting themoney into the machine, the text is sent when the customer requests it as a principle of mechatronics, more information is printed using IoT devices and

microcontrollers respectively.

[3] "Stationery Vending Machine - IJISET, Volume 1, Issue 9, November 2014."The system can be used with A4 paper, pencils, pens, etc. It is a microcontroller-based stationery vending machine that can distribute. During checkout, the system uses a metal coil that can be rotated when ordering and using the RFID card to display the product, when the RFID card is read the customer can select it and release the machine after scanning the RFID card to select the desired product willbe made.

[4] "Automatic Chocolate Vending Machine - ICACCS, 2019"This application sells different types of chocolate. Here they use RFID card and Arduino Uno and add other devices such as keyboard, stepper motor, display and that can be connected to many pins of Arduino Uno. The stepper motor is connected to the spiral ring, the chocolate is placed in the ring, and finally the product can be selected, and then the motor rotates and sends the product out.

5] "Control Panel Beverage Vending Machine - IJACEN, Volume 2, Issue 8, August 2014"This application ATM card is required to order drinks. Once the financial institution verifies the PIN number, the machine will ask for both the ATM number and the card PIN after the money is debited from the customer's account for the drink order. Finally, a drink is offered to the customer.

III. METHODOLOGY

The process of using a QR code payment coffee vending machine consists of several important steps. First, define clear goals and needs, then conduct market research to identify your target audience and competitive landscape. The design phase includes planning the physical structure and user interface, integrating a secure and efficient QR code payment system, and designing the coffee delivery machine. Payment processing and connectivity are key components of ensuring reliable transactions and immediate response. Rigorous testing and quality assurance are essential to ensure functionality and safety; Regulatory compliance and user information also need to be addressed. Delivery, maintenance and support are necessary for the machine to work well; Business and customer feedback analysis plays an important role in the success of the process. Continuous monitoring and data analysis further improves the system and user experience.
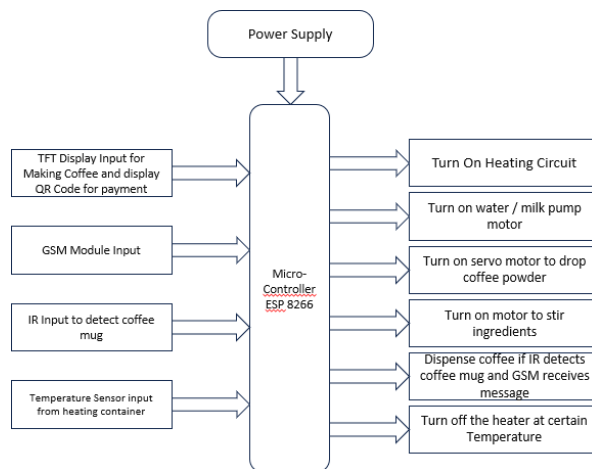

Fig. 1.0: Block Diagram

IV. HARDWARE REQURIMENT

A.   TFT Display

Thin-film transistor liquid crystal displays (TFT LCDs) are a type of liquid crystal displays that use thin-film transistor technology to improve image quality such as resolution and contrast. A TFT LCD is an active-matrix LCD, as opposed to a passive matrix LCD or a simple direct drive (i.e., the part of the LCD that connects directly to an external power supply) LCD, which is composed of many parts.

B. ESP8266 Microcontroller

The ESP8266 is a low-cost Wi-Fi microchip with built-in TCP/IP networking software and microcontroller functionality. But initially there was little information in English about the chip and the commands it received. [2] The model's very low price and very few external components indicate that its final size could be very cheap; This attracts many hackers to explore the model's module, chip and software and translate Chinese literature.
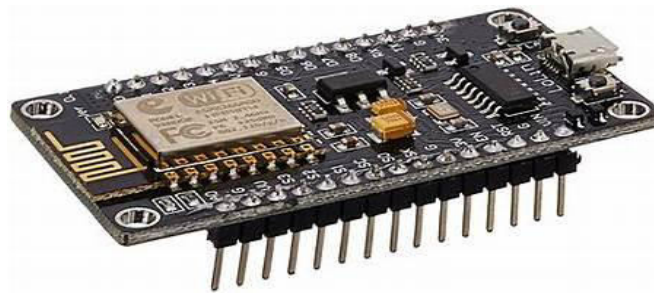
C. GSM Module

GSM modules in coffee vending machines enable remote control, billing, information dissemination, inventory management, software updates, user feedback, advertising and marketing, measure security, allow employees to manage machines efficiently, enable cashless payments, store valuable information, inventory maintains levels, enhance customer experience while remaining remote monitoring and protection equipment.

V. COMPREHENSIVE OVERVIEW

Coffee vending machines with QR codes are a modern and convenient way to serve coffee to customers or employees. It combines the convenience of coffee preparation with the convenience of QR code technology for payments and adjustments. Here is a general description of a conventional coffee machine with QR code function:

1. Mechanical Tsim
2. Brewing mechanism
3. QR code integration
4. Payment Option
5. Customized functions

VI. CONCLUSION

Based on this project idea, we decided that the automatic coffee Vending machine can offer many distinct products at any time by scanning the QR code. QR codes are similar to Google Pay,Phone Pay and other payment wallets. This machine can be used in schools, colleges, shopping malls and other places. The machine saves time, is portable, compact and uses less energy;so, you can find this machine everywhere in the digital world.

REFERENCES

[1]. B. Jyoti, Isara, A. Srinivas "FPGA-based smart vending machine implementation" International Journal of Engineering Research and Applications (IJERA) 2248- 9622. National Conference on Advances, Advances and Application Trends in Engineering Science (NCDATES), January 9 and 10, 2015.

[2]. M. Zhou, Q. Zhang, and Z. Chen (2006): "How, what should we do?" < br> br>Automatic Concept Modeling

[3]. N. Ratnasri Thiab T. Sharmilan, Vending Machine Technology: Ib Daim Ntavv Ntsuam Kuas. International Journal of Science: Basic and Applied Research (IJSBAR). 2021. 58.

[4]. R. Charania, A. Hoyos, K. Lim, and R. Marimuthu, Smart Vending Machine Cellco Partnership Co. U.S. Patent Application No. 13/727,098, 2014

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