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IoT Based Menu Ordering System

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Abstract: ***This project is to make the restaurant menu ordering system to make environment of the restaurant good. Typically, the restaurant ordering system is provided in the form of menu cards such that the customer selects order is then taking by the waiter. So am building a touch screen- grocery order system. It displays a customer's groceries on available devices such as the user's mobile phone or her tablet, and delivers orders directly with a touch. It display the data automatically, reception, transmission, data, and analysis. It has many advantages such as ease of use, time saving, portability, reduction of human error, flexibility and providing customer feedback. Remember the customer's dish placed on the abandoned table. The Intelligent Automated Restaurant aims to bring all the different touch screens together to provide connectivity, Information sharing. Acceleration methods and a personal experience. We use the RFID to transmit the data through electronic menu ordering system or the touch screen display.***
Keywords: Touch based food ordering, CRM, Database, E-menu, Intelligent, RFID.

I. INTRODUCTION

Internet of Things is referred to as IoT. IoT is the platform that is currently popular in the IT industry. IoT essentially represents his strategy for the modern world to support the production of digital media. The IOT world represent the boundary between the physical domain and the digital domain. Now, the IoT domain is ready to provide with a platform like wearable devices are ready for transition intelligent devices to provide intelligent services. All about IoT including smart devices, sensors and more. All of them have the unique Id. These are properly combined to build a communication network and become an object that plays an important role. This includes not only his everyday household appliances, but also items such as food, clothing, building materials, parts and assemblies. Luxury goods and services n Tourist attractions. many commerce and cultural forms. All IoT devices may be tracked, numbered, and monitored, significantly lowering waste, loss, and expenses. Future applications are introduced via the Internet of Things. It serves as the foundation for the global information society and provides resources that have been strengthened through physical and physical integration. Technology for information and communication. Today, most restaurants around the world use a personalized meal ordering system. A food order system that draws with paper and pen and uses it when taking orders from customers. In fact, the system relies on a large number of employees managing inquiries from his customers, use the restaurant ordering system to place meal orders. One of the slowest approaches is this one. If there are lots of customers in the store, that is OK. She has misunderstandings between patrons and waitstaff as a result, and the cashier is given the additional task of keeping detailed records. We introduce the Automated Restaurant Approach as a novel system to address these issues. The project's objective is to automate the restaurant management system for meal ordering and paying in order to enhance the dining experience.

II. LITERATURE REVIEW

In India, the vast majority of eateries continue to take customer orders on paper and with a pen. An automated system that utilises wireless connectivity, a centralised database, and an Android application is suggested by this study. From the standpoint of a restaurant, the technology is cost-effective because it is automated and requires less labour(Bhaskar Kumar, Mishra, 2015). A study outlines some of the drawbacks of meal ordering methods based on paper and PDAs. suggests opening a cheap restaurant with a touch screen. management system that uses an Android smartphone or tablet as a workaround. Through Wi-Fi, the consumer tablet and kitchen display are connected to one another(Mayur D. Kakheti, Piyush C. Makar 2015). System mainly aims in designing completely automated menu system using touch screen sensors in restaurants and LCD. There is no need of a person to take the order from the customer's table. Transmission of data is through Zig-bee, a wireless technology created as a free, universal standard (Krushna A. Patil1 , Aakanksha P. Gawande2).

In the restaurant industry, several start-ups have developed, including Box8, Zomato, and Foodpanda. With the use of technology, we want to complete important restaurant tasks more easily. The Apriori and k-means clustering algorithms are used to gain insight into the customer's behavior(R. V. Patil1, 2017).

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III. PROBLEM STATEMENT

Traditional meal ordering systems are completely manual processes involving use the restaurant ordering system to place meal orders. One of the slowest approaches is this one. If there are lots of customers in the store, that is OK. She has misunderstandings between patrons and waitstaff as a result, and the cashier is given the additional task of keeping detailed records. We introduce the Automated Restaurant Approach as a novel system to address these issues. The project's objective is to automate the restaurant management system for meal ordering and paying in order to enhance the dining experience. the main problem is with the big order Ing like if the big ordering the waiter has to take the pe and paper, he can also make the mistake like mishearing the menu or the pronunciation can be a big deal in it. for this kind of problem can make the quality of the restaurant down so this ordering system can help or lead us to make the service much better and efficient to make the customer feel better and also help the manager to keep the record of the tabling.

IV. METHODOLOGY

The system for the envisioned project is built on the RFID (radio frequency identification) module.. The web server will be where the system's flow starts. The web server serves as the graphic user interface, which securely keeps all customer data. The router and web server will be interconnected. Customers who are present in the restaurant can use the router's free internet service. The customer will thus order the food. After connecting to the restaurant's router, the user will place a phone order for food. Customers may see the restaurant's menu and place orders for the food of their choice. The restaurant's good services will be connected to the user and the router through this process.

Now that the customer's food order is available, both the chef who will prepare the customer's food and the administrator who will manage the restaurant system may see it. All of the customers' food orders will be reviewed by administration, who may manage the associated bills. Customers can add orders after placing their first orders, and administrators can check all the details of their customers' food orders. As a result, it will be present on the management screen and aid in billing. The administration of the system will benefit from RFID. will be utilised to electronically gather all of the data about the customer. As a result, the client information may be saved there. Data can be sent by analogue and digital waves using a node-mcu microcontroller in an automated restaurant management system. There are 9 pins on these microcontrollers. Only four of these nine pins will be used for data transmission, reception, and control. A microcontroller can make data sending and receiving simple.

1) It occasionally happens that consumers are ready to place their food order at a table but the servers or waiters are not present. The customer is upset and frustrated by this. The most fun aspect would be placing an order at the table, which enables individuals who are in a hurry and can't wait for their waiter to arrive to serve them. Due to the fact that this method enables consumers to purchase larger quantities from the menu, eateries find it to be quite beneficial. Even when they are busy, servers still benefit from taking orders.
2) Improvements in restaurant operations lead to significant advancements in restaurant working. It used to have a menu board at the customer table where people could order their favourite foods and beverages. The absence of a menu is required here. They can give their or der to the servers when the specific restaurant application is made available to them, or they can continue to have options for tableside services. This company's main goal is to give people more options and faster services.
3) Customers can place an order sooner with quick take-away ordering through tablet, making it simple to pick up your package. There are applications that genuinely change things, and that's where I come in. It encourages customers to order food from companies where they could earn extra money while promoting mobile ordering.
4) A clever menu There is a surge of people in the restaurant on weekends and holidays. When every server is occupied serving customers, the likelihood of serving everyone at once is very small. Long wait times for confused customers would result in a loss of business. It helps restaurants quickly satisfy customer demand, eliminating the need for servers, thanks to the use of Dmenu or eMenus.
5) Small kitchens with restaurant applications rely heavily on customer reviews or feedback for business information. Receiving notifications from users saying things like It's fantastic that "feeling felt awesome." Keeping cooks and their cooking skills consistent is one of this survey's key objectives. The application server looks for a delivery that hasn't yet been provided and is associated with the plate in line 1, and if it can't, it rejects the distribution. If the delivery receipt is found, though, an attempt is made to locate and confirm that the order matches both the table and the delivery in line 3; if it doesn't, it is refused. In actuality, only a single query with the order will suffice to complete this lookup.

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V. BENEFITS

A. *Customer Relationship Management (CRM)*

CRM is a management system for managing customer relationships. CRM will be used to manage customer connections and to facilitate communication between customers and managers when the sun sets. CRM is one way to manage business relationships and interactions with clients or users. CRM systems aid businesses in staying in touch with customers or clients, reducing processes, and increasing profitability.

B. *Costumer Database*

The software like CRM collects all information of the customers, and it also help to analysis that what kind of customer are attending the restaurant. The good customer software help to make the customer profile strong by keeping the data of the customer habitat that what customer is ordering, food choice and preferences, which help the shop keeper or the manager to maintain the customer data.

C. *Publicity and Communication*

It plays the most important role in this system it is very effective strategy for collecting the information of the customer Data. This also help to send the messages for the publicity. That maintaining the good relationship between the costumer and the manager.

D. *Increase Loyalty and Rewards with CRM*

You can say what happens to bread and loyalty Customer Relationship Management System Butter, this makes it possible to monitor which individual customer Buy what you pay for each order, their frequency of visits helps us remember them accommodate customers. can be utilised to gather data from loyalty programmes in order to design individualised bonuses & discounts for customers. It inspires self-control and is unique, valued, and special. This We also get critical input. send surveys and request feedback using the customer database. We give you access to all facilities. discount code or Participation in competitions. happy customers are happy Provide constructive feedback and compare customers Insight into your profile. Regular surveys are Get a complete picture of your services and use them widely such a restaurant

E. *Status And Reputation Management*

Restaurants may boost positive presence on the CRM by using social media to reply to comments, posts, and reviews. This can lessen any unfavourable content that could hurt a company's reputation, which would be bad for both management and the company's bottom line.

F. *Discount and Promotion*

It offer or the discount that you can offer to the membership program, as well as the campaigns to get the more costumer you can also say that to attract customer, use the new marketing strategy by using the costumer management software or CRM, to make the customer, happy by keeping good customer relationship management software.

VI. USED TECHNOLOGY AND COMPONENT

A. *Arduino*

Here is a picture of the Arduino board. It has two different types of boards: programmable and physical, and it works with Using a USB cable, software or an IDE (integrated development environment) running on a computer is used to create programmes for physical boards.

Fig.1. Arduino Uno

B. RFID

RADIO FREQUENCY IDENTIFICATION (RFID), this is the most common technology now a day RFID contain the antenna and the circuit that help to locate and track the radio signal it is also use commercial like automatic car garage opener in dog belt, etc. to read the signal it near the RFID reader, which send the radio signal which activate the RFID which answer the radio signal in which there is that serial number or anything that is acceptable is answer it highly writer or reader for contact less communication at 13.56 MH

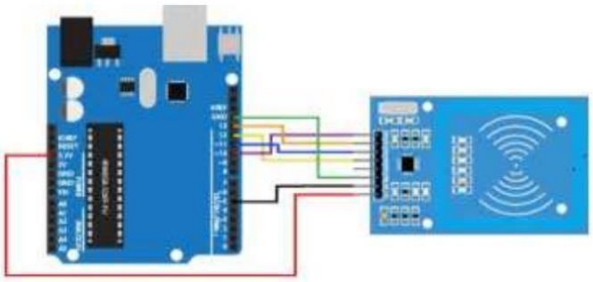

Fig.2. Circuit Board

C. Resistive Touch Screen

A resistive touch screen device is used as an input device and is positioned on top of an electronic visual display in information processing systems.. This computer display has a touch screen, and it is extremely responsive to human touch. the aids in enabling user touch interaction with the computer. A mouse or touchpad can be used to engage directly with the user with the help of the display. because a resistive touch screen allows the user to input data into a processing system. The very low cost and maintained technology of touch screens is one of their main advantages. When you apply pressure to a resistive touch screen, it will begin to function. There are two transparent layers that make up a resistive touch screen. 1) PLASTIC OR 2) GLASS.

VII. ADVANTAGES

A. Save Time

Save the customer's time This kind of structure speeds up turnaround and customer satisfaction by allowing automatic data collection. because it takes time to interact, process orders and deliver them to customers more quickly. decreases manual activities, which has several advantages including cheaper labor costs and a reduced risk of erroneous deliveries. Since the bill includes a token number, this is one of the finest ways to boost customer satisfaction. REAL TIME MONITORING: Real-time monitoring is a method for having total control over a business's outlets at various locations. This is made possible by the cloud back office, which connects stores that are spread out across various locations.

B. Minimizes Revenue Leakage

Because all sales and stock information are available at It reduces revenue leakage since, for example, you will be aware of which raw materials are in stock and which need to be ordered.; as a result, there are fewer changes to duplicate orders. A tab on material inflow and outflow can be used to implement theft control.

C. Low Invesment

You do not need to invest a lot of money to use the billing apps integrated with the feature. These are usually inexpensive and rather improve the enterprise as a whole and, consequently, the money earned According to the scientific field of the same name, food safety, handling, preparing, and storing food in a way that prevents food-borne illness.

Food safety is a global concern that affects many different areas of daily life. Restaurant operators have access to a variety of time temperature tracking software systems that can consistently record data on temperatures, culinary equipment security, audit review logs, and operator alerts. however, If these systems are exposed to an IoT-connected infrastructure, they become more powerful. For instance, to guarantee that a case is kept at a steady temperature for the duration of its life, RFID tags on cases can be connected to temperature sensors in the distributor's truck. To further ensure the safety of the products, the platform may directly link product recalls and advisories to restaurant inventories.

D. Better Stock Managent

Today's customers are highly savvy, demanding farm-to-table meals and freshness tables in addition to many others. They also have a responsibility to use seasonal products, and in restaurants, Waste and excess stock can be a concern. Systems that integrate sensors and stock control link restaurants. that is controlled by the system, creating warning alerts and more advanced stock management. System, etc.

VIII. RESULT

The out put of the circuit board and is that on the the tft screen that is connected with the Arduino is showing the name of the dishes, As shon in the Fig. 3. By clicking on the TFT Screen with the touch pen we give the in put to the Arduino Board bord scense the touch and show it on the screen.

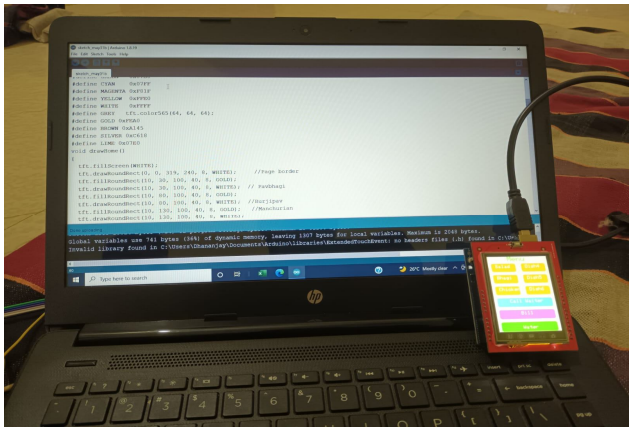

Fig.3. Out of the Program

IX. CONCLUSION

A system of automated food ordering is proposed to work with the restaurant as opposed to the old food ordring by paper and a pen. People are very familiar with touch screens these days. You can place a food order by touching screen. the users will simply have to touch the display screen, making the ordering process more cofortable and easy for them. Using the technology eliminates the possibility of human mistake in the ordering and computation of the takings. The approach makes it simple, effective, and practical to submit a request for food in response. The system saves time and provides excellent customer service and statistical functionality. We delivered an advanced feedback system with wireless communication capabilities

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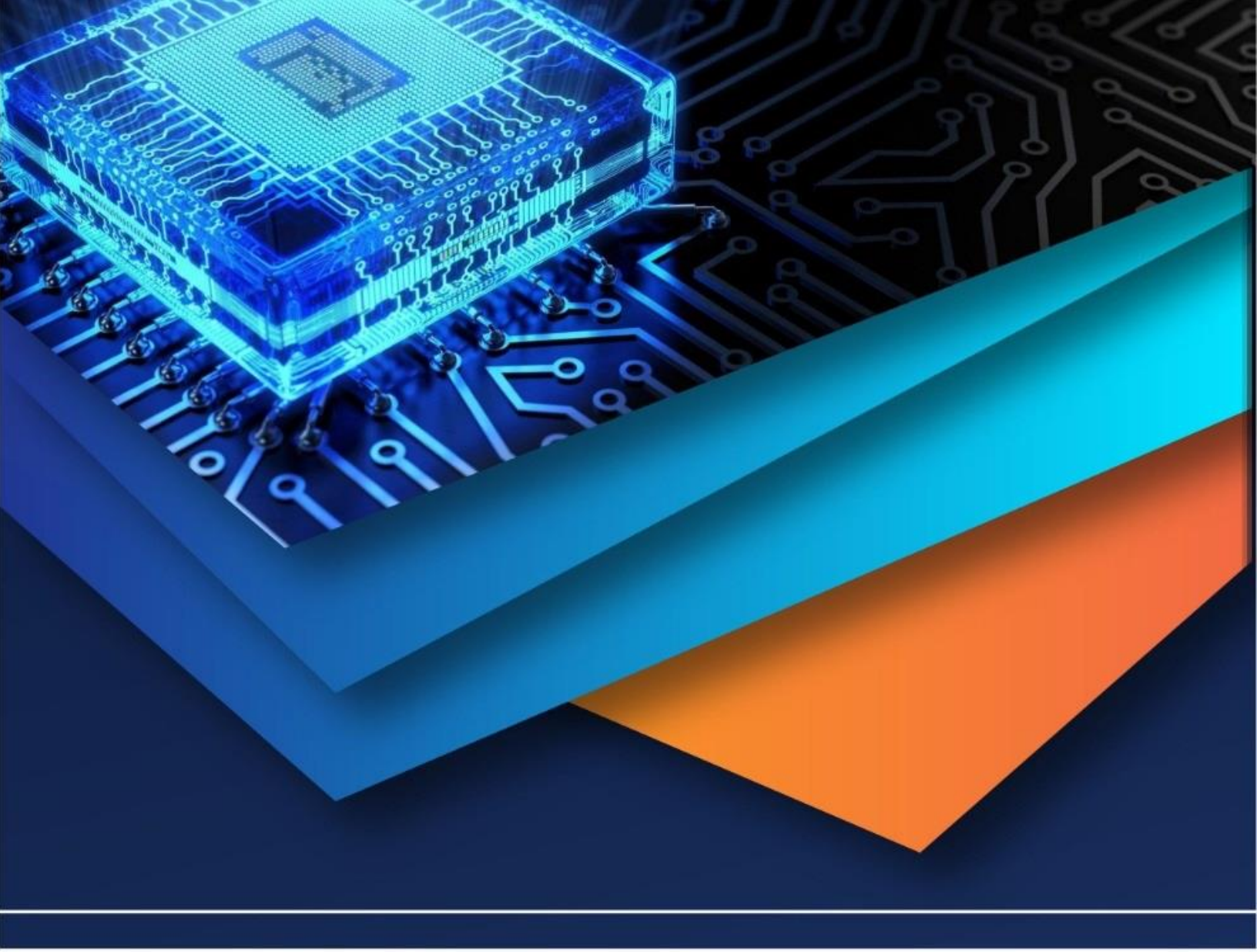

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