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MENU ORDERING SYSTEM USING IOT

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ABSTRACT

The "Wireless Communication-Based Menu Ordering System" presents an innovative dining experience that seamlessly integrates technology into the culinary world. Leveraging Arduino Uno, Bluetooth communication, LCD display, a 4x4 keypad, and a buzzer, this system offers an efficient and interactive way for customers to browse and order from a restaurant menu. In today's fastpaced world, diners seek convenience and accessibility when selecting their meals. This project addresses these demands by introducing a wireless communication solution. Customers can use a mobile app to connect to the restaurant's menu via Bluetooth. Once connected, they can peruse the menu, view item descriptions, and place their orders directly from their smartphones. The orders are relayed to the chef through the system, providing real-time updates on customer selections. The chef can then prepare and send out the requested dishes, streamlining the kitchen's workflow and reducing order processing times.

INTRODUCTION

Robots can reduce human works. A robot can work 24 hours restless but a man cannot. That's why we use robots in different areas to reduce human work. It also saves our valuable time and money. Robots are widely used in restaurants is a new movement for the restaurant's owner. Restaurant owners use robots because of shortage of waiters. Robotics technology are developing very fast. New techniques are implemented in robotics that can read human ideas. This type of robot can be used for injured, sick, older people. Robots are also used in the military as a luggage carrier. This work results an automated waiter robot prototype that can be used in a restaurant instead of human waiter. The robot made the restaurant environment more charming. When the customer orders a food, then the robot takes the food from the chef and serves it to the customer. The customer give order using a QR code situated on table and Robot

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body. When the customer scans the QR code at that time a menu bar will open on that device and they can select their item and order that item using mobile app or web app. User can also order foods by typing buttons on the robot. The robot follows the black line and reaches the destination without any problem. This robot can avoid the obstacle and identify the destination table using RFID tag reader.

The main objective of the project is to curb the need for human waiters in a restaurant and improve the overall service of a particular restaurant. This system has been developed to simplify the process of restaurant service. For a restaurant service to be ideal, speed and accuracy play a vital role and a robot is specialized in these very well. A centralized database is maintained where the information of all the customers is maintained. Whenever a restaurant introduces something exciting and new in the town, the people in the town are attracted to it. Serving robots could act as a special attraction to the youth as well. The automatic robots act as an attraction to many customers. Every month the restaurant has to pay the waiters their monthly income. Introducing the robots would mean only a one-time payment and apart from that it will consume electricity to charge it and would be less as compared to the human waiter.

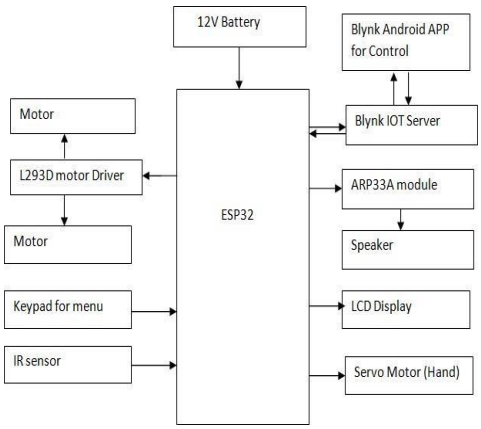


Figure.1 Block diagram

LITERATURE SURVEY

1.An **Asif, M., et.al,** proposed a waiter robot design to improve the restaurant automation system. The robot can take food order and drinks from the customer and sent the order through wireless network to the kitchen and reception using electronic menu bar.

2. **Cheong, A.,et.al,** proposed a wheeled based mobile waiter robot to solve the shortage of waiters. General robot can carry a single tray but this robot can carry multiple trays. Here use

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SLAM (Simulation localization and mapping) algorithm to produce a map so the robot follows the map and reach the target table.

3. **R.K., et.al,** design a line follower robot. This robot has an ability to choose desire line among multiple line. It can also avoid obstacle using obstacle-detecting sensor. The robot control through an android mobile app. In this paper design an android based colour red line follower robot to reduce the human work.

4. **Malik, N.,et.al,** design a prototype of automatic line follower servicing robot. It can take order from the customer and serve to the customer by pressing a switch and the switch is set on each table. In this paper use the RF technology for make the robot.

5. **Thanh, V.N., et.al,** design a double line sensor following robot with the combination of PID controller also use the line reading algorithm. The robot goes to the determined table by mapping data and give a collision and interrupt free service to the customer.

6. **Pakdaman, M.,et.al,** design a line follower robot that can follow any curve and circle path. This type of robot can be used in delivery services, transportation system. In this paper the line follower robot uses the IR sensor to detect the path.

PROPOSED SYSTEM

The proposed system presents an innovative dining experience that seamlessly integrates technology into the culinary world. Leveraging Arduino Uno, Bluetooth communication, LCD display, a 4x4 keypad, and a buzzer, this system offers an efficient and interactive way for customers to browse and order from a restaurant menu. In today's fastpaced world, diners seek convenience and accessibility when selecting their meals. This project addresses these demands by introducing a wireless communication solution. Customers can use a mobile app to connect to the restaurant's menu via Bluetooth. Once connected, they can peruse the menu, view item descriptions, and place their orders directly from their smartphones. The orders are relayed to the chef through the system, providing real-time updates on customer selections. The chef can then prepare and send out the requested dishes, streamlining the kitchen's workflow and reducing order processing times.

This project is well prepared and acting accordingly (including all the hardware and software) as per the initial specifications and requirements of our project. Because of the creative nature and design the idea of applying this project is very new, the oppurtunities for this project are immense.

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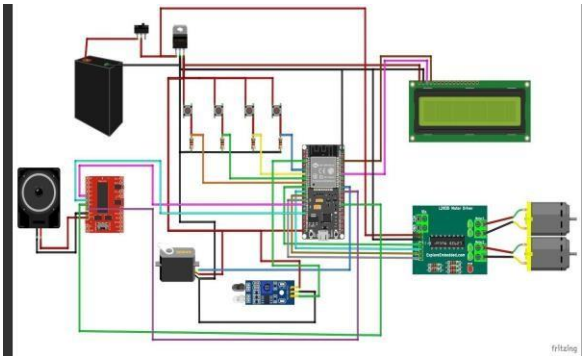


Figure.2 Schematic Diagram

RESULTS

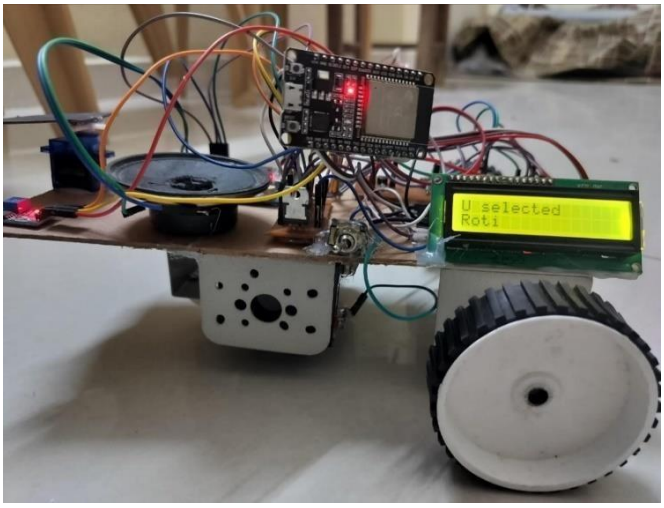


Figure.3 Menu Display

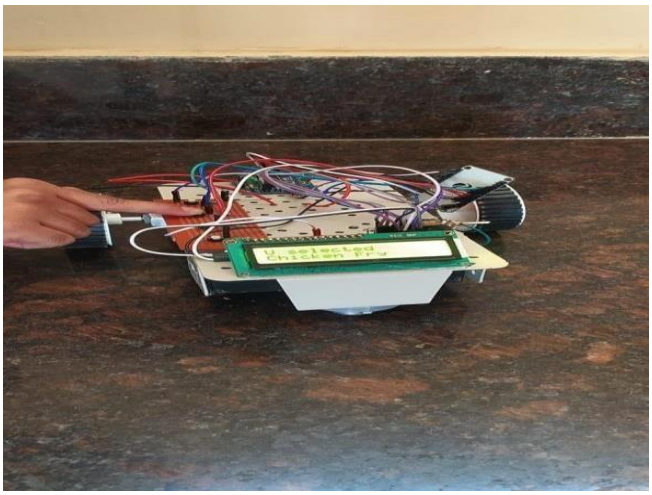
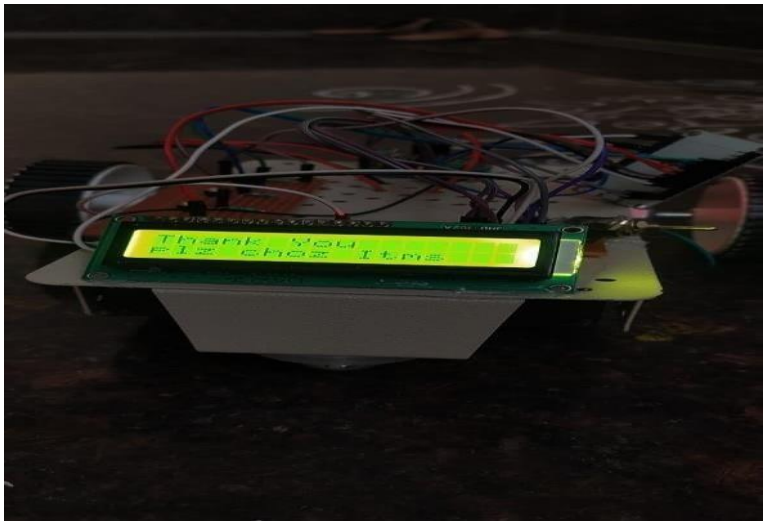


Figure.4 After Selection Display



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Figure.5 After Selection Wishing Display

Element	Input	Output
Keypad	Menu	Order
Blynk Button	High	Robot Move
Blynk Button	Low	Robot Stop

Table.1 Representation of Input & Corresponding Output

CONCLUSION

This project completely reforms the robotic vehicle and gives it a new dimension. It can easily recognize the voice commands and runs smoothly. Further enhancement in project can be used for Home security and military purposes where the commands can be given to robot without risk by increasing the range and by installing cameras.

FUTURESCOPE

Menu ordering systems utilizing robots holds the promise of transforming the dining experience into a seamless and efficient process. Imagine a scenario where robotic waitstaff not only assists customers in navigating the menu but also takes orders, reducing the workload on human staff. Interactive menu displays, powered by augmented reality, provide customers with an immersive experience, overlaying detailed information on menu items through mobile devices. Integration with a user-friendly mobile app enables patrons to browse menus, place orders, and make contactless payments.

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