

ROBOT AS A WAITER FOR RESTAURANTS

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ABSTRACT

With the advancement of technology the field of restaurants and hotels are also needed to be updated. In order to make serving time efficient and quick the introduction of robot as a waiter can be a great step. This paper give a review on how a new technique as explained below can be successful in the field of robots working as an waiter at restaurants. The technique used here comprises of a coordinate follower robot which is to deliver the ordered meal to their respected customers, a Bluetooth connection available at the restaurant when connected displays a menu card on the smart phone screen using a mobile application which can be used to place an order and the RF technology which will guide the robot to the customer who has ordered the meal.

KEYWORDS: *Coordinates, Bluetooth, RF module, LCD, Microcontroller.*

I. INTRODUCTION

Robot being a great advancement in the field of technology can serve well as a waiter at restaurants and hotels. With their time efficient and dedicated task performance robot can be a perfect solution in catering work. The traditional way of serving comprises of a human waiter, who goes around the customer asking for the order. The main drawback of traditional human waiter is that it is very time consuming and employing a human can cost more as he need to be paid for his service, also when they get sick the work suffers for the owner.

We may think robot as a waiter may be a new thing but they have been serving our need since 1980's some of the existing example of robot can be Tanbo R1, Ken who served as an waiter in early 1980 at restaurants in Japan and many more similar examples can be given.

In this paper we have proposed a robot which work on the technique of following an assigned coordinated path which is based on 2 dimensional axis that is x and y axis. The robot carry the meal to the tables with their assigned area over a 2 dimensional path separated with x and y coordinate and stop at the point at which table is placed. A Bluetooth via order placing system is proposed in which customer can connect to the available Bluetooth address of the restaurant with their smart phones. An RF module used at the counter section of the restaurant help to guide the robot to the table number at which the meal should be delivered act as an remote control of the waiter robot.

II. LITERATURE SURVEY

[1] M. S. Islam & M. A. Rahman at Department of Electrical and Electronic Engineering, Rajshahi University of Engineering and Technology, Rajshahi-6204, Bangladesh has proposed in a paper Design and Fabrication of Line Follower Robot a simple line follower robot as a waiter for restaurant.

[2] M. Asif, M. Sabeel, Mujeeb-ur-Rahman, Z. H. Khan at Department of Electrical Engineering Riphah International University, Islamabad has proposed in a paper on Waiter Robot – Solution to

Restaurant Automation a Bluetooth operated menu for ordering meal and a line follower robot for delivering the meal to the customer at restaurant.

[3] Sakari Pieska, Juhana Jauhiainen, Markus Liuska, Antti Auno has propose in a paper that the customer's application works on an Android tablet. This application is connected to the database and download real-time restaurant's menu. The customer can browse the menu and order it. Using the software, customer can call the waiter by pressing a button. The waiter comes to confirm the order and count the bill. This menu can be displayed in the kitchen's display. When this food items are ready then the kitchen staff can mark them as done. And this food items are visible in the cashier and also in waiter application so that they deliver them to the customer.

[4] Tan-Hsu Tan, Ching-Su Chang, and Yung-Fu Chen has proposed an intelligent e-restaurant for customer centric service. This system provides an online menu ordering and reservation-making process, and also personal menu recommendation service. With the help of RFID-based membership cards, waiters can immediately identify help of arduino. LEDs will be place on the path of robots customers according to their consumption records. The waiter uses a PDA to take orders from the customer and with the use of WLAN order is send to the kitchen. Then chefs prepare the menu and waiter can deliver it to customer. When the customer has finished the meal, the cashier uses RFID-based PDA to identify the membership ID to calculate the bill.

[5] Sun Guiling, SongQingqing has proposed selfservice ordering information system based on ZigBee wireless technology. This system uses FFD (Full Function Device) and RFD (Reduced Function Device). FFD is network coordinator that can communicate with other device; RFD is used in star topology network, which can communicate with the FFD.

[6] Rupali Sapli, Ketaki Zujarrao, Siddhi Patil, Ketan Deshmukh has proposed that the restaurant will be consisting of the black lines, LED and tables with switches. For interconnection the LEDs to glow and switches is done with the help of arduino. LEDs will be place on the path of robots. When the customer comes he will press the button to get refreshment. As the button will be pressed (switch is on), the LED at the starting point and the LED at the junction from where robot will move to serve towards the table will glow. As the LED at starting point will glow the robot will initiate its program to follow black line. The robot will start following black line, when it will get a white light in the way it will turn left or right accordingly, and serve the refreshment. After serving it will again follow the returning black line path and come to the starting position.

III. PROPOSED WORK

The generalized block diagram of the proposed work is shown in fig.1. There is a counter at which the order given by the customer is received. There may be several tables which are arranged in a specific way. This is done to provide a simple path to the robot. We can arrange our restaurant as shown in the figure, there can be any other arrangement. It consists of the counter, robot and the arrangement of the tables.

When the customer comes they will connect there smart phone to the Bluetooth address of the restaurant and as soon as they connects it the menu card will be displayed on their devices along with the price of the meal they wish to order. After the order is placed by selecting on the menu it will be send to the counter. After the preparation of food, order will be placed on the robot which will serve the food on the table from which the order is been placed. After serving it will again return to the starting position.

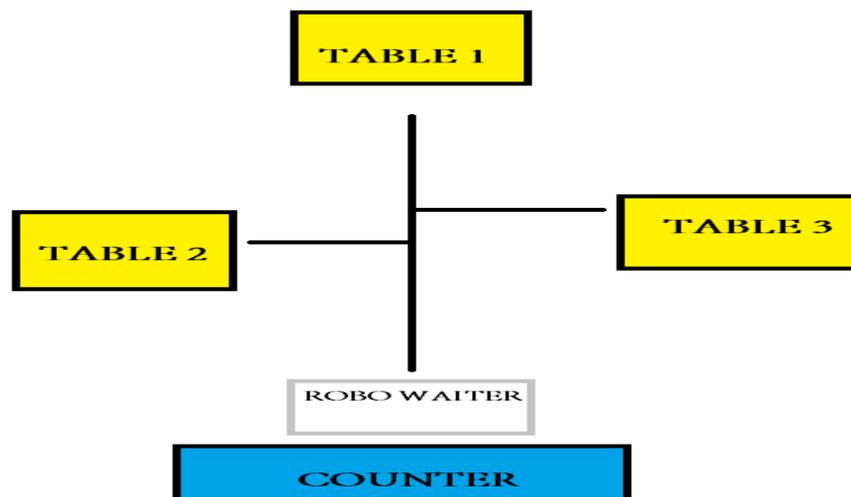


Fig.1: Restaurant functional correlation.

IV. OUTCOME

Effective and efficient work as we are using robots.

- 1) Reduces customer waiting time.
- 2) One-time investment in the system.
- 3) Work can be faster and may reduce the cost of labour.
- 4) As customers place their own orders, waiter staff numbers can be reduced.
- 5) Applications are performed with precision and high repeatability.

V. CONCLUSION

The traditional way of serving comprises of a human waiter, who goes around the customer asking for the order. The main drawback of traditional human waiter is that it is very time consuming and employing a human can cost more as he need to be paid for his service, also when they get sick the work suffers for the owner. The main drawbacks of traditional waiter can be very success fully overcome with this system and is a great step toward the technological advancement of society today. Such types of robot system can also work in different areas of human societies like hospitals, libraries and restaurants with small change in programming areas.

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