

Touch Panel Based Modern Restaurants Automisation SystemProf.Mrs.V.K.Patil¹,Sheetal A.Khandekar²,VinayaS Ujlambkar³,PrashantB. Valunj⁴¹ *Guide, Professor , Electronics and Telecommunication Department, AISSMS's Insistute of Information Technology , Kennedy road,Pune,India.*^{2,3,4} *Students of Electronics and Telecommunication Department, AISSMS's Insistute of Information Technology ., Kennedy road, Pune, India.*

Abstract-*This paper deals with wireless technology used in the hotels or restaurants. The present system working is very difficult process ordering to one person sending that with another person to kitchen sending the same to the cashier. This total procedure will be build up by using embedded system . By using technology of zigbee we can less the man power in hotels and also wastage of time is reduce. Here we used touch panel on which we select the item from menu list by touching on it ,the selected item will be futher displayed on LCDdisplay,and the order is sendto kitchen,and in receiver section receives the order from respective table number and selected items is served by Robot . In this way we can speed up the work of serving and attract the customer with one wireless technology. The system uses a circuitry which is compact built around Flash version of Atmel microcontroller with a non-volatile memory capable of retaining the password data for over ten years. Programs are developed in embedded C. This project use 5v regulated, power supply used is 750ma. voltage regulator used for voltage regulation is 7805 three terminal.Rectifier is used to rectify the ac output of secondary of 230/18v step down transform.*

Keywords: RFID;(wireless technology using ZIBEE);Robot

I.INTRODUCTION

In the past few years we have seen that restaurants have made a vast revolution as far as serving system is concerned.Earlier there was a system were in waiters had minimum options of the menus and it was spoken by waiters itself.Then later on this problem was defined where menu cards were introduced which differentiated various diversities of cuisines that provide a source for to customers to choose from. Thereby nearly the problem was defined by introducing the menu cards. Nowadays every high profile restaurants should adopted the advance technological solution to fascinate their customers and therefore many high budget restaurants should adopted modern electronic restaurants systems that deals with the advance technology which are based on zigbee, that would provide an ease to the customers.

This system would not only reduce the improper time management but also will provide excellent service to the customers with does not involve the procedures which are difficult. The solution thus that can be used to tackle the problems faced at the time of restaurant service system is to provide a customer centric service to fulfill the expectations of the customers there by providing them immense technological source of service.Thus, we have come up with an idea of indulging such advancements in our prototype that would accomplish the requirement of the customers and provide high profile service without leading to any faults and flaws.This idea of indulging in the restaurant service system would provide not only customers satisfaction but always would enhance the advancement in the technologies. Thus,upgrading the technologies in our system will make it more user friendly and advance as far as past few years systems were concerned.(Referances [1] [3] [4]).

The proposed system here is a modern restaurant which deals with a complete wire less technology. The present system in restaurants now is completely dependent on the labours working there. The order is to be given to the person in charge with that. He will further tell it to some person come to deliver the message to the kitchen and then finally the kitchen comes into picture. That means nearly with the help of more than two people the order reaches to the kitchen which is very time consuming. This also sometimes leads to wrong order delivery. To overcome these drawbacks a system which can deal with all these problems can be designed. The proposed system as stated above helps doing this. In the system order can be placed just by one touch and it will be wirelessly sent to the kitchen. This will definitely save time and moreover no labours are involved and the system is made so easy.(Referances [1][3]).

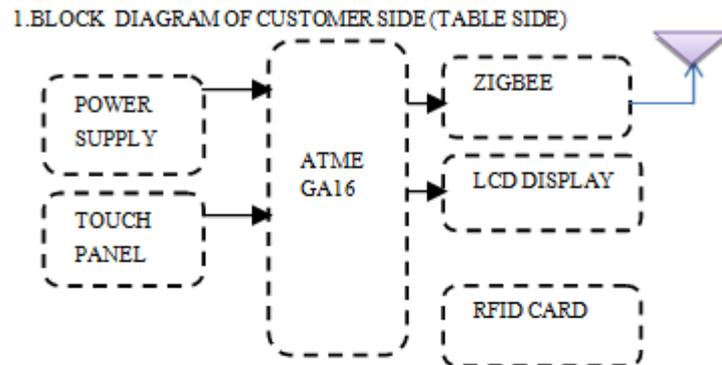
II. PROBLEM DEFINATION

The purpose of this project is to design a modern restaurant which deals with a complete wireless technology. The present system in restaurants now is completely dependent on the labours working there. The order is to be given to the person in charge with that. That means nearly with the help of more than two people the order reaches to the kitchen which is very time consuming. This also sometimes leads to wrong order delivery. To overcome these drawbacks a

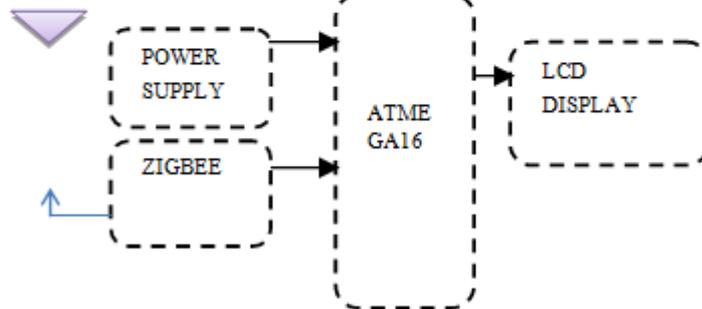
system which can deal with all these problems can be designed. However, a high quality service system should be customer-centered. To achieve this goal, this study will integrate RFID and Zigbee to implement an restaurant for customer-centric service and order will placed with the help of touch screen which is placed at the table of the customer and order will be delivered by the robot with the help of RFID reader. The administrator unit in restaurant can maintain the database of the customer's orders .When the order is finished by the chef , then the order will be placed by chef on the robot and will press the respective table number using RFID reader with the help of which the robot will identify the table to be served.Nowadays everything has become so much advanced and unique with automated facilities so each and every customers would expect exclusive service as far as serving is concerned.(References [1] [3]).

III. PROSPOSED METHOD

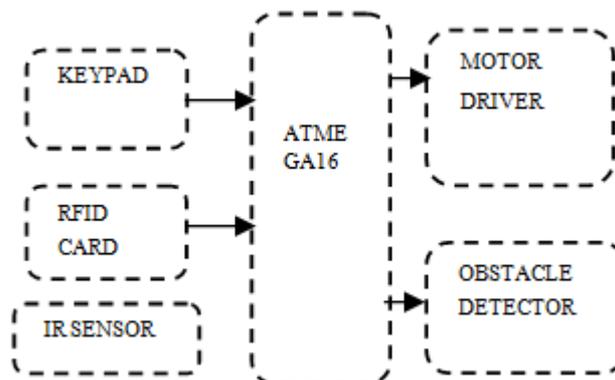
1.BLOCK DIAGRAM OF CUSTOMER SIDE (TABLE SIDE)



2.BLOCK DIAGRAM OF CHEF UNIT



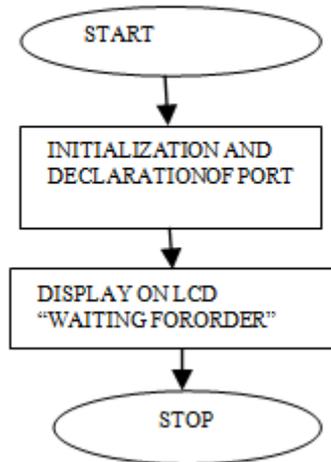
3.BLOCK DIAGRAM OF ROBOT



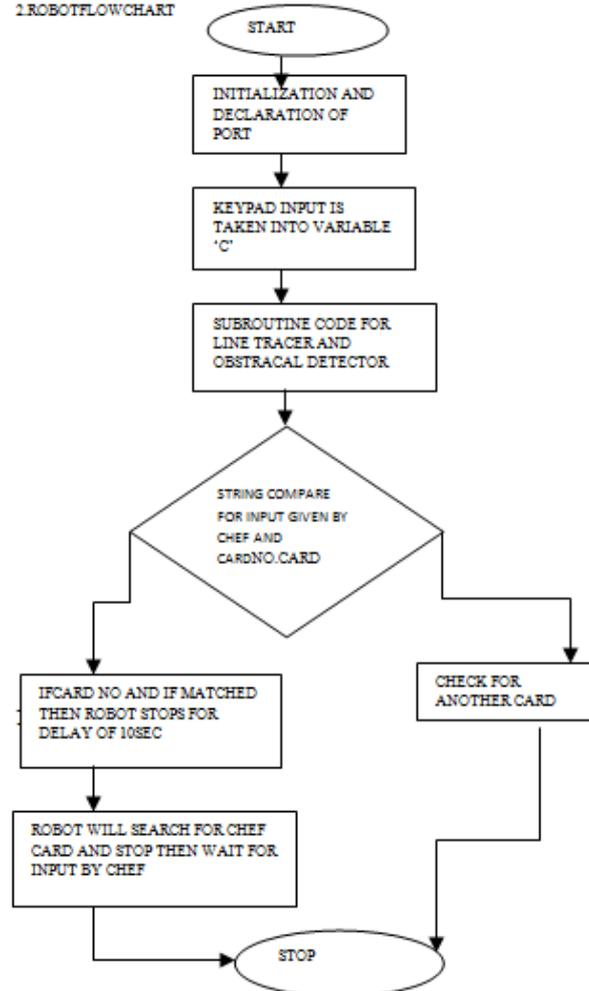
The whole block diagram includes the controller,touch panel, rfid reader, and zigbee .Touch panel is used at the customer side to give order directly to the kichen by zigbee and accordingly the processes done by the controller.Accordingly the selection of the items by the customer will be displayed on the lcddisplay.RFID reader is used for the identification to delivery of order to the respective table.

IV.FLOW CHART OF THE SYSTEM

1.CHEF FLOWCHART



2.ROBOTFLOWCHART



V. MODULE WORKING

1. RFID TECHNOLOGY

Radio Frequency Identification is a technology that is used to uniquely identify an person, animal or object person. RFID is used as an alternative to bar code in industry . RFID has advantage of line-of-sight scanning and it does not require direct contact . An RFID system has three components: an antenna and transceiver (often combined into one Reader) and a transponder (the Tag). The antenna uses radio frequency waves to transmit a signal by which the transponder is activated. When transponder is activated, the data is transmitted back to the antenna by the TAG. It uses electromagnetic induction to achieve the purpose of automatic identification of tag object.

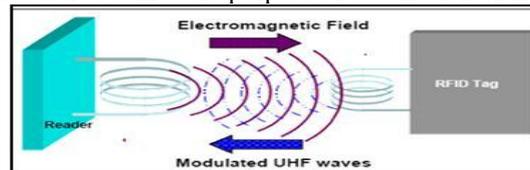


Fig.1 RFID

1.1 Working principal of RFID

The antenna enables the chip (data storage) to transmit its identification information to a reader .Radio waves returned from the RFID tags is convert into digital information by the reader and passes it to the computer.(Referances[10][14][3]).

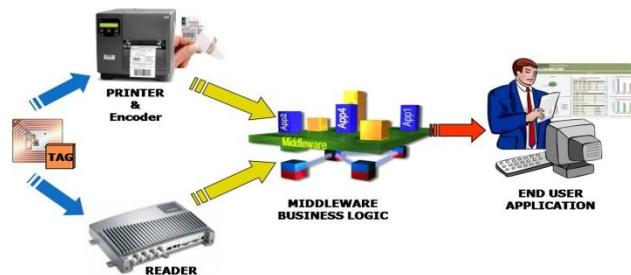


Fig.2 RFID Working Principal

2. Robot system

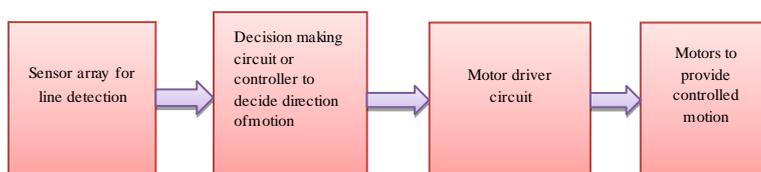


Fig.3 Line follower Robot block diagram

The line is detected by using array of sensors, controller or special circuits decides the position of line on the status of sensors and also decides the required direction of motion required to follow the line. LEFT/RIGHT motors of the robot is ON/OFF by using Motor driver circuit and is to provide desired motion.(Referances [2][4][10]).



Fig.4 Photo of Line Follower Robot



Fig.5 Photo of Robot Serving in Restauroat

3.ZIGBEE MODULE

ZigBee is a specification for a suite of high-level communication protocols used to create personal area networks made from low-power digital radios which is small. Zigbee consume low power, its transmission distances is from 10–100 meters. Data over long distances is transmitted by using zigbee device by passing data through a mesh network of intermediate devices to reach more distant ones. (Referances [8][9][15])

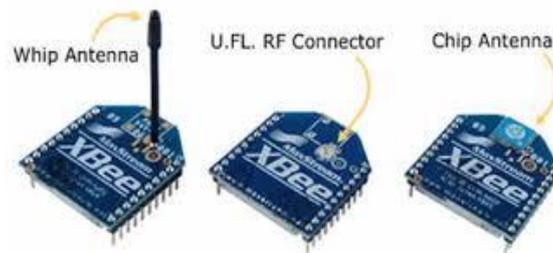


Fig. 6 Zigbee

3.1 Zigbee wireless network

ZigBee networks can be cluster, star or mesh networks as shown in figure. To setup as a coordinator each zigbee network has one device that controls and the network is initialize. Other devices can either be setup as routers that can pass data or as End Points, that can only have one connections. End points or Reduced Function Devices can be set to sleep mode so they use very little power and so can be battery operated. Because of this very low power requirement. (Referances [8][9][14][15]).

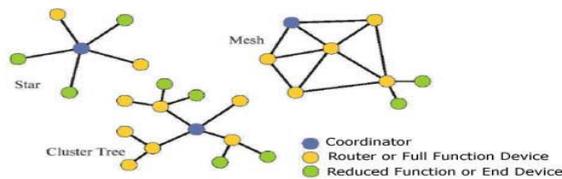
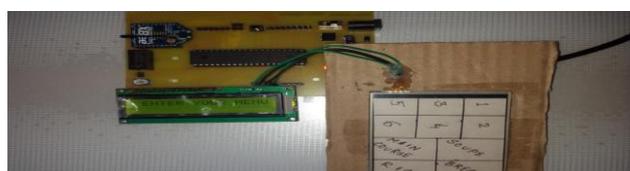


Fig. 7 Wireless network of zigbee
VI EXPERIMENTS RESULTS

Fig. 8 Display of customer unit



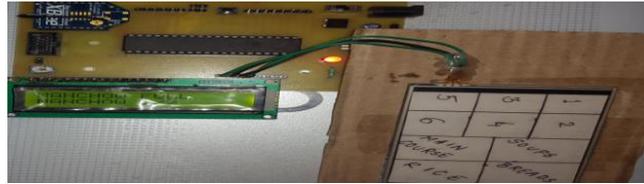


Fig.9 Menu entered by customer

Fig.10 Final order sent by the customer

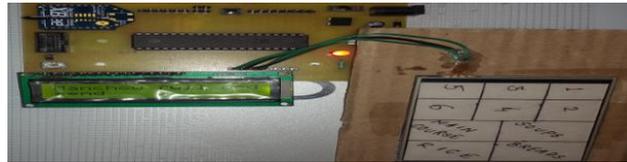


Fig.11 Chef waiting for order



Fig.12 Final order received by chef unit



Fig.13 Robot unit

V. CONCLUSION

By using a module Zigbee the order can be directly send to the chef and Administrator unit. Hence the proposed system will work in the wireless fashion with the help of minimum involvement of human and in less time with efficiency and accuracy.This proposed system helps in significant time and database management and better customer satisfaction.Our project can be implemented practically in future on a large scale that would provide advance and high profile service to the customers who all are looking for finest evolution in the restaurant service system.

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