

Automatic Pantry Order System Using Zigbee Module

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Abstract: - Indian Railways (IR) is one of the world's best Relocating systems. It is mainly used for transportation of passengers, raw materials for Industries, Medical Services etc. in maximum number to the other part of the country. Also it is a feasible and effective all the way. The aim is to build this project to give the attention to the public comforts and their wish for introducing fresh things out with increasing the fare from past little years. This is a most convenient ordering system than the present food ordering system in the railways which is totally hand operated system. The reputation of Indian railway and liberty of our expected system along with other ICT progress is mentioned in the paper.

I. INTRODUCTION

India has the 2nd largest organisation in the world. We usually travel in the railways and sometime face the problems in ordering the food at the odd time and in the absence of the vendor. We also face this problem in long journey superfast trains. For get around this shortcoming we are carry out this project. We are providing zigbee based order placement section in each division. This section includes keypad to pass an eye over through the menu card. The respective food items will display on the menu card which is placed near to the order placement section. This all sections are interfaced with the zigbee on both side i.e. on transmitting and receiving side. In this project the transmitting section is kept in the every division of railway. If the traveller wants to give an order of meal then they have to go near to section and place the order. The order can be approved if and only if the traveller has the legal PNR number which is mentioned on ticket, then only the further action proceeded by the section. In PNR number entire information of traveller is carried for authentication. The transmitting section takes order from traveller along with food entry and its respective bulk. After obtaining all the info from traveller the device starts running. The info inserted by the traveller is pointing to the receiving side. At the receiving side which is placed in the pantry compartment and transmitted data will be received by that receiver which placed in pantry compartment. After receiving data in pantry compartment, payment receipt is generated in the printer for respective order. Then waiter or service provider in pantry compartment serves the order and payment receipt to the passenger as early as possible. Then cash on delivery transaction to give order and process will be completed.

II. LITERATURE SURVEY

Debating about the Indian Railway's Pantry order systems, which is totally manual system. Suppose a traveller wants to order any snacks or meal during travelling they cannot get immediate access to seller. Unless and until a vendor comes to take order, due to this process a traveller cannot order at odd time. After ordering the meal customer have to wait for the bill payments. This drawback can be overcome by this project. It will try to provide the total automation technology. Due to this project the customer can regiminated at odd time also and the problems of become can be solved. In India almost 65 to 75% people travel by the train for long journey and transporting industrial goods from one place to another place. Remaining people are uses the other modes of transport such as Roadways, Seaways, Airways. The conclusion of this project is that the railways are the most important source of the travelling used in India by the people.

So it's most probable that our proposed to implement this project in the long journey trains for e.g. Durranto, Superfast and Rajdhani expresses etc. as the number of passengers are increasing gradually, our project can be more useful. If such reliable and feasible service is come into the existence then it will more helpful for the passengers who travel the long distance above 450 Kms.

III. PROPOSED SYSTEM

In our Project the transmitter side is to be found in the higher compartment of the trains such as AC coaches, Sleeper Coaches, Reservation coaches and etc. If the traveller wants to give an order of meal then they have to go near to section and place the order. On the verification of the PNR number, the system will proceed further as mentioned in the introduction part.

The following figure shows the block diagrams of transmitter and receiver section of our project.

A. Transmitter Section:-

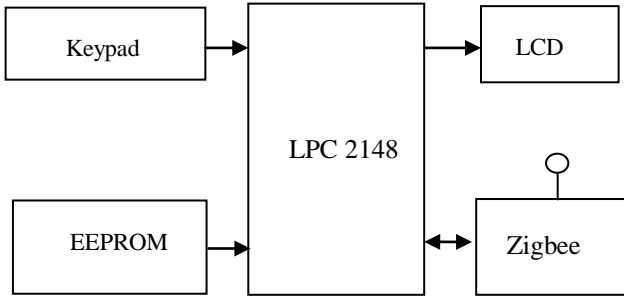


Fig. 1:- Transmitting Side

B. Receiver Section:-

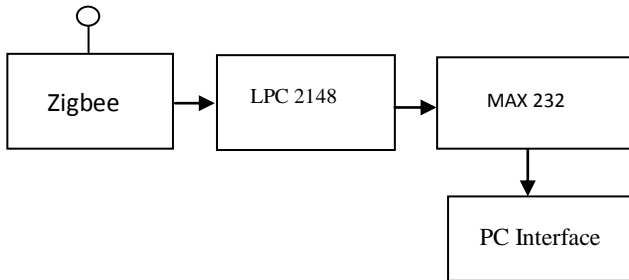


Fig. 2:- Receiving Side

C. Hardware Explanation:-

a) LPC 2148:-

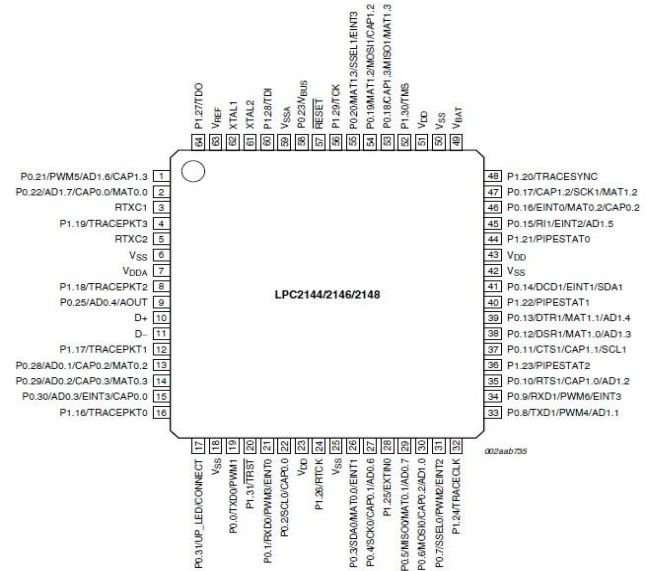


The features of the LPC 2148 are as follows:-

- 16-bit/32-bit ARM7TDMI-S microcontroller in a tiny LQFP64 package.
- 8 kB to 40 kB of on-chip static RAM
- 32 kB to 512 kB of on-chip flash memory.
- 128-bit wide interface enables high-speed 60 MHz operation.
- In-System Programming / In-Application Programming (ISP/IAP) via on-chip boot loadersoftware.
- USB 2.0 Full-speed compliant device controller

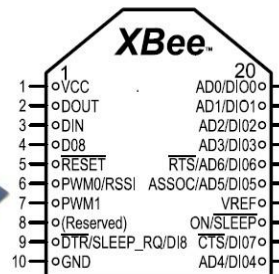
- The LPC2148 provides 8 kB of on-chip RAM accessible to USB by DMA.
- Single 10-bit DAC provides variable analog output.
- Two 32-bit timers/external events counters PWM unit.
- Low power Real-Time Clock (RTC) with independent power and 32 kHz clock input.

The pin diagram of LPC 2148 as follows:-



b) ZIGBEE:-

ZigBee is a set of specifications created specifically for control and sensor networks. Built on IEEE 802.15.4, the standard for low data rate wireless personal area networks (WPANs), it was developed by the ZigBee Alliance. Formed in 2002, the ZigBee Alliance brings together public and private industry leaders who sought to address the need for a single standard that would ensure the interoperability of proprietary wireless sensors and control systems both with each other and newer technologies.



Features of the Zigbee:-

- Low latency
- Low data rates
- Low cost
- Low energy consumption.

- IEEE standard 802.15.4, which defines the physical layer (PHY) and media access control (MAC) for low-rate WPANs.
- Its operated in the global 2.4-GHz Industrial, Scientific, Medical (ISM) band
- Zigbee – the network protocol, security, and application layers for low-rate WPANs.

c) Liquid Crystal Display (LCD):-

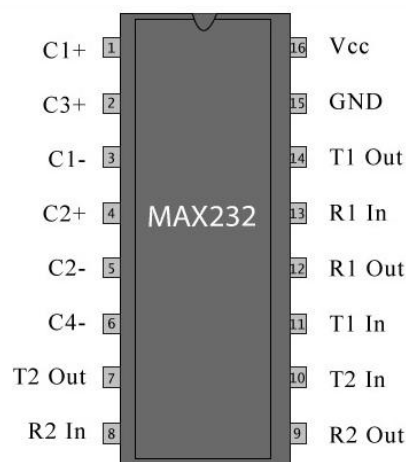
In our project we are using 20*4 LCD at the transmitting side. This will help to see a required output or acknowledgement which is getting from transmitting side.



c) MAX -232:-

The MAX232 IC is used to convert the TTL/CMOS logic levels to RS232 logic levels during serial communication of microcontrollers with PC.

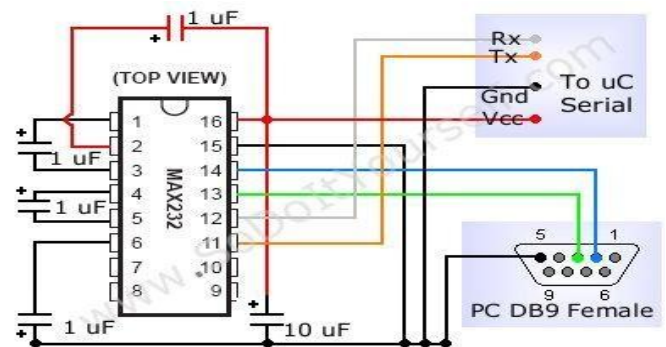
The controller operates at TTL logic level (0-5V) whereas the serial communication in PC works on RS232 standards (-25 V to + 25V). This makes it difficult to establish a direct link between them to communicate with each other. The intermediate link is provided through MAX232.



Features of the MAX 232:-

- It operates on minimum power consumption i.e. 5V.

- It's used as the serial communication between the hardware and Personnel Computer (PC's).
- The receivers, on the other hand, take input from transmission pin of RS232 serial port and give serial output to microcontroller's receiver pin. MAX232 needs four external capacitors whose value ranges from 1μF to 22μF.
- The transmitters take input from controller's serial transmission pin and send the output to RS232's receiver.
- The receiver takes input from transmission pin of RS232 serial port and give serial output to microcontroller's receiver pin.
- MAX232 needs four external capacitors whose value ranges from 1μF to 22μF.



D. Software Explanation:-

To simulate hardware of the our project we are using the following software such as:-

1. Dock light Software:-

This software is used for to verify the passengers PNR number at the receiver side.

2. Keilμ-vision 4:-

This software used for the programming in the Embedded- C language for LPC 2148 and other component for both the side i.e. transmitter as well as receiver side.

3. Proteus Circuit Simulation Software:-

It's used to see complete simulation of the circuit through software before actual implementation of the hardware. It will help to minimise or to detect the errors in circuit.

4. Dip Trace Circuit Designing Software:-

This software used for PCB designing. It will help how to minimise the size of the PCB, how to draw the tracks ,how to solder etc.

IV. RESULT

After the burning of embedded 'c' code into the LPC 2148 at transmitting side the following figure will appear:-



As mentioned earlier in this paper we are using 20*4 LCD at the transmitting side for the sake of passengers. We kept the menu list besides the at transmission side. Passengers have to enter the respective food item number from the list. For e.g.

- 1) TEA – Rs. 10/-
- 2) COFFE – Rs. 20/-
- 3) SNACKS – Rs.30/- etc....



After conformation of the order; it will transfer towards PATRY CAR through the Zigbee module. The following figure shows transformation of the order



In next figure the order is received in the pantry car through wirelessly using zigbee module.



The feedback message is received to the passenger with respect to its compartment. As shown in following figure.



V. FUTURE SCOPE

1. Updating PNR number can be atomized by providing the data connection for PC in pantry car so that all the numbers are updated from the server before departure of train.
2. Real time updating of status of train can be done (delay or on time) with data connection.
3. It can be fetched from web www.railenquiry.in method so as to accept or reject the orders before arrival of destination.
4. Small modules can be implemented near every seat so passengers can order from their seat.

VI. CONCLUSION

Wireless technology is becoming more and trendier because of its low cost and user-friendliness. This technology allows us a faster and more convenient right to use to the world. ZIGBEE technology provides the world with a variety of wireless applications It is remarkable that the customers can actually see their food even before it's delivered to them. The Restaurant automation is a revolutionary concept & is sure to take people by surprise. It will without doubt change the way people dine & their dining lifestyle. It would lead to greater than before revenues; give the consumer a better nearby into the kind of food they wish to have, given them a great touch experienced.

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REFERENCES

- [1] WWW.INDIANRAILWAYS.GOV.IN
- [2] XBee®/XBee-PRO® RF Modules, IEEE® 802.15.4 RF Modules by Digi International.
- [3] Ms.Dharmistha, D. Vishwakarma. IEEE 802.15.4 and Zigbee: A Conceptual Study, International Journal of Advanced Research in Computer and Communication Engineering, Vol. 1, Issue 7, September 2012.