

# Food Ordering System For Railway Pantry Using Wireless Communication

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**Abstract**—Indian railway is best transportation system in the world. It is used to transport passenger, goods and medical services from one place to another place .This paper explains about Automated railway pantry system using RF module. Today's railway pantry system is totally manual system. In which passengers can't order the food whenever they want. They have to wait for long time for everything. The whole process is time consuming. To overcome the drawbacks of existing system we developed this automated solution for Indian railway. In which one unit installed at bogie and another unit at pantry side. At bogie using keypad LCD passenger can order food any time. There is wireless communication between a food ordering unit which is placed at bogie and pantry unit using RF module. At pantry side there is GUI in VB In this system passenger can get receipt of bill through serial printer.

**Keywords**—VB ,RF module, GUI

## I. INTRODUCTION

Indian railway is best transportation system. The pantry service of the Indian railway is basically for the long distance train. Pantry serves wide variety of food with good quality and hygiene. Pantry serves variety of food right from meal to cold drinks. They serves tea, coffee, snacks also. In existing system pantry staff has to come to each and every bogie for limited time duration and read the menu orally and takes order from passengers, then order is served after 1-2 hrs from the time of placed order. The whole process is time consuming .There is lot of confusion regarding placed order and their bills. In today's system if passenger wants to eat something then he can't get it immediately they have to wait for pantry staff to attain them. Sometimes fake pantry boy can come and take order and cheat passengers for money. So to overcome all of the drawbacks of the existing system we proposed this system. Two units designed in this system one at bogie and another one at pantry. In our system data provided by user is passed via RF module to the service provider side. The service provider gives conformation to the user by sending the billing amount and gives receipt to the user through serial printer.

## II. LITERATURE SURVEY

Technology has entered almost every field in our life, but still its effect is not yet that evident in the food industry, especially the food serving outlets including restaurants, hotels, railway pantry system [1], [2], [3]. Even today, pantry system in India follow the traditional pen and paper method to take orders from customers, which wastes a lot of time of the customer[1]. This work aims to substitute the traditional pen and paper method by automating the food-ordering process in pantry and thus improving the dining experience of the customer.

This paper proposes an automated system that uses wireless communication, a centralized database, and to place the order without even waiting for a waiter [1]. The ordered details are wirelessly sent to the chef and the cashier[3]. The service provider has his own GUI interface that is used to update the menu that updates the central database, view and manage table wise customers' orders[2]. This system improves efficiency and accuracy for railway pantry by saving time, eliminating human errors. As the system is automated, it becomes economical even from pantry point of view, as it reduces manpower and it just requires one time investment in installing the devices at bogies.

The Interactive Food Ordering System interface was designed using Visual Basic 2008[1]. Tablet is placed on every customers table. It is also achieved by designing client server module [1], [2].

Main advantage of our system is it is cost effective, customer satisfaction by providing them well organized service. In this we had used microcontroller LPC2138 to gain its advantages like low power consumption and it has 2 UARTs used for serial communication. RF module is CC2500 because it has frequency i.e. 868 to 892 MHZ

## III. SYSTEM DESIGN

The proposed system has two units one is transmitter side which is at bogie and another one is at receiver side which is at railway pantry. Following figure shows the detailed block diagram of this system.

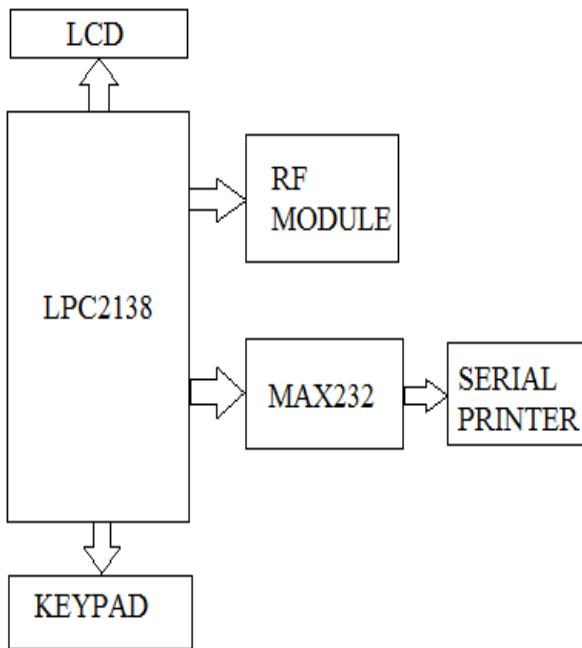


Fig.1. Transmitter section

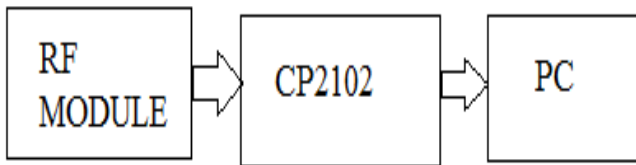


Fig.2. Receiver section

In this system as per the figures transmitter side consist of microcontroller ARM7LPC2138, LCD, keypad, RF transceiver, serial printer, and MAX 232. Receiver section consists of RF transceiver, PC where GUI is constructed in visual basics and CP2102 single chip USB to UART bridge. In our system we are going to provide two units one is at bogie which is called as transmitter and another one is at pantry which is called as receiver. Passenger can order food anytime by using this system. If user wants to order some food then he has to first enter PNR no,(passenger name record), bogie no. as well as seat no. then our system checks for validation if user is valid then and then only order is going to be placed. User has to choose menu with quantity. Price of the order is displayed on LCD, and then order is transferred to the receiver section.

At the counter admin person will send time to serve and bill of the food back to user. We are also interfacing the serial printer to keep the print of the bill as confirmation that the customer order is reached to the kitchen room. Also, for the waiter to confirm that he is serving to the right person.

#### IV. MODULE DESIGN

The components and blocks of system designs are as follows

##### A. RF Module(CC2500).



Fig.3. RF Module (CC2500)

CC2500 is designed for low power wireless applications. This is basically a transceiver. Wireless communication between bogie and pantry is achieved using CC2500. This is high speed wireless module operates on 2.4 GHz frequency. It supports baud rate upto 38400. This is used for ISM and SRD frequency band. CC2500 gives extensive hardware support for packet handling and burst transmission. CC2500 plays vital role in our project This is directly interfaced with microcontroller's Tx and Rx pin. In this system one module is interfaced to the microcontroller and another module is interfaced with PC using CP2102 this is and USB to Serial converter.

Features.

1. Supports for synchronous and asynchronous serial transmit and receive mode.
2. Small size (20 pin).
3. Range 30 Meters-line of sight.
4. Works on 5 V DC supply

##### B. LCD.

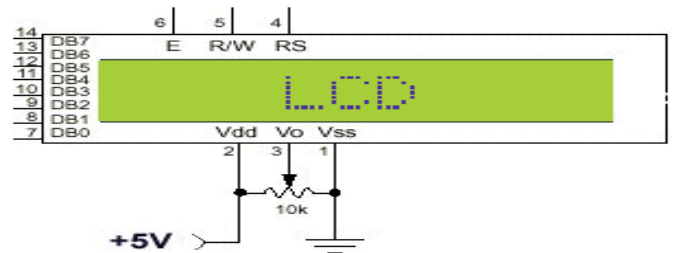


Fig.3. LCD display

In this system we used 16X2 alphanumeric LCD for displaying menu and quantity and bill and time required to serve the food. LCD is interfaced with 4 GPIO pin of LPC2138. In our system we prefer to choose a LCD instead of led or seven segment display because of the following reasons:

1. It has ability to display numbers, characters and graphics whereas LED display are limited to numbers and few characters.
2. There is refreshing controller in the LCD which reduces overhead of the CPU
3. Ease of programming for characters and graphics.

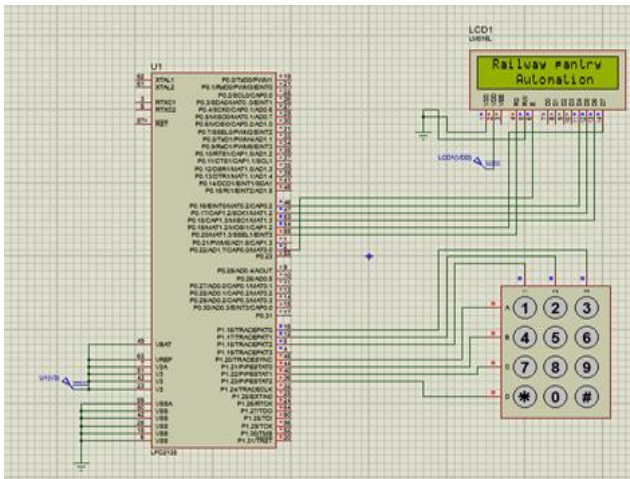


Fig.4. LCD interfacing

**C. VISUAL BASIC.**

In this system GUI is constructed in visual basic. Visual Basic is interface-oriented language. Visual basic can design complicated GUI. Visual basic is an event driven programming. Event-driven programs can respond only to events from the computer. The designer uses ready objects such as instruction Buttons and Text Boxes, to build user port that make up the GUI. This view towards programming suddenly reduces complexity.

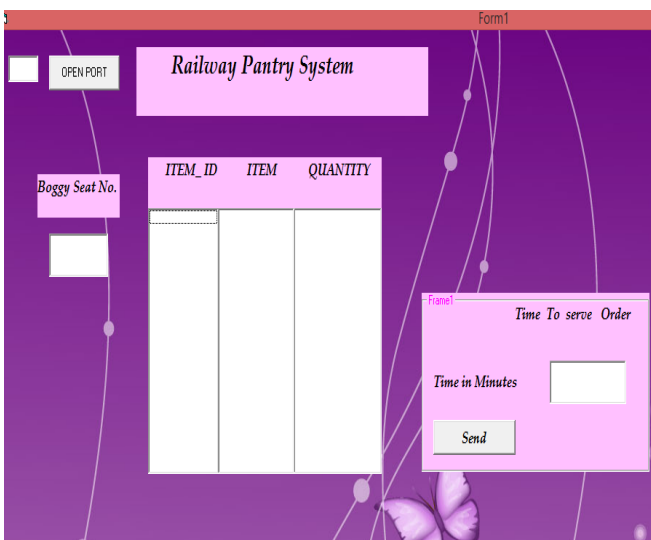


Fig.5. GUI

When order is placed it will come to pantry where GUI is constructed in VB. Item id quantity will display. Price of each item is stored in database and according to price of item bill will generate automatically.

**D. SERIAL PRINTER.**



Fig.6. Serial Printer

In this system serial printer is used to get receipt to the user.

**Features:**

- Compact size (2 inch) and portability
- Operation by batteries
- Low voltage printing
- Auto paper loading function
- Fast operating speed

**V. CONCLUSION**

Wireless technology becomes more effective because of easiness. This automated system reduces efforts of labour and also reduces the chances of misplacement of order. This system also reduces issues regarding time, money. System installation is easy as it is developed on wireless platform. This system is much userfriendly, cost effective.

**VI. REFERENCES**

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