

Advanced Ticket Management System

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DOI: 10.5281/zenodo.19307377

ABSTRACT

In today's world, transportation system plays a vital role in our day to-day life. Most of the people travel by bus. So the number of buses running daily is huge. To keep a track of all the tickets/passes issued is a big challenge before the bus authorities. To solve this particular problem we are developing a prepaid (issuing pass) and a postpaid (issuing ticket) ticket management system. Change of currency is also a big problem to the conductor as well as passengers. Handling of currency may transmit the viral infection from one person to other person.

As a pilot project proposed design is going to develop a prototype module for bus conductor as well as at bus depot with a thermal print out for the ticket with USB port for the data transfer to main system. However in future this prototype can be interfaced with GSM to transfer the data through internet or wireless media.

Keywords : - Thermal Printer, GSM, Keyboard, Microcontroller, RS 232

1. INTRODUCTION

1.1 Prepaid system

In this system, the passenger need not purchase the ticket, he can use the smart card/ prepaid card. He has to insert his prepaid card in the device held by conductor. The microcontroller reads the available balance in the prepaid card. If it is more than the ticket amount, the ticket is issued; otherwise the user has to buy the ticket. The system is particularly useful to the people regularly commuting by bus. This system is advantageous in the following ways.

If the person is not travelling on a particular day, his money is saved. This is in contrast to the current pass system.

Actual transaction of cash is minimized. Problem of small change is reduced.

1.2 Postpaid system:

By using the same device, there is an arrangement of issuing ticket by payment by passenger if he is not having prepaid card. The 4-key keyboard used has a special key which if pressed then the same system can be used as postpaid ticket issuing system. This system is particularly useful regarding the passengers travelling who are outsiders or not having the prepaid card. In this system, the conductor issues the ticket to the passenger and a printout is given to him. The charge of the ticket is stored in the microcontroller memory. At the end of the day, the conductor takes the device to the bus depot and the computer displays and stores the information regarding the total cash transaction during the day.

The ticket management system comprises of two systems:

- Device at bus depot
- Device in bus.

2. BLOCK DIAGRAM

2.1 Device at bus depot

As shown below figure 1 is the block diagram for the device at bus depot. Information from the COMPUTER regarding the money deposited and other details of the passenger are written into the prepaid card/memory card via RS-232 cable and microcontroller. If we insert the card in the slot provided in the device, the LCD will indicate whether the card is written or not.

2.2 Computer

Computer used for maintaining database regarding details of passenger requirements should be P IV & above configuration. For the data base we will use Microsoft access at the back end and visual basic is used for displaying the information in graphical and tabular form.

2.3 Rs 232

RS 232 is a serial communication standard. It is a communication medium between microcontroller and computer. Information from the computer will be written to smart card/prepaid card through RS 232. System in bus will get connected to the computer at depot through RS 232 to get the information regarding the total

transaction for the day.

2.4 Microcontroller

Right now by using PIC16F8XX Microcontroller. Microcontroller is the heart of the system, which will manage all the peripherals interfaced to it.

2.5 Lcd

LCD used here is 16×2. It will be used in the system for displaying confirmation of card data.

2.6 Smart card/prepaid card

It is like a pass. It contains information of the passenger like. Name. Address (Permanent/Present), mobile number, PAN No. etc. Amount.

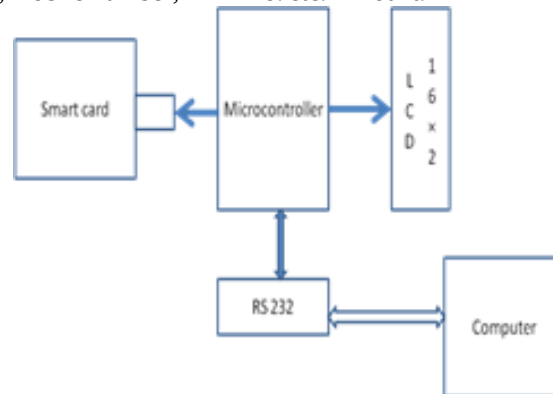


Fig -1: Device at bus depot

3. DEVICE IN BUS

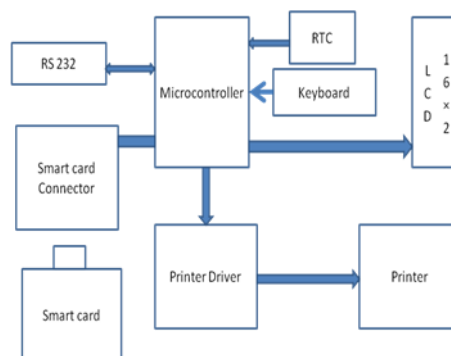


Fig -2: Device at bus

This is a hand-held device used by the conductor in the bus. The conductor first enters the start destination and the end destination using a 4 key keyboard. After this, microcontroller calculates the fare between the two stations. This device also has the facility of smart-card reader. The microcontroller reads the available balance and compares it with fare. If there is sufficient balance, we can take a print out of the fare using a thermal printer. If not, then indication is given on LCD; no sufficient balance. The microcontroller stores the total of all the fares at the end of the day. The conductor can take this device to the bus depot and store this information in computer. On computer we have visual basic software that gives the full details of the fare collected of each bus.

3.1 Smart card/prepaid card

When smart card is inserted in the connector it will get detected by the microcontroller.

At the request of the passenger the conductor will enter the start address and end address using the four key keyboard. Conductor can also get the information of lost cards by using keyboard.

3.2 Microcontroller

As per the information entered through keyboard microcontroller will calculate the fare between the two addresses and give command to printer to print the ticket or displays the information on the LCD about card.

3.3 Lcd

It is for displaying the information about the lost cards like owners name and his mobile number. It also displays name of the bus stop when the conductor is entering start and stop address through keyboard.

3.4 Real time clock

Using real time clock we get the information like date and time which will be printed on the ticket.

3.5 Thermal printer

It will receive the commands from the microcontroller and will accordingly print the ticket.

4. CONCLUSION

To overcome the current disadvantages of ticket management system, in proposed system it is suggested that the system which is a vital need to reduce malpractices, corruption, and handling of cash and quarrelling between conductor and passengers. The design of the circuit diagram which is compact in size (12 inch²), consumes low power, light in weight and user friendly. If this system will be implemented, then it will be convenient and useful to both passengers and conductor.

5. REFERENCES

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