
ABSTRACT

Vending machines are commonly used at various places like airport, fast-food restaurant, rail-way station, even in companies. Machine delivers a cup of your favorite drink when the particular switch is pressed. This looks a simple operation but has a very difficult to implement. Devices like display, solenoid and motor to deliver water and premixed tea/coffee/soft drink in exact quantity for good taste and in particular sequence. When the switch are pressed then machine will give your required drink. It will reduce manual work and save time.

KEYWORDS: Microcontroller, IR Sensor, Relay, Solenoid valve, LCD

INTRODUCTION

The microcontroller are mainly used in this project because of it is highly reliable, economical, and compact size. This tea/coffee/soft drink vending machine controller uses Free-scale latest AT89S52 micro controller chip. You can set the quantity of the drink if we can press the button. Thus, your requirement drink are filled into the cup. The system starts to working when you can insert the coin or card. A fixed volume beverage is filled in the main container. The beverage is poured in the glass through tap which opens and closes after fixed time period and only activated when container is filled. Hence, the user gets the beverage demanded by him by fully automated technique.

MATERIALS

- Microcontroller
- Comparator
- solenoid valve
- buzzer
- power supply
- relay
- Relay Driver
- Temp. Sensor
- IR sensor

Description of Block Diagram:-

- *Power Supply* :-

Step Down Transformer:

It is used to convert 230V, 50HZ to the 12V, 50 HZ.

Bridge Rectifier:-

12v ac is converted into 12v dc by using bridge rectifier., 12V dc has been converted to regulator supply.

Regulator IC:-

The regulator IC 7805 is used to convert 12V dc in to the 5V regulator supply.

Main circuit:-

Microcontroller:-

The 89C52 microcontroller has the 40 IC having four ports: port1, port2, port3, port4.

The port0 has connect to LCD display to display the message. port2 has connected to the relay driver through IC ULN 2003 to detect the which coin has been inserted. Port3 has connected to the switches to select the appropriate drink.

Relay driver:-

IC ULN2003 having 16 pins work as a relay driver IC. It operates on 12Volts. The input of relay driver is the output of the main microcontroller IC. The relay Driver produce magnetic field .Due to induced magnetic field in the solenoid valve it moves downward causing liquid to come out from the valve and hence the beverage fills in the glass as we put the coin in hole.

IR Sensor:-

The IR sensor are used to as a photodiode and Infrared LED. It is used to detect the object.

LCD:-

The 24*4 LCD are used to display the message whenever coffee or other drink are receive.

Figure:

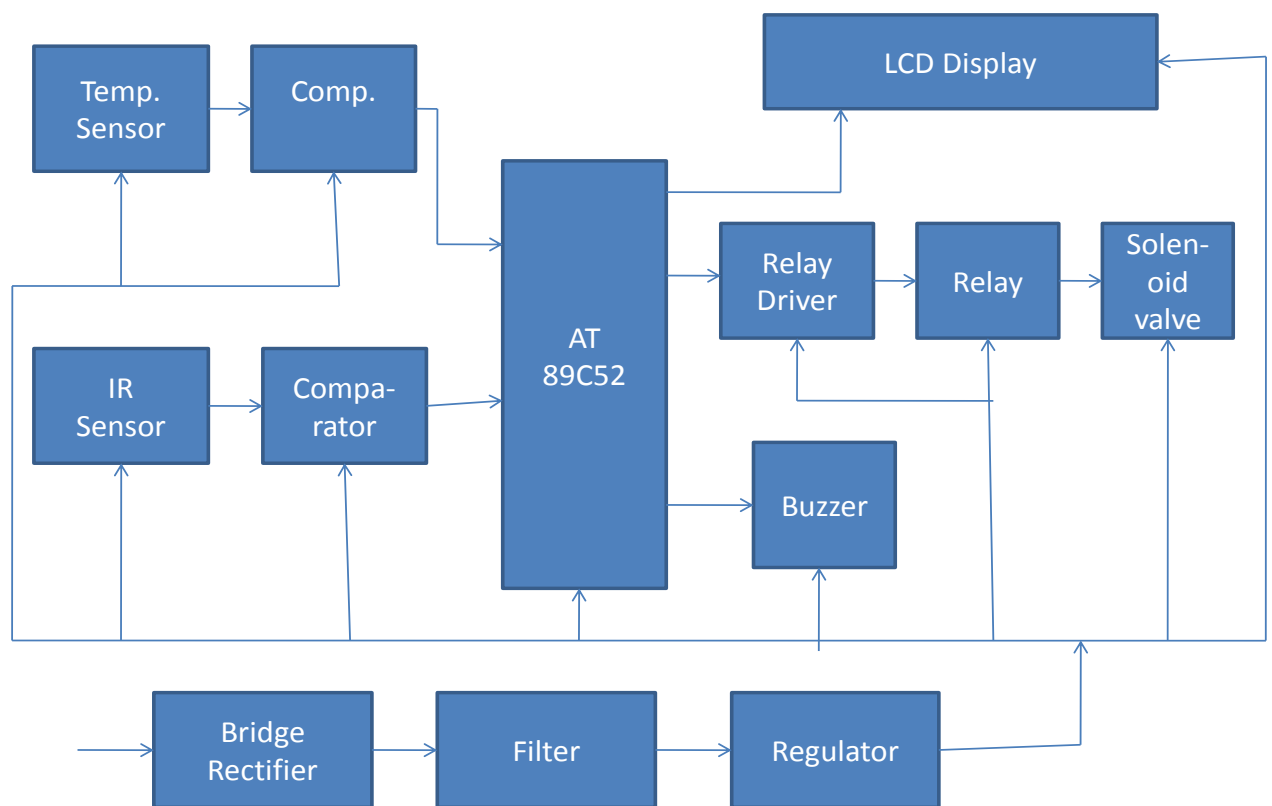


Fig: Block Diagram Of Coffee Vending Machine

APPLICATION AND ADVANTAGES

- Higher sensitivity
- Less complicity
- Used in Companies, Colleges, School, Railway

CONCLUSION

These vending machine is easier to design and very simple to develop. For these implementation we can observe the result of these project & how the coding required & What is the output of these project. Can be used as a frequent beverage supplier at colleges and offices where mass serving is required. These type of coffee vending machines could be used to reduce time and human effort with improved accuracy.

REFERENCES:-

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