ALCOHOL DETECTOR AND LOGIC CONTROL

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ABSTRACT

In this paper, we are planned to fuzzy logic to make a one gazette which pervert from the increased level of alcoholic gas. Alcoholic gas are very harmful for human beings; these gases are methanol, ethanol, propanol, butanol. In this project we provide an auto security with door open and switch on exhaust fan if the gas is detected. So in this project first of all we detect the gas, then check the volume of gas and if the level is above the set value then controller takes a decision for open the window and switch on the fan also.

KEYWORDS:- Automatic alcohol gases, gas Sensor, arduino based Analyzing System.

1. INTRODUCTION

In this project we provide a auto security with door open and switch on exhaust fan if the gas is detected. So in this project first of all we detect the gas, then check the volume of gas and if the level is above the set value then controller takes a decision for open the window and switch on the fan also .It can be used in big industries where there is a huge requirement of exhaust fans when a particular gas is exceeded in a prescribed amount then there is no need to switch on the exhaust fan the fan will be automatically switched on nd it will automatically be switched off when the gas present in the industry is below the prescribed amount. there we are using a gas sensor.it will detect the leakage than the value of gas will be displayed on LCD screen and a microcontroller is attached to the fan and window that a exceed value of alcoholic gas will open the window and switch on the fan.
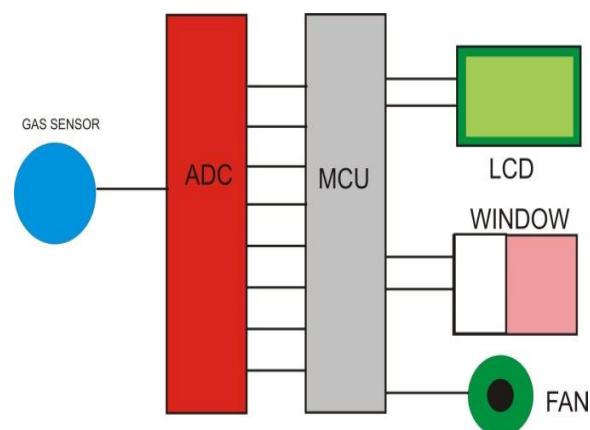
2. PROPOSED DESIGN

2.1 Block diagram

Fig1:- Block diagram

It includes the following component:-

ATMega328 Microcontroller (based on Arduino)

An Arduino microcontroller is a **microchip**, which is a very small computer that you can program to respond to things.It is a 28 pin microcontroller. It can measure conditions (like how much light there is in the room). It can control how other objects react to those conditions (room gets dark and an led turns on).ATmega is an 8- bit microcontroller that has 32K of flash memory, 1K of EEPROM, and 2K of internal SRAM.the ATmega 328 is one of the microcontroller chips that are used with the popular arduino boards. The arduino board comes with either 1 or 2 microcontroller chips, the ATmega 328 is the upgraded , more advanced chip.it has 14 digital I/O pins, of which 6 can be used as PWM outputs and 6 analog input pins.
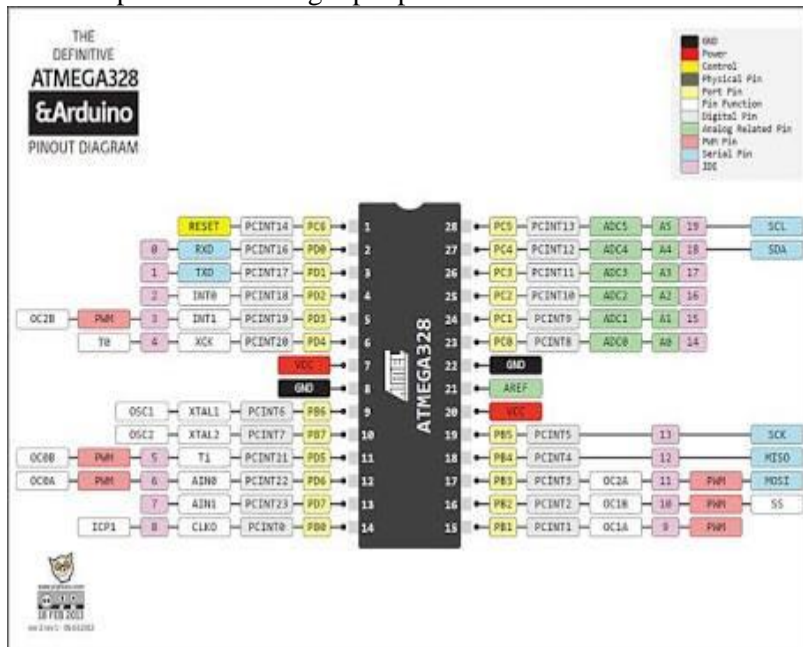
Fig2:- Pin diagram of ATMega 328

Motor driver L293

L293d is a motor driver integrated circuit which is used to drive DC motors rotating in either direction. It is 16 pin IC which can control a set of two DC motors simultaneously.the L293D uses 5V for its own power and external power source is neede to drive the motors, which can be upto 36

V and draw upto 600 mA.the L293D works on the concept of typical H- bridge , a circuit which allows the high voltage to be flown in either direction.

Fig3:- motor driver

.Gas sensor

It is a gas sensor.Gassensors work by detecting amounts of specific gases in ppm, or parts per million. Ppm is a unit of concentration in the immediate surrounding area. You can calculate percent from ppm by dividing the ppm by 1,000,000 and multiplying by 100. So if you can detect 800ppm of oxygen in the air, the air is 8% oxygen.
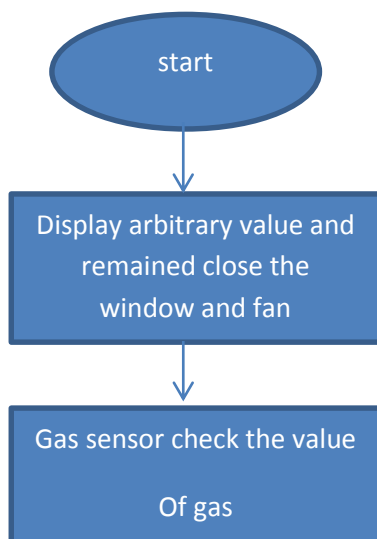

Fig 4:- diagram of gas sensor

LCD (Liquid Crystal Display)

Frequently, a program must interact with the outside world using input and output devices that communicate directly with a human being. One of the most common devices attached to a controller is an LCD display. Some of the most common LCDs connected to the 8051 are 16x2 and 20x2 displays. This means 16 characters per line by 2 lines and 20 characters per line by 2 lines, respectively.
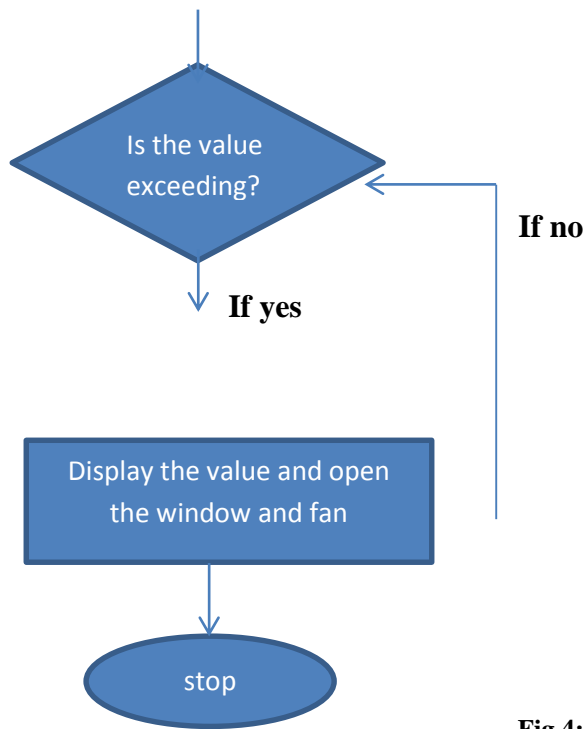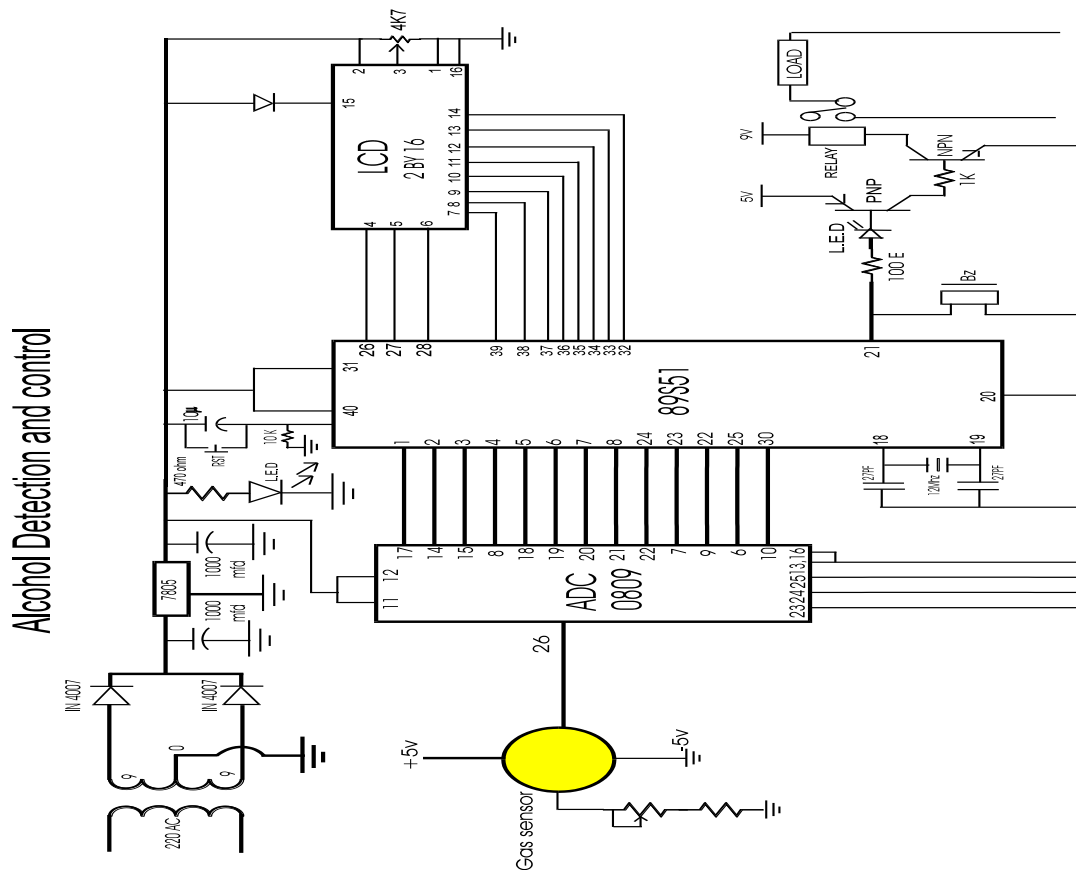
2.2 Working

start

Display arbitrary value and remained close the window and fan

Gas sensor check the value Of gas

Fig 4:- flow diagram

3.HARDWARE IMPLEMENTATION

Fig 5:- circuit diagram

Here we are using microcntroller , gas sensor and a analog to digital converter .So we use pin no 26 of ADC as a input from gas sensor. Pin no 23,24,25 is the address pin to select the input. In this project we ground all the address pin to provide a pin no 26 as a input. Pin no 11 and 12 is connected to the positive supply 5 volt. Pin no 11 is the supply pin and pin no 12 is positive reference voltage, so we want a full deflection of 0-5 volt , so we also connect a positive voltage to the pin no 12 of ADC. Pin no 17,14,15,8,18,19,20,21 is the data output pin from the adc in 8 division. We convert the input signal into 8 division and connected to the microcontroller port 1 pin directly. Data from the ADC is available on the port 1. VPin no 10 of the ADC is clock input pin. This signal is provided from the ALE pin of the controller. Pin no 7 and 9 is output enable pin and end of conversion pin , these signals is also provided from the controller.In the output pins of microcntroller we use relay coil for exhaust fan, and motor control circuit for the door open logic.

If the gas rises the upper limit then fan is on by relay coil. Relay is a electromagnetic switch and with the help of this magnetic switch we can operate 220 volt directly. For operation of relay we use two transistor circuit. Here in this project we use one NPN and one PNP transistor to operate the relay. Output from the controller is active low and this signal is connected to the base of PNP transistor via 1 ohm resistor. One l.e.d with 470 ohm resistor with positive is also connected to this point for visual indication. Emitter of the PNP

transistor is connected to the positive supply . Output is taken from the collector of the PNP transistor and connected to the base of the npn transistor through 1 k ohm resistor. Emitter of the NPN transistor is connected to the ground pin. Collector of the NPN transistor is connected to the relay coil. Relay further on/off the pump or light or fan.
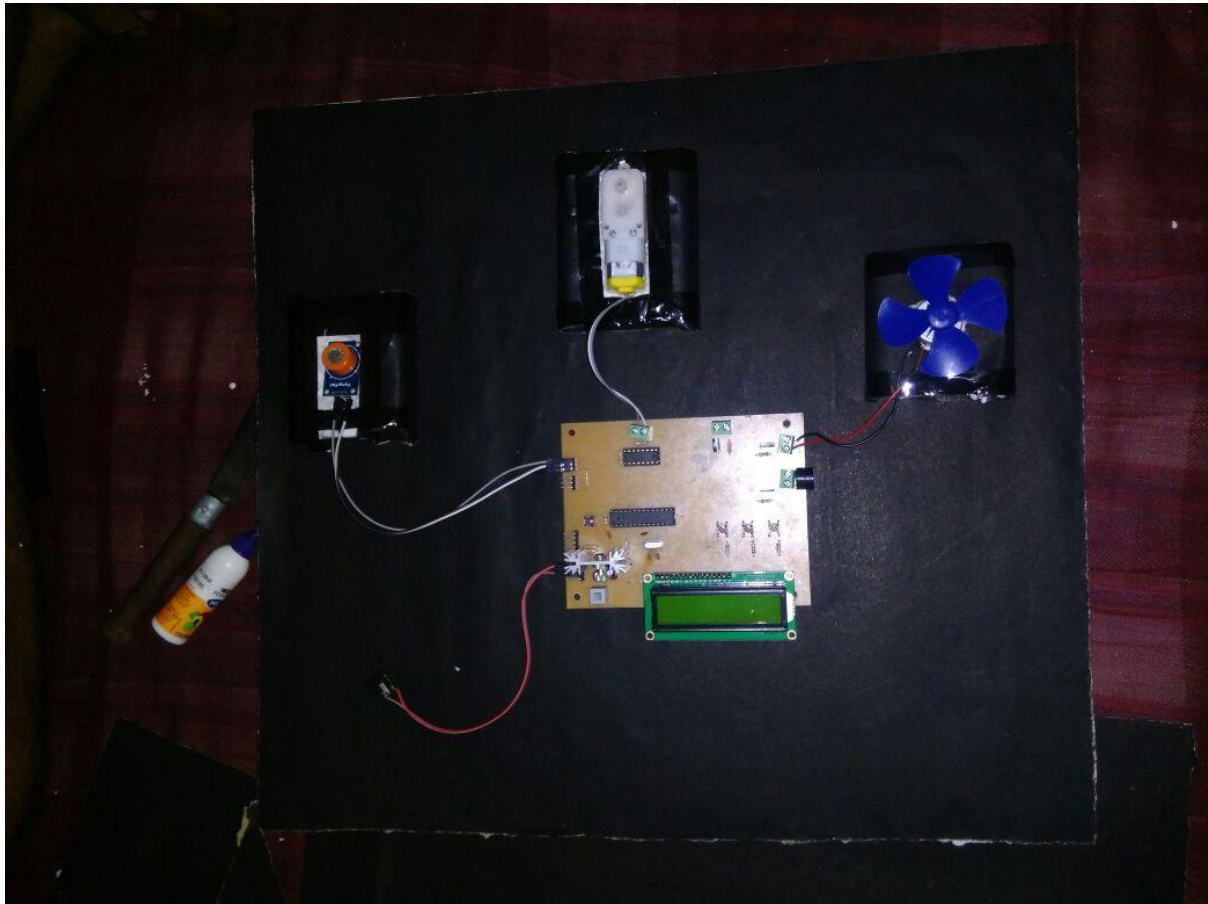
Figure 7 :-REAL TIME IMAGE OF THE PROJECT
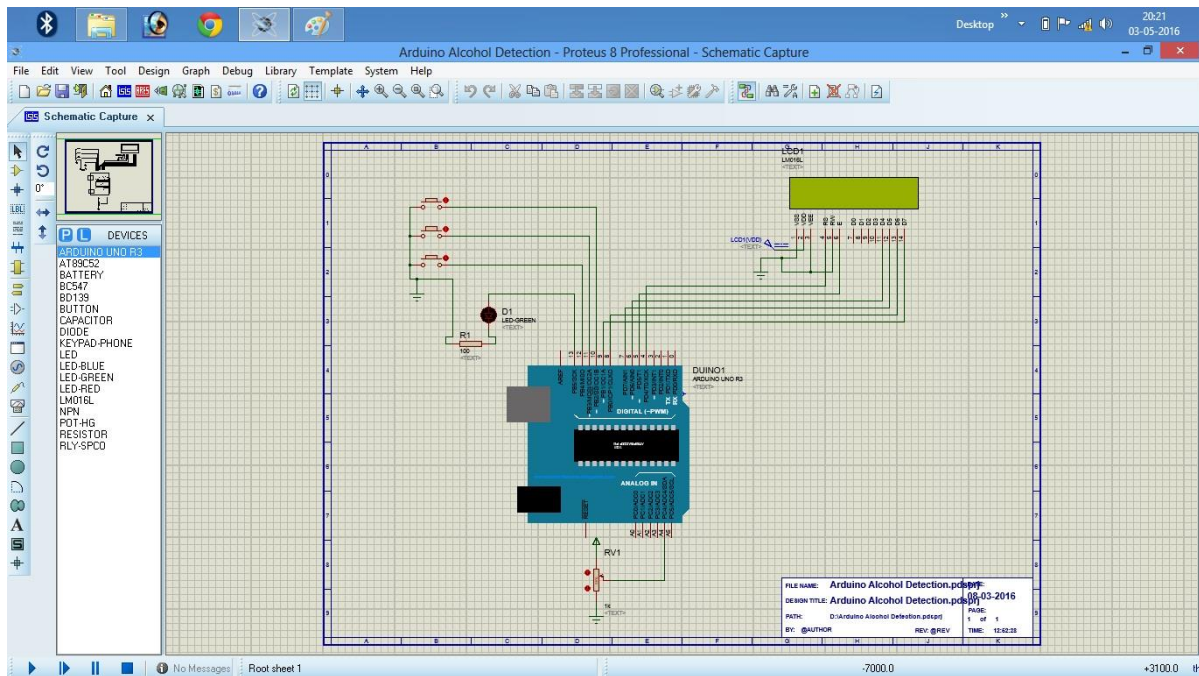
4. PROTEUS SIMULATION

Figure 8 SIMULATION RESULT

5.FUTURE WORK

With recent development in technology ,we can add a audio output or alarm for future enhancement i.e. one such therotical improvement that is well possible.Another very interesting and significant improvementnt would be to send SMS to emergency when you are out of home.

6.RESULTS & DISCUSSSION

This projects aims to show how a microcontroller can be employed to replace a lot of external components while adding extra functionalities at a cost comparable .This device results in a graet security from excessing of alcoholic gases .it can be used anywhere.the use of this project some following positive results:-

- It results in the security from leakage detection in house .
- The sensor has a excellent sensitivity combined with a quick fast response time.
- The system is highly reliable, tamper proof and secure.
- In the long run the maintenance cost is very less when compared to the present sysytem.
- It is possible to get instantaneous results and with high accuracy.

7.CONCLUSION

Our project Alcoholic gas Detection System was implemented successfully. This device provides much advanced facilities in now a days life as it can be easily implemented in houses, industries anywhere. Thus we can reduce alcoholic gas related accidents and hence these kinds of detectors have a great relevance. It can also be used in schools, colleges, offices and some public places such as hospitals, libraries etc. Through this project we present hardware programming of microcontroller to facilitate as alcoholic gas sensor.

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