For more Project details visit:
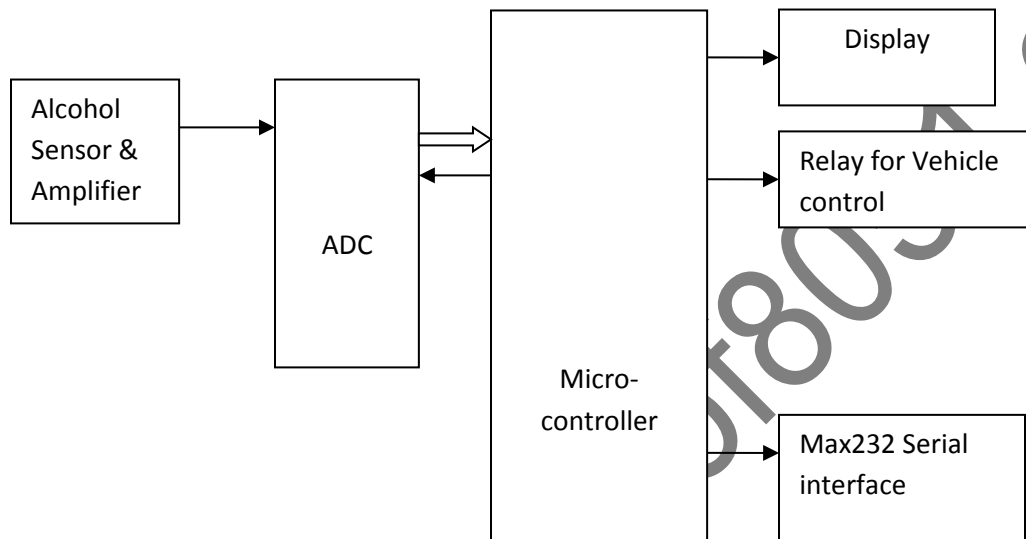
http://www.projectsof8051.com/alcohol-detection-with-vehicle-controlling/

| Code | Project Title |
|------|---------------|
| 1250 | Alcohol detection with vehicle controlling |

Synopsis for

# Alcohol detection with vehicle controlling

## Introduction

The main purpose behind this project is "Drunk driving detection". Now a days, many accidents are happening because of the alcohol consumption of the driver or the person who is driving the vehicle. Thus Drunk driving is a major reason of accidents in almost all contries all over the world. Alcohol Detector in Car project is designed for the safety of the people seating inside the car. This project should be fitted / installed inside the vehicle.

## **Block diagram**

Alcohol Sensor & Amplifier → ADC ⇄ Micro-controller → Display

Micro-controller → Relay for Vehicle control

Micro-controller → Max232 Serial interface

## **Explanation of Block diagram**

**1) Alcohol sensor:-**

Alcohol sensor is the sensor that measures the amount of alcohol that is present in surrounding environment. There are contact and non-contact type of sensors. As the output signal of sensor is smaller in amplitude the signal power is also low therefore amplifiers are used. The weak signals are amplified using amplifiers.

**2) ANALOG TO DIGITAL CONVERTER (ADC):-**

ADC is used as a signal conditioner, which is given as an input to the micro controller.

Most of the information carrying signals such as voltage, current, temperature, pressure and time are available in analog form. However, for processing, transmission and storage purpose, it is often more convenient to express such signals in digital form. When expressed in digital form, they provide better accuracy and reduce noise.

The A to D conversion is a quantizing process whereby an analog signal is converted into equivalent binary word.

ADCs are classified into two general groups based on the conversion techniques. One involves comparing a given analog signal with the internally generated reference voltages. This group includes successive approximation, dual slope technique and flash A to D type converters. Another technique involves changing an analog signal into time or frequency and comparing these new parameters against known values. This group includes integrator converter and V to F converter.

**3) MICRO-CONTROLLER (8051):-**

It is the major part of the system. It maintains the temperature, humidity and light intensity to the desired value. The 8051 has one serial port that receives and transmits data. Transmission and reception can take place simultaneously. The four communication modes possible with 8051 present the system designer and programmer with opportunities to conduct very sophisticated data communication network. It is the heart of the system which controls all the inputs and the controlling action to be taken at the output. Microcontroller used here is the AT89S51.

**4) LCD DISPLAY:-**

Liquid Crystal Display which is commonly known as LCD is an Alphanumeric Display it means that it can display Alphabets, Numbers as well as special symbols thus LCD is a user friendly Display device which can be used for displaying various messages unlike seven segment display which can display only numbers and some of the alphabets. The only disadvantage of LCD over seven segment is that seven segment is robust display and be visualized from a longer distance as compared to LCD. Here we have used 16 x 2 Alphanumeric Display which means on this display we can display two lines with maximum of 16 characters in one line.

**5) Relay for CONTROLLER:-**

The error between the reference and present value is given to the temperature controller, which responds correspondingly to the error and gives the feedback to the sensors. The temperature controlling depends on whether the temperature needs to be increased or decreased. The temperature controlling can be done through fans.

**6) DC Motor**

A DC motor is a mechanically commutated electric motor powered from direct current (DC). In DC motor, operation is based on simple electromagnetism. A current-carrying conductor generates a magnetic field; when this is then placed in an external magnetic field, it will experience a force proportional to the current in the conductor, and to the strength of the external magnetic field.

Opposite (North and South) polarities of magnet attract, while like polarities (North and North, South and South) repel. The internal configuration of a DC motor is designed to harness the magnetic interaction between a current-carrying conductor and an external magnetic field to generate rotational motion.

**10) Serial INTERFACE:-**

Serial interface is the additional feature provided for this system. It is used as a future enhancement. In this the present readings taken through the sensors are given to the computer for further manipulations and calculations.

## **Applications**

1) "Alcohol Detector project" can be used in the various vehicles for detecting whether the driver has consumed alcohol or not.

2) This project can also be used in various companies or organization to detect alcohol consumption of employees.

Advantages of Alcohol Detector project:

1) "Alcohol Detection System in Cars" provides an automatic safety system for cars and other vehicles as well.