Subject: Internet of Things

Project Title: Alcohol Level Meter using Arduino & MQ-135 Alcohol/Gas Sensor

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S Y N O P S I S

Introduction:

In this project, we have designed Alcohol Level Meter using Arduino & MQ-135 Alcohol/Gas Sensor for measuring the level of alcohol in humans breathe. Simply we have interfaced MQ-135 Gas Sensor module with Arduino and 16*2 LCD module for display. The alcohol/Gas sensor we used is the MQ-135 sensor. This is a sensor that is not only sensitive to alcohol, particularly ethanol, which is the type of alcohol that is found in wine, beer, and liquor. Instead of MQ-135, you can use MQ2, MQ3, MQ5 module as well. Basically, they all have similar functions.

This type of sensor circuit can be used as a breathalyzer to check a person's blood-alcohol level. Just as we exhale carbon dioxide when we breathe out, we also will breathe out some alcohol if we have alcohol in our blood. Any alcoholmeter device can measure this alcohol content. The more ethanol in your blood, the more there is in the air on exhalation. This alcohol content gives a good indication for if a person is drunk and how drunk they are. The amount of alcohol exhaled into the air is proportional to the amount of alcohol that will be found in a person's blood. Alcometers use a built-in formula to estimate blood alcohol content from the exhaled air alcohol content.

For different countries, the level of alcohol in the blood that defines a person as over the limit for driving varies. The range ranges from 0.01 to 0.10. Most countries have a limit of about 0.05. For example, Greece, Greenland, and Iceland all have limits of 0.05. Canada has a higher limit set at 0.08. For our circuit, it can function as an algometer so that we get an estimate of a person's blood-alcohol level.

Component Required:

- Arduino Uno Board
- 16 *2 LCD
- MQ-135 Gas/ Alcohol Sensor Module
- LED
- Breadboard
- Connecting Jumper Wires
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Expected Working:

The MQ-135 alcohol sensor consists of a tin dioxide (SnO2), a perspective layer inside aluminum oxide microtubes (measuring electrodes), and a heating element inside a tubular casing. The end face of the sensor is enclosed by a stainless steel net and the backside holds the connection terminals. Ethyl alcohol present in the breath is oxidized into acetic acid passing through the heating element. With the ethyl alcohol cascade on the tin dioxide sensing layer, the resistance decreases. By using the external load resistance the resistance variation is converted into a suitable voltage variation.

Application:

- Alcohol Detection can be used anywhere to reduce the probability of Road accident.
- This can be used at Any organisation, mines, Educational Institution and Companies etc., to detect weather a person is Alcohol Consumed or not.