ALCOHOL DETECTION DEVICE

Activity Overview

Alcohol consumption impairs the judgement of a person. A person loses the ability to think properly when he has consumed alcohol. This leads to several problems like:

- Drinking and driving increasing risks of accidents.
- Unintended harmful activities turning into violence.

The project initiative is to create a alcohol detection device using Genuino 101, which will assist officials to find people who have consumed alcohol and ensure they don't end up doing any dangerous behaviors.

SUBJECTS

Science

Computing

TIME REQUIRED

2 Hours

AGE LEVEL

11 - 18 Years

What Shall We Learn?

- How does an alcohol sensor work
- How to use digital sensors to showcase output through a Genuino 101
- Controlling LED lights based on values of a sensor.

Activity Objective

The problem at hand is how to find out people who are drunk?
We need to think of possible ways to find such people and stop them from doing

Components Needed

To create our alcohol detection device we shall need below mentioned components:

Genuino 101

This is the brain of your device. The output from the Alcohol detector will perform actions based on the programmed microcontroller board which will be reflected on your LEDs.

Alcohol Sensor Sheild

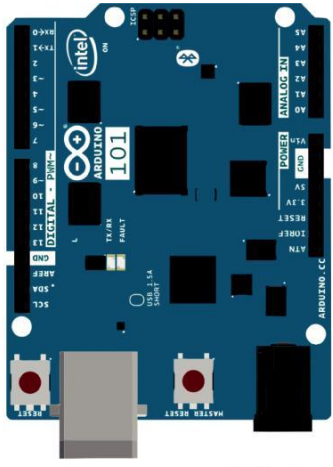
The alcohol shield is made up of an MQ-3 sensor and 5 LED's which glows as per the concentration of alcohol. MQ-3 is a sensor which detects alcohol concentration.

Power Supply

So much computing needs energy to work upon right.
So this would power up the entire system.

DEODORANT / PERFUME

POWER SUPPLY



GENUINO 101

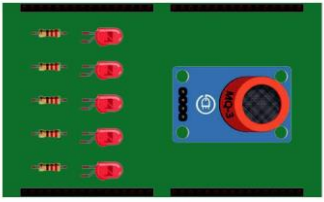
fritzing

Understanding Sensors

The alcohol sensor is technically referred to as a MQ3 sensor which detects ethanol in the air.

When a drunk person breathes near the alcohol sensor it detects the ethanol in his breathe and provides an output based on alcohol concentration.

If there is more alcohol concentration more LED's would lit. If there is less alcohol concentration less LED's would lit. Hence you can get to know about the concentration and thus detect alcohol.



ALCOHOL SENSOR SHEILD

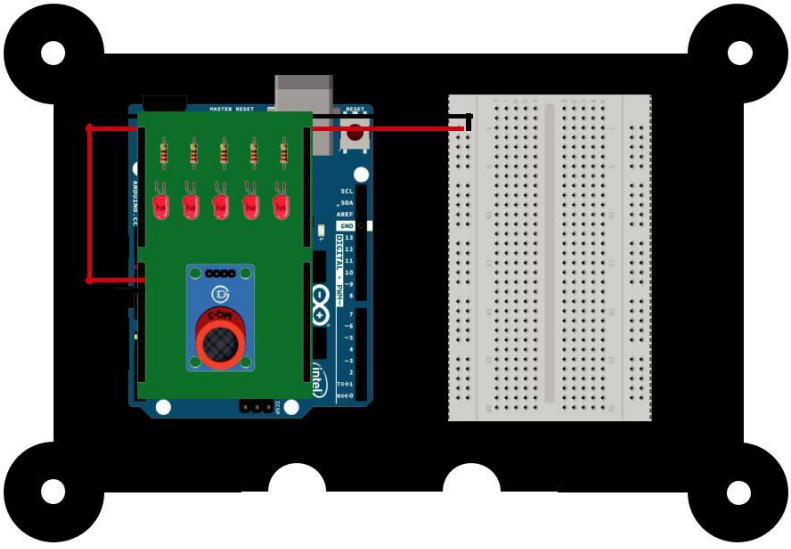
DID YOU KNOW?

More than 88,000 deaths are annually attributed to excessive alcohol use.

Connecting Your Sensors

We have all our components ready to be connected. Let us begin by connecting the Genuino 101 to the Alcohol shield.

- Gently plug the Genuino 101 into the alcohol shield.
- There are connectors which will perfectly fit your arduino 101 into the shield.



TOP VIEW

After connecting the shield with the Genuino 101 we shall provide power using our laptop. Once the power is connected we shall begin with our programming.

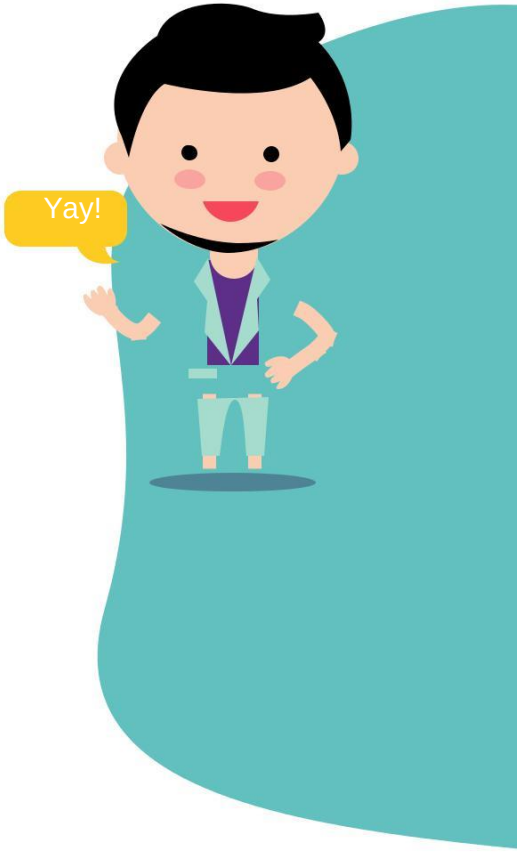
Programming Your Sensors

Download and open the code from *bit.ly/AlcoholDetectionSensor* and now you will have to upload the code on your Genuino 101

Click the upload button and once your code has been uploaded the LED lights will lighten up.

Yaay! You have successfully programmed your device.

Upload Button
(Top Left)

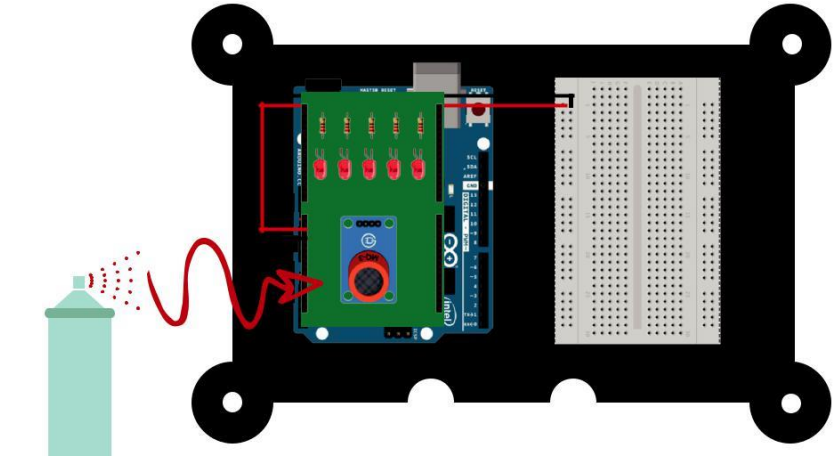


Output

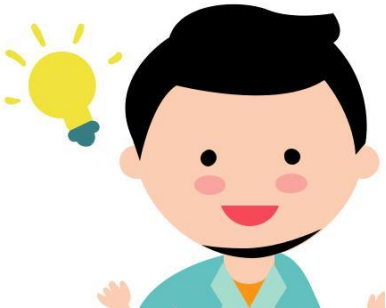
We have completed our alcohol detection setup lets test it. Because of lack of Alcohol we suggest spraying deodorant/perfume near the detector and you will see the LED's lighting up. Which means your device is detecting alcohol concentration in the air.

DID YOU KNOW?

Most of the sanitizing and odour removal perfumes and deodorants contain high amount of ethanol in them.



DEODORANT / PERFUME



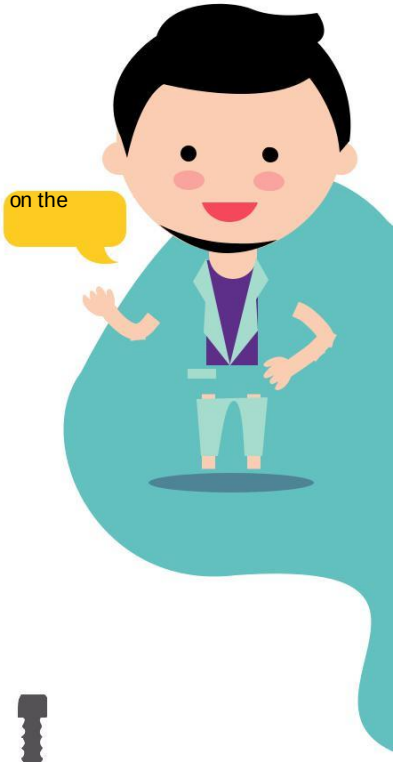
Model Cretaion

Before we begin with the model creation make sure you have:

4 Spacers
8 Screws
Transparent acrylic board.

We will now arrange all the components in a case and make it look cool and easy to use.

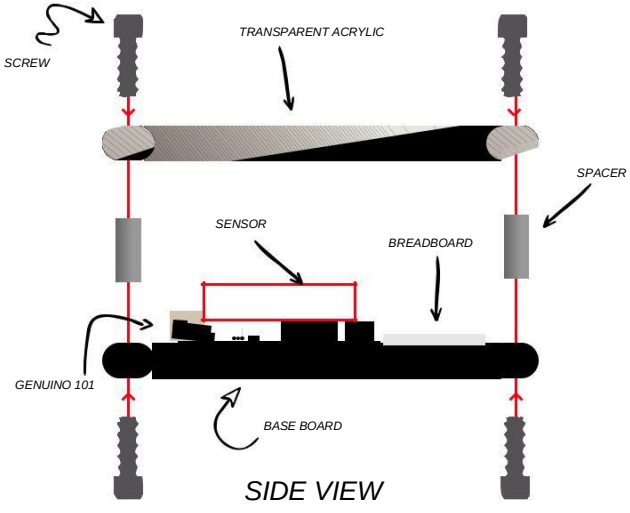
We will begin by connecting the Alcohol sensor module to the base module. The breadboard and Arduino 101 are on the base module while your MQ3 sensor is on the alcohol sensor module.



Now insert the spacers on the cutouts which are given in the activity kit and tighten them using the screws provided to you.

We have our modules attached and spacers set up, now gently place the transparent acrylic board on the spacers and tighten it using the screw.

Once everything is ready, ensure all your screws are tightened and your modules are connected properly. It should look something like this:



SIDE VIEW

Impact Analysis

Every year about 300,000 people are involved in drunk driving cases. Imagine the loss of lives caused due to people driving under the influence of alcohol. Through our alcohol detection device policemen can instantly figure out people driving under influence of alcohol and stop them, hence, reducing drunk driving scenarios.

Future Scope

We can further improvise the activity to work in a car. By connecting a relay with the car's ignition the car won't start if the driver is under influence of alcohol. Removing all the possibilities of drunk driving.