Accident Detection System.

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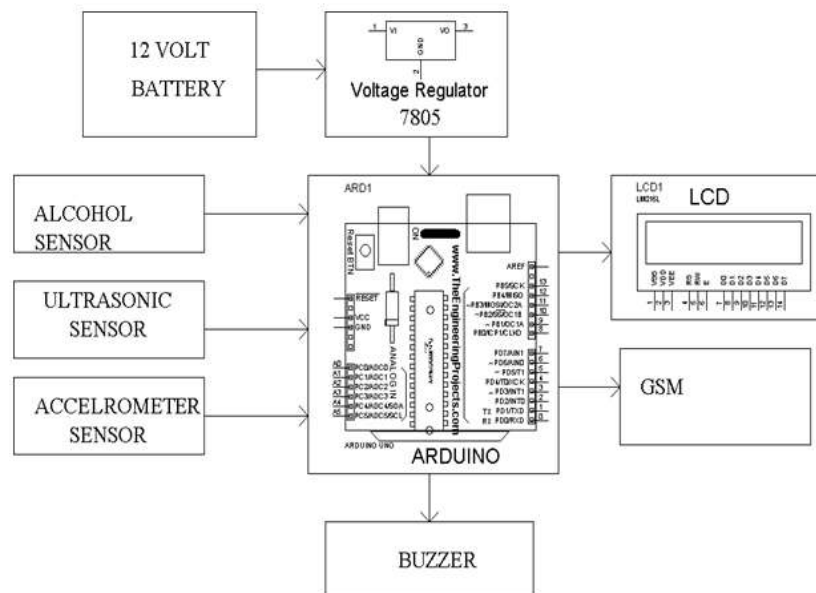
I. INTRODUCTION

Everyday around the world a large percentage of people dies from road accident. This is implemented using Arduino. The main objective of this project is to build a safety system which is integrated with the smart and intelligent bike to reduce the probability of two-wheeler accidents and drunk driver cases.

Alcohol sensor to detect the alcoholic level through the atmospheric air. If the alcohol level changes occur, then the sensor measures the level in fixed point. Whenever, the alcohol level increases above the set point then the whole system is controlled by the Arduino controller and message is sento to the gsm by accident location .

The project uses an Arduino board which is programmed to receive the input signal of varying alcohol condition of the vehicle driver through a sensing arrangement. Once the controller receives this signal, it generates an output that drives for operating the system which controls the of vehicle.Accelerometer sensor sends to the message on gsm , bike is the breakdown.Ultrasonic sensor is detect the distance of the two vechicales
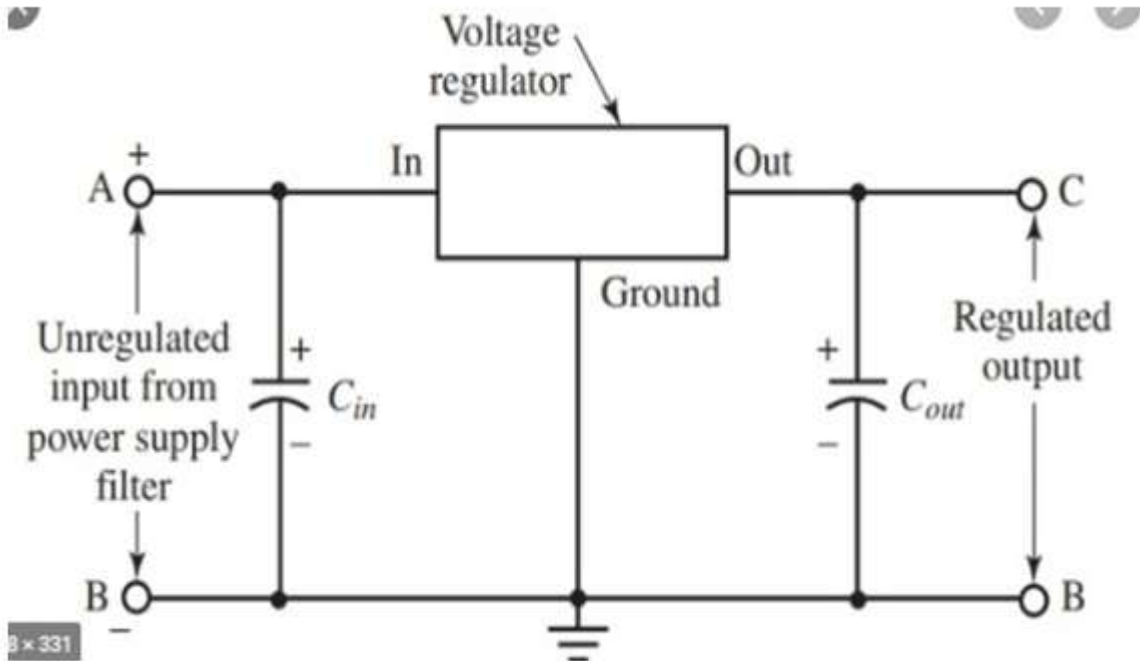
II. BLOCKDIAGRAM

HARDWAREPARTS
- 12 volt battery.
- Voltage regulator 7805
- Arduino
- LCD
- Alcohol sensor
- Ultrasonic sensor
- Accelerometer sensor
- Buzzer

1. Voltage Regulator

In this tutorial, we will see about one of the most commonly used regulator IC's, the 7805 Voltage Regulator IC. A regulated power supply is very much essential for several electronic devices due to the semiconductor material employed in them have a fixed rate of current as well as voltage. The device may get damaged if there is any deviation from the fixed rate.

One of the important sources of DC Supply are Batteries. But using batteries in sensitive electronic circuits is not a good idea as batteries eventually drain out and loose their potential over time. Also, the voltage provided by batteries are typically 1.2V, 3.7V, 9V and 12V.

2. Ardiuno

The Arduino microcontroller is an easy to use yet powerful single board computer that has gained considerable traction in the hobby and professional market.
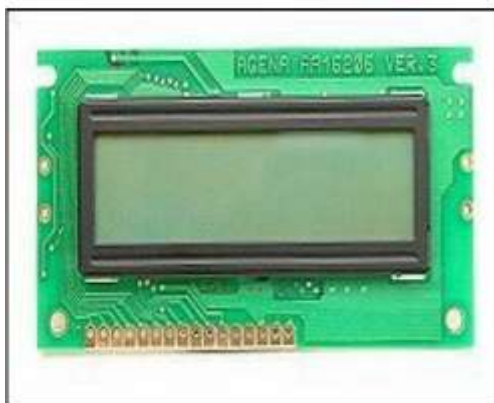
The Arduino is open-source, which means hardware is reasonably priced and development software is free.

3. Image of Development Board

4. Liquid Crystal Display(Lcd)

Most common LCDs connected to the microcontrollers are 16x2 and 20x2 displays. This means 16 characters per line by 2 lines and 20 characters per line by 2 lines, respectively. The standard is referred to as HD44780U, which refers to the controller chip which receives data from an external source (and communicates directly with the LCD.

5. Battery

The batteries are used as a storage device for solar energy which can be further converted into electrical energy.

The only exceptions are isolated sunshine load such as irrigation pumps or drinking water supplies for storage, for small units with output less than one kilowatt.

Batteries seem to be the only technically and economically available storage means. Since both the photo- voltaic system and batteries are high in capital costs, it is necessary that the overall system be optimized with respect to available energy and local demand pattern.
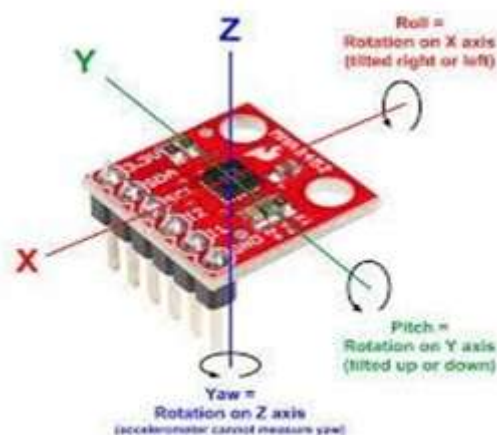

6. Alchohal Sensor

MQ-3 gas sensor shown is used for identifying the alcohol content from breath. It can be positioned just in front of the mouth. The sensor responds to various molecules in alcohol and determines if the rider is drunk. The sensor also has a potentiometer to adjust the concentration of gases. We calibrate the detector for 0.4mg/L of alcohol concentration in air and use a resistance of 200 KΩ. It has a 4 pins namely GND, VCC, A out and D out. The sensor supports both analog and digital outputs. Here we use digital output of this sensor.

7. Accelerometer

The triple-axis accelerometer can be used to detect changes in motion or orientation in 3 dimensions (x, y, z).

Accelerometer is sensitive enough that it can be used to even tiny changes in motion caused by a nearby tap or bump. The accelerometer can detect the orientation (tilt) of the device by measuring the acceleration due to Earth's gravity, which is a constant downward force acting on all Objects.

8. Altrasonic Sensor

In industrial applications, ultrasonic sensors are characterized by their reliability and outstanding versatility. Ultrasonic sensors can be used to solve even the most complex tasks involving object detection or level measurment with millimeter precision, because their measuring method works reliably under almost all conditions.

No other measuring method can be successfully put to use on such a wide scale and in so many different applications. The devices areextremely robust, making them suitable for even the toughest conditions. The sensor surface cleans itself through vibration, and that is not the only reason why the sensor is insensitive to dirt. The physical principle—the propagation of sound—works, with a few exceptions, in practically any

environment.

9 . Buzzer

A buzzer is a mechanical, electromechanical, magnetic, electromagnetic, electro-acoustic orpiezoelectricaudio signalling device.

A piezo electric buzzer can be driven by an oscillating electronic circuit or other audio signalsource.

10. GSM Module

A GSM modem is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone

From the mobile operator perspective, a GSM modem looks just like a mobile phone.

When a GSM modem is connected to a computer, this allows the computer to use the GSM modem to communicate over the mobile network.

While these GSM modems are most frequently used to provide mobile internet connectivity, many of them can also be used for sending and receiving SMS and MMS messages.

ADVANTAGES
1. This project can implement for security of supply.
2. Automatically controlled and Easy to use.
3. Detection of accident in area can be easily detected and medical services provided in short time.
4. It will reduce the probability of accidents by simply avoiding drunken drive by using alcohol detector.
5. It will reduce the probability of accidents by simply avoiding broke the by using accelerometer sensor
6. It will reduce the probability of accidents by simply avoiding to two vehicle distance is detect the ultrasonic sensor

APPLICATION
1. It can be used in real time safety system. We can implement the whole circuit into small module later.
2. Less power consuming safety system.
3. This safety system technology can further be enhanced into four wheeler also by replacing the helmet with seat belt.
4. It can be used in real time safety system.
5. We can implement the whole circuit into small VLSI chip that can be embedded into the bike unit.
6. It can be designed for less power consuming safety system Alcohol detector project can be used in the various for detecting whether the driver as.

III. CONCLUSION

We have provided a very effective solution to develop an intelligent system for vehicles for alcohol detection, two vehicles distance measure it ultrasonic sensor and accelerometer sensor it detect the accidant whose core is Arduino. Since sensor has fine sensitivity range around 2 meters, it can suit to any vehicle and can easily be hidden from the suspects. The whole system has also an advantage of small volume and more reliability. As the growing this system safety of Human being uence providing the effective development in the automobile industry regarding to reduce the accident case die to alchol

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