

# Accident Detection and Vehicle Tracking Along with Alcohol Sensor

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**Abstract:** The increase in technology and motor vehicle production the number of road accident has increased. The survival rate after accident is very low as proper emergency facilities are not available. In this paper a model based in IoT is proposed with aim to prevent accidents and also identifying the accident occurred location due to drink-driving and drowsiness of driver. It includes analysis of alcohol concentration, eye-blinking rate, co-ordinates of car, alert system at which the car is made to detect a drunken or drowsy state and hence undertake protective measures include ignition off, triggering an alarm, alert to family members etc. and to track the and detect the spot where the accident happened through GPS and GMS.

**KEYWORDS:** GPS, ARDUINO, GPRS MODULE.



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## INTRODUCTION

There are huge worries regarding the road accident it can happen anytime anywhere, it is an enormous problem in India. According to the Association for Safe International Road Travel, about 1.24 million die and 50 million are injured on the roads of the world every year. Artistically, they are treated the second leading source of death. Nowadays, most of the road disaster basis on drink-driving. This is a severe problem which possibly would appear as one of the most essential threats in the future. The alcohol level in breath is measured by the traffic police but this does not break the chain of drinking and driving. Police check the alcohol levels but they cannot stop drivers to drink. After the accident the people have to be taken to the nearest hospital for further treatment or for first aid, but there is a lag in bringing the people injured to hospitals. The Hospitals and police station nearby must be intimated about the accidents so that they can be taken to the hospitals immediately. We aim to mitigate these problems, thus ensuring safety.

## STRUCTURE OF PAPER

The paper is organized as follows: In Section 1, the introduction of the paper is provided along with the structure, important terms, objectives and overall description. In Section 2 we discuss methodology. In Section 3 we discuss technical description. In Section 4 tells us about the conclusion. In Section 5 tells us about the references

## OBJECTIVES

To design and fabricate a hybrid of eddy current braking and intelligent braking.

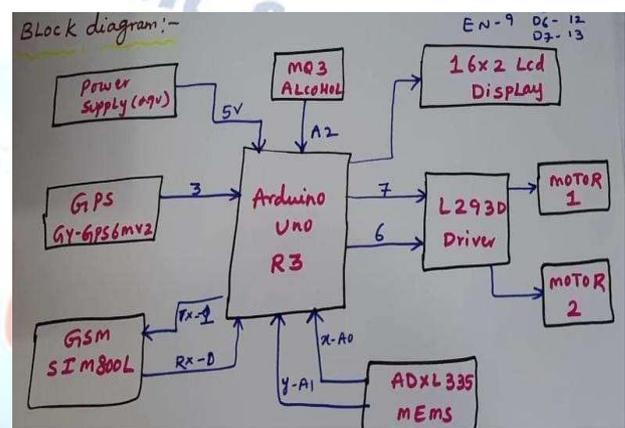
To implement hybrid braking system on bicycle. This project aims to avoid the major accidents

## METHODOLOGY

A Self protecting braking system includes an ultrasonic wave emitter and receiver provided on

## FLOW CHART: 2. 1

The alcohol sensor detects the attentiveness of alcohol gas in the air and an analog voltage is an output reading. The sensor activates at temperatures ranging from  $-10$  to  $50^{\circ}\text{C}$ . When ever any accident occurs mems sensor detects and sends the mechanical force to ARM, by using GPS, we will get particular location where accident occurs, then GSM sends message to authorized members & 108. One more best feature is when ever any authorized people gives missed call to GSM at accident location then it sends messages of the accident location.



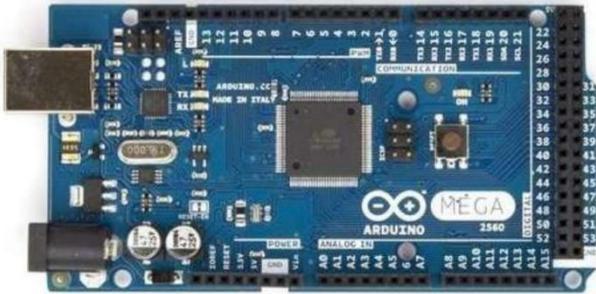
## TECHNICAL DESCRIPTION

### ARDUINO MEGA

The Arduino Mega 2560 is a microcontroller board based on the ATmega2560. It has 54 digital input/output pins (of which 15 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP

header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC- to-DC adapter or battery to get started.

### Arduino Mega



**Figure: 3.1 ARDUINO MEGA**

The **Arduino MEGA 2560** is designed for projects that require more I/O lines, more sketch memory and more RAM. With 54 digital I/O pins, 16 analog inputs and a larger space for your sketch it is the recommended board for 3D printers and robotics projects.

### G.P.S SENSOR

**GPS sensors** are receivers with antennas that use a satellite-based navigation system with a network of 24 satellites in orbit around the earth to provide position, velocity, and timing information.

The **GPS receiver** gets a signal from each **GPS** satellite. The satellites transmit the exact time the signals are sent. ... So given the travel time of the **GPS** signals from three satellites and their exact position in the sky, the **GPS** receiver can determine your position in three dimensions – east, north and altitude.

Your **GPS device can tell you** your precise location your position in a process called trilateration. It communicates with three satellites in sight – using high-frequency, low-power radio signals that travel at the speed of light – and then calculates the distance between those satellites and your **device**.

### GPS sensor



An **example of GPS** is how a person can be tracked while driving from New York to California. ... A satellite-based navigation system comprising a constellation of 24 Navstar satellites launched by the United States Department of Defense from 1978 to 1994.

### GPRS Module

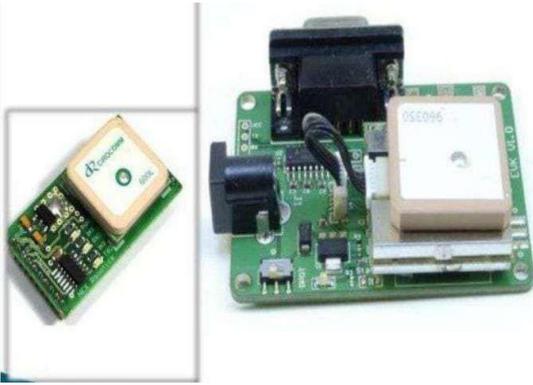
A **GSM GPRS Module** is used to enable communication between a microcontroller (or a microprocessor) and the GSM / GPRS Network. Here, **GSM** stands for Global System for Mobile Communication and **GPRS** stands for General Packet Radio Service.

**GPRS**, or General Packet Radio Service, is the mobile data that a 2G or 3G phone uses to access the internet. ... Often times, the provider has a "shortcode" you can dial that will automatically setup your phone with their **GPRS** settings

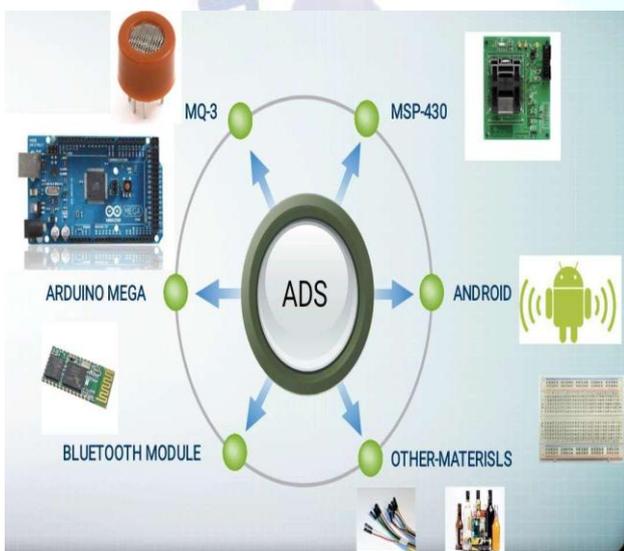
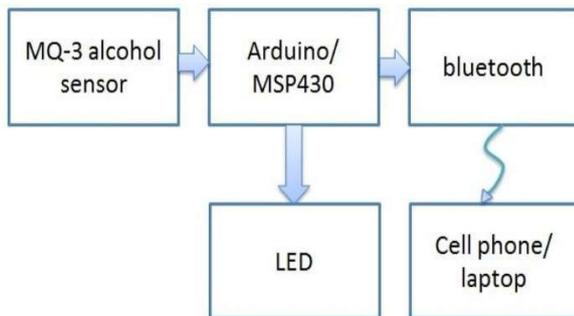
General Packet Radio Service (**GPRS**) is a packet oriented mobile data standard on the 2G and 3G cellular communication network's global system for mobile communications (**GSM**). ... In 2G systems, **GPRS** provides data rates of 56– 114 kbit/sec.

### GPRS Module





**For Configuration** user **module** is available web interface, which is invoked by pressing the **module** name on the User **modules** page of the router web interface. The left part of the web interface (ie. menu) contains only the Return item, which switches this web interface to the interface of the router.



## CONCLUSION

To minimize the deaths and the severe conditions due to accidents the GPS and GSM technologies are used where immediate action would be take place by the ambulance/police sevice which might reduces the severity.

An effectivesolution is provided to develop a system for vehicles willsense the alcohol present in the breath of the driver and takeaction immediately ignition off and send alert to familymembers. The system is designedwith GPRS and GPS module. For alcohol detection MQ-3sensor is used and for accidentdetection vibration sensor isused. Ignition off module is important module which is doneby putting relay. The whole control system has the benefit ofsmall volume and high reliability. Future scope of this systemis to decrease accidents numbers and providing usefulemergency solutions as fast as possible

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