

# Smart Vehicle System-Automatic Vehicle Control using Internet of Things

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**Abstract**— In the smart changing world, the work of the human being is being replaced by the machine in all the field and in all the parameters. Especially in the electronic and automobile industries have experienced a phenomenon advancement in make things faster. In this fast and speed decorum, man find no time for the stability in mind while doing any task. Thus this project portrait a solution to the problems encountered by the person who is driving car in unstable state. This project typically identifies the person who is driving the car has consumed alcohol or not. A breath sensor is being initialized in the car. We achieve this using a breath alcohol sensor that will sense the fumes that form a part of the breath in a person who is under the influence of alcohol. If the device detects any up normal with driver if the driver is drunk and drive the speed of the car will be reduced and after some time car will be stopped. The all details are forward to cloud server through GSM enabled device. The authorized user can access the data real time as well as later.

**Key words:** Breath Sensor, Blink Sensor, GSM

## I. INTRODUCTION

World health organization's first ever global status report on Road safety reveals that 90% of the deaths on the world's road occur in the low and medium population countries. India has the second largest road network in the world with about 3 million km road path in which 60% of the roads are paved. According to a survey which is done by the government around 336 people die each day in the road accident due to alcohol consumption. This problem is unrecognized and till now no steps or measures have been taken to reduce these fatal accidents. Consumption of alcohol reduces the activity of the human's brain and slows down the activity of the person intending him to sleep. Alcohol causes deterioration of driving skills even at low levels and the probability of accidents increases with rising blood alcohol levels. Alcohol needs no digestion and is absorbed rapidly into the blood flow of a human which causes immediate effect on the human brain and reduces the brain's activity leading to sleep. After drinking, the judgement power of the driver of the driver gets impaired which leads to road accidents. The risk parameter increases as the concentration level of alcohol in the human body increases.

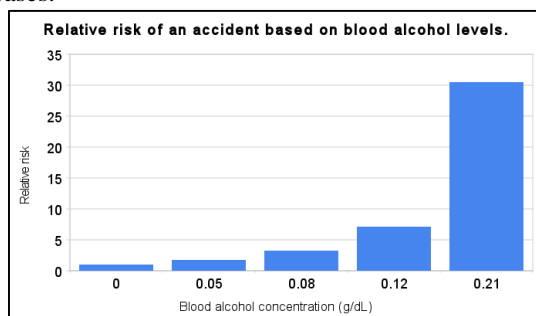


Fig. 1: Risk Parameter Increases

There some hidden facts on consumption of alcohol they are Slows down the activity of brain, Stress increases, Induces sleep and causes blackout which causes road accidents.

## II. LITERATURE SURVEY

Drunken driving has been recognized as a world menace, based on the stats which reveal that road accidents cause 12 lakh deaths and 500 lakh injuries around the world each year. Some 4, 80,000 of these deaths and 200 lakh of people get injured by drunken Driving. In a report for WHO, a multi-center collaborative study – 'Injury and Alcohol' at National Institute of Mental Health and Neuro Sciences (NIMHANS) Bangalore it was found that the proportion of injuries 'linked' to alcohol use was 58.9% of all Injuries with 24% due to own drinking and 35% due to others drinking. It was found that on the types of injuries amongst alcohol users, 46% was due to road accidents. A study from Kerala State conducted by the Alcohol & Drug Information center revealed around 40% of the road accidents have occurred because the Driver was under the Influence of alcohol. In the case of accidents on National Highways, more than 72% were related drinks driving. In a survey done at Delhi by the Directorate of Prohibition, it was found that 45% of Vehicles are driven by drivers who had consumed alcoholic drinks. Car owners who attend dinners /parties tend to get drunk, indulge in rash driving and are unable to control the vehicle and meet with accidents.

About 60% and 65% of accidents are being caused by drunken drivers of cars and two wheelers during the night and early hours of the morning .Another study reveals that drunken driving is prevalent among drivers after sunset. There are at least 5 to 6 truck accidents on Sher Shah Suri Marg (National highway) between Ambala Cant and New Delhi (A stretch of 200km) at different locations daily. 50% of these accidents are said to be due to drunken driving. Drivers aged 16 to 21 years have highest rate of alcohol involved fatal accidents in United States even though lower average Blood Alcohol Concentration (BAC) were found than in older drivers. But in India (where significant research in this field is lacking) this age group can be identified between 20 to 25 years .Recent analyses by Low enfold and Wynn with data from 19 countries reveal that a 1% reduction in per Capita alcohol consumption is associated with a 1% reduction in vehicular deaths.

In most high income countries about 20% of Fatally injured drivers have excess alcohol in their blood, i.e., blood alcohol concentration (BAC) in excess of the legal limit. In contrast, studies in low and middle income countries have shown that between 33% and 69% of fatally injured drivers and between 8% to 29% of non-fatally injured drivers had consumed alcohol before the accident.

Drivers who have been drinking have a much Higher risk of involving in accidents than those with no

alcohol in their blood, and the risk grows rapidly with increasing blood alcohol concentration. For motorcyclists, having a BAC over 0.05g/100 ml has been Estimated to increase crash risk by up to 40times compared to having a zero BAC.

The case controlled study carried out in Michigan in the United States known as the Grand rapids Study reveals that the relative risk of crash involvements starts to increase significantly at a blood alcohol concentration level of 0.04 g/100ml and that at 0.10g /100ml the crash risk relative to a zero BAC is

Approximately 5, while at a BAC of 0.24g/100ml the crash risk is more than 140 times the risk relative to Zero BAC.

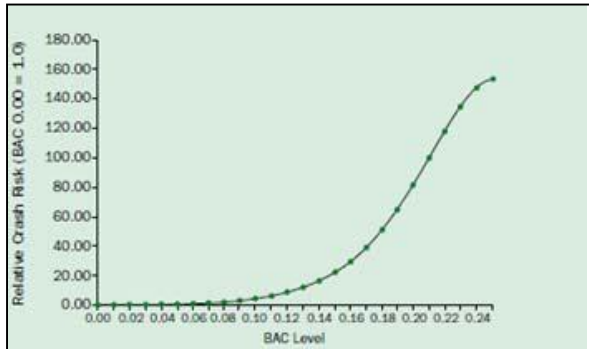


Fig. 2: Estimated relative crash risk level of drinking drivers by BAC level vs Relative crash risk

### III. METHODOLOGY

#### A. Vehicle On/Off Control based on Alcohol Detection using Breathe Sensor Circuitry

Alcohol consumed by the individuals when driving the vehicles are the ones who does not abide traffic rules of the government and causes fatal accidents to the society due to their unconsciousness of mind. To prevent such destructions. A breathe sensor circuitry has been mounted on the steering of the vehicle. Based on the exhaled air from the driver, the drunk status of the driver is found. If driver been drunk and driving a vehicle the speed of the vehicle is gradually reduced and finally the ignition is turned off.

#### B. Updating the Fuel Status to Reach the Destination using Google Maps

The driver updates the destination location in the Google maps. And the information regarding the no of kilometres to be travelled is obtained from the Google maps. Google maps give the shortest path to reach our destination. On obtaining the information, the fuel control circuitry checks the amount of fuel content required to reach the destination based on average amount of fuel consumption by the vehicle per km. If the fuel content is not sufficient to reach the destination. Depending on petroleum banks we have been uploaded in the cloud. The information to the nearby petrol banks is given the google maps based on latitude and longitude position of the vehicle.

#### C. Ignition On/Off using Blink Sensor

When the driver dose off during driving due to alcohol consumption, when he is suffering from cardiac arrest etc. the blink sensor circuitry comes to action. Source reveals that about 70% of cardiac arrest are caused due to stress

during driving. So when the driver keeps his eye closed for more than a predefined time interval says 3s.the vehicle speed gradually reduces with a backlight flash and ignition is turned off.

#### 1) Flowchart

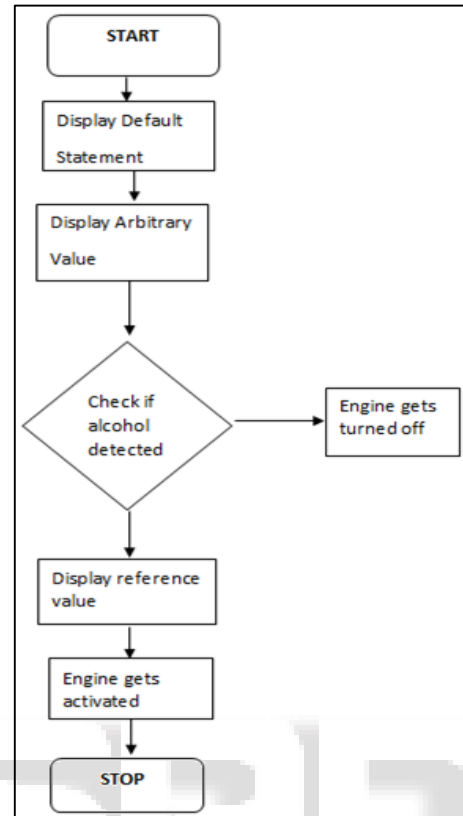


Fig. 3: Flowchart

#### D. Problems and Limitations

Road related accidents cost India millions every year, but there is no sign of any possible intervention. To despair, there is no available record of precisely how much developmental money is lost due to road related accidents, and how much compensation is given to road victims. No proper laws have been devised and those devised laws are not meant and dealt properly. India has laws but these laws need to be revised so as to reduce the number of fatal accidents due to consumption of alcohol. Drunken driving an illegal act should be governed by stern laws which entail not only levying hefty fines or revocation of License, but also prosecution, same as a criminal offense.

Highways lack some sort of preliminary road Safety measures including first aid emergency services etc. It is really ironical to note that, we have numerous liquor shops, motels, fun parks, and petrol pumps Spread all over the highways, but scarce, or To be more precise, negligible trauma centers on highways.

### IV. CONCLUSION

The proposed system mainly designed in order to avoid accidents and to alert the drivers about the fuel level for safe travelling. An effective solution is provided to develop the intelligent vehicle which will operates on safest entity when a driver has consumed alcohol and monitor fuel level of the vehicle.. Future scope of that is to control the accidents and positioning the accidental vehicle. Thus the contribution

from the part of a engineering community is being required in a enormous scale to reduce the accident counts. Implementation of advanced technologies is the most preferable logistic to reduce the counts of accidents.

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