Identification of alcoholic breath analyzer using MQ3 Alcoholic Sensor

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Abstract:

MQ3 Alcoholic Sensor is an Authentication automobile process to prevent the alcoholic driving in automobile system using Breath Authentication based on micro controller, this work correlates the Secure Alcoholic Breath Analyzer Authentication to determine the amount of alcoholic percentage which required for safe driving. The outcome of the sensor, in form of voltage, is processed by a micro controller. This device detects the percentage of alcohol beyond a threshold value and gives appropriate advice to the vehicle driver to start the vehicle. This alcoholic analyzer device may also be useful for regulatory agencies that monitor the amount of alcohol intake by drivers.

Keywords: Alcohol Detector, Breath analyzer, Micro controller, MQ3 alcohol sensor.

1. INTRODUCTION:

Now-a-days the major cause for accidents is due to drink and drive, Road accidents have become a major concern these days. This paper mainly focuses on safety of the driver under the influence of alcohol. So, we propose Secure Alcoholic Breath Analyzer Authentication.

System to reduce the road accidents caused by drunken and driving. In a recent surveys it is stated that many of the people to lose their lives every day. It is because of drunken driving. The Major causes of accidents are based on two problems that are excessive speed and drunken driving. These kinds of accidents not only affect the life of a person driving the car but also show the negative impact and effect on the society. There are many of the cases which are being reported stating that the innocent people walking on the street or on foot path is also victims of the alcohol drunken driving accidents.

The traditional system of the society is totally depends upon the police officer that enable them to stop the vehicle and check for the alcohol limit of the driver's breath. If the certain amount of alcohol percentage is detected the driver will be penalized, so it is difficult for the police officers to monitor each and every vehicle in the society. In this situation to avoid the alcoholic driving from the society the authentication can be performed by using Micro controller and MQ3 alcohol sensor.

2. LITERATURE SURVEY:

We have observed that the previous researches states that the alcohol percentage is identified by MQ-3 alcohol sensor, when the sensor identifies the alcoholic percentage of a person it will be switched on along with the engine of the vehicle. If the alcohol is detected then the speed of the vehicle will be reduced to control the vehicle after certain distance the vehicle will be shut down [1]. The problem with this system is that the vehicle is being started and it can be travel to certain distance.[2]

Gait analysis [3] has been studied for many years, even before the era of wearable's devices. Up to a decade ago, researchers were using ad-hoc sensors specially designed for research purposes. Mantyjarvi et al. [4] analyzed data collected from warn accelerometer devices in order to identify subjects by their gait. Gafurov et al. [5] used a worn accelerometer for authentication and identification based on the subjects' gait, while Lu et al. [6] showed that authentication from gait is also possible from Smartphone sensors. Aminian et al. [7] analyzed accelerometer and gyroscope measurements from adhoc [8] sensors that they designed to be worn on a shoe in order to explore gait. Xu et al. [9] presented a novel system for gait analysis using Smartphone's and three sensors located within shoe insoles to provide remote analysis of the user's gait.

In 2013, Google introduced Google Glass, and in recent years other companies have introduced smart watches, wristbands, and fitness trackers. The prevalence of these devices means that practical research can be carried out on existing products. In the area of movement analysis and wearable devices and products, Thomaz et al. [10] used smart watch motion sensors in order to detect eating instances. Ranjan et al. [11] analyzed smart watch sensors during specific home-based activities (such as turning on a light switch) to identify subjects based on hand gestures. In the field of emotion detection, Hernandez et al. [12] analyzed head movement from Google Glass motion sensors in order to detect stress, fear and calm. Hernandez et al. [13] analyzed smartwatch motion sensors to estimate heart and breathing rates. Mazilu et al. [14] analyzed wrist movement to detect gait freezing in Parkinson's disease using data sensors of smart watches and wristbands. Gabus et al. [15] and Casilari et al. [16] used a smart watch in order to detect falls. Inou et al. [17] used three accelerometers located on the right wrist, breast, and back hip in order to recognize nursing activities of nurses in a hospital.

3. EXPERIMENTAL STUDY:

This system ensures that the death rate due to drunken driving can be decreased. The authentication can be performed by using micro controller that micro controller can be capable to identify the alcoholic percentage from the person breath.

If the alcoholic percentage is less than 40 then the micro controller will not prevent the ignition of the vehicle, if the alcoholic percentage of a person exceeds or greater than 40 then automatically the micro controller will not allow the person to start the vehicle. If the driver or the person is not under the influence of alcohol, then the sensor does not recognize the alcohol content of the driver breath, hence the vehicle can be started normally. The breath analyzer, micro controller and MQ3 alcohol sensors are fixed to steering. So, in such a way that the sensors work automatically when a person or a driver sit in the front seat in-front of steering by that the alcohol percentage of a person can be observed and the sensors do their respective operations.

Fig1. position of the sensor

After testing or analyzing the breath of a person or driver the vehicle get started and Avoids drunken drive when the person consumed alcohol. It protects the human life. Operation can be performed automatically. It consumes Low Power and provides safety system for any vehicle.

3.1 MQ3- Alcohol Gas Sensor:

MQ3- Alcohol Gas Sensor is low-cost semiconductor sensor, which is used to detect the presence of alcohol vapors at concentration from 0.05 mg/L to 10 mg/L.

This alcohol sensor is suitable for detecting alcohol concentration of a person breathe. Alcohol sensor has a high sensitivity and also fast response time. This sensor provides resistive output based up on alcohol concentration and this alcohol sensor module can be easily interfaced with the Micro controller.

Fig 2.MQ3 alcohol sensor

1. VCC: It is a Input Power Supply
2. DO: The Digital Output
3. AO: Analog Output
4. GND: Supply Ground

4.   CONCLUSION:

Now-a-days Drunken Drive is a very serious problem in the society. This paper is related to reduce the drunken drive accidents in the society that can be done by alcoholic detector and authentication where this equipment can be used to identify the alcoholic percentage of a person or driver. Use GPS to know the location of the driver and also sends the messages to the specified persons of the driver when the vehicle not started.

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