IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

IDENTIFICATION OF HUMAN DISORDER SYSTEM AND VECHILE IGNITION LOCK BY USING IOT

Venkateswarlu Pynam
Department of IT,
JNTUK-UCEV
India

Chinaraju Manda
Department of ECE,
JNTUK-UCEV
India

Srikanth Kolli
Department of IT,
JNTUK-UCEV
India

Dr J Anitha,
Associate professor,
Malla Reddy engineering college
India

ABSTRACT: Automated vehicle detection and tracking device is proposed and planned to detect vehicles travelling from one location to another in order to provide protection and protection. The task involved the Global Positioning System (GPS) and also the Global Mobile Communication System (GSM) for the tracking and control of vehicles that use the SIM800 module. The GPS provides the current vehicle location, GPRS sends the monitoring information to the server and hence the warning message produced and forwards it to the owner of the vehicle. This scheme is implemented in the vehicle, the location of which is to be measured on the web page and recorded in real time. Therefore if the driver moves the vehicle to the wrong route, the warning message will be transmitted from the suggested device to the telephone owner of the vehicle and if the driver becomes drowsy or intoxicated, the alert message will also be sent to the owner of the vehicle. The proposed device takes care of the welfare of the traveller by using an alcohol sensor to monitor the condition of the driver there by stopping a catastrophe.

keywords: ***IoT, GSM Module, DC GEARED Motor, Arduino UNO, ESP8266.***

1. INTRODUCTION

Road safety has been a significant problem for public health. A number of 4,37,396 road fatalities were reported in India in 2019, the resulting in the deaths of 1,54,732 people and injuries population of approximately 4,39,262, according to the latest National Crime Records Bureau statistics. The bulk (59.6%) of road accidents were also due to over-speeding, resulting in 86,241 collisions and injuring 2,71,581 persons. In 2018, Indians recorded 1,52,780 casualties in road accidents, compared to 1,50,093 in 2017. In 2019, India recorded 4,21,959 accidental deaths in different categories, such as road collisions, forces of nature, careless human action, up from 4,11,104 in 2018 and 3,96,584 in 2017. Nowadays, more traffic injuries are happening as a result of the alcohol intake of the person driving the car. Drunk [4] driving is the most frequent cause of injuries in nearly all countries around the world. The device should be mounted in the car. The proposed IOT Drink and Drive Monitoring system is primarily used to identify and monitor intoxicated drivers in their cars in order to avoid injuries.

It was expected that very soon all the many things that we see around each other and that we have around us will all be running on the internet. They would both be intertwined. Thus, becoming internet-based services, what we enjoy as services at present is simply a connection between various computers and computing devices. So, essentially, this internet capital that we're using is basically a worldwide network or various computers and computing devices' internet function. What the Internet of Things implies is that the internet's reach can be extended. If we want to be doing that, there are many problems that will emerge, but before that, let us also address why it will be needed, why the Internet of Things has become so common, why it will be needed. The explanation is that the IoT is supposed to be able to provide the organisation with an advanced quality of service to society and many more.

Artificial intelligence, networking, sensors, active interaction, and limited smartphone use are the most significant IoT functionality [5]. Connectivity is a modern supporting technology for networking, and IoT networking in particular, ensuring that networks are no longer simply connected to major providers. In a much smaller and more efficient scale, networks will operate while always being practical [8]. These tiny networks are created by IoT between its machine devices. Sensors are an IoT that without sensors lacks its differentiation. They serve as distinguishing tools that turn the IoT from a typical passive device network into an active infrastructure capable of deployment into the real world. Active participation occurs through passive engagement in most of today's contact with embedded devices. For interactive visualizations, product, or service participation, IoT implements a new model. As expected, small devices have gotten smaller, less costly, and more efficient over time. In order to deliver its accuracy, scalability, and flexibility, IoT exploits justification small devices.

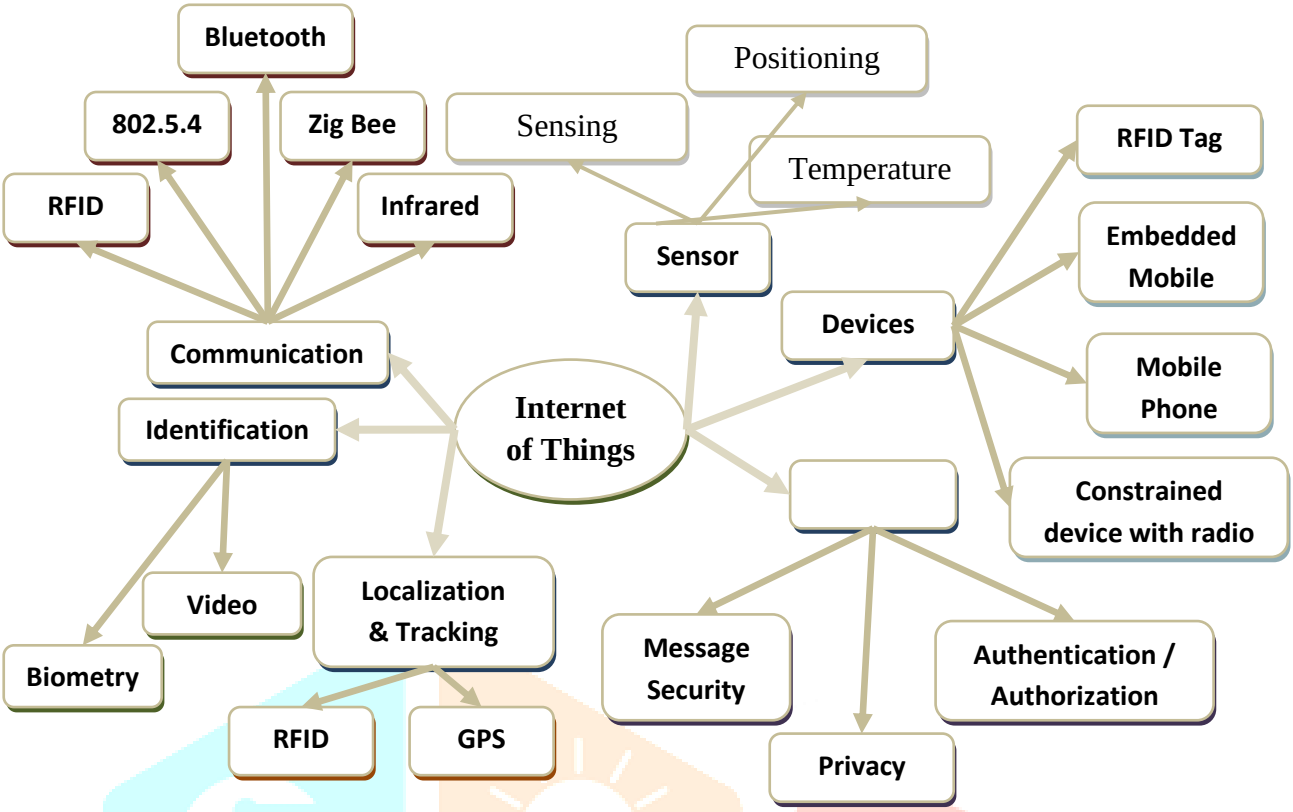

Figure 1.1 Internet of Things Connectivity

1.1 Applications of IoT

The applications for the internet connected devices are extensive several categorizations have been proposed, most of which insist on a distinction between applications for customers, businesses and networks.

- **A. Smart Home:** IoT systems, also known as demotics, are a component of the broader home application concept. A key hub or controller is used by the Large Smart Home System to provide consumers with central control over all their devices. Lighting, heating and air conditioning, media and surveillance equipment may be used in these units. The most immediate advantage of connecting these functionalities is ease of use. The ability to build a more eco friendly home by streamlining such tasks, such as checking the lights and appliances are switched off, can be a long-term advantage.
- **B. Agriculture**: The IoT contributes greatly to novel ways of cultivation. The agricultural problems created by population growth and climate change already made the use of the IoT one of the first enterprises. [9] The combination of wireless [13] sensors with mobile agricultural applications and cloud technologies helps to gather critical environmental information such as temperature, precipitation, humidity, wind speed, insect infestation, soil humus quality or nutrients, among others, connected to farmland, can be used to optimise and automate farming strategies, make informed decisions to improve quality and quantity, and minimize risks and wastes.
- **C. Medical and Healthcare:** In order to allow remote health surveillance and emergency warning services, IoT devices may be used. This health tracking systems, such as pacemakers, Fitbit wearable wristbands, or automated hearing aids, can range from blood pressure and heart rate monitors to advanced devices able to track complex appliances. It may also change on its own without the manual interaction of patients to ensure sufficient pressure and assistance is applied to the patient. Within living spaces, advanced sensors can also be designed to track the health and overall well-being of retired people, while also ensuring that adequate care is administered and helping them recover impaired mobility by rehabilitation. For antenatal and chronic patients, more and more end-to-end clinical management IoT systems are developing, allowing us to handle health critical and repeated needs for treatment.
- **D. Transportation:** The IoT will assist in the convergence of connectivity, control, and retrieval of information through diverse transport networks. The IoT application refers to all types of transport networks. Dynamic connectivity between these transport system elements allows for pre- and intra-vehicle communication, advanced traffic control, smart parking, electronic toll collection systems, infrastructure and fleet management, control of vehicles and road safety and assistance.
- **E. Energy Management:** The incorporation of Internet-connected sensing and actuation technologies is likely to maximise energy consumption as a whole. IoT systems are required to be incorporated into all types of devices that use electricity and to be able to connect with the service supply provider to balance power generation and energy consumption effectively.

1.2 Characteristics of IoT

A. **Connectivity:** Connectivity empowers the Internet of Things by integrating common objects. The communication of these objects is pivotal since basic entity level connections lead to the mutual knowledge of the IoT network. It allows network connectivity and compatibility.
B. **Intelligence:** IoT comes with a mixture of algorithms and computing, software and hardware that makes it smart. Environmental intelligence in IoT improves its capabilities, which make it easier for things to react intelligently to a given situation and assists them in carrying out complex tasks.
C. **Data:** Information is the first step towards implementation and intelligence is the glue of the Internet of Things.
D. **Things:** Everything that may be identified or related as such is supposed to be linked. Devices may include sensors, or devices and objects may be connected to sensing materials.
E. **Nature Complex:** The Internet of Things' key activity is to capture data from its environment, with dynamic changes taking place around the devices. The state of these devices, such as sleeping and waking, connected and/or removed, and the context of the devices, including temperature, location and velocity, varies dynamically.
F. **Communication:** Devices are paired so they can exchange information and can interpret this information.
G. **Intelligence:** The intelligence element, as in IoT system sensing capability, and the intelligence obtained from data analytics.
H. **Action:** The product of intelligence. This can be manual action, an action dependent on phenomena and automation controversies, always the most significant piece.
I. **Security:** IoT devices are prone to security threats. It will be an error to forget about the security problems associated with it, when we gain competitiveness, novel skills, and other advantages from IoT. There is a high level of openness and privacy issues regarding the IoT. It is important to secure the endpoints, networks and data that are distributed via this whole means establishing a protection paradigm.

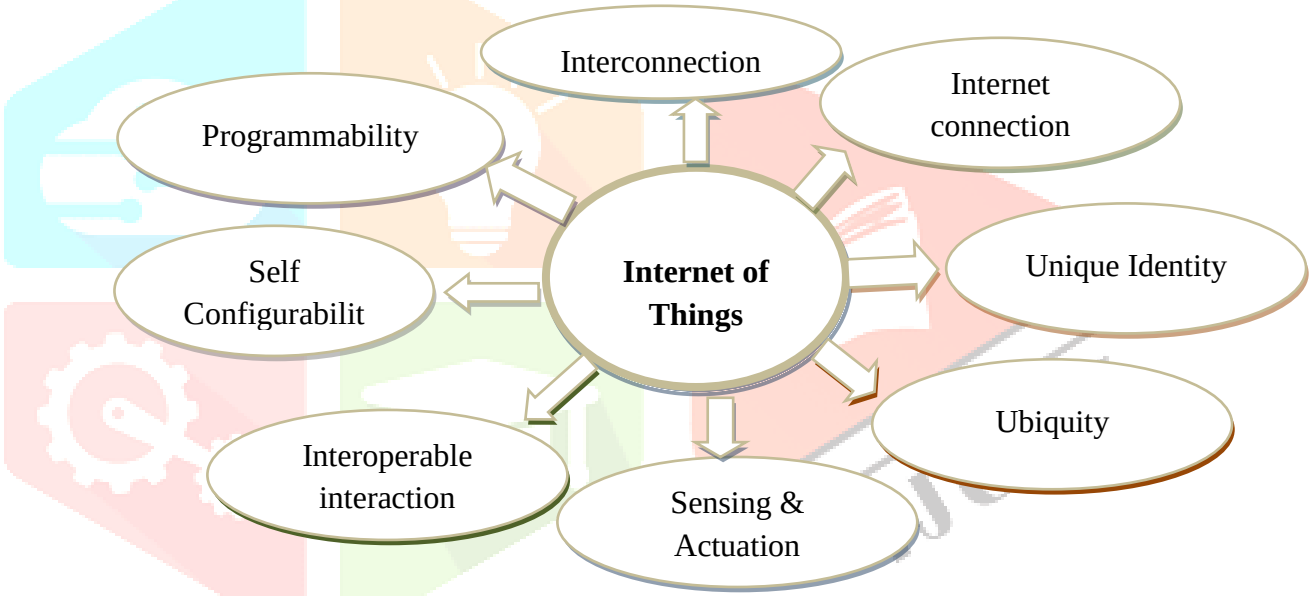

Figure 1.2 Characteristics of IoT

II. Existing System

Now-a-days, mobile phone [1] is used a mostly by all people .with internet usage are also at all. so these mobile phone also provide communication platform as they are equipped with 2G, 3G and 4G network .There are lots of cause of accidents of car and they are drunkenness of driver, drowsiness of driver, unconsciousness of driver, and many time what happen driver is not responsible for accident but their (car) neighbouring car behaviour also have made role to enforce accident [6] . There is also some system have been implemented to avoid accident but that do not give proper solution to implement in car to avoid various accidents that they are normally being happen [11]. For example, if the driver unexpectedly stops the ignition system at speeds of 80 km/h, the risks of a serious accident can occur. GSM and GPS were used to transmit the location and alcohol identified by the driver relative to the relevant post. The position was generally difficult to find in terms of longitude and latitude. The ignition mechanism directly shuts off when alcohol is detected. They used IR LED 894. It produces high energy IR rays, which means that it only absorbs high alcohol content from the environment, so this symbolises that this system can only operate while the driver is over-drunk with lower alcohol concentration. The IR sensor was used to identify the obstacle in front of this sensor (vehicle) and halted when the vehicle sensed the obstacle. Toxic gases like CO2, LPG, and alcohol were also tracked from the interior of the car. SMS is sent to the designated person only to warn whether there is a high content of gases. In real time, different visual signals that usually describe a person's level of alertness are extracted and routinely coupled to deduce the driver's fatigue level. Eyelid orientation, gaze movement, head movement, and facial expression are characterised by the visual stimuli used. If the driver's eye is continually closed, it means that the frequency of eye-blink is above the natural state and it is in sleeping mode, so the ignition system is automatically off.

Drawbacks of the existing system

- Humidity should be less than 95% and sound should be less than 85db.
- Accurate measure of containing gases or alcohol cannot be detected in ppm and sound in db.
- Internet connectivity is must for sending the SMS to vehicle owner.
- Complicated designing.
- Maintenance is difficult.
- Required more time and space to operate.

III. Proposed System

The proposed designed to inform alcohol detection [2] and eye blink detection by using a vibration sensor. Pin A0 is connected to the vibration sensor, 1 is connected to the input and 1 to the ground. Vibrations detect then voltage increase up to 5v output. Pin 8 to 13 connected to LCD display are uses alcohol sensor which detect the alcohol and eye blink sensor. The range is between 3sec to 5sec, if in this range if your eye is not blinking that time buzzer is on relay is logic 0 and ignition is off. The output is reflected on the LCD when the alcohol sensor, vibration sensor, and eye blink sensor are marked. The signal is sent to the microcontroller device. The MCU reads the data from the GPS modem, then sends an SMS to the predefined cell numbers and tells them of their status from a remote location. Many of the SMS alarm system functionality will include this microcontroller. The machine consists of different components, such as sensor, Global Positioning System, Messaging Global System, LCD, Buzzer, and Key. To get the visualization of the tasks carried out, an LCD display is given. The aim of this project is to use technologies to design and incorporate a Drink and Drive Identification and Ignition Switch. To complete the entire project, it is important to learn and learn how both technologies work. The aim of this project is to identify and detect a vehicle in a vehicle accident [3]. The primary target is the IR-based eye blink sensor. As per eye, the difference around the eye will blink.

If the eye is closed, the intensity is strong, otherwise the output is low to consider the location of the eye opening and closing. The performance shows that the warning and alcohol sensor, like the normal Breathalyzer, is appropriate for detecting alcohol content on your breath, and is highly sensitive and easy to respond. A flat panel display, electronic visual display or display panel is an LCD that utilizes the features of liquid crystals that modulate light. Relays are switching that open and closed circuit electromechanically or electronically. If the vibrations felt by the sensor are higher than the threshold, the crash is detected by the microcontroller [10]. The positioning is traced by GPS, the GPS device that provides the direction of the car to the microcontroller when the accident is identified [7]. Arduino microcontroller sends SMS to the handheld mobile phone with the help of GSM modem. By using this system the owners can easily monitoring the behavior of the driver and vehicles information and location up to date.

A. Architecture and Working

The architecture of the proposed system and the role of the proposed system are explained with a tidy diagram as follows.

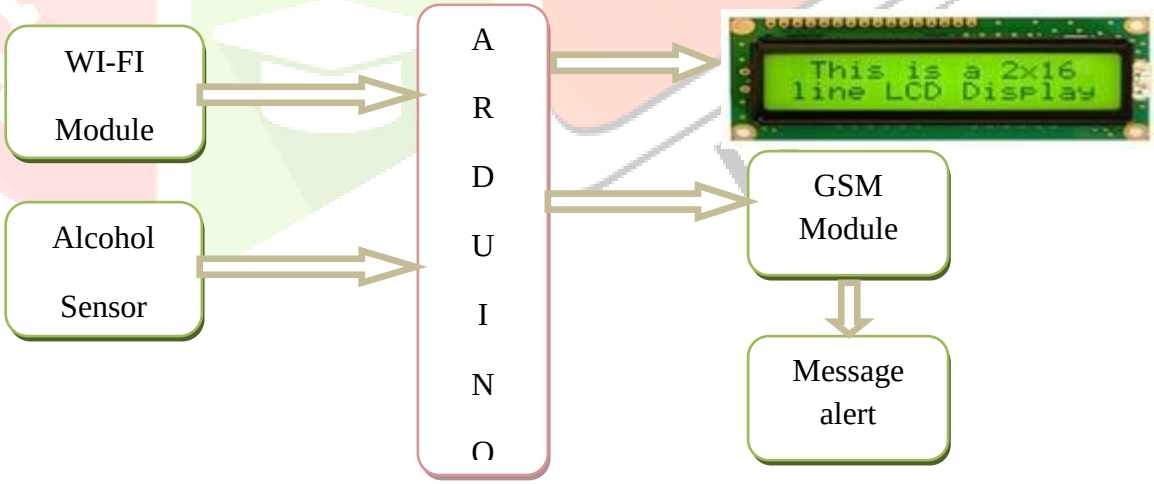

Figure 1.3 block diagram of Arduino

The data of air is recognized by using the MQ135 alcohol sensor and will be connected to Arduino to sense all gases, and it will give the alcohol level in PPM. MQ135 alcohol sensor will give the output in form of voltage levels and we have to convert it into PPM. The alcohol Sensor is giving us value of 90 when there is no alcohol. If it hits the stage of 1000 PPM, it may cause headaches, sleepiness and stagnant, stuffy air. At that point, the GSM sensors transmit a message such as 'driver not intoxicated' to the registered mobile number of the owner or family member. When the value will increase from 1000 PPM the motor will start beeping and also LCD shows it is “driver is drunken” and the GSM module send an SMS alert “driver is drunken” to the registered mobile number. And when it will increase 2000, the motor will keep beeping and the LCD shows “Danger” and give an alert message on smart phone through GSM. It will contain temperature and humidity so it will possibly show the current temperature and humidity of the air by

using LM25 Sensor. The LCD Displays the gas values, GSM Module sends the values to the registered mobile and motor is used when PPM crosses above a threshold limit.

The Arduino IDE is an open source programme used predominantly to write and compile code into the Arduino Board. Arduino Uno, Arduino Super, Arduino Leonardo, Arduino Micro and several more are included in a variety of Arduino modules. On the board, each of them includes a microcontroller that is directly programmed and accepts the data in code form.

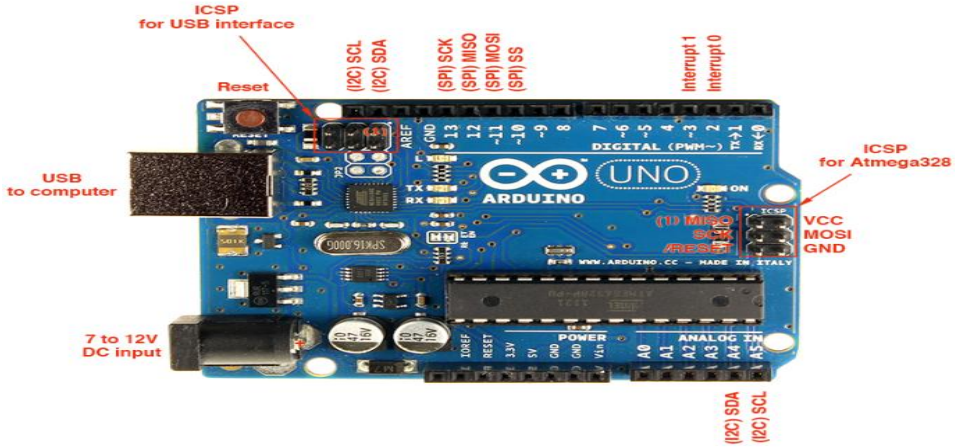

Figure: 1.4 Arduino UNO

GSM SIM800L Module

To get you starting with IoT, the SIM800L GSM/GPRS system serves as a good launch point for you. A miniature GSM modem that can be built into a vast range of IoT projects is the SIM800L GSM/GPRS board. This module to accomplish almost anything a normal cell phone can send SMS text messages, Make or receive phone calls, connecting to internet through GPRS, TCP/IP, and more. To top it all off, the system provides the GSM/GPRS quad-band infrastructure, meaning it works almost anywhere in the world. All the appropriate SIM800L GSM chip data pins being broken down to 0.1″ pitch headers [12]. This involves pins that are necessary to attach to a microcontroller via UART. The Auto-Baud detection module supports baud speeds from 1200bps to 115200bps. To link to a network, the module requires an external antenna. The module usually arrives directly on the PCB to NET pin with a helical antenna and solders. The board also has a U.FL adapter facility in the event that you want to keep the antenna away from the board.

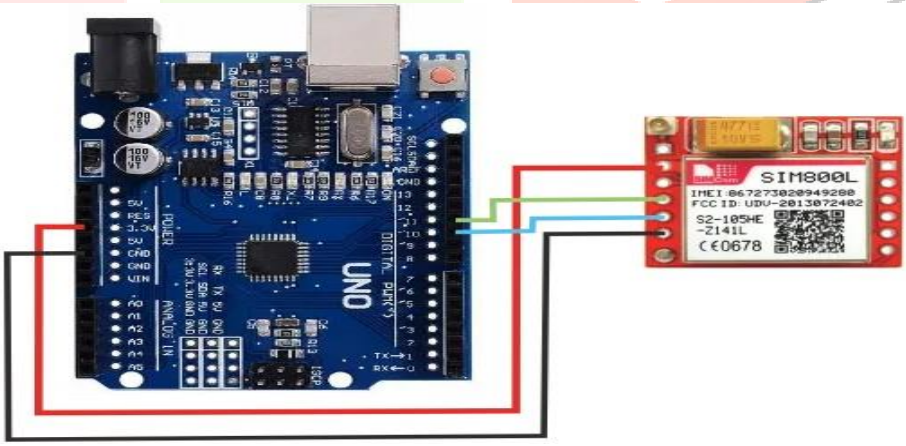

Figure4.6 Architecture of GSM SIM800L Module

Gases such as ammonia hydrogen, oxygen, alcohol, aromatic compounds, chloride and smoke are detected by the MQ-135 alcohol sensor. The boost converter of the gas sensor MQ-3 chip is PT1301. This gasoline sensor's working voltage is from 2.5V to 5.0V. There is a lower conductivity of the MQ-3 gas sensor to remove pollutants as a gas sensing material. We can find carbon emitting gases in the atmosphere, but the gas sensor's conductivity increases as the carbon emitting gas concentration increases. It is possible to use the MQ-135 gas sensor to detect smoke, benzene, steam and other dangerous gases. It has the ability to detect multiple gases that are toxic. The gas sensor MQ-135 is inexpensive to buy. A tin dioxide, a perspective coating within the aluminium oxide micro tubes and a heat source on the inside of a tubular casing are the MQ-135 alcohol sensor. A stainless-steel net is covered by the end face of the sensor and the back side houses the communication terminals. Ethyl alcohol found in the breath is oxidised by going through the heat factor into acetic acid. The resistance decreases mostly with cascade of ethyl alcohol on the tin dioxide sensing substrate. The resistance difference is transformed into an acceptable voltage variation by using the external load resistance. MQ 135 sensor uses include the measurement of hazardous pollutants, the recognition and control of air quality, and the detection of residential, portable, and industrial air emissions. Attach all necessary sensor pins, GSM module pins, LCD display pins through both the Breadboard to the Arduino UNO pins as described in the figure below.

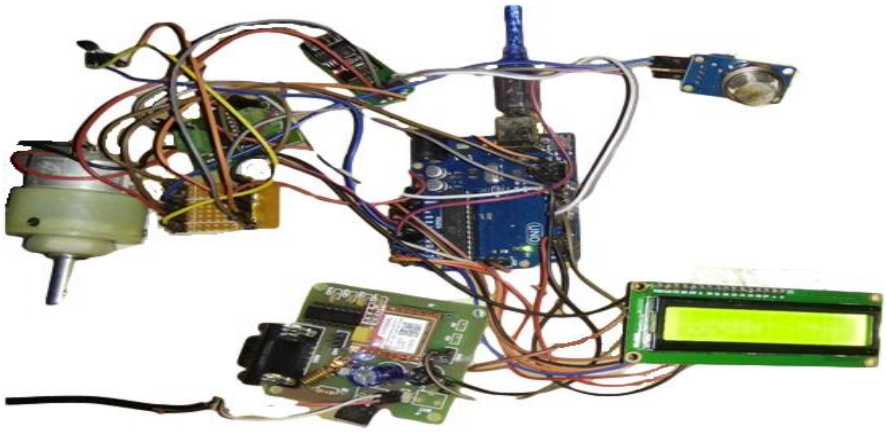

Figure 1.5Connection of Sensors, GSM module& LCD with Arduino

IV. Results

The Smart Surveillance Device for the Detection of Air Emissions Using IoT would achieve the experimental results of the project.

- The values of temperature, humidity, gas content, smoke value, CO2 value, and alcohol value are detected.
- If the values exceed the threshold limit, a message will be sent to the mobile device.
- Then submit reminders of changes to the mobile number you have mentioned.

In the display system, the alcohol level tolerance value is 500ppm. The GSM module sends a warning alarm such as "DRIVER DRUNK" to the mobile number log, i.e. the owner of the car, when the threshold is reached. The alcohol levels are displayed as follows on the LCD display.

Figure 1.6 Displaying the Alcohol level

The consistency of the air, which includes the gas levels along with the temperature, is determined by the values of all the sensors. The alcohol content value reaches its tolerance limit and is displayed on the LCD display with these values. When the alcohol level reaches its limit, the GSM Module sends a detected alcohol warning message and sends an SMS to the user.

Figure 1.7 Receiving the Push Notifications from the GSM Module

V. Conclusion

This system design is Cost effective, power efficient and have high accuracy. By using this type of design, the number of accidents can be minimized which occurs due to alcohol consumed drivers and save human's life because of accidental situations. This system design is based on different types of sensors to collect the car Condition parameters, process it to take the corrective decision at anytime and anywhere and transmitted with current location details using wireless communications elements GSM and GPS modem. GSM technologies will be introduced in Potential Enhancement to warn the family or owners of the car about alcohol intake in order to figure out the location of the vehicle. The future enhancement to this model can be done by deploying the sensors to a movable object. As it is implemented in real time, these sensors can be deployed to a movable robot so that it can move around detecting the various gases present in the surroundings. This model can be implemented near industrial areas so that it can detect the gases and if the gases exceed the standard limits of pollution, a website can be designed to inform the industrial agents to reduce the pollution. These sensors can also be implemented in drones which can move around and detect the polluting gases in the environment. Security measures can be enhanced to protect the data that is being sent through the components by introducing new protocols.

References

[1] Dai, Jiangpeng, Jin Teng, Xiaole Bai, Zhaohui Shen, and Dong Xuan. "Mobile phone based drunk driving detection." In Pervasive Computing Technologies for Healthcare (PervasiveHealth), 2010 4th International Conference on-NO PERMISSIONS, pp. 1-8. IEEE, 2010.

[2] Bhuta, Pratiksha, Karan Desai, and ArchitaKeni. "Alcohol Detection and Vehicle Controlling." International Journal of Engineering Trends and Applications (IJETA) 2, no. 2 (2015): 92-97.

[3] Gupta, Abhishek, Shriram Ojha, Vikash Kumar, Vikrant Singh, Vipin Malav, and RamnagariyaGramothan. "Alcohol Detection with Vehicle Controlling." International Journal of Engineering and Management Research 6 (2016).

[4] Goswami, Tanmoy D., Shrinivas R. Zanwar, and Zafar Ul Hasan. "Android based rush and drunk driver alerting system." International Journal of Engineering Research and applications, Page (s) (2014): 1-4.

[5] Phalak, Piyush Vinay, Shashank Kowekar, and Shruti Joshi. "Smartphone and Sensor Based Drunk Driving Prevention System."

[6] Sarkar, Dwipjoy, and Atanu Chowdhury. "A real time embedded system application for driver drowsiness and alcoholic intoxication detection." International Journal Of Engineering Trends and Technology (IJETT) 10 (2014).

[7] Savania, Vijay, Hardik Agravata, and DhrumilPatela. "Alcohol Detection and Accident Prevention of Vehicle." International Journal of Innovative and Emerging Research in Engineering Vol.2, no. 3 (2015),pp. 55-59.

[8] Deshmukh, S. V., D. P. Radake, and K. N. Hande. "Driver fatigue detection using sensor network." Int. J. Eng. Sci. Technol (2011): 89-92.

[9] Albert Mayan J, Kuldeep Anand D.S, Neha Sadhvi,"Efficient and secure server migration on cloud storage with VSM and dropbox services", International Conference on Information Communication and Embedded Systems (ICICES), Chennai , pp. 1-5,2017

[10] B.Bharathi and Mahesh kumar (2016), „Non invasive BG scrutinizer system", Global Journal of Pure and Applied Mathematics, vol.12, No: 8, pp. 5123 – 5125 [11]Surendar E, Thomas V.M, Posonia A.M ,"Animal tracking using background subtraction on multi threshold segmentation ", Proceedings of IEEE International Conference on Circuit, Power and Computing Technologies, ICCPCT, 2016 .

[11] Jeong, W. J., Lee, J. M., Park, K. T., & Moon, Y. S. (2014, January). Car accident detection in parking lots. In Electronics, Information and Communications (ICEIC), 2014 International Conference on (pp. 1-2). IEEE.

[12] Amin, M. S., Jalil, J., &Reaz, M. B. I. (2012, May). Accident detection and reporting system using GPS, GPRS and GSM technology. In Informatics, Electronics & Vision (ICIEV), 2012 International Conference on (pp. 640-643). IEEE.

[13] Tushara, D. B., &Vardhini, P. H. (2016, March). Wireless vehicle alert and collision prevention system design using Atmel microcontroller. In Electrical, Electronics, and Optimization Techniques (ICEEOT), International Conference on (pp. 2784-2787). IEEE.