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AUTOMATIC ENGINE LOCKING SYSTEM FOR DRUNKEN DRIVE USING IOT BASE SYSTEMS

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Abstract— With the growing number of vehicles, frequency of accidents is on the rise. A major portion of the fatalities occur because the person was riding while drunk. We propose mechanisms that can detect if one has over-consumed alcohol. For this purpose, we use onboard sensor that is the breath-analyzer (MQ3). The breath analyzer senses the amount of alcohol present in the breath of a person and reports if it is beyond the legal limit. This can help optimize accident detection in the future when enough data is gathered to provide reliable accuracy. This will ensure the holistic safety of the rider at all times. In this project Arduino UNO controller is used for detecting the alcohol consumption and also for detecting whether the person is the owner of the vehicle by using RFID tags and RFID reader the controller informs the details in the web link being updated in the program and it also stops the ignition of the vehicle if the rider has consumed alcohol beyond the limit. Thus this project developed mitigates the accidents due to drunken drive.

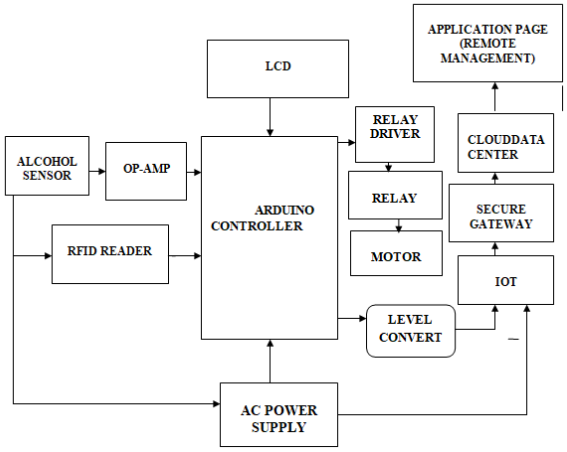
I. INTRODUCTION

We hear lot of accidents due to drunk driving and it will not be in stable condition. So it rash driving is the in convenience for other road death for the drunk driver and not for others. In this system uses a compact arduino uno board. Programs are developed in IoT.

The main purpose for this project is “Automatic Engine Locking System Through Alcohol Detection using Arduino”. Most of these days many accidents are happening became of the alcohol detection of the driver or the person who is in the vehicle. Almost all the countries in the world are facing major accidents because of Drunk & Drive. In this project is designed for safety of the people seating the vehicle. Drunken drivers are in an unstable condition and so, rash decisions are made on the highway which endangers the lives of road users, the driver inclusive.

The enormity of this menace transcends race or boundary. In Nigeria, the problem is being tackled by issuing laws prohibiting the act of drivers getting drunk before or while driving as well as delegating law enforcements agents to arrest and persecute culprits. However, effective monitoring of drunken drivers is a challenge to the policemen and road safety officers. The reason for this stems from the natural inability of human beings to be omnipresent as well as omniscience within the same space and time. This limited ability of law enforcement agents undermines every manual effort aimed at curbing drink-driving.

II. PROPOSED SYSTEM



III. HARDWARE REQUIREMENT

- Arduino Controller
- LCD
- Alcohol Sensor
- Op-Amp

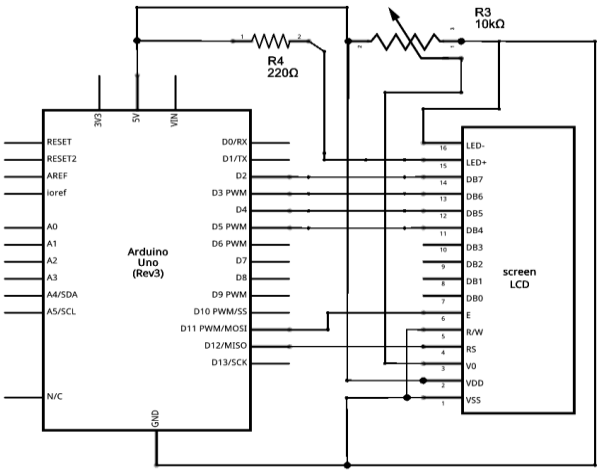
- Transformer
- Rectifier
- Regulator
- IOT Module
- Relay Driver
- Relay
- Ignition Control

IV. ARDUINO CONTROLLER

Arduino Uno has a number of facilities for communicating with a computer, another Arduino, or other microcontrollers. The ATmega328 provides UART TTL (5V) serial communication, which is available on digital pins 0 (RX) and 1 (TX). An ATmega16U2 on the board channels this serial communication over USB and appears as a virtual com port to software on the computer. The '16U2 firmware uses the standard USB COM drivers, and no external driver is needed. However, on Windows, a .inf file is required. The Arduino software includes a serial monitor which allows simple textual data to be sent to and from the Arduino board. The RX and TX LEDs on the board will flash when data is being transmitted via the USB-to-serial chip and USB connection to the computer (but not for serial communication on pins 0 and 1.

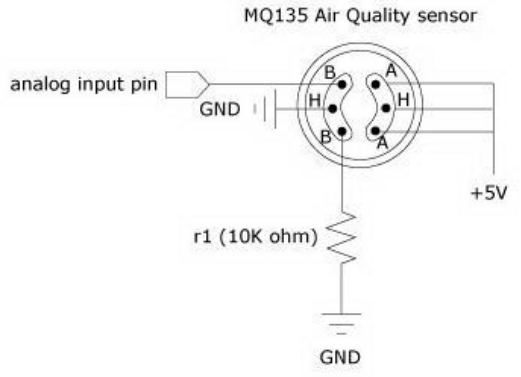
A Software Serial library allows for serial communication on any of the Uno's digital pins. The ATmega328 also supports I2C (TWI) and SPI communication. The Arduino software includes a Wire library to simplify use of the I2C bus; see the documentation for details. For SPI communication, use the SPI library. Programming The Arduino Uno can be programmed with the Arduino software (download). Select "Arduino Uno from the Tools > Board menu (according to the microcontroller on your board). For details, see the reference and tutorials. The ATmega328 on the Arduino Uno comes preburned with a bootloader that allows you to upload new code to it without the use of an external hardware programmer. It communicates using the original STK500 protocol (reference, C header files). You can also bypass the bootloader and program the microcontroller through the ICSP (In-Circuit Serial Programming) header; see these instructions for details.

Interfacing Arduino Microcontroller To LCD :



Alcohol Sensor MQ-3 :

This alcohol sensor is suitable for detecting alcohol concentration on your breath, just like your common breathalyzer. It has a high sensitivity and fast response time. Sensor provides an analog resistive output based on alcohol concentration. The drive circuit is very simple , all it needs is one resistor. A simple interface could be a 0-3.3V ADC. Resistance value of MQ-3 is difference to various kinds and various concentration gases. So, When using this components, sensitivity adjustment is very necessary. we recommend that you calibrate the detector for 0.4mg/L (approximately 200ppm) of Alcohol concentration in air and use value of Load resistance that (RL) about 200 KΩ(100KΩ to 470 KΩ).



Feature Of Alcohol Sensor MQ-3 :

- High sensitivity to alcohol and small sensitivity to Benzine .
- Fast response and High sensitivity
- Stable and long life
- Simple drive circuit
- 5V DC or AC circuit
- Requires heater voltage
- Operation Temperature: -10 to 70 degrees C
- Heater consumption: less than 750mW

V. RFID READER

Radio-frequency identification (**RFID**) is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. The technology requires some extent of cooperation of an RFID reader and an RFID tag.

An RFID tag is an object that can be applied to or incorporated into a product, animal, or person for the purpose of identification and tracking using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader.

Most RFID tags contain at least two parts. One is an integrated circuit for storing and processing information, modulating and demodulating a radio-frequency (RF) signal, and other specialized functions. The second is an antenna for receiving and transmitting the signal.

There are generally two types of RFID tags:

Active RFID tags, which contain a battery, and
Passive RFID tags, which have no battery.

Future Chip less RFID allows for discrete identification of tags without an integrated circuit, thereby allowing tags to be printed directly onto assets at a lower cost than traditional tags.

IoT:

The Internet of things (IoT) is the extension of Internet connectivity into physical devices and everyday objects. Embedded with electronics , Internet connectivity, and other forms of hardware (such as sensors), these devices can communicate and interact with others over the Internet, and they can be remotely monitored and controlled.

The definition of the Internet of things has evolved due to convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems. Traditional fields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation), and others all contribute to enabling the Internet of things. In the consumer market, IoT technology is most synonymous with products pertaining to the concept of the "smart home", covering devices and appliances (such as lighting fixtures, thermostats, home security systems and cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as smart phones and smart speakers.

The IoT concept has faced prominent criticism, especially in regards to privacy and security concerns related to these devices and their intention of pervasive presence

In a nutshell, the Internet of Things is the concept of connecting any device to the Internet and to other connected devices. The IoT is a giant network of connected things and people – all of which collect and share data about the way they are used and about the environment around them.

VI. CONCLUSION

In this project we have developed a real time model that can automatically lock the engine when a drunken driver tries to drive a car. Now-a-days car accidents are mostly seen. By fitting this alcohol sensor into the car, we can save guard the life of the driver and also the remaining passengers. It is very simple application.

The life time of the project is high. It has low or zero maintenance cost and of course low power consumption. This is a developed design to efficiently check drunken driving. By implementing this design a safe car journey is possible decreasing the accident rate due to drinking. By implementing this design, drunken drivers can be controlled so are the accidents due to drunken driving. Government must enforce laws to install such circuit in every car and must regulate all car companies to preinstall such mechanisms while manufacturing the car itself. If this is achieved the deaths due to drunken drivers can be brought to minimum level. In this type of system, future scope can be safely landing of car aside without disturbing other vehicle.

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