Smart Engine Locking System Using GPS & GSM Module

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Abstract: The smart engine locking framework is an implanted framework based interruption location framework planned and executed to forestall unapproved access of vehicles while leaving in unreliable spots. The proposed framework used micro-controller alongside GSM and GPS modules. The principle point is to decrease street-side mishaps, intoxicated driving is one among them. To dodge this issue, the author has built up a programmed engine locking framework. In this paper, the author has utilized Arduino Uno3 microcontroller connected to a liquor sensor that recognizes the nearness of liquor by investigating the breath of an individual driving the vehicle. The engine of the vehicle is shut down and the crisis alarm is blown when liquor is distinguished. The contribution of the framework is from Detection Sensors either Alcohol Breath or some other system. The controller continues searching for the yield from these sensors. If there are any hints of Alcohol over as far as possible, at that point the framework will bolt the Engine. This framework places into the client mode if the vehicle is dealt with by the proprietor or approved people generally go to burglary mode. A GSM modem is additionally associated with the miniaturized microcontroller for sending a message to the portable proprietor if the vehicle is in burglary mode. The whole structure is on a solitary board.

Keywords: Liquor sensor, GPS, Arduino microcontroller, GSM, Relay system, Alcohol sensing.

INTRODUCTION

In the current life, one of the difficult issues looking by individuals is car burglaries, which are expanding in tremendous sum. Numerous criminal offenses should likewise be possible with this robbery vehicle. So to lessen any unapproved access and miss utilization of robbery vehicles, the author presents an innovation like GSM and GPS. The author attempt to build up an instrument dependent on Arduino Uno which fused GSM and GPS innovation [1]. The instrument is straightforward and easy car robbery control implanted framework. The fundamental reason for this undertaking is the "Programmed Engine Locking System through Alcohol Detection utilizing Arduino". The vast majority of nowadays numerous mishaps are occurring happened to the liquor discovery of the driver or the individual who is in the vehicle. Practically every one of the nations on the planet is confronting significant mishaps due to Drunk and Drive. This task is intended for the security of the individuals seating the vehicle.

The controller continues following the sensors when the limit arrives at the framework alerts. If there are any hints of liquor then the framework will

consequently bolt the engine. The engine will be actuated through the transfer and the total way is under the supervision of a smart Arduino microcontroller. Limit of the traditional frameworks are plausible to be extraordinarily subject to the administrator and it can flop because of various factors simply like the battery life, vitality utilization anyhow the unavoidable outside aggravations.

LITERATURE SURVEY

The remote observing framework dependent on SMS and GSM was actualized in the reference paper. Here, the system is utilized as a mode for transmitting the remote sign. This comprises of two sections: the observing focus and the remote checking station. The checking focuses comprise of a PC and correspondence module of GSM. The product observing focus and the remote checking station was actualized with the assistance of MQ3. The consequence of this exhibition shows that the framework can watch and control the remote correspondence between the checking focus and the remote observing station. The program that is progressed as far as some electronic and individual present added substances can be freely completed regardless of the way that there are a few downsides and impediments for its current models of necessities. The amount in these types of independent applications was formed together to state them as inserted framework bundles. Installed contraptions are computerized with a submitted usefulness wherein huge electrical, electronic and mechanical structures are embedded related to their imperatives of execution. A product in implanted machine obtains exact attributes of the framework which are not valuable.

In Face Detection System, the essence of the driver is distinguished, and it contrasts and the predefined face. At the point when the proprietor is dozing during the evening time and somebody burglary the vehicle, at that point the System gets the pictures of the hoodlum by one small web camera, which is shrouded someplace in the vehicle. At that point, the System contrasted the acquired pictures and put away pictures. If the pictures don't coordinate, at that point the data will be sent to the proprietor through MMS. The proprietors get the pictures of the hoodlum in cell phones and can follow the spot through GPS. The spot of the vehicle and its speed is likewise shown to the proprietor through SMS. The proprietor can perceive the cheat. This framework applied in people's everyday life [1], [2].

The creators talk about complex wellbeing observing frameworks and infrared sensors to distinguish the nearness of liquor. A significant downside of this framework is the plausibility of a bogus alert. The framework is structured in a way that even a slight change in some specific conditions can bring about ringing bogus cautions even though everything was typical. In this paper, the author is utilizing just the necessary innovation in this way making the framework increasingly dependable and practical when actualized. In the proposed following framework depends on the distributed computing foundation. The sensors are utilized to screen the fuel level, driver conditions, and speed of the vehicle. Every one of the information moved to cloud server-utilizing GSM empowered gadget. Every one of the vehicles outfitted with GPS reception apparatus to find the spot. To maintain a strategic distance from the alcoholic and drive, the liquor sensor introduced to screen the driver's status. The proposed innovation altogether maintains a strategic distance from the mishap in parkways.

The creators have proposed a framework to forestall the mishaps because of tanked driving. A significant disadvantage of this framework is that they have utilized PIC16F877A microcontroller which isn't as helpful as Arduino Uno microcontroller that the author

is utilizing. Likewise, they have utilized an old plan framework that isn't valuable and expands the general expense of the framework which makes it costly and to some degree exorbitant to specific fragments of society in this manner constraining its extension to be utilized. Consequently, the present framework is more financially savvy and can be effectively managed [3]. Another paper has structured and based on an ongoing visual following framework for vehicle security applications. In this paper fabricated a novel component-based vehicle-following calculation, naturally distinguish and track a few moving articles, similar to autos and cruisers, in front of the following vehicle. The framework can portion highlights of moving items from moving foundation and offer an impact expression of caution on continuous with the idea of the focal point of development (FOE) and view investigation. CMOS picture sensor and NMOS inserted processor engineering is utilized in proposed calculation. The built independent visual framework is approved in genuine street tests.

METHODOLGY

As the microcontrollers/microchips will assume a significant job in the effective outcomes in any of the worldwide inserted frameworks and simultaneously these will prompt the little wasteful outcomes because of some extra parts. This framework utilizes an effective Arduino microcontroller that will works, screens and controls the other practical pieces of the framework. Rather than routine usage, this will get utilization of the SFR's which are wise in taking care of run of the mill issues deliberately. Although there are numerous assortments of microcontrollers this is increasingly effective and well suits the recognition framework. The framework structured is for detecting liquor utilizing the MQ3 liquor sensor which thusly enacts the rectifier that starts the relay through which a signal is transmitted in the type of deferral. This defers will enact/deactivates the DC engine.

The block diagram is shown in figure 1. The power supply is directly given to the microcontroller for this work. The GSM and GPS module is connected to the microcontroller on the single board and the relay is also connected to the microcontroller. The MQ3 liquor sensor is also connected to the microcontroller for detecting the alcohol. A buzzer is associated with the GSM module and it also sends a message to the owner of the vehicle in case of an emergency [4].
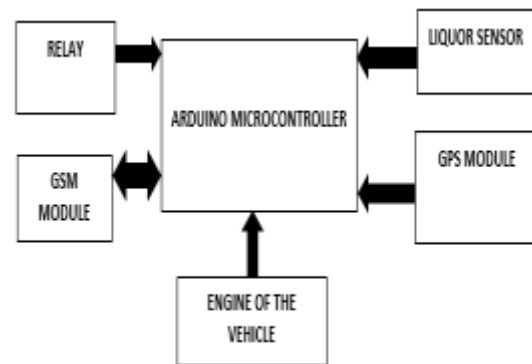

Figure 1: Block Diagram of Proposed System

Microcontroller:

The microcontroller is the core of the structured unit, which handles every one of the signal. Every other square is interfaced to it. The most widely recognized adaptation of Arduino is the Arduino Uno. The Arduino Uno is a microcontroller board dependent on the ATmega 328P microcontroller. It comprises 20 pins out of which 14 are advanced pins and the rest 6 are PWM. It very well may be customized utilizing a PC on Arduino IDE. The Arduino being publicly released has a great network which makes improvement extremely advantageous and any sort of issues are dealt with by the network. The author is utilizing it since it is publicly released and thus exceptionally modest when contrasted with traditional microcontrollers. It can deal with countless activities and making them helpful [5].

Buzzer:

A Buzzer or beeper is a sound flagging device. It might be an electromagnetic, electro-acoustic or piezoelectric sound flagging device. A piezoelectric bell can be driven by a swaying electronic circuit or other sound signal source [6]–[9]

MQ3 sensor:

The author associates the MQ3 liquor sensor. It is one of the most precise and for the most part utilized liquor sensor. This sensor can distinguish the nearness of liquor up to a scope of 2 meters in this manner making the discovery procedure much precise. Additionally, the affectability can be balanced by needs, making the sensor progressively adaptable. It has appeared in figure 2.
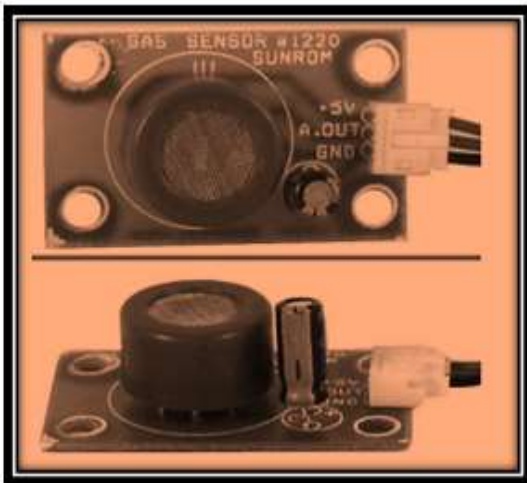

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Figure 2: MQ3 Alcohol Sensor

GSM (Global system for mobile communication):

It is a gadget that can be utilized to make a PC or some other processor to impart over a system. It can acknowledge any GSM arrange administrator SIM card like cell phones with its novel telephone number. At whatever point liquor utilization is distinguished then the message is sent to family members and police

headquarters with vehicle number just as area utilizing GPS framework.

GPS (Global Positioning System) Module:

It is a worldwide situating framework use to get the area of vehicles in scope and longitude. At the point when the liquor utilization is identified the area of the vehicle will be followed.

Relay:

The relay is an electrically worked switch which is utilized to shut down the start framework.

RESULTS AND CONCLUSION

In this undertaking, the author has built up an effective framework to handle the hazard of plastered driving. The principle point is to limit the loss of lives and property which occur because of drunken driving. This framework once actualized on an enormous scale will end up being extremely useful by closing down the vehicle's engine and cautioning the close by individuals before any accident happens. The sensor utilized in the paper is exact and can be designed by the necessities and in this manner expanding the effectiveness. The author has built up a continuous model that can consequently bolt the engine when an intoxicated driver attempts to drive a car. By fitting this liquor sensor into the vehicle, the author can protect the life of the driver and the rest of the travelers. It is an extremely basic application. The existence time of the task is high. It has low or zeroes repairs cost and low power utilization.

REFERENCES

[1] N. Subhalakshmi, R. Aswathi, D. Gobigadharani, S. Hemalatha, and F. J. Flora, "Arduino Based Automatic Engine Locking System for Drunken Drivers," 2007.

[3] Ranjani M, Ramya S, R. Bk, Bhagyashree G, and S. Ch, "MICROCONTROLLER BASED AUTOMATIC ENGINE LOCKING SYSTEM FOR DRUNKEN DRIVERS."

[4] "AUTOMATIC ENGINE LOCKING SYSTEM THROUGH ALCOHOL DETECTION IN ARDUINO USING IOT 1 MONISHA V, 2 PRIYANGA M, 3 YAMINI C, 4 SOBIYAA P," Int. Res. J. Eng. Technol.

[5] A. Omanakuttan, D. Sreedhar, A. Manoj, A. Achankunju, and C. M. Cherian, "GPS and GSM Based Engine Locking System Using Smart Password," 2017.

[6] "PROGRAMMED ENGINE LOCKING SYSTEM BY AUTOMATICALLY DETECTING DRUNKEN DRIVERS," Int. J. Adv. Eng. Res. Dev., vol. 2, no. 11, 2015, doi: 10.21090/ijaerd.021123.

[7] D. Emmanuel Gbenga, H. Isseini Hamed, A. Adekunle Lateef, A. Emmanuel Opeyemi, and C. Author, "Alcohol Detection of Drunk Drivers with Automatic Car Engine Locking System," Nov. J. Eng. Appl. Sci. DO, vol. 6, no. 1, pp. 1–15, 2017, doi: 10.20286/nova-jeas-060104.

[8] P. Wankhad and D. Sanjay, "Real Time Vehicle Locking and Tracking System using GSM and GPS Technology," Int. J. Technol. Eng. Syst., vol. 2, no. June, pp. 272–275, 2011.

[9] R. Ramani, S. Valarmathy, N. SuthanthiraVanitha, S. Selvaraju, M. Thiruppathi, and R. Thangam, [1] Ranjani M, Ramya S, R. Bk, Bhagyashree G, and S. Ch, "MICROCONTROLLER BASED AUTOMATIC ENGINE LOCKING SYSTEM FOR DRUNKEN DRIVERS."

[10] "AUTOMATIC ENGINE LOCKING SYSTEM THROUGH ALCOHOL DETECTION IN ARDUINO USING IOT 1 MONISHA V, 2 PRIYANGA M, 3 YAMINI C, 4 SOBIYAA P," Int. Res. J. Eng. Technol.

[11] A. Omanakuttan, D. Sreedhar, A. Manoj, A. Achankunju, and C. M. Cherian, "GPS and GSM Based Engine Locking System Using Smart Password," 2017.

[12] "PROGRAMMED ENGINE LOCKING SYSTEM BY AUTOMATICALLY DETECTING DRUNKEN DRIVERS," Int. J. Adv. Eng. Res. Dev., vol. 2, no. 11, 2015, doi: 10.21090/ijaerd.021123.

[13] D. Emmanuel Gbenga, H. Isseini Hamed, A. Adekunle Lateef, A. Emmanuel Opeyemi, and C. Author, "Alcohol Detection of Drunk Drivers with Automatic Car Engine Locking System," Nov. J. Eng. Appl. Sci. DO, vol. 6, no. 1, pp. 1–15, 2017, doi: 10.20286/nova-jeas-060104.

[14] P. Wankhad and D. Sanjay, "Real Time Vehicle Locking and Tracking System using GSM and GPS Technology," Int. J. Technol. Eng. Syst., vol. 2, no. June, pp. 272–275, 2011.

[15] R. Ramani, S. Valarmathy, N. SuthanthiraVanitha, S. Selvaraju, M. Thiruppathi, and R. Thangam, "Vehicle Tracking and Locking System Based on GSM and GPS," Int. J. Intell. Syst. Appl., vol. 5, no. 9, pp. 86–93, 2013, doi: 10.5815/ijisa.2013.09.10.

[16] I. Bhattacherjee, N. Singh, S. Parveen, S. S, S. Anand, and V. Tiwari, "Vehicle Tracking and Locking System Using GPS and GSM," IARJSET, vol. 4, no. 2, pp. 55–60, 2017, doi: 10.17148/iarjset.2017.4212.

[17] S. Firdosh, P. Kashyap, B. Durgam, N. Begum, and S. Kumar Singh, "Password Based Door Locking System Using Microcontroller," *Int. J. Sci. Res. Comput. Sci. Eng. Inf. Technol. © 2017 IJSRCSEIT*, vol. 3, no. 10, pp. 428–432, 2017.