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Android-Based Black Box System for Vehicle Tracking

M.Prabha[1], L.Gnanaprakash[2], N.Navinkumar[3],
Assistant Professor[1,2,3],
GEETHAM College of Arts & Science, Coimbatore

Abstract— *The basic idea of our paper is to create a universal black box that can be installed in any car, anywhere in the globe. This mysterious device is not a jumbled circuit. The purpose of the black box in a car is to make driving safer. It helps locate the car in question. The condition of the vehicle may be determined using the stored data. the location and timing of stops, for example. Theft examination is another common use. The LCD display indicates the vehicle's separation of the object. The Global Positioning System (GPS) is used to determine the precise time and location as well as to measure distance and longitude. Accidents may be avoided with the use of sensors. Any vehicle, wherever in the globe, might be presented. Increased vehicle security, better care for crash victims, assistance for insurance companies conducting accident investigations, and a better road environment all contribute to a lower fatality rate. The vehicle is operated by hand-off, with (NO) meaning normally open and (NC) meaning normally closed. If anything goes wrong in the circuit, the start unit may be used to turn off the power. The whole circuit is monitored using an android app.*

Keywords: *Android, GSM, Black Box, GPS, and Accident Terms.*

1. INTRODUCTION

Over a million people worldwide die each year as a direct consequence of shipping comparison accidents, according to the World Health Organization. The modern office infrastructure is now also accessible via mobile devices. The adaptable is now having a significant effect on the network. To alleviate or prevent accidents, we are working to implement a comparable concept for autos. While computers and the Internet have made great strides in bringing people together, getting them involved, and facilitating the sharing of information, nothing beats wireless when it comes to reaching everyone, everywhere, at any time. The following types of study are looked at as the most important information that is necessary after an accident in order to recognize which kind of sensors to put up inside the car. There are essentially two parts to this architecture. The first is to keep an eye on the vehicle and collect data. The second is a more straightforward information presentation technique. When it comes to potential dangers on the road, speed is among the most crucial and vital aspects. It not only makes the accident more severe, but also increases the likelihood that you will be involved in one. These days, a car can't be imagined without a global positioning system. The United States Department of Defense (DoD) developed GPS for use in military operations, and it quickly became a favorite invention. After some time, civilians were able to utilize it as well. Time, distance, and velocity may all be artificially manufactured. More than 690 portable systems provide GSM

advantages in more than 213 countries, and GSM accounts for 82.4% of all portable connection throughout the globe. Many researchers disseminate their findings on accident id models. The street's direction and the location of the nearest car are originally determined by our framework. In order to prevent accidents from happening, it is crucial to implement the whole planned structure. In the event of an accident, this remote device will send a text message alerting family members, emergency medical services, and nearby medical facilities to the patient's location via the GSM/GPS network so that they may dispatch a rescue vehicle and begin treatment immediately. Reduced fuel flow is to be expected when the distance between cars is smallest.

2. EXISTING SYSTEM

Using GPS, IR sensors, a relay controller, a microcontroller, a power supply, and an alcohol sensor, the present setup for discovery is functional. Because of the GPS following framework, the recipient moves in the same direction as the item. A parent may track their children's whereabouts, a sales representative can monitor his driver's territory, and a manufacturer can monitor the movement of their wares. Because GPS lets you track the precise location of your mobile resources, it lets company owners keep tabs on how their profits are growing. If the advantage has been stolen or misplaced and the GPS tracking device finds it, the advantage may be recovered. The GPS tracking device can figure out its whereabouts on its own. If an accident were to occur, it wouldn't be recorded by the present black box. The cause of the accident remains unclear. Neither can we keep all of the vehicle's data nor can we see the vehicle's real location. The low repetition rage of IR sensors is really a benefit in the design we've described.

3. PROPOSED SYSTEM

4. The alcohol detector can tell whether someone has been drinking too much, and the ultrasonic range finder can measure the physical distance between two automobiles. To get from a basic sign to a computerized one, a simple-to-computerized converter is used. When the sensor detects any aggravations between the cars while traveling, the smaller scale controller is used for programming and it requires the transfer to kill. If the smaller controller detects that a person has been intoxicated, the hand-off will be disabled. Since the microcontroller only recognizes 5V as data, the controlled power supply is used to generate 5V. The 5V is handled by the tiny controller of the scale. The GPS system is used to determine the vehicle's location by calculating the longitude and scope pivot. It's used to update the vehicle's real-time surroundings just before departure. Information such as the distance covered by the vehicle, the number of cars that have been stopped, and a live update on a particular vehicle will be sent as a message to the client's portable via the Global System for Mobile Communication (GSM). Information regarding the current condition of the vehicle is saved on an SD card. In the vehicle discovery architecture, the starting unit is used to enter and exit the vehicle. The current location and status of the car may be seen in real time using an Android app installed on a portable device.

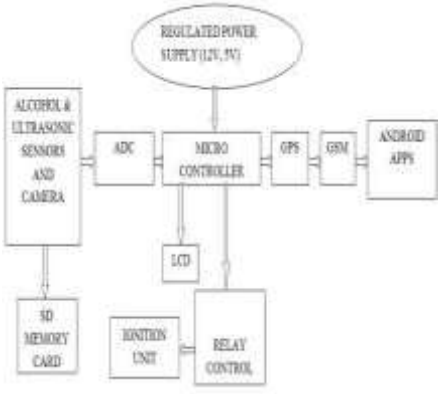

Fig.1 Vehicle Tracking System

1. **Regulated power supply**

In most cases, it is recommended that a voltage controller be used to maintain a constant voltage. An instantaneous "feed-forward" structure or intertwined negative examination control rings are

two examples of possible voltage controller architectures. An electromechanical device or electrical components might be used. It might be used to regulate either AC or DC voltages, depending on the strategy. The DC voltages used by the CPU and distinguishable components are regulated by electronic voltage controllers included in devices like PC power supply. Voltage controllers regulate output in generator plants, such as those used in automobile alternators and central power stations. The controller swapping frequency ranges from 50 and many.

Every single second. Electronic voltage regulators employ solid-state semiconductor devices to regulate the flow of electricity and prevent disruptions. Most of the time, they operate as factor safeguards, decreasing resistance when electrical load is high and increasing resistance when load is low. In the same way as voltage controllers in engine cars and obvious machines restrict surges in voltage to protect the device using the power, they perform a similar role in large-scale control distribution systems.

2. Alcohol Sensor

It is used to detect the person whose consume alcohol. It has a high sensitivity and fast response in time. The sensors can active temperature ranging from -10 to 50° C with a power supply is less than 150 Ma to 5V.

VCC –Input power supplyGND –Supply ground
DO –Digital outputAO- Analog output

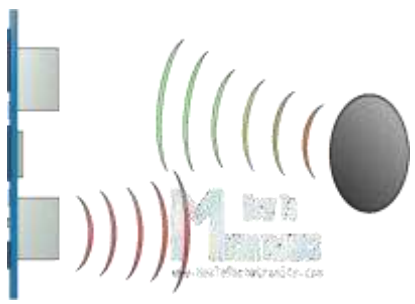

Fig.2 Alcohol Sensor

3. Ultrasonic Sensor

It is used to measure the distance between the vehicle and other objet around it. It emits an ultrasound which travels through the air .It will bounce back to the module.
VCC -5V dc
Trigger-Pulse input that trigger the sensor
Echo -indicates the reception of echo from the target

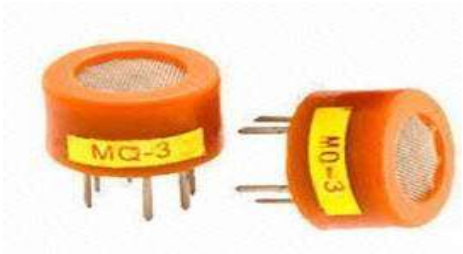

Fig.3 Ultrasonic Sensor

4. Analog to Digital Converter

Easy to cutting edge converter is a structure that changes over a straightforward banner, for instance, a sound snatched by a speaker or light entering an automated camera ,into a propelled banner. An ADC may moreover give a disengaged estimation, for instance, an electronic contraption that changes over a data basic voltage or current to a propelled number addressing the degree of the voltage or current .Typically the mechanized yield is a two's enhancement twofold number that is comparative with the data , anyway there are distinctive possible results.

5. Microcontroller

In spite of the fact that most PCs give their very own exceptional inside security, the circuit gives an additional layer of insistence. In the event that in excess of 500 mA is related with the USB port, the wire will subsequently break the relationship until the short or over-load is discharged. The Arduino Uno has a resettable poly join that

shields your PC's USB ports from shorts and over current. However most PCs give their own inside assurance, the wire gives an additional layer of security. In the event that in excess of 500 mA is related with the USB port, the circuit will ordinarily break the relationship until the short or over- inconvenience is discharged. The Arduino Uno can be constrained by techniques for the USB alliance or with an outside power supply. The power source is picked in this way.

6. Memory

The ATmega328 has 32 KB (with 0.5 KB utilized for the boot loader). It additionally has 2 KB of SRAM and 1 KB of EEPROM (which can be perused and composed with the EEPROM library).

Input and Output

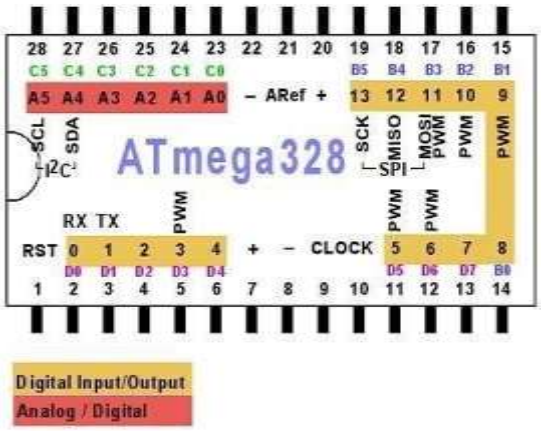

Fig.4 ATmega 328

Every one of the 14 advanced sticks on the Uno can be utilized as an info or yield, utilizing pinMode(), digitalWrite(), and digitalRead() capacities. They work at 5 volts. Each stick can give or get a limit of 40 mA and has an interior draw up resistor (detached as a matter of course) of 20-50 kOhms. Furthermore, a few pins have specific capacities.

7. Liquid Crystal Display

LCD (Liquid Crystal Display) screen is an electronic grandstand module and find a wide extent of employments. A 16x2 LCD show is very fundamental module and is routinely used in various contraptions and circuits. These modules are supported in excess of seven areas and other multi parcel LEDs. The reasons being: LCDs are saving; easily programmable; have no hindrance of demonstrating unprecedented and even custom characters (not under any condition like in seven segments), developments, and so on. A 16x2 LCD infers it can show 16 characters for each line and there are 2 such lines. In this LCD each character is appeared in 5x7 pixel cross section. This LCD has two registers, to be explicit, Command and Data. The request enlist stores the bearing rules given to the LCD. A bearing is a direction given to LCD to finish a predefined task like presenting it, clearing its screen, setting the cursor position, controllinggrandstand, etc. The data enroll stores the data to be appeared on the LCD. The data is the ASCII estimation of the character to be appeared on the LCD.

Fig.5 Liquid Crystal Display

8. GPS

A GPS following unit is a gadget that used to decide the precise area of the individual, vehicle or different resources. We get the area of the vehicle dependent on the scope and longitude of the earth. The recorded information of the vehicle will be transmitted to the GPS beneficiary utilizing satellite. GPS unit show the provided data, for example, guidance and speed determined from the vehicle position changes. The collector utilizes the information it get to decide the travel time of every datum and registers the separation to each satellite utilizing the speed of light. The recipient gets a sign from every gp gets additionally knowas precise area in the sky. The GPS can found your situation in three measurements east, north and elevation.

9. GSM

GSM represents Global System for Mobile Communication. GSM produce a choice to voice call as Short Message Service (SMS). The GSM modem pass on the GPS parameter of the scope and longitude esteems at whatever point the security mode is ON and Whenever there are differing values. The GSM arrange is part into three significant frameworks: the switch framework (SS) the base, station framework (BSS), and furthermore activity and system (OSS). GSM electronic gear might be remote electronic hardware that works with a GSM remote framework. The most contrast between the dial-up electronic gear send the gets information through a set telephone line though remote electronic hardware sends gets information through radio wires.

5. RESULT

After fruitful usage of Vehicle Tracking System we acquired after outcomes: At checking side, from the start customer needs to perform Login development. Login page showed up in Fig. 6 gives Login interface to the customer. Exactly when customer will enter customer name and mystery key then structure will do endorsement to check whether the entered username and mystery word is correct or not. In case the entered username or mystery express isn't right, structure gives a misstep message. Besides, if it is correct, customer gets composed to next page with compelling login.

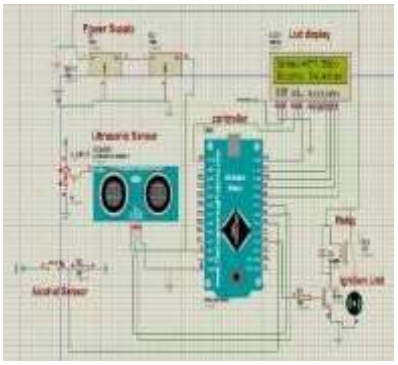

Fig.6.Circuit

Fig.7 Android App

6. CONCLUSION

7. In this way, the architecture for vehicle discovery is complete. Two sensors are installed in the structure at various points around the car. Correspondence from those tested and true sensors is received by the arduino controller, leading to promising results. Raspberry Pi and Arduino, working together, set the parameters for the sensors; the data collected by the sensors is stored on an

SD card and may be retrieved as necessary. The camera's collected extra data is the main data and will be saved to SD card for processing later. In case of an emergency, the control unit has already been coordinated with the security module so that an alert may be sent immediately. We provide the framework with an alert message to deliver as a result of this information. Accident causes may be easily determined with the use of a vehicle-tracking system. In this way, we have successfully encrypted the data.

8. ACKNOWLEDGMENT

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REFERENCES

[1] mr .manish bhelande, mr .viraj chaudhari, mr. prathamesh gore, mr. raj dhure, abhishek bhayye, "car black box " international journal of advanced research in computer and communication engineering, issn:2278-1021, volume-05, issue 3, march 2016 .

[2] mr. abdallah kassem,mr .rabih jabr,mr. ghady salamouni,mr .ziad khairallah maalouf, "vehicle black box system" international system conference, april 2008 .

[3] mr. girish l.deshmukh, dr.s.p.metkar, "rtos based vechile tracking system" international conference on information processing, december 2015.

[4] mr. kontham lavanya,mrs.y.roji, "evidence collecting system from car black box" international journal of advanced research in computer engineering and technology,volume-03, issue-10, october 2014.

[5] mr. ngo chon chet, "design of black box for moving vechile warning system", student conference on research and development, 2003.

[6] ms. monisha j prasad, ms. arundathi s, mr. nayana anil, ms. harshikha, "automobile black box system for accident analysis" international conference on advances in electronics, computer and communications, 2014

[7] ms. prafulla u.p,ms. yuvashree g.s,ms. ramya gowda,ms. rashmitha h.r, "black box with intelligent vehicle system" international journal of engineering research and technology, issn:2278-0181, 2017.

[8] mr. kazi aaliya,mr. gantyala supriya, mr. prabhutendolkar mrunal, mr. v.l.salke, "wireless black box using mems accelerometer for vehicle accidental monitoring" international journal of innovative research in science, engineering and technology, issn:2319-8753, volume-06, issue-04, april 2017.

[9] mr. b.hari kumar ,mr. syeda fathima tehseen, mr. thanveer, mr .guntha vamshi krishna, mr. syed mohisin akram, "vehicle monitoring and tracking sysytem using gps ans gsm technologies" international research journal of engineering and technology, issn:2395-0056, volume-03, issue-04, april 2016.

[10] mr.ahmed abdelrahman a.a, mr.ahmed abdallah m.e, mr.mohammed ali.h, akram mohammed a.a, "design and implementation of vehicle tracking and theft control system", international conference on computing, control, networking, electronics and embedded systems engineering, issn: 978-1-4673, july 2015.

[11] mr. kishor rane, mr. rahul tichkule, mr. mohit shinde, prof. s.i. nipanikar, "online black box system for cars", international journal of engineering science invention, issn: 2319-6726, volume 3, issue 4, april 2014.

[12] mr.chanjin kang, mr. seo weon heo, "intelligent safety information gathering system using a smart blackbox", ieee international conference on consumer electronics, issn: 978-1-5090-5544, september 2017.

[13] mr.salman almishari, mr.prajna dash, mr.kshirasagar naik, "an energy efficient real-time vehicle tracking system", institute of electrical and electronics engineers, august 2017.

[14] mr.mayuresh desai, mr.arati phadke, "internet of things based vehicle monitoring system", institute of electrical and electronics engineers, july 2017.

[15] mr.fatin balkis binti alzahri, mr.maziani sabudin, "vehicle tracking device", institute of electrical and electronics engineers, may 2016.