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IOT BASED BLACK BOX SYSTEM FOR AUTOMOBILES

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Abstract-The variety of injuries is growing hastily every second 12 months. Thus, using sure technologies, together with black boxes positioned in the automobile, creates a brand new stage of records provider in the vehicle. A black automobile box has the identical capabilities as a black boat container. It may be very useful to research the reasons of street accidents and to save you existence and property due to street injuries. This paper gives a prototype of an automobile black field device, which includes a series of sensors and a black container that sends caution messages. Way2SMS pre-saved cell telephone number in case of a coincidence Millions of people die from injuries. Road injuries are extreme public hassle in many nations. This hassle is further exacerbated via excessive speed and drunken riding. Black container evaluation can resolve this problem. Automobile and pc era are creating a new level of data transmission in motors. Automated black bins have similar features to aircraft black bins. It is supposed to research the reasons of road accidents and to prevent loss of existence and assets because of street accidents. This paper proposes an automated black field prototype.

Keyword: IoT, ATmega328p, Discovery, GPS.

INTRODUCTION:

The vehicle is the end result of the joint paintings of various structures. Each shape, although basically independent, is problem to numerous systems related to it. Before, we discuss approximately the interplay of the exceptional configurations, let's first talk about the one-of-a-kind configurations which can be available within the vehicle. It is used to investigate the causes of street accidents, and to prevent the number of deaths and assets and damage in street accidents. The Motor Vehicles (Amendment) Bill, 2016 became delivered for attention and introduction in the current parliamentary budget session. It addresses issues associated with site visitor's accidents, pedestrian protection and road safety measures. Now some statistics approximately street accidents, causes of injuries and protection of ft in vehicles.

According to the World Health Organization, more than 1,000,000 humans die each 12 months global as a result of street traffic injuries. Today, many things show up each day because of the error of the driving force or the one who liquids the bow. Thus, inebriated using is the number one motive of accidents in all areas of the world. This statistics plan is designed to report statistics which includes engine pace, car temperature, and many others., which will turn on the research of the site visitor's accident subject. It also can be used for automobile mapping and accident caution the use of GPS and GMS era. To fight this example, the Black Box organization is the first step to solving this hassle that transcends country wide borders and threatens the fitness of humans around the sector. We know the contemporary rate of accidents. The reasons of the coincidence

are specific. We have to put together for all of the insurance policies and plans preserving in thoughts the advantages that comply with a twist of fate. The plan has numerous clauses, and we require proper documentation to conform with each clause. That black container will help us get there. The black container facilitates you and the organization's coverage. In addition to this, a massive twist of fate plan may also be mounted. When the car crashes, an alert message is despatched to the contact variety at domestic, which also consists of the car's current GPS vicinity. This gadget will help in saving lives. Technically, a black container for safe garage of a laptop. Under no instances is the environment modified. A black field for storing diverse car parameters on a memory card.

OBJECTIVE:

To locate the occurrence of any incident and to report the state of affairs of the incident to the touch quantity already described, so that instantaneous help can be furnished to the affected person via an ambulance. Now, car generation is growing unexpectedly every year and the wide variety of accidents is increasing each second. Therefore, a brand new stage of in-car data service is created the use of sure kinds of era, which include black containers positioned within the vehicle. Automotive black packaging is similar to airplane black packaging. It could be very beneficial to research the reasons of street injuries and to save you existence and property because of avenue injuries. As the populace of this international is increasing each day, the quantity of cars on roads and highways is growing. Their lives might have been stored with well-timed scientific assist. In many conditions, own family participants, emergency employees, and the police aren't informed in a timely way. This hesitation reasons the person to offer assist.

LITERATURE SURVEY

1) ***Mishap Identification Framework utilizing Discovery Framework Tushar shelke1 , NilimaRaut2 , Swati Sayare3 , Shital Bhade4 ,Shital Manmode5 ,Rajashri Sadawarti 6 Colleague Professor1 , Student2, 3,4,5,6 Branch of Hardware and Media transmission Designing NIT, Nagpur, India***

The predominant aim of this thesis is to expand a coincidence detection version using a black container. In the occasion of a twist of fate, if the car motive force or passengers are injured, the put off in providing scientific aid can result in dying. This prototype can be designed with a minimum number of circles. VBBS can assist improve situations for better car safety, help coincidence victims, assist Uranus groups inspect site visitor's injuries and reduce deaths. The objective of this scheme is to hit upon any accident and file the place through a pre-registered variety, so that immediately help can be furnished by using an ambulance or a relative. GPS is a navigation machine that makes use of a network of satellites orbiting the Earth. Keywords: Accident detection machine the usage of VPBS, GSM and GPS.

The Arduino ATMEGA-328 micro controller has 14 input and output analog and digital pins (of which 6 pins are considered as PWM pins), 6 are analog inputs and the relaxation are virtual inputs. A strength cable is used to attach the Arduino board to the computer. Externally, the battery is connected to an Arduino microcontroller for power supply. Arduino is an open microcontroller of which there aren't any comments at the microcontroller. Working voltage up to 5V.

The duration of the Arduino board is about 68 mm, the width of the microcontroller is about 534 mm.

In this undertaking, a correct Celsius temperature sensor is used to decide the linearity. It determines how a whole lot the sensor output varies over specific temperatures. The LM35 is designed to perform within the temperature range of -55 to +500°C. It consumes simplest 60 µA from the strength deliver. It has a totally low self-heating, much less than 0.10C in air. The LM35 operates at four to 30 volts.

Cars Based Black-Box System Using Iot S.Monika1,

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The proposed gadget is designed, the device itself sends records to the IoT and when an accident happens, the processing is finished through ESP8266 sensors. The proposed system makes use of an Arduino board that offers smooth get right of entry to to the I/O and analog pins and enables smooth programming downloads while writing. The GPS is connected to the Arduino board to monitor numerous sensors consisting of alcohol sensor, temperature sensor, light sensor, accelerometer, ultrasonic sensor, and so forth. The Arduino board is hooked up to the cloud. The output of the sensor is read through the Arduino and the output values are displayed on the LCD. The records is stored in the cloud statistics of the IoT gadget.

If the car is became on, the sensor robotically triggers and enters tracking mode. If the person isn't in an emergency situation and can assist himself, it'll acquire messages from the GPS satellites every 30 seconds and transmit them to the microcontroller. It bureaucracy a central authority of length and breadth. Then the vehicle statistics the information, reads the statistics and shows it on the LCD show. A memory card is a flash memory strong state electronic garage tool that includes digital facts. A black field gadget that can be established in automobiles. The reason of the gadget is to perform an twist of fate evaluation by means of objectively monitoring the car. This system consists of stronger protection by means of stopping tampering with black box information. The gadget consists of an alcohol sensor, a speedometer sensor, an ultrasonic sensor, a MEMS sensor and a cellular GPS. If another fee is found, it is generated as a log and sent to the cloud containing the place and image.

Stop following the gadget. When the machine starts in help mode, it first makes use of the tool's GPS to determine the vehicle's area. Or public area organisations. The Global Positioning System (GPS) is an emerging generation that gives flexibility for navigation and surveying. GPS offers non-stop 3D region round the sector 24 hours an afternoon. After figuring out the person's region, the GPS device can calculate other information which include pace, path, distance, distance included, distance to destination, and many others. One of the not unusual gadgets connected to the microcontroller is the LCD display. This design uses a 16x2 display. That's 16 characters, 2 lines according to line.

Black Box for Automobiles Vandan Shah1, Vatsal Sheth2, Narendra Sharma3, Ami Munshi4 1,2,3Assistant Professor, Department of EXTC, MPSTME, NMIMS University, India4

The variety of avenue injuries in growing countries like ours is increasing. Most of those accidents occur because of the carelessness of the motive force or inadequate reputation of the vehicle. Many accident instances stay open due to the fact the judiciary can't find the foundation cause of the accident. The system proposed here acts as a black field for motors. A black field is a device usually utilized in plane to investigate injuries and take protection measures. The black container prototype provided in this research paintings is a changed model of the conventional black field. It no longer simplest shops incident records about deaths or accidents, however also offers live data of car components through an APP interface on mobile phones. A conventional black box device calls for a box containing all of the sensors bodily connected to the car, however by means of the usage of OBD-II era, you can at once track your technology the use of it inside the vehicle. The result of this research is that data up to ten minutes before an accident may be saved to investigate what went incorrect, in addition to an app that updates the driver if there is a hassle with the auto, because it's far doubtlessly fatal. The incident can be averted. Accidental actual-time GPS tracking. Keywords: Car, Black Box, Direct Tomorrow, Application interface, OBD-II.

2. Hardware Resources This phase suggests the numerous combos of hardware used in the device. A block diagram shows the numerous elements and the complete go with the flow of the Arduino Mega laptop to the primary microcontroller. The following additives are used: 2.1 Microcontroller (Arduino Mega) The Arduino Mega is a larger version of the Arduino UNO. It is primarily based at the Mega 2560 microcontroller. It is designed for projects that require more I/O strains, extra RAM, and greater reminiscence. The ELM327 is a Bluetooth device that makes use of the car's OBD port as an input device and scans all the information for that car.

Step 1: After the automobile starts offevolved, shoot the cloud.

Step 2: Get the values of the accelerometer, ultrasonic sensor and alcohol sensor.

Step three: When the motive force exceeds the alcohol limit. The car proprietor or reliable consultant will robotically get hold of the message.

Step 4: Monitor the ultrasonic sensor distance from the collision with close by vehicles.

Step 5: the accelerometer recollects the slope values right now after the collision and sends a GSM and GPS location message.

Step 6: Press the button to name administrative help and use the alarm button to call emergency services.

The remarks message will trade from immobility to get the recipient's system working once more.

Step 7: Once the transaction is entire, the proprietor will obtain it

"Reverse Immobilization" message. Step 8: If the consumer sends another text to the Arduino, the Arduino will send an "Error message, try once more" message to the cellular smartphone. Z Liu et al mentioned the troubles of automobile anti-robbery protection. In this system, it begins to paintings

when the proprietor leaves it. Sound sensors are activated if the automobile is broken into through criminals in an uncommon way. They are regularly prepared with pyroelectric infrared sensors so that their activation is due to man-made causes. The GSM module sends data thru SMS from the GPS module to the proprietor's cellular cellphone every 10 seconds. After the message is received, the proprietor will open the app by way of asking "Vehicle Location" to test the vehicle status. G.S. Prashant Ganesh and others raised the difficulty of anti-robbery tracking systems. In this newsletter, the mobile phone system and GPS are linked to some other tool via an Internet connection and then thru an interface. The black container makes use of the electricity source from the car battery. A stick digicam is regularly used to transmit video and audio indicators. RTC video display units what's occurring in actual time. The thesis is in the shape of a pattern definition. Such articles have inspired research. According to the document, if the vehicle became destroyed or went lacking, the info before or after the event could not be assured. A black field to transmit records and pics over the Internet, in addition to an integration to rescue lifestyles-saving teams, determining the place and time of the incident, the velocity and direction of the vehicle, and using a separate connection to the cellular application.

METHODOLOGY

The proposed work uses a brand new crash detection system technique for a automobile the use of GSM and GPS era. In this machine we've got used temperature sensor, alcohol sensor, speed sensor, microcontroller, LCD display and GPS module. GSM module, this time whilst the auto begins all the sensor is in lively mode. A complete variety of sensors video display units the performance of the automobile. When the manipulate unit receives all of the facts from the sensors, at the identical time all the parameter values are displayed on the LCD. In this machine, the heart of the proposed system is the microcontroller. All peripheral sensor with microcontroller. The computer reads numerous car parameters like temperature, speed, alcohol percent etc. And suggests them constantly at the LCD show. In this device we additionally want to insert a memory card related to the microcontroller computer. Saves records for parameters. When an accident occurs, GPS era is used to find the precise location of the accident. When an coincidence is detected, the device will receive the modern location coordinates from the GPS module. The GSM module sends a message to warn the injured family, and the retransmission statistics is stored on a reminiscence card, which may be retrieved from the service station to assist insurance agencies inspect road injuries. The service middle will join the reminiscence card to the PC and examine all the information saved on it.

EXISTING SYSTEM

• Usually black container is costly so no person desires to install it in a vehicle and commonly records are stored in black box.

• In current structures, the black field is filled with GSM sensors.

• Use GSM and GPS communications in this machine.

Disadvantages

• Only movement can be tracked

• A coincidence cannot be denied

PROPOSED SYSTEM

• Various sensors like alcohol sensor, temperature sensor, gas sensor, touch sensor, collision sensor, vibration sensor, and GPS are connected with the Arduino board.

• The output of the sensor is read by using the Arduino and transferred to an unmarried board laptop. This data is acquired within the MCU node board.

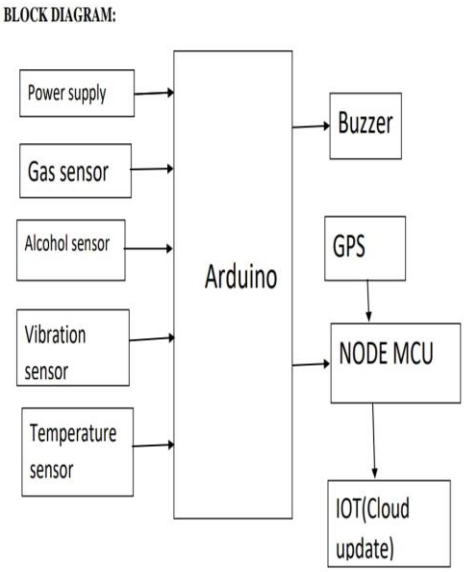
• Data is saved in an SD card and that is added in cloud-based IoT machine.

• Receive real-time updates on the usage of GPS and IoT technology.

Advantages

The proposed gadget is designed in the sort of way that in the occasion of an accident, the gadget itself sends a message to the injured. The proposed gadget makes use of an Arduino Node MCU board, which offers easy access to I/Os and analog pins, as well as convenient application document/download. The system uses GPS to discover incidents and send a text message to a predefined range. It additionally has an alcohol detection feature. The GPS node is connected to an Arduino board referred to as an MCU to reveal various sensors. The Arduino board is attached to Bidets (open supply cloud). The output of the sensor is examined by means of the Arduino and transferred to an unmarried board laptop. The facts is saved in a cloud information IoT device.

BLOCK DIAGRAM



SYSTEM REQUIREMENTS

Hardware requirements

- Arduino
- Temperature sensor
- Seat belt
- Vibration sensor
- Vibration sensor
- Alcohol sensor
- Gas sensor

Software requirements

Operating system : Windows 10

Coding Language : embedded c

RESULT AND DISCUSSION

All sensors will continue to work whilst the automobile battery is jogging. When the ignition of the auto is turned on, your address is registered. Gas and collision sensors send readings to the cellular tool if the gasoline level exceeds a threshold or if other poisonous gases are delivered to the car. Stop the gadget and take an image, send it through SMS alongside the gas sensor readings together with the vicinity coordinates.

CONCLUSION

Create a present hyperlink and a black container for information and pictures the use of the Internet of Things, and the use of a webcam to find out who took the auto by photographing the auto and the records whilst it was stolen. GPS coordinates. After an coincidence, they transmit sensor statistics with coordination to the ambulance crews to save their lives. In addition, the main machine gives the vehicle's position and pace coordinates to the engine cause.

REFERENCES

[1] A. Das, A. Ray, A. Ghosh, S. Bhattacharyya, D. Mukherjee and T. K. Rana, "Vehicle accident prevent cum location monitoring system," 2017 8th Annual Industrial Automation and Electromechanical Engineering Conference (IEMECON), Bangkok, 2017, pp. 101-105.

[2] Manish Bhelande, Viraj Chaudhari, Prathamesh Gore, Raj Dhure, Abhishek Bhayye.” Car

Black Box”. International Journal of Advanced Research in Computer and Communication Engineering Vol. 5, Issue 3, March 2016.

[3] Kumar, M. Anil, M. Venkata Suman, Yogesh Misra, and M. Geetha Pratyusha. "Intelligent

Vehicle Black box using IOT." International Journal of Engineering & Technology (UAE)SCOPUS March-2018 7, no. 2.7 (2018): 215-218.

[4] K. Mukherjee, "Anti-theft vehicle tracking and immobilization system," 2014 International Conference on Power, Control and Embedded Systems (ICPCES), Allahabad, 2014, pp. 1-4.]

[5] Z. Liu, A. Zhang and S. Li, "Vehicle anti-theft tracking system based on Internet of things," Proceedings of 2013 IEEE International Conference on Vehicular Electronics and Safety, Dongguan, 2013, pp. 48-52.