Vehicle Data Logger

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Abstract- *Car accidents have become one of the biggest issues practically everywhere in the world in recent years. The three main causes of the sharp rise in accidents include driving while intoxicated, travelling without enough sleep, and travelling at higher speeds. Gathering of Evidence An automobile is a tool for documenting driving experiences. This gadget is mounted in an automobile and records the temperature of the engine, the presence of obstacles, and the state of the seat belt. Images taken within the vehicle as well as data on the engine's temperature, obstacle detection, and seat belt condition are gathered. The relevant authorities are informed of the gathered data via GSM. The rescue crew will be automatically notified as a result, enabling the injured person to receive assistance quickly. Reducing the proportion of traffic accidents that happen in real time is the primary goal of this article.*

Keywords- Black box, GSM, GPS, Mishaps, safe, record

I. INTRODUCTION

The World Health Organisation (WHO) reports that accidents involving transportation claim the lives of over a million people worldwide each year. The black box system assists in responding to this crisis by helping to resolve an issue that transcends national borders and jeopardises people's health and safety everywhere. The primary goal of this paper is to develop a recorder system that will be installed in every vehicle on the planet, in addition to making vehicles safer, assisting insurance companies with their vehicle accident investigations, and improving the treatment of crash victims and subsequently the road status in order to decrease the death rate. Similar to flight data recorders in aeroplanes, "black box" technology can now be very important in the investigation of car crashes. Presently, a considerable proportion of automobiles on the road are equipped with electronic devices that capture data in the case of an accident. Therefore, in addition to the The most crucial facts required following an accident will be identified once the information has been filtered and what can be done and what could be most helpful is taken into account. There are several reasons to use the black boxes in cars, but these are the ones we're attempting to demonstrate and put into practice. The utilisation of the vehicle's black boxes could significantly increase traffic safety. The technology available today can monitor and educate drivers everywhere, at all times. Installing a black box in the car is mostly done to collect different kinds of data in the event that an accident occurs. We demonstrate how the black box may compute and provide information on certain parameters in the event of an accident, which are then further examined and clarified. For driver assistance and vehicle surveillance, we have suggested the gas, temperature, and alcohol sensors in this project. An accelerometer sensor was created to keep track of accidents.

The objectives of this project are as follows,

- Speed of the Automobile
- Alcohol Detection
- Temperature Detection

A. REQUIREMENTS

The app interface should be used in Laptops and also in mobile phones. It should be easy to use and user friendly. Data of the sensor able to viewed by user in monitor or mobile phones. Parameters of each sensor should be practical and it should display the same in the monitor or mobile phone that user uses. It should able to access the water management data by using laptop or mobile phone. Every data should be accessed with network including IOT cloud access facilities.
subjective information gleaned from victims, eyewitnesses, I.

To become environmentally friendly, the sensors and police reports, it is crucial to have recorders that objectively document what happens in cars before to, during, and following crashes. This system is primarily focused on two methods. The first is how to identify and capture information from the car. The second is how to give the user a simplified view of the recorded data. A few key parts and various types of sensors were used to put the main strategy into practice. A computer programme was used to implement the second strategy. The information is sent serially from the recorder memory to this programme. Research was conducted to determine the type of sensors that should be installed in the car in order to identify the data that is most important for

improving accident analysis. should detect the data in every monsoon. The data should transmit and receive properly.

The water management system works under many sensors data and many other technologies like lora, ESP32. Here every data is unique and linked with each other so that it is easy to access. Secondly, it made the storage process in IOT simpler. In IOT data is stored as machine language, so it is easy for us to convert. So the data should be designed and coded to use the IOT in an effortless way.

The water management system should have connecting options with the new technologies, so that we can avoid buying new devices. It should be able to connect with different types of motor so that we can keep away from purchasing new customized motors. It should not only be made to use in only urban areas but also it should be made to use in rural areas or countryside too. It should have options to combine with other products

II. LITERATURE REVIEW

The authors of the study "Black Box for Automobiles," Dr. Rajeshwari Devi D.V. and Krishnaveni M.S., provide an affordable approach for gathering and storing real-time vehicle data for later use. It makes use of a Global Positioning System (GPS) module to get the vehicle's current location and a Global System for Mobile Communications (GSM) module to send the owner or user a short message service (SMS) containing the vehicle's current location at the moment of an accident. The system also includes a number of noteworthy components, including a temperature sensor, vibration sensor, and ultrasonic sensor that record the vehicle's characteristics in real time and aid in accident investigation in the future.An SD card is used to store the data obtained from the sensors and modules, and any GPS visualizer, such as Google Maps, can be used to see the movement of the car. The method for gathering important video clips from car black boxes using smartphones is demonstrated in the paper "Car Black Box" by Asha M. and Dr. Radhakrishna Rao K A. Before being sent to the police server, important video clips in the black box undergo data integrity hashing. Smartphones are a highly helpful communication tool for automotive black box communication in the absence of VANET infrastructure. A car black box is a device that records driving behaviour and is utilised by auto forensics in the event of a collision or other connected crime. Video footage that could be vital hints for examining auto-related incidents or crimes are stored in car black boxes. With 2G phones, those video clips can be gathered and sent to the police server. In particular, smartphones work really well for this. This presentation walks through the entire process of using smart phones and Bluetooth to gather video proofs. Video integrity and privacy were ensured by the use of certain encryption techniques

OBSERVATION

Automotive device loggers are devices used to record and analyse various data points in a vehicle. Data loggers are crucial for the automotive industry, because they monitor and collect information related to a vehicle's performance, diagnostics and overall efficiency.

An example could be, data loggers collect information related to a vehicle's speed, engine RPM, acceleration, and temperature. Engineers and scientists in turn use this data to understand how a vehicle behaves under different conditions, evaluate the status of critical components, monitor fuel consumption, assess safety features

III. METHODOLOGY

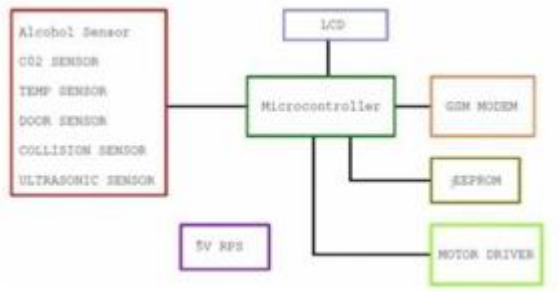

Figure 1 Block Diagram

ESP 8266:

The ESP8266 is a low-cost Wi-Fi microchip, with built-in TCP/IP networking software, and microcontroller capability, produced by Espressif Systems in Shanghai, China.

The chip was popularized in the English-speaking maker community in August 2014 via the ESP-01 module, made by a third-party manufacturer Ai- Thinker. This small module allows microcontrollers to connect to a Wi-Fi network and make simple TCP/IP connections using Hayes-style commands. However, at first, there was almost no English-language documentation on the chip and the commands it accepted. The very low price and the fact that there were very few external components on the module, which suggested that it could eventually be very inexpensive in volume, attracted many hackers to explore the module, the chip, and the software on it, as well as to translate the Chinese documentation.[3]

The ESP8285 is a similar chip with a built-in 1 MiB flash memory, allowing the design of single-chip devices capable of connecting via Wi-Fi.

Table 1 Components Specification

Module	Voltage	Current
ESP 8266	5v	0.15 mA
0 PCB	5v	50 mA
LM317 Voltage Regulator	4.5v	15 mA
10K Preset	5v	0.4 mA
220 ohm Resistor	3.7v	93 mA
Female Pin Header	3.7v	12.15 mA
MQ-135 Gas Sensor	5v	70 mA
DHT11 Temperature Sensor	230v	15 A

0 PCB:

Zero PCB is basically a general-purpose printed circuit board (PCB), also known as perfboard or DOT PCB. It is a thin rigid copper sheet with holes pre- drilled at standard intervals across a grid with 2.54mm (0.1-inch) spacing between holes. Each hole is encircled by a round or square copper pad so that component lead can be inserted into the hole and soldered around the pad without short- circuiting the nearby pads and other leads. For connecting the lead of component with another lead, solder these together or join these using a suitable conducting wire.

LM317 Voltage Regulator:

A voltage regulator is a system designed to automatically maintain a constant voltage. It may use a simple feed-forward design or may include negative feedback. It may use an electromechanical mechanism, or electronic components. Depending on the design, it may be used to regulate one or more AC or DC voltages.

Electronic voltage regulators are found in devices such as computer power supplies where they stabilize the DC voltages used by the processor and other elements. In automobile alternators and central power station generator plants, voltage regulators control the output of the plant. In an electric power distribution system, voltage regulators may be installed at a substation or along distribution lines so that all customers receive steady voltage independent of how much power is drawn from the line.

MQ-135 Gas Sensor*:*

A gas detector is a device that detects the presence of gases in an area, often as part of a safety system. A gas detector can sound an alarm to operators in the area where the leak is occurring, giving them the opportunity to leave. This type of device is important because there are many gases that can be harmful to organic life, such as humans or animals.
Gas detectors can be used to detect combustible, flammable and toxic gases, and oxygen depletion. This type of device is used widely in industry and can be found in locations, such as on oil rigs, to monitor manufacturing processes and emerging technologies such as photovoltaic. They may be used in firefighting.

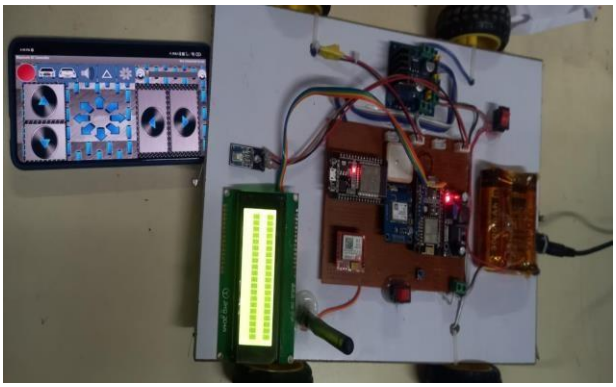

Figure 3 Overall Setup

The sensor will start monitoring when the vehicle starts ,the data of each type of sensor will keep monitoring and tha data are started storing it .The sensor will sense the data and transfer it to the controller then the control will recognize the data and process it . Then the value will send to the memory of the device to store the data . By the sensor the data of the each sensor will be stored and it is easy to analysis it .
The data can be analysis when the vehicle met an accident or second party need the details about the vehicle

Figure 6 Text Message from the sensors

Figure 7 Sensor Measured values

VI. CONCLUSION

We can able to store the data in memory space and also in cloud. We can analysis the data and it also help to identify the record of driver or the owner. We can able to identify the mistakes of the driver like he had drunken, he driver faster,etc…Vehicle owner can able to get the insurance fund easier by verifying the stored data. It is easy to get notification about the accident with the location.

V. FUTURE SCOPE

The project opens up several avenues for future research and development: The data can store in cloud so we can able to analysis the data when we need it.

The number of sensor for monitoring need to increase for storing all type of incident that are happened

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