AUTOMOBILES BASED BLACK-BOX SYSTEM USING IoT

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Abstract: The black box concept is derived from the aviation industry, a flight recorder, colloquially known as black box. Although it is now orange coloured for easy search ,is an electronic recording device laced in an aircraft for the purpose of the investigating aviation accidents and incidents. With the advancement in technology and cost coming down, in our project we attempt to build similar device for our cars, not only this device will helps us in post crash analysis but also it helps us in post-crash analysis but also it will help us in quicker emergency rescue operation. research has been targeted towards building an integrated systems for emergency rescue services in the event of a road accident.

Keyword: IoT, ATmega328p, Black-Box, GPS.

1. INTRODUCTION:

Millions of people die due to accidents. The vehicle accident is a major public problem in many countries. This problem is still increasing due to rider's rash driving and drunk and drive. This problem can be solved by using Black Box system analysis. Automobiles and computer technologies are creating a new level of data service in vehicles. The automatic Black Box has functions similar to an airplane Black Box. It is used to analyse the cause of vehicular accident and prevent the loss of life and property arising from the vehicle accidents. This paper proposes a prototype of an automatic Black Box.

Black Box system that can be installed into vehicles. The system aims to achieve accident analysis by objectively tracking the vehicle. The system also involves enhancement of security by preventing tampering of the Black Box data .This system consists of Alcohol sensor, Speed measurement sensor, Ultrasonic sensor, MEMS sensor and Mobile GPS. Whenever an abnormal value is detected it will be created in the form of log and send to the cloud it contain location and image.

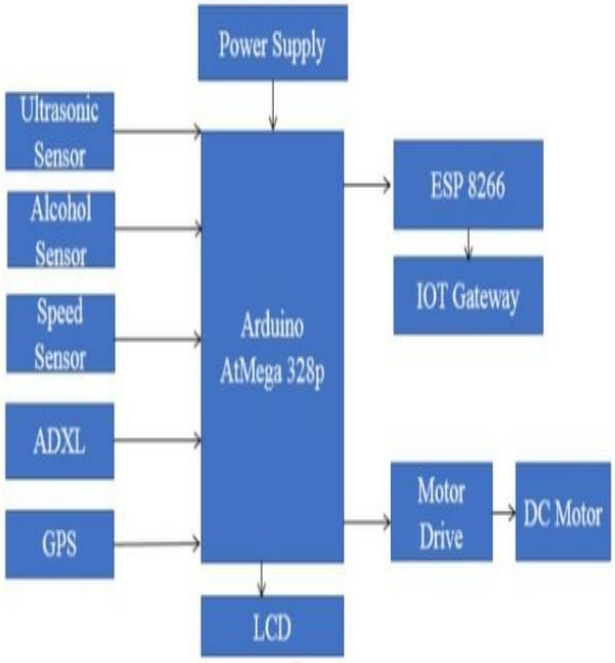
2. PROPOSED SYSTEM:

The proposed system is designed such that, the device itself sends a data to the IOT and this process is done by ESP8266 chip with sensors when an accident is met. Proposed system use Arduino board that provides an easy access to input/output and analog pins and easy burning/uploading of a program. To monitor the various sensors such as alcohol sensor, temperature sensor, light sensor, accelerometer, ultrasonic sensor, GPS are connected to Arduino board. Arduino board is connected to cloud. The output of the sensors is read from Arduino and output values are displayed in LCD. The data is stored in the cloud the given system is proposed in IoT.

3. METHODOLOGY:

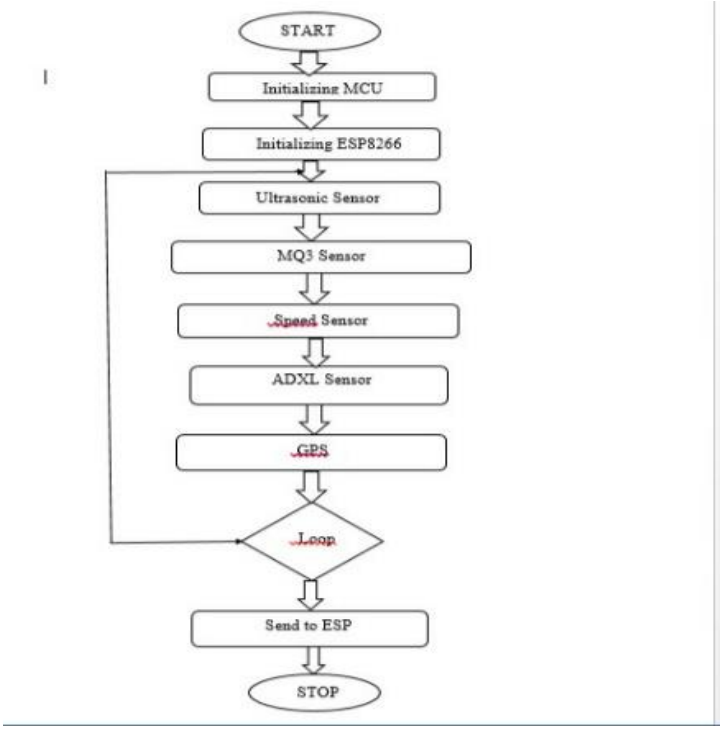
Consider a car had an accident the sensor will activated automatically and start its surveillance mode. If user is not in critical condition and can help himself then he will stop surveillance mode. Once the system started in assistance mode first of all system will gather the car location using GPS device Power supply is a supply of electrical power, that supplies electrical or other types of energy to an output load or group of loads is called a power supply unit or PSU. The Global Positioning System (GPS) is a burgeoning technology, which provides flexibility of positioning for navigation, surveying. The GPS provides continuous three-dimensional positioning 24 hrs a day throughout the world. Once the user's position has been determined, GPS unit can calculate other information, such as speed, bearing, track, trip distance, distance to destination. One of the most common devices attached to a micro controller is an LCD display. 16x2 display is used in this project. This means 16 characters per line by 2 lines.

For every 30 seconds GPS will receive the information from the satellite and fed to the microcontroller. Control the form of longitude and latitude. Then it records car details will read information and display it on the LCD display. A memory card is solid-state electronic flash memory data storage device capable of digital contents.

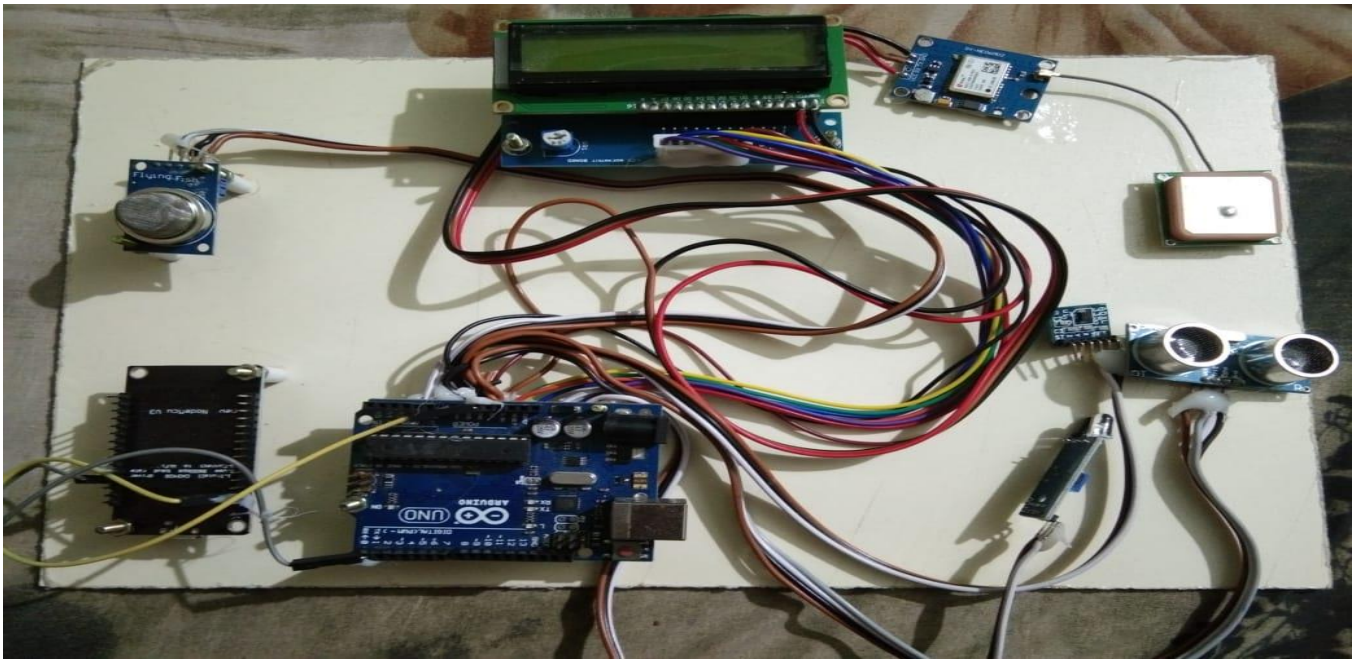


3.1 **Block diagam of black box system using IoT**

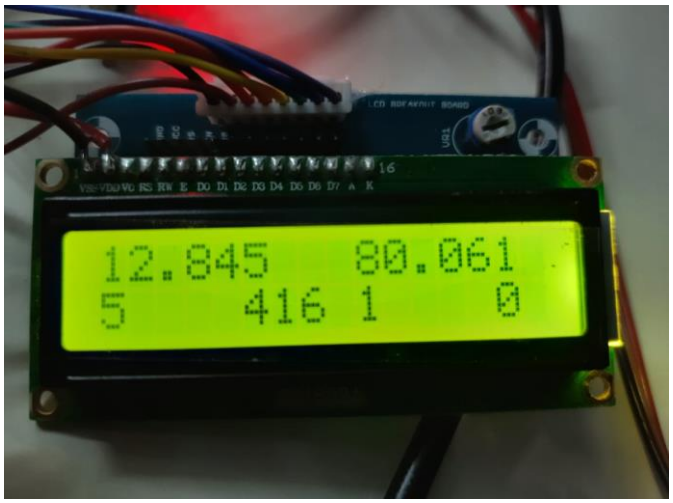
3.2 FLOW CHART:



4. HARDWARE IMPLEMENTATION:



4.1 RESULT AND OUTPUT



SI.NO	PARAMETERS	VALUES
1	Ultrasonic Sensor	5
2	Alcohol Sensor	1
3	ADXL Sensor	416
4	Speed Sensor	0
5	Latitude	12.845
6	Longitude	80.061

These are the output dislayed on the LCD when the black box system works with an IoT.

5. CONCLUSION:

A working model of a Black Box with SMS alert for road vehicles has been developed for vehicle accident detection and reporting. It is a system that uses Arduino UNO, ultrasonic, alcohol, speed and AXDL sensor and also IoT developed for vehicle accident and reporting. It provides crucial information to emergency responders in the earliest possible time. The crucial time between the accident and getting victim medical attention can often be the difference between life and death. This system provides better safety rather than no safety.

6. REFERENCES:

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