AN IOT BASED VEHICLE ACCIDENT PREVENTION, DETECTION AND TRACKING SYSTEM USING GSM\GPRS AND ARM7

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Abstract:

Day by day death rate due to accidents are increasing. Mostly this thing is happened because lack of information transformation. If the accident occurs that information is time taking to reach the hospitals and related persons. Information only not the task we need to prevent too. That's why we designed a project that would give an immediate alert to the hospital and relatives. And we get to know which side the accident has occurred. In this we used components to prevent the accidents and in case if the accident occurs that information would pass near to the hospitals and beloved persons.

KEYWORD'S:- Lpc2148, GSM Module, Ultrasonic sensor, IR sensor, Vibration sensor, dc motor,l293d driver

I.   INTRODUCTION

According to the Association for Safe International Alley Travel (ASIRT), about 1.3 actor humans die in alley crashes anniversary year, 20-50 actor are afflicted or disabled. Alley crashes cost USD $518 billion globally, costing alone countries from 1-2% of their anniversary GDP. Currently, Alley cartage crashes rank as the 9th arch could could cause of afterlife and annual for 2.2% of all deaths globally. Unless activity is taken, alley cartage injuries are predicted to become the fifth arch could could cause ofdeath by 2030 [2]. The challenges imposed to bounded PSOs in extenuative animal lives consistent from cars accidents accept become a acute affair due to the huge above amount of ancient people. As far as abounding afflicted could lose their lives, and back no on-site medical abetment has been provided promptly as a aftereffect of: (1) backward blow reporting, (2) inaccurate geographic location, and (3) abridgement of afflicted

medical information, the charge for automatic and able adaptable band-aid arrest this accountability becomes a must.

EXSISTING SYSTEM

The accepted absolute solutions that accommodate abetment to passengers in case of car blow are mainly anxious with user alternation afterwards the adventure happened. Those adaptable solutions crave that the afflicted accept to barrage he app and appeal advice manually and that would not be accessible if he/she is beneath analytical or austere non-vital situation. The bearings becomes even worse if cartage went beneath benumbed state.

PROPOSED SYSTEM

Advancement in technologies to accept a abundant vehicular acquaintance assurance arrangement is actual capital in automobiles. Blow can action anywhere anytime appropriately there is a charge to save animal lives from an blow by audition a blow afore it happens. As cartage hazards and alley accidents are accretion day by day it causes huge blow of activity and acreage because of the poor emergency facilities. The cardboard is aimed in advancements in cars for authoritative it added alternate and able for alienated accidents on roads. As an advance to assurance systems a multi-sensor, like accelerated sensor ambit altitude of car to car and Vibration sensor to apprehension of accidents by application ARM-7 microcontroller, IR sensors are acclimated to ascertain at which ancillary the blow has been occurred and the GSM\GPRS bore is to clue the car by its breadth and breadth values. The arrangement absolutely reliable, safe, and abiding and it attains the accepted aftereffect of real-time assay of abstracts actual finer to accommodate a safer drive.
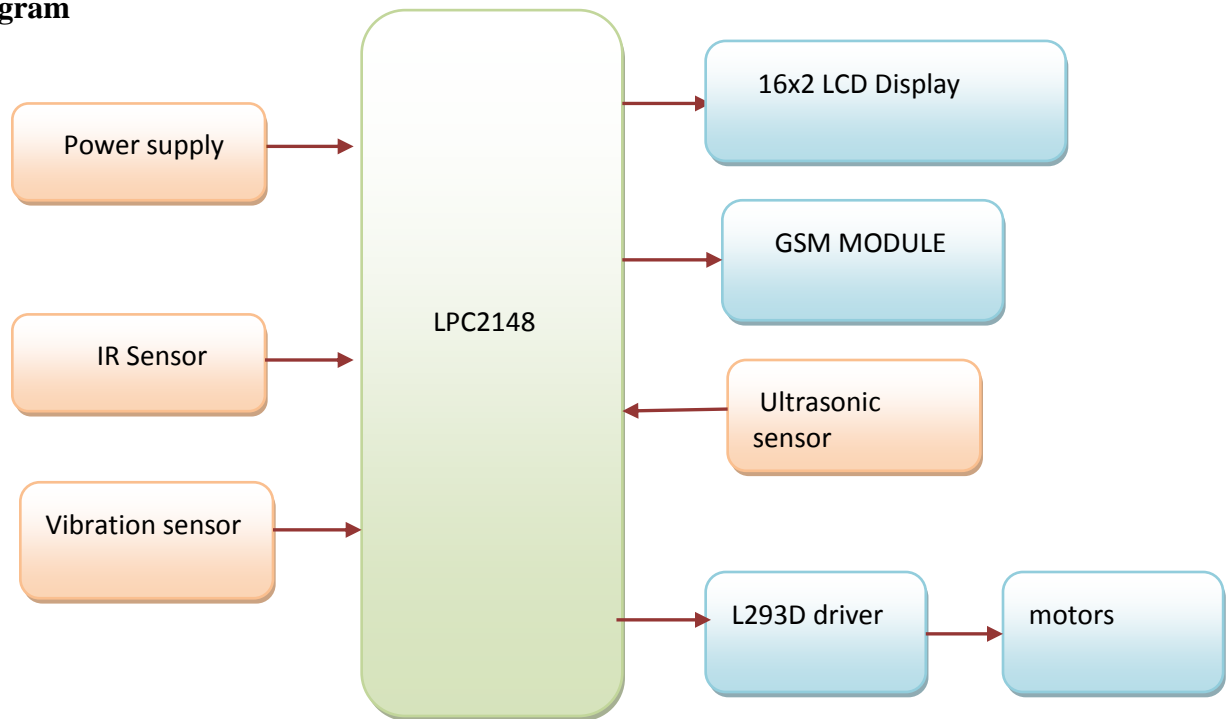
Block Diagram

Fig 1: block diagram

About Lpc2148 Microprocessor:

The LPC2148 microcontroller is an advanced one which is of ARM7 family. It's is 32-bit ARMTDMI having excellent features like 32kB to 512kB on chip flashmemory,8kB to 40kB static RAM, 10-bit ADC, 64-I/O pins, 32-bit Timers with external event counter, watch dog timer, Real time clock, EEPROM, 2-UART, 2-I2C busses, 1-SPI supports and advanced processor which is works with 12MHz crystal frequency.
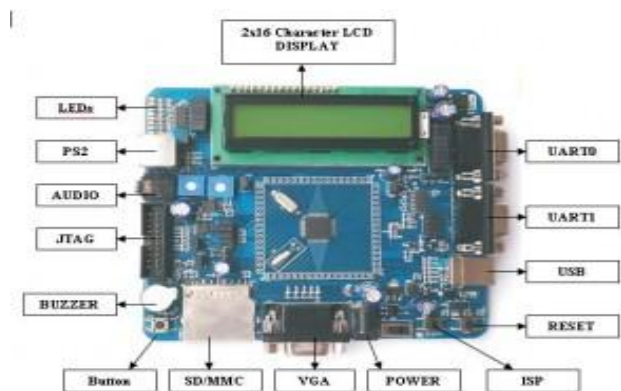

Fig 2 ARM7 LPC 2148 Development Board

GSM (Global System for Mobile communications)

Fig 3. GSM module

Its is a portable system, as a result of thisthat cell phones associate with it through endeavoring to discover cells in the promptly region.GSM systems work in 4 particular recurrence levels.Itsa low-cost, to the network supplier, opportunity messagetransporter (SMS, in addition known as "printed content informing"), it diverse cellprerequisites also. Another preferred standpoint is that the standard comprises of one universalEmergency cellphone assortment, 112. entangled for worldwide vacationers to associate withcrisis contributions without understanding the area crisis assortment.
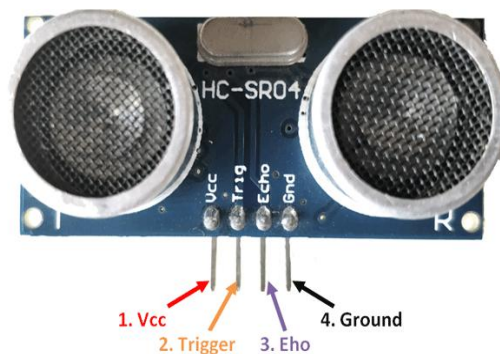
ULTRASONIC SENSOR:

Fig 3.Ultrasonic sensor

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This is used to detect the objects which comes in front . This generally works on the reflection process. Transmitter always sends sound waves if any obstacle comes, it will detect based on receiver pulses. This is generally like as Radar system.

IR SENSOR:
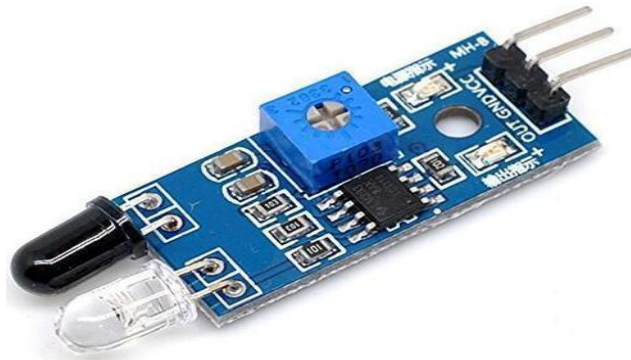
Its works on the transmission and receiving policy.It generally similar like Radar system. In this transmitter always emits the signal, whenever an object comes in front of it those transmitting waves will reflect and fall on Receiver, like that it will be detected.

VIBRATION SENSOR
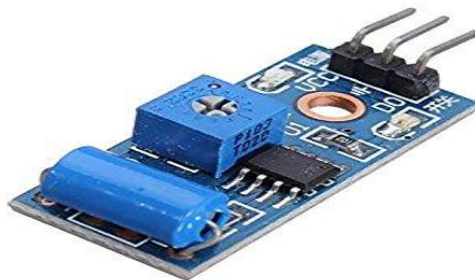
Accelerometers measure the acceleration or vibration of a device or system**.** Vibration causes havoc in many applications. In this it will digital value either 0 or 1 directly. It will trigger if any energy dash it hardly. We can also set the vibration levels using inbuilt variable resistor on it.

L293D:

Fig 5. L293D-IC

L293D is an 16-pin IC used to drive the current in bi-directional at voltage of 4.5v to 36v. using this we can operate 2 loads at a time. Its an high current gain device. In this project we used this to drive the motors in two directions.

I.   SOFTWARE DESIGN

In this project we are using two softwares especially for compilation and for programming into controller, those are,

1. Keil uVision-4.

2 Flash magic Programmer.

The Keil is an IDE Embedded c Programming. First we need to import all libraries then while creating an project should select required tools. After writing the source code we can compile and generate Hex file without difficulties. Its an user-friendly tool. we will program the Hex file in microcontroller using flash magic software.

II.   WORKING DESCRIPTION

The capital adage of activity is to accommodate assurance with the advice of helmet. For that we adopted lpc2148 microcontroller to program. It is the aberrant adapted ambassador for this. Affairs approach is acclimated for auctioning of this arrangement into ARM processor from any

alfresco apparatus across-the-board of computer. Run approach is acclimated for the beheading of utility.

In this arrangement we pre programmed the system. When the rf bore detected again it gives advice it will about-face on the anxiety and displayed on lcd screen, as like this the ambassador will adviser the area andgot by Gsm.

RESULT

The complete ancestor as developed was activated on altered voltages and altered areas. It Furnished the actual aftereffect at voltage of 230v to440v.We've activated ambit in "**An Iot Based Vehicle Accident Prevention, Detection And Tracking System Using Gsm\Gprs And Arm7**",The authentic ethics and apprehension makes this arrangement added acceptable to see all the abstracts in a clean, formatted and user affable way.
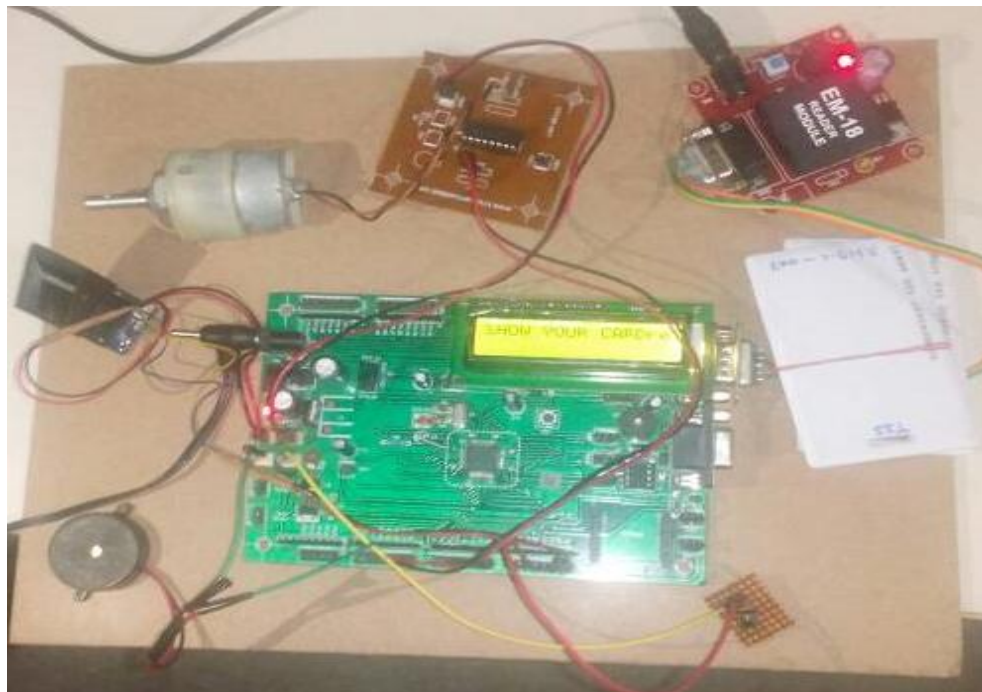
CONCLUSION

In this paper, we proposed and implemented an IoT arrangement which may advice the commu creasing the afterlife ante consistent from cars accidents. Results showed

that this band-aid provided abounding advantages compared to acceptable systems, namely, aspersing afflicted cartage interaction, accouterment basal medical advice to accomplishment teams, acquainted exact and authentic accidents locations, and facilitating the acquisition process. Reliability analysis showed that the arrangement is robust, that is, accessible and advantageous distinctively if the IoT accessory keeps sending connected notification of blast accident until it makes abiding its accession by the headquarter.

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