# REAL TIME BASED SMART VEHICLE MONITORING AND ALERT USING GSM TECHNOLOGY

## S. Sandeep Kumar [1], M. Saritha[2], H.Raghupathi (HOD)[3]

*[1]Pursuing M. Tech(ES) ,[2]Assistant Professor,[3]Assistant Professor*

*Visvesvaraya College of Engineering and Technology, Patelguda, Ibrahimpatnam, Ranga Reddy Dist.*

*Telangana, (India)*

Around 4.2 million human beings trip by using vehicles every day. The breakdowns and injuries increase the visitor's woes, including to the misery of those commuters. To be able to attain control over those conditions, immediate assistance need to be prolonged. The system proposes an Emergency carrier and far flung monitoring of automobiles, which guarantees prompt help in case of unfortunate occasions like accidents and breakdowns. That is possible by way of sending an SMS to the closest carrier aid station. The machine implements trendy generation of GSM modem with a sufficient baud rate and a GPS antenna that constantly tracks the coordinates of the vehicle. The entire analysis of the device, at the side of the examine of time taken (latency) in changing the statistics among the GPS antenna and determine alertness when person is in emergency condition.

## I. INTRODUCTION

The proposed machine implements GPS and GSM era, which facilitates tracking the appropriate region of the automobile emergency scenario. It then routinely sends an SOS message to a pre-programmed number. The micro controller integrates those abilities altogether making it very inexperienced, price-effective and a dependable machine. It has tremendous functionality and by the use of integrating trendy functions on this device, it can very proficiently make contributions to the development of transportation in India. The reason of designing 'GPS based totally emergency alertness device'.

• Detect the incidence of twist of destiny

• Carry out have a look at-up actions like co-ordinate detection of accident spot and robotically asking for assist

• Non-forestall tracking of the automobile for security cause

Designing and enforcing the tool proves green simplest at the same time as its general overall performance is evaluated. Therefore, we need to take a look at the do away with or time taken for information to acquire from the satellite tv for pc to reach from the satellite tv for pc TV for computer to the GPS antenna within the car and from GSM MODEM in the device to the carrier middle, respectively .The latency added in satellite conversation links are larger than maximum of the terrestrial networking segments, considering that the distance between the based station and the satellite TV for computer could be very lengthy.

With references to the modern situation if civic infrastructure, motorization and urbanization in India, the huge form of avenue accidents have surged. In step with the report posted in 2011 but government of India.' Ministry of road delivery dual carriageway transport studies wing', the loss in Indian monetary tool due to fatalities and coincidence accidents expected at three% of GDP in 1999-2000. Around fifty 3.1 % of avenue accident victims have been in the age organization of 25 to sixty 5 years in 2010, with pedestrians and -wheelers, who encompass the maximum inclined street customers, accounting for around forty% fatalities. The above cited figures have brought on an extensive have a examine global to expand technology that may be used to provide immediately help in such situations .Together with accidents, breakdowns disrupt the clockwork schedule of the commuters. The excessive manner management installed a dual carriageway safety development application to beneficial aid in growing safety programs. Because at most event, injuries stand up because of the negligence of the motive pressure as cited in, there are numerous systems proposed to assess the overall performance of these drivers constantly an alerting sound is produced in case of negligence on the same time, numerous strategies for studying twist of fate prone regions are installed .Hence, it has grown to be essential to employ a system, that goals at resolving the troubles confronted by using the usage of the masses due to sudden events.

## II. EXISTING SYSTEM

Around 4.2 million human beings trip by using vehicles every day. The breakdowns and injuries increase the visitor's woes, including to the misery of those commuters. In the existing system if any accent will occur it won't intimate to the respective persons like parents/guides, so with this people are going to die so avoid that we are implementing the new project that is GPS based emergency alertness system based on mems.

## III. PROPOSED SYSTEM

To avoid the problems in the existing system we are implementing the GPS based emergency alertness system based on mems technology, the breakdowns and injuries increase the visitor's woes, including to the misery of those commuters. To be able to attain control over those conditions, immediate assistance need to be prolonged. The system proposes an Emergency carrier and far flung monitoring of automobiles, which guarantees prompt help in case of unfortunate occasions like accidents and breakdowns. That is possible by way of sending an SMS to the closest carrier aid station. The machine implements trendy generation of GSM modem with a sufficient baud rate and a GPS antenna that constantly tracks the coordinates of the vehicle. The entire analysis of the device, at the side of the examine of time taken (latency) in changing the statistics among the GPS antenna and determine alertness when person is in emergency condition.
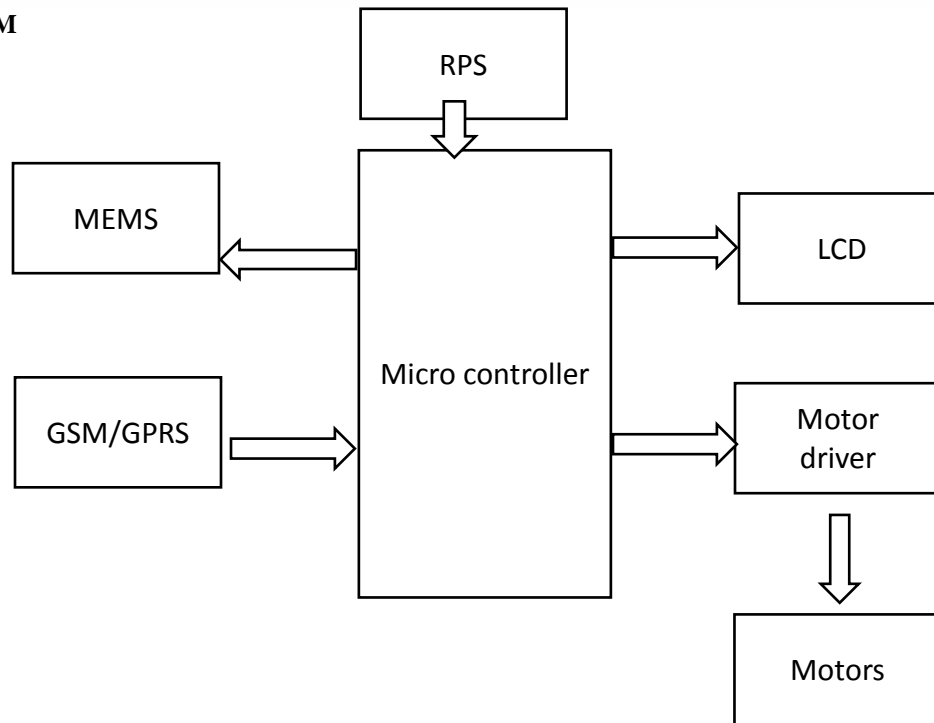
**BLOCK DIAGRAM**



**Fig 1: block diagram**

## IV. HARDWARE REQUPIREMENTS

**LPC2148 MICROCONTROLLER:**

The ARM7 (advanced RISC gadget) pressers board primarily based complete on a 16/32-bit ARM7 its method of sixteen/32-bit ARM7 TDMI-S microcontroller, 8 pc reminiscence unit to 40 pc reminiscence unit of on-chip static RAM and 32 pc memory unit to 512computer reminiscence unit on-chip flash reminiscence; 128-bit In- device Programming (ISP). 32-bit timers/out of doors event counters, PWM pulse width modulation unit (six outputs) and watchdog, Low energy of actual-Time Clock (RTC), multiple serial interfaces which has 2 UARTs , speedy I2C-bus (400kbit/. There are sixty four pins of ARM7 processer and multiple ports (port0, port1) 45 pins are input/output.
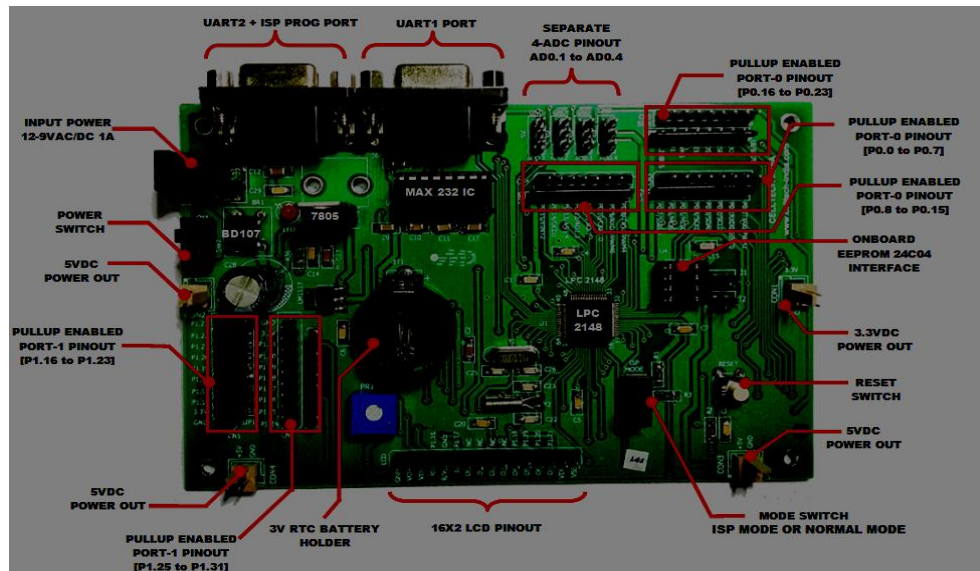
**Fig2:-LPC2148 board**

## Liquid Crystal Display

LCD (liquid crystal display) is most important factor for the every undertaking. It contains the 16x2 matrix shape, that it consists of two strains and every line we are able to use the sixteen characters. In this liquid crystal display each individual is displayed via the 5x7 matrix shape. On this we have the eight records pins, energy deliver pins, one contrast pins, returned light pins, and three manage pins. The statistics will transmits or obtained thru that eight statistics strains only. The information is that the ASCII well worth of the man or woman to be shown on the LCD. In this LCD we've a few instructions like clearing, for subsequent line and for shifting having some distinct instructions for the LCD.



**Fig 3: 16x2 LCD**

## MEMS SENSOR

EMS (MMA7660) are an I2C primarily based accelerometer. The primary purpose of the MEMS is to degree the small change in movement of MEMS IC in all the x, y and z dimensions. To declare with MEMS MMA7660 IC we want to follow synchronous serial exchange. In I2C protocol we want to state with MEMS accelerometer through way of sending clock in parallel with the data and moreover we accumulate an acknowledgement. For the motive that we're the usage of synchronous communication, facts loss can be very less. There are particularly 3 registers in IC which we've got to check in c application language duration timings via evaluating the unique values we usually recognize the repute of folks.
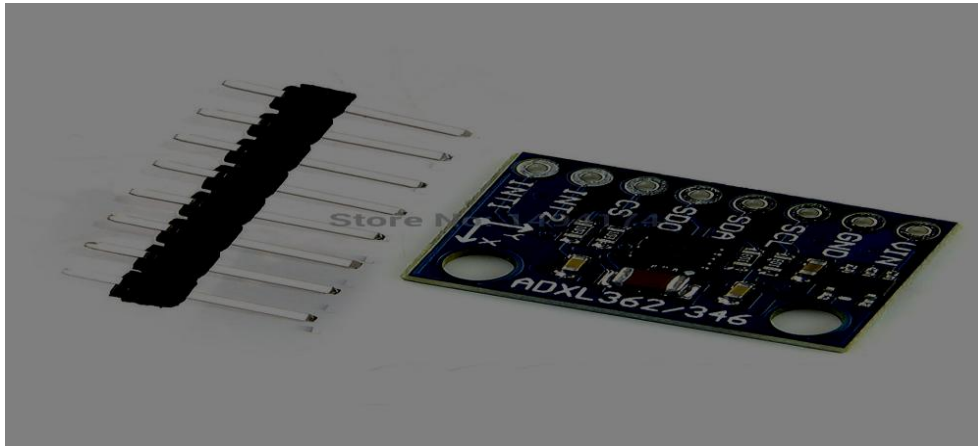


Fig 4: MENS sensor

## GPRS (General Packet Radio Service):

GPRS used for non-stop tracking pastime on 24/7 is IP enabled and has a static IP deal with to speak with a server via the public Wi-Fi cell community. It help SMS, SMTP, POP and FTP protocols. The Micro GPRS has an integrated analog inputs and digital I/O ports these ports are used to eliminate the want for outside micro controller for managing inputs and outputs. B. System software program the system software program architecture for the gadget is defined in 3 components 1. Micro GPRS. 2. Monitoring middle three. GIS online map server Micro GPRS: The micro GPRS does now not require any programming. It best needs to be configured for the analog threshold for each sensor. This configuration should be carried out using the software program motive force that incorporates the modem. The Micro GPRS hardware is configured via its RS-232 port earlier than installation. Monitoring middle: The Monitoring center is built on pinnacle of the Windows Operating System and it uses multiple interacting servers to enforce its capability. The servers are HTTP, Database, Application and Socket Server.
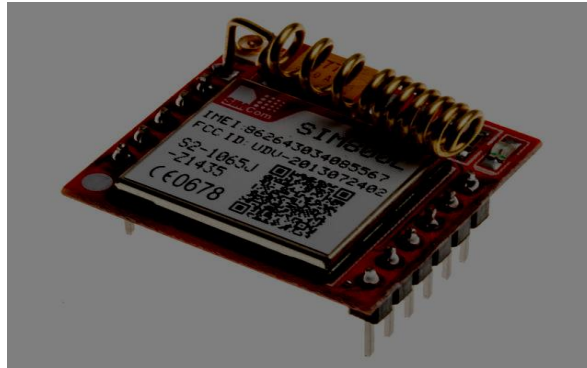
**Fig 5: Sim 800L (GPRS) module**

## L293D:

The l293d are using high-modern-day advantage and half of-H drivers. The l293d is designed to bidirectional power currents of up to 1A at voltage from 4.5vto 36v.Both devices are designed to drive inductive hundreds such as relays. It's connecting dc bipolar stepping motors as well as other high modern/voltage hundreds in superb-supply software.
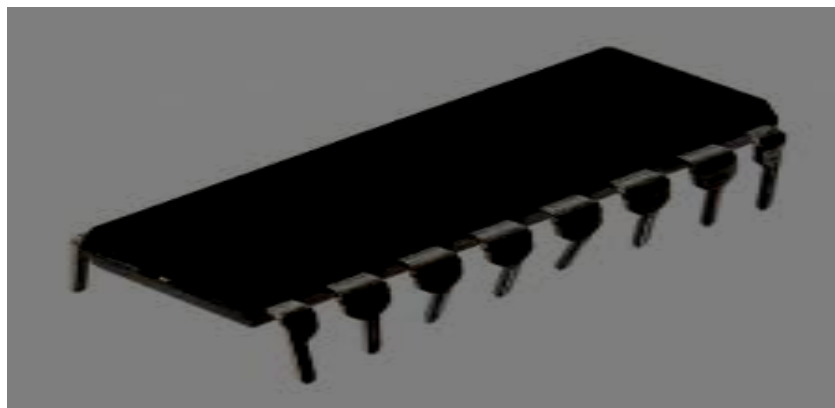


**Fig 6:L293D IC**

## DC MOTORS:

Motors are electro mechanical gadgets which may be used for to convert the electrical indicators into mechanical indicators. The all D.C automobiles are having identical inner mechanism, each electro mechanically to change the route of modern-day-day float in part of the motor. In mission ship for to move the motor in precise course. We want to connect the motor to controller through using pressure IC best.

**Fig7: DC motor**

## V. SOFTWARE DESIGN

In this proposed contrivance, as we usually generally tend to used LPC2148 we desire to apply following software package deal instrumentation to application for it.

1.      Keil4 imaginative and prescient
2.      Flash Magic

The Keil4 imaginative and prescient an IDE for Embedded c program language period. In this IDE, we desire to import the utilitie9s and libraries regular with the controller. This IDE may be very greater without trouble and in purchaser quality way to examine, assemblers, and debuggers in it. It simplifies the manner of embedded simulation and trying getting into conjunction with Hex record technology. The flash magic is a programming software program. The C/C++ software program written in IDE is probably processed into Hex file i.e. In .Hex layout. Through the use of hex record we will be predisposed to products the code into micro controller and carry out utility.

## VI. WORKING PROCEDURE

We suggest the tool based totally on GPRS generation. GPRS is abbreviated as General packet radio service. It turned into a tool by means of using which signals are sent from satellites to a completely unique tool, used to show the location of a person .In this challenge we are changing Navigation system with smart GPRS module this is located in automobiles, and we are using some other sensor like MEMS sensor it have become detects injuries every time it could stand up. If accident may additionally detects the area of the longitude/latitude and variety values taken from GPRS is at once sends message to legal individual the usage of GPRS module. Obtaining the location of any vehicle like car/bike through the request of the administration /authorized person. (Admin can recognize the location of the vehicle by requesting through SMS). In this system also provide emergency switch for manually intimating the accident and across unlike area.

## VII. RESULT

The project "**Real Time Based Smart Vehicle Monitoring And Alert Using Gsm Technology"** was successfully implemented and output was verified on the hardware. In this project whenever the MEMS sensor was detected it will automatically sends a message to the corresponding person along with the location. Finally, the following

images represent the development of system process and results.
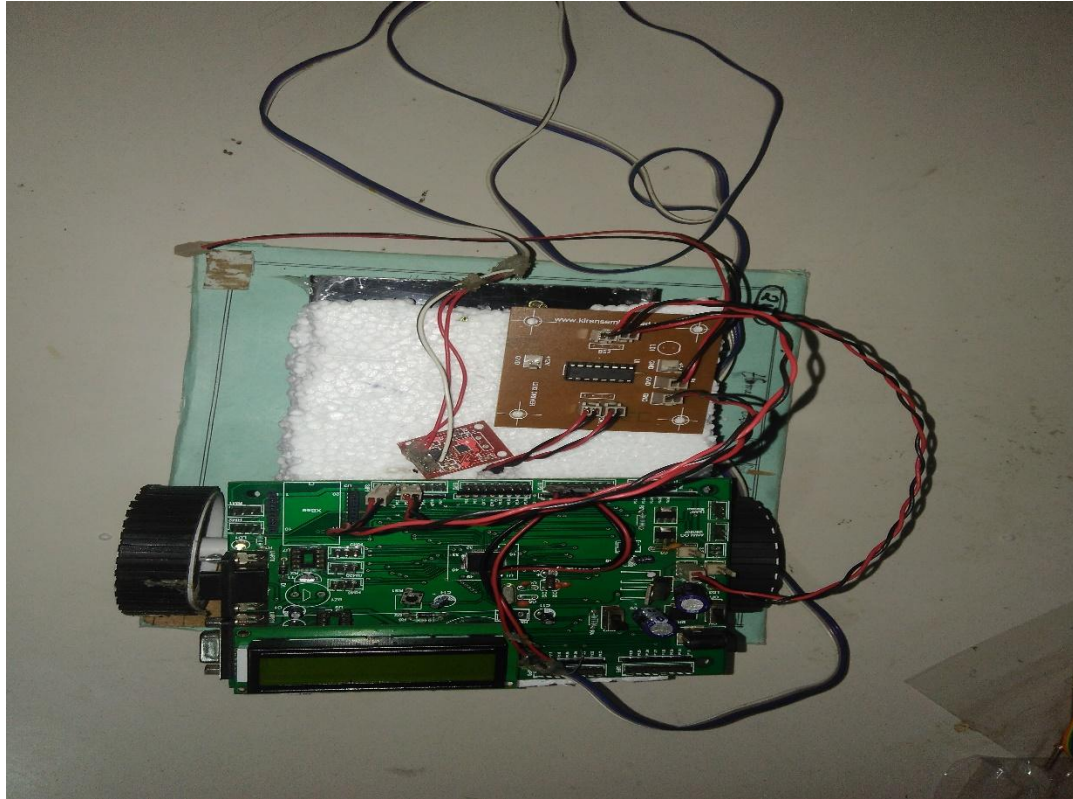


## VIII. CONCLUSION

As a consequence through the use of MEMS and GPRS we're going to intimate the respective person about the coincidence and also discover the precise place. So ambulance will reach out in correct time. Accordingly a rescue could be provided instantly.

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**AUTHOR DETAILS:**

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|---|---|
|  | **S. SANDEEP KUMAR** pursuing M. Tech(ES) from, Visvesvaraya college of Engineering and Technology, Patelguda, Ibrahimpatnam, Ranga Reddy dist, Telangana, INDIA. |
|  | **M.SARITHA** working as Assistant Professor, from Visvesvaraya college of Engineering and Technology, patelguda, Ibrahimpatnam, Rangareddy dist, Telangana, INDIA. |
|  | **H.RAGHUPATHI (HOD)**, working as Assistant Professor from Visvesvaraya College Of Engineering And Technology, Patelguda, Ibrahimpatnam, RangaReddy dist, Telangana, INDIA. |