ISSN 2394-3777 (Print)
ISSN 2394-3785 (Online)
Available online at www.ijartet.com

International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 4, Special Issue 23, December 2017

AVehicle Monitoring System Using Hall Sensor

Ms. A. Jency[1], R. Snekha[2]
[1]Assistant Professor, Department of Computer Science and Engineering
[2]UG Students, Department of Computer Science and Engineering
Rajalakshmi Institute of Technology, Chennai, India.
E-Mail-id: [1]jency.a.cse@ritchennai.edu.in, [2]snekharamesh123@gmail.com

***Abstract*:IntelligentTransportation is a necessary infrastructure in recent times. The scenario of intelligent transportation can be viewed by integrating IoT and Cloud with vehicular technology. Though the concept of connected vehicles, driver less car, automatic problem detection are developing with many progress using Global Positioning System. This project presents the problem arises in the car should be detected by generating the event using sensor. The data should be stored in cloud and later gives an alert to the manufactured company. Once data are transmitted automatically the message passed to the nearby service centre. IoT is fast emerging technology; the impact of technology in daily activities of a person can be seen in almost all the aspect of life.**

***Keywords*: Sensor, Integration, GSM, GPS.**

I. INTRODUCTION

In a country like India, vehicles plays an important role for transportation.A vehicle is a mobile machine that transports people from place to place. Types of vehicles includes Wagons, bicycles, motor vehicles, railed vehicles, water vehicles and spacecraft. Motor vehicles like cars are four wheeled vehicles. Cars came into global use during the 20th century, and developed economies depend on them. Cars have control of driving, parking, passenger comfort and safety, and controlling a variety of lights.There are costs and benefits to car use. The cost include acquiring the vehicle, interest payments, repairs and maintenance, fuel, description, driving time, parking fees, taxes, and insurance. The costs to society include maintaining roads, land use, road congestion, air pollution, public health care, and disposing of the vehicle at the end of its life. Traffic is formally organized in many jurisdictions, with marked lanes, junctions, intersections, interchanges, traffic signals, or signs. Different classes may share speed limits and easement,or may be segregated. Some jurisdictions may have very detailed and complex rules of the road while others rely more on drivers common sense and willingness to cooperate Organization typically produces a better combination of travel safety and efficiency. Events which disrupt the flow and may cause traffic to degenerateinto a disorganized mess include road construction, collisions, and debris in roadway. On particularly busy freeways, a minor disruption may persist in a phenomenon known as traffic waves. A complete breakdown of organization may result in traffic congestion and gridlock. Simulations of organized traffic frequently involve queuing theory, stochastic processes and equations of mathematical physics applied to traffic flow.

II. SUPPORTED SOFTWARE TECHNOLOGIES

The technologies (hardware and software) based on which the papers can be segregated are as follows

III. SENSOR

Sensor are used to detect the problem arise in the car which may differ for many ways, Qi Chen et al [1] in the year of 2009,scheduling safety message transmissions according to CCH intervals to accommodate other vehicles participating in channel switching is reasonable. then they developed the new technology for emerging the solution. Using all kinds of advanced automatic identification technologies such as RFID, image recognition, GPS, structural description of video, this layer senses important objects, maps them from physical world to the virtual by Hu Lingling et al. [2] in the year 2011. After this proportion, John O. Manyala et al [3] in the year of 2013 Hall sensor with an integral bias magnet, magnetic field variations are generated similar to that of a VR sensor, but instead of detecting the time derivative of flux, the Hall sensor detects the flux density. In later times Christian Scharfen Berger et al. [5] in the year 2012, Hall effect sensor to estimate a pinch torque and, hence, to stop the closing of

ISSN 2394-3777 (Print)
ISSN 2394-3785 (Online)
Available online at www.ijartet.com

International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 4, Special Issue 23, December 2017

windows in accidental situations. The data can be detected from these sensors are not adequate so, K. A. Mamun et al. [7] in the year of 2015, Vibration sensor used to trigger the effect of theft alarm.

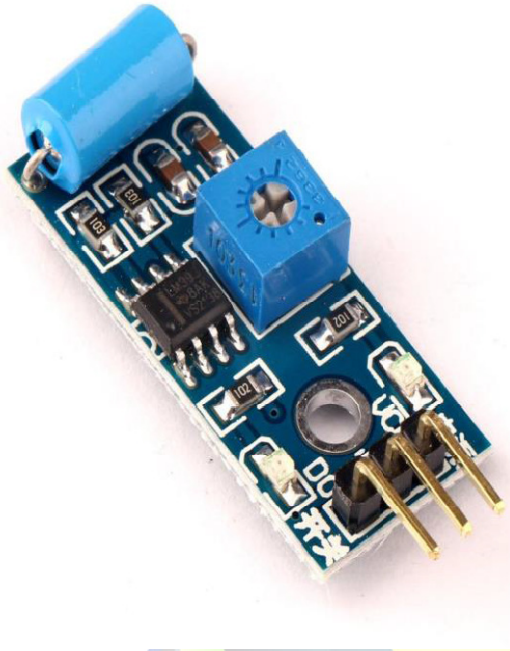

Fig. 1SW-420 Motion Sensor Module Alarm Sensor Module Vibration Switch

This module is compared with the normally open type vibration sensor module, vibration trigger for longer periods of time, can drive the relay module. SW-420 Motion Sensor Module Alarm. Also the process of level sensor was introduced and applied by S.P. Metkar [6] in the year 2015, Level sensor is used to monitor the level of fuel in the fuel tank. If it is below threshold then sensor indicate that the fuel level is critical in position.

IV. INTEGRATION

A system was designed in order to control an integration can be explained as The Internet of Things refers to uniquely identifiable objects (Things) and their virtual representations in anInternet-like structure. The term Internet of Things has first been used by et.al Qi Chen [1]in the year 2009. The concept of the Internet of Things has become popular through the Auto-ID Centre. Radio-frequency identification (RFID) is often seen as a prerequisite for the Internet of Things. If all objects of daily life were equipped with radio tags, they could be identified and inventoried by computers are proposed by et al. Hu Lingling [2] in the year 2011. The advanced technology explains about the monitors the driver whether he/she is receiving/making a call and prevents them from diverting their concentration from the road, thus avoiding many accidents which take place due to the usage of mobiles while driving. A part of our system, called mobile bug which detects thecall/messages within a radius of 1.5m with the help of the voltage variation in the signal. Thus, if a person drives a car above 40km/hr then this device turns on the GSM Modem and it will send a message to the cops et. Al Nilesh [4] in the year 2013. All these approaches function well for window control systems, but they require an activecontact between the window and obstacles. Obstacles in the window closing path not having contact with the windows are not detected. In summary, these approaches cannot beused for fast closing car doors since active contacts may cause serious injuries to passengers et al Christian Scharfenberger [8] in the year 2012.

The functionality of the design architecture, which is provided by closing or opening correspondingsignal paths. All signal paths are routed by employing CMOS switches . The switches are driven by fivedifferent control signals denoted by 1 through 5. Phases of the control signals are deliberate to access the sensor which is et al Zoran B. Randjelovic [9] in the year 2012. Then the processor accessed using the base station and it is also plays a key role in cellular communication, BSS are essentially outdoor components and responsible for linking subscribers (MS) to mobile networks radio transmission is used for all the communication. The Base station is further divided in two systems; such as BTS and BSC. BTS (Base Transceiver station) deals communication utilizing radio transmission with mobile station and BSC (Base station controller) establishes physical link between subscriber (MS) and BTS, then manage and controls functions of it which is proposedby et al. K. A. Mamun [10] in the year 2015. Magnets have a temperature coefficient, which has to be considered for a particular design. Temperature coefficient issimply the degree to which the indicated output is affected by ambient temperature fluctuations, it can be used to detect the problems easily, whichcan beet al John O. Manyala [13] in the year 2013.

ISSN 2394-3777 (Print)
ISSN 2394-3785 (Online)
Available online at www.ijartet.com

International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 4, Special Issue 23, December 2017

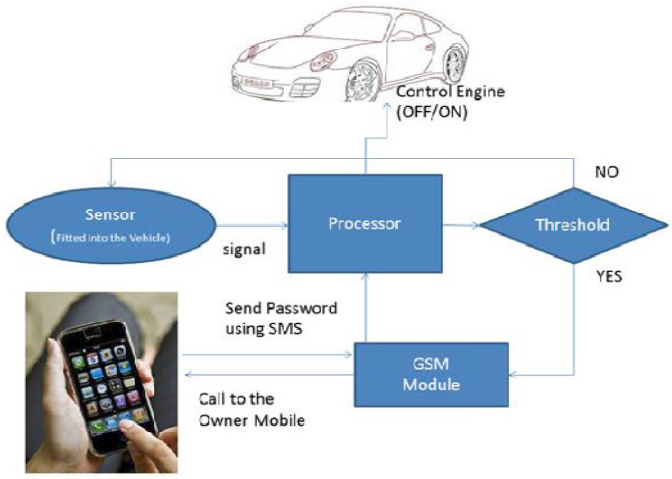

Fig. 2 ATV2S Block Diagram

V. GLOBAL SYSTEM FOR MOBILE COMMUBICATION

A possible way of tracking the vehicles is described in a paper, the SIM900 is a complete Quad-band GSM module which plays very important role in thecustomer application. Featuring an industry standardinterface, the SIM900 delivers GSM/GPRS 850/900/1800/1900MHz performance for voice, SMS, Data, and Fax in a small form factor and with low power consumption was proposed by et al. Pham Hoang Oat [11] in the year 2012. With atiny configuration of 24mm x 3mm, SIM900 can fit almost all the space requirements, especially for the application where there is a requirement of slim and compact design et al. S.P. Metkar [12] in the year 2015. The Global System for Mobile Communications (GSM) is the second-generation digital cellular mobile network widely deployed around the world. Although improvements to GSM such as the next generation systems have been rolled out to cater for faster data centric traffic, backward compatibility to GSM is still maintained. Due to its wide availability, it is chosen as the medium for transfer of location information.

The simple and inexpensive Short Message Service (SMS) allows users to send up to 160 characters. For the purpose of this project, the SMS is more than sufficient for sending the location information is et al. K. A. Mamun [10] in the year 2015. Global system for mobile communication (GSM) is a globally accepted standard for digital cellular communication. GSM is the name of a standardization group established in 1982 to create a common European mobile telephone standard that would formulate specifications for a pan-European mobilecellular radio system operating at 900 MHz.et al. BaburaoKodavati [16] in the year 2013. Also the vehicle can be noted to send a smsviathe GSM modem is used to establish connection between an in-vehicle device and a user station for transmitting the vehicle's location information.

Fig. 3 GSM Modem

The microcontroller separates the latitude and longitude reading from the string and send these readings at operator station with the help of GSM modem. This GSM modem communicates with microcontroller through UART communication. The GSM modem is as shown in Fig. 3. This GSM modem is respond toAT (Attend) command is et al. V Mistary[13] in the year 2015. A GSM Modem is a wireless modem that works with a GSM wireless network. A wireless modem behaves like a dial-up modem. The main difference between them is that a dial-up modem sends and receives data through a fixed telephone line while wireless modem sends and receives data through radio waves. A GSM modem can be anexternal device or a PC Card/PCMCIA Card et al. Nilesh [5] in the year 2013. The Switching system is an operative system in which many vital tasks are companied, SS systems holds five databases within it, which performs various activities. The major tasks of SS system are to perform call handling and subscriber associated utilities et al. K. A. Mamun[7] in the year 2015. The GSM/GPRS module isresponsible of establishing connections between an in-vehicle device and a remote server for transmitting the vehicle's location information, using TCP/IP connection through the GSM/GPRS network SeokJu Lee [8] in the year 2014. Theoverall hardware structure of vehicle navigation is introducedand described.

VI. GLOBAL POSITIONING SYSTEM

GPS facility serves as an important part for tracking the vehicle, this Global Positioning System (GPS) is a space-based global navigation satellite system (GNSS) that provides reliable location and time information in all weather and at all times and anywhere on or near the Earthwhen and where there is an unobstructed line of sightto four or more GPS satellites is explained by et al. BaburaoKodavati [16] in the year 2013. The proposed system explains detail about the GPS, It is primarily used to assist the driver in navigating to their destinations with turn-by-turn instructions. It can also be usedin tracking the distance traveled on a trip, vehicle mileage, and speed it can keep the record of driving activity,

ISSN 2394-3777 (Print)
ISSN 2394-3785 (Online)
Available online at www.ijartet.com

International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 4, Special Issue 23, December 2017

including address of each destination, names of streets traveled, and how long the vehicle remained at each location. These functions allow users to monitor the usage of their vehicles are et al. Pham Hoang Oat [10] in the year 2013. GPS is space basedsatellite navigation system which provides location and time information in all weather conditions where there is an unobstructed line of sight to four or more GPS satellites the GPS receiver used here is easy to use, ultra-high performance, low power, also having industrial grade GPS smart antenna said by et al. V Mistary [11] in the year 2015. GPS plays a vital role in The Global Positioning System in vehicle tracking systems is commonly used to provide users with information such as the location coordinates, speed, time, and so on, anywhere on Earth. In this work, a GPS module and a GPS receiver available from the Sparkfun website, is adopted to implement the in-vehicle device. The GPS module has the GPS receiver with antenna. There are two slide switches and one push button Switch is et al. SeokJuLee[6] in the year 2014. The GPS module calculates the geographical position of the vehicle. This helps in detecting the location/position, velocity of our system. The module output data like global positioning system fixed data, geographic position-latitude are passed to GSM Modem is et al. Nilesh in the year 2013. A GPS receiver receives thesignals from at least three satellites to calculatedistance and uses a triangulation technique tocompute its two dimensionposition or at least four satellites to compute its threedimension position is et al. K. A. Mamun [8] in the year 2015.GPS Module which gets interfaceswith the Raspberry pi gives the real time tracking information of the vehicle such as Longitude, Latitude, Speed, and Time of the vehicle.

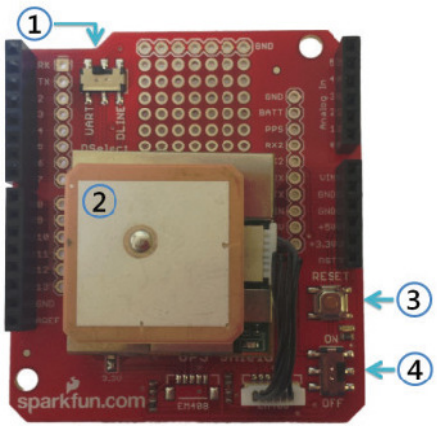

Fig. 4 GPS module. (1) UART and DLINE selection switch, (2) GPS Receiver, (3) Reset switch, (4) Power switch

That information related to the vehicle taken fromUSB interface and get stored into the database of Raspberry pi and further will sent to the server using GPRS et al. A. Shinde[5] in the year 2015.

VII. CONCLUSION

In this work we have provided various ways of monitoring the vehicle is done using sensors.. The status of the system can be notified to the user in multiple ways but the most frequent way is by sending SMS. This can be further improved by implementing an user friendly application.

ACKNOWLEDGMENT

We are grateful to extend our sincere gratitude to our organization and to Mrs.A.Jency for sharing the pearls of wisdom to complete this project.

References

[1] Qi chen, Daniel jiang, Luca Delgrossi "DSRC Multi-Channel Operations and its Implications on Vehicle Safety Communications" IEEE Conference, 2009.

[2] Mayuresh Desai, AratiPhadke, " Internet Of Things based vehicle monitoring system", 2011.

[3] M. Krause, u. Helbig, M. Zirki, "Large area piezoelectric impact sensors" Surface technologies and photonics, 2012.

[4] Hu Lingling, Li Haifeng, XuXu, "An intelligent vehicle monitoring system based on Internet Of Things",2011.

[5] John O. Manyala, Member," Gearbox Speed Sensor Design and Performance Optimization" IEEE, 2013.

[6] Pham HoangDat, MichealDrieberg, "Development of Vehicle Tracking System using GPS and GSM Modem", IEEE conference on open system, 2013.

[7] Zoran B. Randjelovic, Maher Kayal, RadevojePopovie,"Highly sensitive Hall Magnetic sensor Microsytem in CMOS Technology" IEEE conference on Solid State, 2012.

[8] Christian Scharfenberger, SamarjiChakraborty, John Zelek,"Anti-Trap Protection for an Intelligent Smart Car Door System", Intelligent Transportation System, 2012.

[9] BaburaoKodavati, V. K. Raju,S. SrinivasRao, a. v. Prabu,"GSM and GPS Based Vehicle Location And Tracking System", 2013.

[10] NileshAnanthnarayanan,"Intelligent Vehicle Monitoring System using wireless Communication", 2013.

[11] P. Santhosh Kumar, A. AsimaBegum,"Implementation of CAN based Vehicle Monitoring andControlapplicationson Arm 7 Processor", 2015..

[12] SeokJu Lee, GirmaTewolde, JackrockKwon,"Design and Implementation of vehicle tracking system using GPS/GSM/GPRS Technology and Smartphone application", 2014.

[13] K. A. Mamun,Z. Ashraf,"Anti-theftvehicle security system with preventive action",2015.

[14] Grish L. Deshmukh, S. P. Metkar, "RTOS Based vehicle Tracking System", (ICIP), 2015.

[15] Pradip V Mistray, R H Chile, "Real Time vehicle tracking based on ARM7 GPS and GSM Technology" 2015.

ISSN 2394-3777 (Print)
ISSN 2394-3785 (Online)
Available online at www.ijartet.com

International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 4, Special Issue 23, December 2017

[16] Prashant A. Shinde, Y. B. Mane, "RealTime Vehicle Monitoring and Tracking System based on Embeded Linux Board and Android Application",Power and Computing Technologies