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VEHICLE TRACKING AND THEFT DETECTION BASED ON GLOBAL POSITIONING SYSTEM(GPS) AND GLOBAL SYSTEM FOR MOBILECOMMUNICATION(GSM)

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Abstract:Currently most of the people have their own vehicle, theft is happening on parking and sometimes driving to insecure places. The safety of vehicles is extremely essential. To avoid such situations Vehicle tracking and locking system is installed in the vehicle, to track the place and locking engine motor. The place of the vehicle is identified using Global Positioning system (GPS) and Global system mobile communication (GSM). These systems constantly watch a moving vehicle and report the status on demand. When the theft is identified, the responsible person sends SMS to the microcontroller, then microcontroller issue the control signals to stop the engine motor. Authorized person needs to send the password to controller to restart the vehicle and open the door. This is more secured, reliable and low cost.

1. Introduction:

Global System for Mobile Communication (GSM) and Global Positioning System (GPS) based vehicle location and tracking system provided effective, real time vehicle location, mapping and reporting this information value and add by improving this level of service provided. The GPS based vehicle tracking system is designed to find out the exact location of any vehicle and intimate the position to the concerned authority about through an SMS. The system includes a GPS modem that it retrieves the location of a vehicle in terms of its longitude and latitude. The system uses geographic position and time information from the GPS. The system has an onboard module that it resides in the vehicle to be tracked and a based station that monitors data from the various vehicles. The onboard module consists of GPS receiver, a GSM modem. This hardware is fitted on to the vehicle in such a manner that it was not visible to anyone. That system sends the location data to the monitoring unit continuously therefore it is used as a covert unit. The location data from tracking system uses to find the location and to

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give the information to police when the vehicle is stolen. This gives an edge over other pieces of technology for the same purpose. The system automatically sends a return reply to thatparticular mobile indicating the position of the vehicle in terms of latitude and longitude when a request by user is sent to the number at the modem. A program has been developed that it is used to locate the exact position of the vehicle and also to navigated track of the moving vehicle on Google map. The system allows to track the target anytime and anywhere in any weather conditions. This system is user friendly, easily installable, easily accessible and can be used for various other purpose.

2. Literature survey:

GPS based vehicle tracking and monitoring system- A solution for public transportation:

This Project provides a solution for tracking and monitoring the public transportation vehicles using devices such as Raspberry Pi and GPS Antenna. Raspberry Pi processing board can be used to receiving values and gives the result. This method can find a way to monitor the transportation vehicle from the location source to destination. In this Project, there is a use of GPS receiver module for receiving the latitude and longitude values of the present location of the vehicle continuously. A passenger of the vehicle will give different locations to the system between the source and destination locations. These values will be stored in the Raspberry Pi database and Raspberry Pi processor will compare the passenger specified values with the current vehicle location values and if the result is not the same then the passenger will be informed with warning message via display system that driver is driving in the wrong direction.

Real-time GPS vehicle tracking system:

In this project implementation and designing of a real-time GPS tracker system via Arduino was applied. This method was applicable for salesman tracking, private driver and for vehicle safety. The author of the Project also tried to solve the problem of owners who have expensive cars to observe and track the vehicle and find out vehicle movement and its past activities of vehicle. The system has GPS/GSM modules controlled by Arduino MEGA placed inside the vehicle. The vehicle position will be updated every time as the vehicle moves. Then User will send SMS on registered number and they will receive the coordinate location. At the same time the data will get stored on SD card continuously. The location will be accessible to users by system via website over the internet.

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sAndroid app based vehicle tracking using GPS and GSM:

This project explains an embedded system, used to know the location of the vehicle using technologies like GSM and GPS. System needs closely linked GPS and GSM module with a microcontroller. Initially, the GPS installed in the device will receive the vehicle location from satellite and store it in a microcontroller 's buffer. In order to track location, the registered mobile number has to send request, once authentication of number get completed, the location will be sent to mobile number in the form of SMS. Then GSM get deactivated and GPS get activated again. The SMS consist of latitude and longitude value of vehicle. This value received in the SMS can be viewed via android app and this coordinate will be plotted in the app automatically.

Survey Project on vehicle tracking system using GPS and android:

This Project propose a GPS based vehicle tracking system to help organization for finding addresses of their vehicles and locate their positions on mobile devices. The author states system will give the exact location of vehicle along with distance between user and vehicle. The system will have single android mobile, GPS and GSM modems along with processor that is installed in vehicle. When vehicle get activated and starts moving, the location of the vehicle will be updated continuously to a server using GPRS service. Monitoring unit will access the database from server to check the vehicle location. The location information present on database will be plotted using Google maps on monitoring device. Monitoring unit can be a Web application or Android application or a through which user will get to know the actual position of the proposed vehicle.

Review of Accident Alert and Vehicle Tracking System :

In this Project, the author has described the system that can track the vehicle and detect an accident. There will be automatic detection of traffic accidents using vibration sensors or a piezoelectric sensor. This sensor will first sense the occurrence of an accident and
give its output to the microcontroller. As soon as vehicle meets accident the GPS module will detect the latitude and longitudinal position of a vehicle. Then the GSM module sends latitude and longitude position of the vehicle to the ambulance which isnear to
that location. This message sending operation will **be** automatically done and an alert message may send to the central emergency dispatch server. This system is familiar with vibration sensor, Raspberry Pi, GPS and GSM modules to detect traffic accidents**.**

3.Proposed methodology:

In this proposed work, a novel method of vehicle trackingandlockingsystemusedtotrackthetheftvehicleby using GPS and GSM technology. This system puts into sleeping mode while the vehicle handled by the owner or authorizedpersonotherwisegoestoactivemode,themode of operation changed by in person or remotely. If any interruption occurred in any side of the door, microcontroller is interrupted and SMS is sent to the microcontroller.Thecontrollerissuesthemessageabout the place of the vehicle to the car owner or

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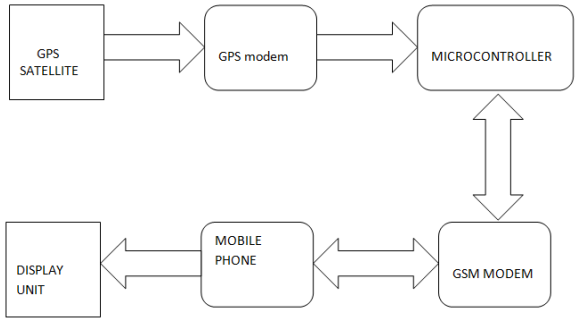
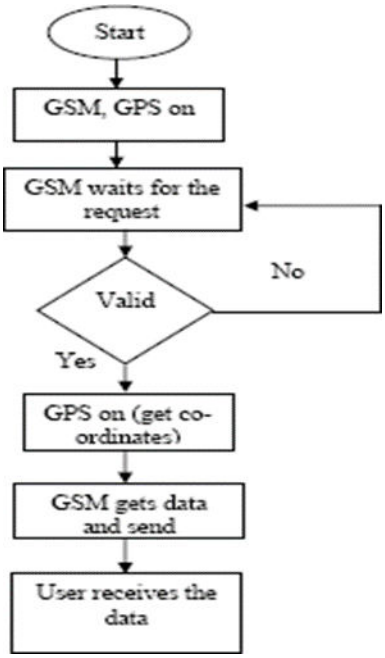
authorized person. When send SMS to the controller, issues the control signals to the engine motor. Engine motor speeds are gradually decreasesandcometotheoffplace.Afterthatallthedoor s locked. To open the door or restart the engine, authorized person needs to enter the passwords. In this method, tracking of vehicle place easy and doors locked automatically, thereby thief cannot get away from thecar.

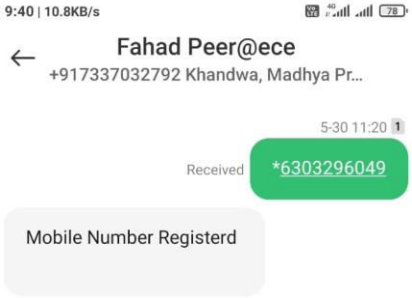
BLOCK DIAGRAM



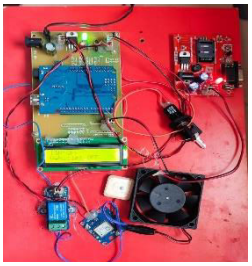


4. Results and Description:

In this paper, GSM module used to send and receive message from another GSM number. If the owner of the vehicle wants to know their vehicle location, they have to register with his mobile number with * before the phone number.



After that phone number is registered the status of the vehicle is show in the LCD which is fixed and also message is received to the owners that is registered phone number.



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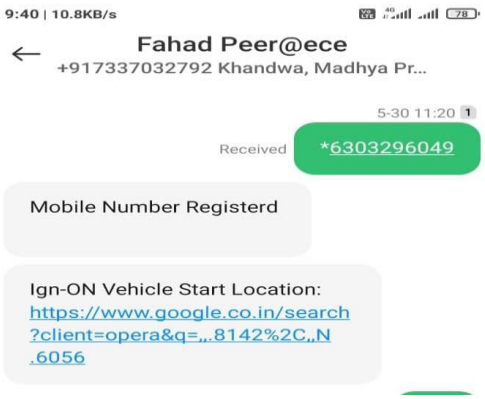
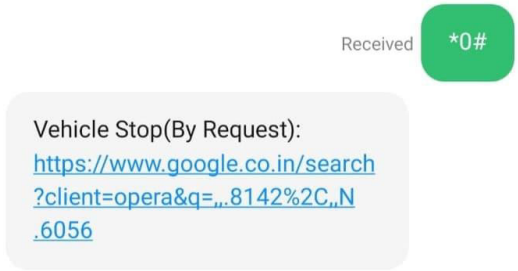


In this way the registered mobile number will be getting the location of vehicle as per the preset time.

If we want to stop the vehicle from our device, we should send message that contains *0#. Then slowly the microcontroller connected to the vehicle will slow down the vehicle and will be stopped.



References:

[1] Chen, H., Chiang, Y. Chang, F., H. Wang, H. (2010). To wardReal-TimePrecisePointPositioning:Differential GPS Based on IGS Ultra Rapid Product, ICE Annual Conference,TheGrandHotel,Taipei,TaiwanAugust18 -

[2] Asaad M. J. Al-Hindawi, Ibrahim Talib, Experimentally EvaluationofGPS/GSMBasedSystemDesign", Journal of Electronic Systems Volume 2 Number 2 June2012

[3] Vikram Ku lkarni & Viswaprakash Babu, "embedded smart car security system on face detection', special issueIJCCT,ISSN(Online):2231-0371, ISSN(Print):0975- 7449, volume-3,issue-1

[4] Kai-Tai Song, Chih-Chieh Yang, ofNational Chiao Tung University, Taiwan, "Front Vehicle TrackingUsingSceneAnalysis",ProceedingsoftheIEEE International Conference mechatronics & Automation 200

[5] Chen Peijiang, Jiang Xuehua, "Design and Implementation of Remote monitoring system based on GSM," vol.42, pp.167-175.2008.

[6] Albert alexe, Ezhilarasie, "Cloud computing Based Vehicle Tracking Information Systems", ISSN: 2229 - 4333(Print)|ISSN:0976-8491(Online)IJCSTVol.2, Issue 1, March 2011

[7] R. Ramani, S.Selvaraju, S.Valarmathy, R.ThangamB.Rajasekaran,"water-levelmonitorforborewelland water tank based on GSM", International Journal of engineering science and technology (IJEST), ISSN: 0975-5462, volu me4-N0:10,october2012

[8] Kunal Maurya, Mandeep Singh,Neelu Jain, "Real Time Vehicle Tracking System using GSM and GPS Technology- An Anti-theft Tracking System," International Journal of Electronics and Computer Science Engineering. ISSN 2277-1956/V1N3-1103-1107

[9] N. Kattukkaran, A. George and T. P. M. Haridas, "Intelligent accident detection and alert system for emergency medical assistance," *2017 International Conference on Computer Communication and Informatics (ICCCI)*, Coimbatore, India, 2017.

[10] R.Sujitha and A. Devipriya, "Automatic Identification of Accidents and to Improve Notification using Emerging Technologies," *2015 International Conference on Soft-Computing and Networks Security (ICSNS)*, Coimbatore, India, 2015.

[11] B. S. Anil, K. A. Vilas and S. R. Jagtap, "Intelligent system for vehicular accident detection and notification," *2014 International Conference on Communication and Signal Processing*, Melmaruvathur, India, 2014, pp. 1238-1240.

[12] D. Acharya, V. Kumar, N. Garvin, A. Grecaand G. M. Gaddis, "A sun SPOT based Automatic Vehicular Accident Notification System," *2008 International Conference on Information Technology and Applications in Biomedicine*, Shenzhen, China, 2008, pp. 296-299.

[13] S. A. Shabbeer and M. Meleet, "Smart Helmet for Accident Detection and Notification," *2017 2nd International Conference on Computational Systems and Information Technology for Sustainable Solution (CSITSS)*, Bengaluru, India, 2017.

[14] C. V. R. Thota, L. K. Galla, R. Narisetty and U. Mande, "Automated vigilant transportation system for minimizing the Road accidents," *2014 International Conference on Electronics, Communication and Computational Engineering (ICECCE)*, Hosur, India, 2014.