2581-4575
International Journal For Recent Developments in Science & Technology
Crossref
A Peer Reviewed Research Journal

VEHICULAR ACCIDENT DETECTION AND ALERT GENERATION USING IOT

[1]Dr.L.Malliga, [2]P. Ankitha, [3]V.Nagadeepthi, [4]V.Keerthana

[1]Assoaciate Professor, Department Of Electronics And Communication Engineering, Malla Reddy Engineering College For Women, Hyderabad.

[2,3 &4]Ug Scholar, Department Of Electronics And Communication Engineering, Malla Reddy Engineering College For Women, Hyderabad

ABSTRACT

Utilizing GSM and GPS, they pass on the messages to their family, relatives, or own people when a mishap is recognized or has happened. Suppose an individual is in a position where someone else is there to help, in that case, this venture assists with sending messages to their family members or companions and cautions the casualty's family or relatives. Accidents are on the ascent because of an increment in the number of vehicles out and about; we will most likely be unable to keep away from wounds, yet we can work salvage victims. Vehicle impact discovery is helpful in such circumstances. Mishap discovery utilizing shrewd GPS programming and GSM, phones, portable applications and vehicular impromptu organizations are among the frameworks recommended by different analysts. A vibration sensor distinguishes a crash utilizing piezoelectric impact, which is the measurement of specific products to produce an electric charge when these are under mechanical pressure. The casualty's close companions, family members, or rescue vehicle shows up at the mishap spot, which is followed by the GPS module

I. INTRODUCTION

The essential point of this undertaking is to save individuals from crashes. This project helps individuals to discover where the casualty is and to discover the developments of the vehicle. It assists with detecting the occurance of mishap and this can be sent the message to the relating casualty's family. Here GPS and GSM are utilized for significant distance and area. Web of Things is expecting to be a critical part in all pieces of our regular day to day existence. Web of things is the between interfacing of all mechanical, progressed contraptions and controlling them with web for making the typical human activities essentially more clear and favorable. Vehicle Tracking System or vehicle noticing system was at first made for helping the drivers with driving in a correct manner. A several years afterward researchers overhauled comparative system by using various most brief way estimations for tracking down the nearest courses for the drivers Further IoT accepted huge part close by sensors, with the help of sensors like ultrasonic sensor the fashioners encouraged a model for forewarning the drivers when any impediment comes on the way by using ultrasonic waves. Speed sensors were used for controlling and inferring the drivers at the point when the vehicle is insane at fast. Recollecting all of these trouble spots we our proposing An Intelligent constant Vehicle

Detecting System for Taxis. In like manner our guideline objective is to give a sharp constant vehicle recognizing system for taxis and private taxicabs. This structure is mainly delivered for noticing the most crucial limits of the vehicle like speed, pressure, smoke level and fuel level. The continuous data is dealt with by the Arduino scaled down controller and through GSM it shows up at the site page similarly as the LCD Show unit and gets shown. The show is available in both workspace views for the owner of the private taxi similarly as flexible view for the cabbie. Through this plan the owner can screen the principal limits of the vehicle from wherever in the world and at whenever. He can similarly add delete and refresh the nuances of the driver. In future it tends to be used for the indoor and outside testing in vehicle making organizations.

II. EXISTING SYSTEM

Using Smartphone the accident location can be tracked with the help of 3G network. The message can be passed to police station or rescue via smartphone. The other existing method is stolen vehicle recovery system. The owner of the vehicle gets the message immediately about the location of vehicle through GSM. Automatic vehicle accident detection and messaging system uses accelerometer in Cr alarm application. So that dangerous driving can be detected. The accident can be sensed by using the vibration sensor. Using ARM controller the mobile number can be saved in EEPROM and sends the message when accident occurs. GPS is used for tracking the position of the vehicle, GSM sends the message to the rescue system and police station.

III. PROPOSED SYSTEM

Sometimes during accident the vehicle hits the other vehicle and it passes away without stopping. To overcome these drawback we proposed the method in the accident detection and rescue system. Along with this Bluetooth is added. By using this Bluetooth the information of the hitting vehicle can sends to the nearby vehicle within in the 10m distance. The vehicle which hits the other vehicle will automatically sends the details i.e informations like vehicle number, owner details etc.. to the nearby vehicles in order to identify the details of the hitting vehicle. By this police can easily find the hitting vehicle.

IV. LITERATURE SURVEY

Siergiejczyk, Mirosław. "Design of radio digital mobile communications in conditions of the Polish railway." Applied Mechanics and Materials 817 (2016): 325-333.

The article presents a method for assessing the impact of radiated electromagnetic interference generated by a selected rail traction unit on the operational process of trackside video monitoring systems (VMS). VMSs operated throughout an extensive railway area are responsible for the safety of people and property transport processes. Emissions of radiated electromagnetic interference generated in an unintended manner by traction vehicles within a railway line lead to interference in the VMS operating process. Based on the knowledge of

2581-4575

International Journal For Recent Developments in Science & Technology

Crossref

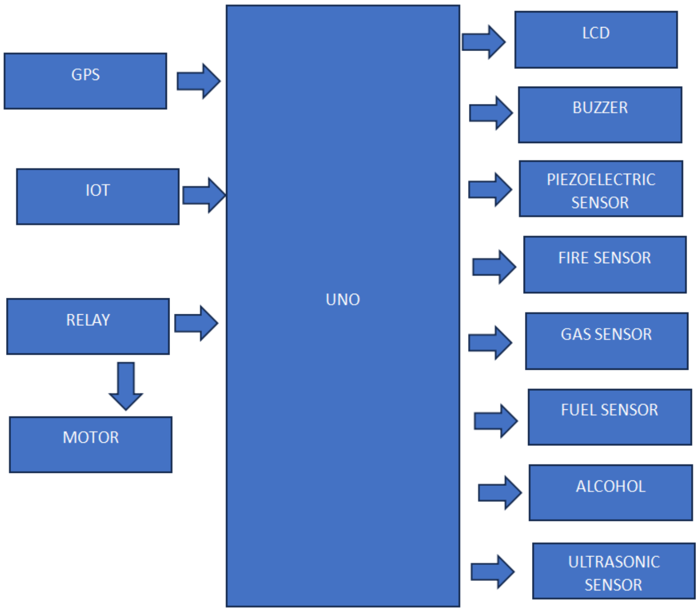
A Peer Reviewed Research Journal

actual VMS operating process data, spectral characteristics and values of individual components of disturbing signals occurring in the emissions of radiated electromagnetic interference, it is possible to determine the parameters of damage intensities for the devices and elements of this system. Using that data enables determining the VMS reliability parameters within its operating system, for an extensive railway area. The article's authors first discussed the basic issues associated with VMS, followed by analysing the topic's current status. They also presented issues related to measuring interference radiated within a rail area, developed a selected operational process model, and determined selected operational indicators for the structures in question. The paper ends with conclusions. Video monitoring systems (VMSs) are one of the most important electronic security systems (ESS). They operate in buildings, open areas, parking lots, logistics bases, airports, etc., and extensive public and railway areas [1–3]. Depending on the operational mode within extensive areas in warehouse and railway facilities, VMSs can be divided into two groups: • Stationary, i.e., operated in facilities permanently set on the ground (foundations), e.g., railway stations, platforms, tunnels, level crossings, turnpikes, underground passages, warehouses and logistics bases storing spare parts, repair workshops, parking spaces—parking lots, warehouse buildings, driveways, etc. [4–6]; • Non-stationary (facilities not permanently fixed to the ground)—e.g., locomotives, electric multiple units, electric locomotives, passenger and freight carriages, trucks, mass transit vehicles and vehicles intended for transporting various materials, etc. [7–9]. Both VMS and all ESSs (especially the fire alarm system—FAS) must send information on their ongoing technical status via two independent telecommunication channels to an Alarm Receiving Centre (ARC) or the State Fire Service (PSP) [10]. The most important ESS operational technical states include the states of alerting, monitoring and damage, whereas the latter is sent only to ARC in the case of FAS [11]. The use of two independent telecommunications channels to exchange information within security systems is associated with ensuring a certain level of reliability, especially in the case of alerting states [12]. In the case of stationary and non-stationary VMSs within a railway area, the facilities of which are classified as the so-called state critical infrastructure (SCI), it is essential to ensure proper organization of the entire system notifying of threats within a railway area and not only the VMSs [12,13]. This is why the following telecommunications lines are set up for stationary and non-stationary VMSs: • Stationary VMS—Permanent telecommunications link in the form of a leased telephone line using a railway optical fibre network (protected against widefrequency band electromagnetic interference within the railway area), as well as a wireless (encrypted) link with a modular signal, which is IT-protected against an intentional third-party and internal attack [14,15]; • Non-stationary VMS—Two independent wireless telecommunications links utilizing various transmitter carrier frequencies, modulated with a digital signal in alarm control units (ACU), which are resistant to electromagnetic interference generated within an extensive railway area, encrypted with appropriate transceiving antenna characteristics [16,17]. In addition, in the case of stationary and non-stationary VMSs, all technical facilities that utilize this system shall be equipped with a local device for recording video-recorder signals of specified

International Journal For Recent Developments in Science & Technology
2581-4575
Crossref
A Peer Reviewed Research Journal

external memory size, the technical parameters of which are set out in domestic regulations (e.g., stadiums) [18–20]. A supplementary and very important issue associated with the VMS and ESS operation process is ensuring specific power supply reliability for these systems operated in a stationary and non-stationary manner [21,22]. ESS shall have ensured basic power supply—from an industrial power grid (stationary facilities) or via transducers from a railway overhead contact line (3 kV DC) (non-stationary facilities) [23,24]. Backup power supply, most often in the form of a battery bank of specific capacity determined by the power balance, is organized in order to guarantee proper ESS functioning in the event of basic power supply failure. This guarantees the functioning of these systems in the monitoring and alerting modes for a time specified by regulations and standards [25,26]. Information on the technical condition of a backup power supply (e.g., battery bank or UPS voltage level, etc.) shall be monitored continuously by the security system alarm control unit, and the information regarding this parameter should be sent to ARC, just like other security signals. In addition, battery banks are located in a metal housing with ACU. The metal housing is locked with a coded lock. In addition, it is monitored with an anti-tampering contact, which generates an alert signal in the event of an unauthorized opening [12,25]. An extensive railway area experiences a distorted electromagnetic environment generated by stationary (radio transmitters and TV transmitters, GSM-R, power supply and overhead contact network, etc.) or non-stationary (electric multiple units, rail carriages, portable security system transmitters, etc.) radiation sources [27,28]. Electromagnetic radiation within a railway area is generated intentionally—e.g., wireless signals of security systems, cellular telephony such as GSM—these signals will be used by authorized railway services. Other sources generate unintentional electromagnetic radiation—e.g., power supply, railway overhead traction lines, high current and voltage consumers—e.g., traction converters, locomotive motors present within these areas [29,30]. Electromagnetic interference generated within a railway area is characterized by a very broad spectrum, from low (single Hz) to very high (single GHz) frequencies. This is due to this railway system accumulating various sources of radiation used by railway workers, as well as power supply and overhead contact line systems used by the pantographs of electric locomotives to draw high-value current (in the order of several dozen kA) upon startup for a short period. It is a serious problem related to the distortion of the electromagnetic environment within such a railway area. Therefore, conducted and radiated interference shall be considered [31–33]. The selected aforementioned issues of ESS and VMS operation throughout an extensive railway area are presented in Figure 1. Figure 1 shows only the selected operational aspects of ESS use within an extensive railway area. The geometric figure in No. 12 shows examples of regions with low and high-frequency band electromagnetic interference originating only from overhead contact lines and systems supplying the entire railway area. High-frequency band electromagnetic interference, so-called radiated interference, occurs throughout the railway area, and its value depends on, among others, distance from the source of a signal generated intentionally or unintentionally. The rest of this article is organized as follows. Section 2 is a critical review of the source literature on the current state of the issue in question. The analysis of fundamental issues related to the measurement method and test results involving interfering electromagnetic signals make up Section 3. Section 4 presents a reliability and operation simulation of a CCTV system for selected damage intensities. It also contains simulation results. The final, fifth chapter contains conclusions arising from the conducted tests and computer simulations.

Block diagram



V. CONCLUSION

Utilizing this innovation can make a quick move when a mishap happens by cautioning casualties' families by sending an SMS. Accordingly, our proposed framework will be helpful for cab drivers just as proprietors while observing the proficiency of the vehicles and surprisingly supportive of the 2- wheelor vehicles. It can likewise diminish the quantity of mishaps. This framework can be upgraded for indoor and open-air testing in the car fabricating industries. We can lessen the passing of mishaps. Utilizing the same innovation further, we can use it for ladies' well-being as we utilize piezoelectric sensors.

VI. REFERENCES

[1] Siergiejczyk, Mirosław. "Design of radio digital mobile communications in conditions of the Polish railway." Applied Mechanics and Materials 817 (2016): 325-333.

[2] Sianturi, Patar Parlindungan, and Catur Apriono. "Near Distance Digital Data Transmission of A Low-Cost Wireless Communication Optical System." 2020 3rd International Conference on Information and Communications Technology (ICOIACT). IEEE, 2020.

2581-4575

International Journal For Recent Developments in Science & Technology

Crossref

A Peer Reviewed Research Journal

[3] Tsou, Thomas, et al. "Development of an open-source GSM femtocell and integrated core infrastructure." MILCOM 2012-2012 IEEE Military Communications Conference. IEEE, 2012.

[4] Kailasam, S., et al. "Accident alert system for driver using face recognition." 2019 IEEE International Conference on Intelligent Techniques in Control, Optimization and Signal Processing (INCOS). IEEE, 2019.

[5] Rishi, Rajvardhan, et al. "Automatic messaging system for vehicle tracking and accident detection." 2020 International Conference on Electronics and Sustainable Communication Systems (ICESC). IEEE, 2020.

[6] Aarya, D. S., and C. K. Athulya. "Anas. P, Basil Kuriakose, Jerin Susan Joy, Leena Thomas,"Accident Alert and Tracking Using Arduino"." International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering 7.4 (2018).

[7] Aarya, D. S., and C. K. Athulya. "Anas. P, Basil Kuriakose, Jerin Susan Joy, Leena Thomas,"Accident Alert and Tracking Using Arduino"." International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering 7.4 (2018).

[8] Khalil, Usman, Tariq Javid, and Adnan Nasir. "Automatic road accident detection techniques: A brief survey." 2017 International Symposium on Wireless Systems and Networks (ISWSN). IEEE, 2017.

[9] Amin, Md Syedul, Jubayer Jalil, and Mamun Bin Ibne Reaz. "Accident detection and reporting system using GPS, GPRS and GSM technology." 2012 International Conference on Informatics, Electronics & Vision (ICIEV). IEEE, 2012.

[10] Vatti, Nagarjuna R., et al. "Smart road accident detection and communication system." 2018 International Conference on Current Trends towards Converging Technologies (ICCTCT). IEEE, 2018.

[11] Kalyani, T., et al. "Accident detection and alert system." International Journal of Innovative Technology and Exploring Engineering (IJITEE) 8.4S2 (2019): 227-229.

[12] Bharath, A. K., M. Saravanan, and K. Aravindhan. "Literature survey on smart vehicle accident prediction using machinelearning algorithms." International Research Journal of Engineering and Technology 6.02 (2019): 2395-0056.

[13] Tai, Wen-Kai, et al. "RTAIS: road traffic accident information system." 2018 IEEE 20th International Conference on High Performance Computing and Communications; IEEE 16th International Conference on Smart City; IEEE 4th International Conference on Data Science and Systems (HPCC/SmartCity/DSS). IEEE, 2018.

[14] Guksa, Barış, and Burcu Erkmen. "Smart phone application for drowsiness detection during driving." 2017 2nd International Conference on Frontiers of Sensors Technologies (ICFST). IEEE, 2017.

[15] Faiz, Adnan Bin, Ahmed Imteaj, and Mahfuzulhoq Chowdhury. "Smart vehicle accident detection and alarming system using a smartphone." 2015 international conference on computer and information engineering (ICCIE). IEEE, 2015.