A TECHNICAL REVIEW ON USE OF VEHICLE MONITORING SYSTEM IN CONSTRUCTION INDUSTRY

Kunal Kandpal[1], Manisha Jamgade[2]

[1]PG Student, Deaprtment of Civil Engineering, Pillai HOC College of Engineering and Technology, Rasayni, Maharashtra, India,
[2] Associate Professor Department of Civil Engineering, Pillai HOC College of Engineering and Technology, Rasayni, Maharashtra, India,

---

Abstract - *The construction business faces a few difficulties on the location that incorporates checking of construction vehicles, precise bookkeeping, the security of laborers, well being of development hardware, mishaps, wastage of fuel because of driver's missteps or absence of value laborers on location interminably expanding interest for innovation which can wipe out or forever address the issues, developing worries of the above issues on building locales are expanding step by step which is now a greater danger to any development organization in our country. For countering these issues we can present a vehicle checking framework for construction vehicles. A procedure is very protected and trustworthy. The idea is an installed application, which constantly monitor working of construction vehicle and describe the situation with the particular vehicle or vehicles on appeal. The Arduino chip interacts sequentially with a Global System for Mobile communication modem and Global Positioning System recipient. The Global System for Mobile communication modem put to use to send place of vehicle from a remote spot constantly. The Global Positioning System recipient modem that utilizations satellite innovation for its route framework will constantly give information like longitude, scope, speed, distance voyaged, and so on. Whenever the solicitation from client is shipped off the communication modem as SMS or can follow live on the Mobile App or Website. The review suggests the utilization of vehicle checking frameworks on building locales utilizing the most recent innovation with a minimal expense procedure that will help the construction business to embrace the innovation and execute it in the field serenely*.

Keywords: Construction business, construction vehicles, Arduino, location, Modem.

1. INTRODUCTION

In-vehicle checking framework - or IVMS - comprises of an electronic gadget or number of gadgets introduced in a vehicle to screen driver as well as vehicle exercises and assist with distinguishing ways of behaving, for example, ceaseless record of vehicle activity, inordinate speed, quick speed increase or sleepy driving, fuel observing, two-way correspondence, geo-fencing, real-time area and some more.

An IVMS gadget can store information for later recovery, or send it to a collector. The data is then broken down to assess the driver's wellbeing and driving practices. In-vehicle checking frameworks utilized this way assist associations that with working business vehicles diminish their pace of mishaps and untimely wear.

IVMS innovation has been embraced in various enterprises and is generally utilized by associations engaged with mining, oil and gas, and open transportation. These checking frameworks consolidate fluctuating highlights and advances, contingent upon the maker and sort of gadget

1.1 NEED OF THE SYSTEM

It is an overall confusion among individuals that when we discuss GPS following, it is just concerning a portable labor force. It is accepted that it is delivery and freightage organizations just that require vehicle global positioning frameworks in their association. Nonetheless, we need to expose this fantasy. Assuming you are a business that has a fixed set-up frozen in-place resources, similar to a development organization, you meet all requirements to be a devoted client of vehicle observing administrations. With armada following, you can guarantee that your machines and vehicles stay where they should be, and are put to use according to the timetable. You won't ever be stressed over your hardware disappearing or being abused.

As industrialization overwhelms the world, it isn't business as usual the development business is quickly pushing ahead with the tide. The hardware that is put to use in this area is exceptionally unambiguous and application-specific. Also, since the apparatus utilized is enormously costly, their proper support, is expected to screen and activity. Such resources are likewise dependent upon robbery because of their extravagant costs.

2. LITERATURE REVIEW

General:

The survey has been made for tracking down the precise place of moving vehicles utilizing IoT. The global positioning framework utilizes light of GPS & manual structure planned show continuous region. The structure requires functioning affiliation or cannot be Simple GPS tracking system. This system involved a transmitter presented on the vehicles and beneficiaries. The system is utilized by location which is

annexed with every vehicle. It utilizes outside equipment and programming execution these GPS beacons can gather the information to get better the effectiveness, well being of individuals, and the general usefulness.

These live following are likewise used in Internet of Things (IoT). The trap of things is the bury working of real devices, structures , vehicles, and dissimilar things finished with sensors , programming, , and equipment framework organization and thus Internet of Things (IoT) moreover anticipated pushed network devices, systems, and organizations that go in further M2M correspondence.

- **Lingjun Tang, Et al (2016)** presumed that the entire framework is made out of two sections: forefront identification and development vehicle discovery. In development vehicle identification, couple of the most usually utilized designing vehicles, which are the water-powered backhoes and dump trucks, are examined.

- **Jiang Yulian (2013)** examined that by utilizing gadgets, correspondences, and PC innovation the experimental outcomes demonstrate the way that the terminal can screen the situation with driving vehicles and the hazardous merchandise in vehicles continuously, to forestall mishaps.

- **Sun Guo-lei and Cao Yan (2007)** state that in this article, we present the global improvement of GIS and MIS given the C/S structure. There might be some deficiency on account of the limits of this construction. In future work, we'll consummate this framework in viable utilize, in the meantime, we will begin the examination of the improvement in light of the B/S structure to extend the utilization of GIS.

- **T.G.Deepika, Et al (2017)** saw that different existing models are being carried out separately. This large number of models are carried out as a solitary unit. The information gathered from these models is being refreshed habitually in the data set, which can be seen by the proprietor. Consequently, this framework gives more data about the driver. The historical backdrop of the driver can be confirmed during the installment times. Additionally, the information security included in this task is more useful to get the framework from the programmer utilizing SHA-1 and SALT calculation. The proposed framework can be added with additional highlights and can be utilized as a help for the public authority transportation.

- **Qingwu Li, Et al (2015)** expressed that the hubs planned in their framework can be introduced not just on the metropolitan streets for giving fundamental data yet in addition on the versatile detecting vehicles for giving portability support and further developing detecting inclusion, and everyone of the hubs builds an enormous scope IoT. The framework can extricate the vehicle visual labels and accomplish ongoing vehicle identification and following. A vehicle visual tag is the extraordinary recognizable proof of the vehicle, so it is of incredible importance in raising a ruckus around town plate vehicles and other criminal ways of behaving.

- **S. Kumar Reddy Mallidi and V. V. Vineela (2018)** presume that by utilizing the SVMS, mishaps will be recognized quickly with seriousness level and will be suggested to specialists right away. Prompt clinical consideration will lessen the number of mishap kills and extreme wounds.

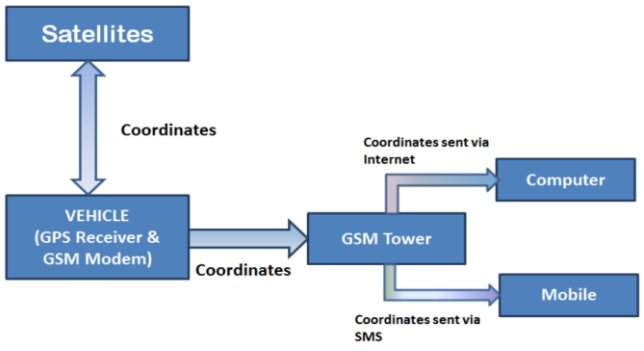
- **Shengli Song, Et al (2011)** expressed that by profoundly concentrating on the key advancements, the framework's constant screen capacity and unwavering quality will be upgraded and advanced. Particularly, the framework is open and extensible, which is advantageous to extend and update. Subsequently, it will meet the necessities of the clients and clients.

- **Taku Murakami, Et al (2002)** needed to improve the information investigation elements that of the servers and update the connection similarly fixed records and different informationwith different frameworks. Eventually, we might want to concoct a framework that takes into consideration the precise gauge of machine future and effective fix arranging.

- **Ebenezer Narh Odonkor and Willie K. Ofosu (2020)** state that to assist with halting vehicle over-burdening, it is suggested, that the proposed vehicle stacking checking framework is carried out. The motor lock framework could forestall vehicle disintegration & mishaps. This might supplant present innovation where occupant need to hang tight for quite a long time at weighing stations before their vehicles' gross weight is caught utilizing gauging sensors introduced in street concrete

3. METHODOLOGY

Flow Diagram :



Flow Diagram of Vehicle Monitoring System

Source(https://www.researchgate.net/figure/Block-Diagram-of-Bull-Tracking-System-BTS_fig1_324154805)

Working :

- The Flow Diagram of the vehicle global positioning framework shows how our framework functions.
- The vehicle following unit is introduced in vehicle that will be in internal of the vehicle as followed.
- The recipient of GPS gets the direction from the satellite which is then shipped off the Global System for Mobile communication tower by the Global System for Mobile communication modem.
- The direction is then shipped off a PC using the web where it is put away in the data set for showing the area on Google map.
- The client can likewise see the area of the vehicle on a cell phone, when the client sends an Short Message Service to the Global System for Mobile communication modem in vehicle, the Global System for Mobile communicationn modem sends one more SMS back to the client with the directions of the area of the vehicle alongside a Google map connect.

4. CONCLUSIONS

The accompanying framework will be useful and more secure contrasted with an elective framework. This framework is clear to carry out on construction vehicles recognizable of the incessant upgrade of the Bei Dou Navigation Satellite System, the incorporation system satellite course structure made from nearby structure to the globe. This paper planned & finished far-off perception framework that upheld the combination of Compass system and Global System of Mobile Communication . The framework will not like back-end data support. It exclusively needs less-worth equipment costs, programming, and convenient framework SMS charges. Upheld step by step usage of cells, it comprehends exploitation PDAs to watch off the vehicle. again improvement, it additionally can be generally utilized for following individuals or things. This remote arranging & following structure design similarly be done by elective satellites course structures & flexible frameworks with wide application prospects.

REFERENCES

1. Abid Khan and Ravi Mishra "GPS – GSM Based Tracking System", International Journal of Trends and Technology, Vol. 3, Issue. 2, (2012).
2. S. Zhengnan, J. Haobin and M. Shidian "Research of the vehicle anti-theft system based on fingerprint identification technology", Automob. Parts, Vol.11,pp. 20–22, (2014)
3. Z. Mingjun, K. Lingchao and H. Chuanyi "Present status and quality analysis for the mechanical automobile anti-theft device products in China" Automob. Parts, Vol. 1, pp.73–75, (2014).
4. Y. Haiyang, C. Zhiliang and L. Shaobo " Design of car alarm system based on radio frequency identification technology ", Comput. Meas. Control, Vol.24(2), pp.144–146, (2016).
5. C. Lina "Design of car security system based on GSM and GPS", Agric. Equip. Veh. Eng., Vol. 53(1), pp. 14–18, (2015).
6. L. Xu, H. Ye and P. Tao "Research and implementation of vehicle real-time monitoring system based on android", Comput. Sci. Appl. Vol.7(2), pp .109–116, (2017) .
7. L. Hongchao, W. Yuanming, H. Xiaoyu, L. Jing, X. Benxian, Design of 10 kV ine switch state signal acquisition device based on GSM short message technology . Instrum. Technol. Vol.6, 33–37 (2018).
8. K Hemachandran, M Saritha, M Akhila, and G Bhargavi " Zigbee Based Advanced Near Field Communication for Hospital Appointment System" IEEE Conference - Second International Conference on Inventive Systems and Control, Coimbatore, India,pp.84-87, (2018).
9. Jingfa wei ,cui-hui chiu, feijiang huang ,junjun z hang and chenglin cai " A cost effective decentralized vehicle remote positioning and tracking system using BeiDou Navigation Satellite System and Mobile Network", EURASIP journal on wireless communications and networking, (2019).
10. Feet management retrieved from http ://www.liveviewgps.com/flee april 04, (2018).
11. Shengli Song,Shuijun Huang,Fantun Su, Qi Zhang (2011), Study on Remote Monitoring and Control System for Construction Vehicle, Advanced material research, 87-9.
12. Siquan, H., Kong, M., & Chundong, S. (2017). Design of vehicle overload detection system based on geophone. IOP Conf. Series: Journal of Physics: Conf. Series 887 (2017).
13. Ankush Das, Nisarg Gandhewar, Devendra Singh Nehra, Mayank Baraskar, Shubham Gurjar and Mubbshir Khan "Survey on Vehicle Tracking Services", M anagement and Research, (2018).
14. Hemachandran, K, Kalaboina Srikanth & Raghupathi, H, "Alive Human Body Detection and Tracking System Using an Autonomous PC Controlled Rescue Robot By Using RF Technology", International Journal of Advance

Research in Science and Engineering, vol. 06, no. 10, pp. 2284-2292, (2017).

15. Hemachandran, K, Macha Pavani & Raghupathi, H, "Design and Implementation of Automated Irrigation System in Agriculture Using Wireless Sensor Network", International Journal of Advance Research in Science and Engineering, vol. 06, no. 10, pp . 2293-2301, (2017).

16. Hemachandran, K, Pulishett y Prasad & Raghupathi, H, "Zigbee Based Intelligent Helmet for Coal Miners", International Journal of Advance Research in Science and Engineering, vol. 06, no. 10, pp. 2310-2317, (2017).

17. Kumar Reddy Mallidi,V. V. Vineela (2018), IOT Based Smart Vehicle Monitoring System, International Journal of Advance Research, 738-741.

18. Lingjun Tang,Dedi Li,Wenming Yang,Qingmin Liao (2016), Video-based construction vehicles detection and its application in intelligent monitoring system, Science Direct, 163-172.

19. Jiang Yulian, (2013), The Vehicle Monitoring Terminal for Dangerous Goods Transportation Based On ARM, ASCE 2013, 2176-2181.

20. T.G.Deepika,A.Devapriya,N.Divya Bharathi (2017), A Survey on Vehicle Monitoring System, International Journal of Science & Engineering Development Research, 116-122.

21. Taku Murakami Takaichi Saigo Yasunori Ohkura Yukio Okawa Tadashi Taninaga (2002), Development of Vehicle Health Monitoring System (VHMS/WebCARE) for Large-Sized Construction Machine, KOMATSU Technical Report Vol 48 No. 150, 15-21.

22. Ebenezer Narh Odonkor, Willie K. Ofosu. (2020), Design and Construction of Vehicle Loading Monitoring System Using Load Sensor and GSM, International journal of applied science and technology , 1-7.