Automated Safety Control Blind Zone Alert System

Javeed S. K
Student
Dept. of ECE
Saveetha School Of Engineering, Chennai
javeed3017@gmail.com

B. Bhuvaneswari
Assistant Professor
Dept. of ECE
Saveetha School Of Engineering, Chennai
bhubaneswari.balachandar@gmail.com

Abstract: This paper presents in modern vehicles many numbers of sensors are used for different applications and also these sensors requirement increases in future, intra-vehicular wireless sensor networks (IVWSNs) have introduced in the automotive industry. This generation vehicle required advanced technology for controlling vehicle to provide safety and as they will able to reduce the amount of wiring harness inside a vehicle. By avoiding the usage of wires in the vehicle, vehicle weight will reduce, then engine performance, fuel economy, and reliability will improve. These advantage on an IVWSN is a flexible platform, and these can support other vehicular applications as well. And the implementation of IVWSN system of cheaper when compared to systems that are using cameras, or radars.

Keywords: Intra-Vehicular, Sensors, Wires, Radars.

INTRODUCTION

In the world, people mostly depend on transportation and it is needed to travel or move from one place to the other place. We choose different types of vehicles as per requirement like airplanes, buses, cars, trains etc. Due to more usage of on-road vehicles leads to vehicular accidents that happen daily. These are due to avoiding traffic rules, lack discipline of the driver, or poor infrastructure. But we can avoid these kinds of disasters by implanting technology inside the vehicles. In modern generation vehicles more, a number of sensors are using inside the vehicles for different kind of applications. And the sensors will be able to provide the security to the people were in inside the vehicle, by controlling the vehicle automatically to the particular situations like the driver in the drunken state, or any obstacles in the route, or vehicle crossing the margins, or avoiding the traffic rules, etc. With these features, we can drive vehicle to driver automatically by itself to given details. If we are implementing more features inside the vehicle for different kinds of applications we need to implement number of sensors inside the vehicle. In order to give connections to the sensors we required a lot of wires, this will increase the weight of the vehicle, and this will reduce the efficiency. For this we need to use, intra-vehicular wireless sensor networks (IVWSNs), this system will reduce more usage of wires, and makes connections wireless.
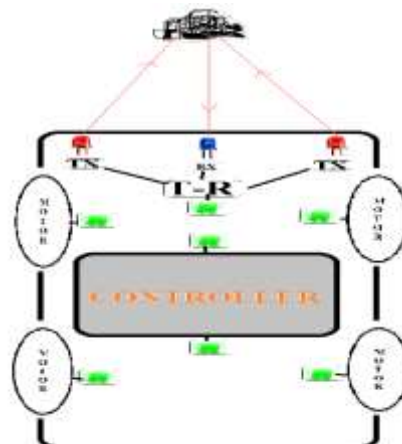
Block Diagram:

Fig 1: Block diagram

Description

The present invention discloses a vehicle monitoring and detection method and system for conveying important information to a driver-operator to ensure safe vehicle operation. This system includes an audio and visual vehicle blind-spot detection and warning system for assisting a driver to check the status of blind-spot areas. It is based on methods for detecting the presence and proximity of vehicles, obstacles, and pedestrians, particularly in the blind-spot areas.

The system comprises wireless sensor means and communications for the transmission of status and information to a mobile computing device (e.g., Smartphone) for subsequent data processing. It further comprises a graphical, visual indication system established in conjunction with a Smartphone application in order to determine and convey the status of objects among the perimeter of the said vehicle. Operationally, if the distance between the said vehicle and the detection of a single object or plurality of objects is within a predetermined threshold, the application evokes audio and visual warnings to notify the driver of the proximity of a tracked object and any potential danger of collision or contact. One purpose of this present invention is directed toward facilitating safe and controlled vehicle navigation in the presence of static and moving objects.

Advantages:
- Efficient use of resources
- Reducing weight of vehicle
- Improving vehicle performance
- Energy saving
- Reduction of complex connections
- Easy maintenance

Disadvantages:
- Required components are costlier
- Complex design

CONCLUSION

In modern vehicles the will be equipped with more wireless sensors, which improve fuel economy, engine performance, safety and provides more features. Additional features and functionalities can be given by utilizing the sit out of rigging time of these sensors. In this paper, the outwardly hindered zone prepared system is picked as an illustrative application; a phenomenally made structure is presented in the back of a vehicle and it recognizes the proximity of a target vehicle in its outwardly disabled zone in light of the got hail nature of packages convey by the sensors, for instance, TPMS sensors of the gaol vehicle. The structure is created, executed, and surveyed on a financially open BLE arrange. Appraisal comes to fruition in view of the two veritable examinations drove are outstandingly promising as the proposed structure can finish about 95%– 99% disclosure rate with under 15% false alert rate. Due to its negligible exertion (when stood out from the present systems, for instance, radar-and camera-based game plans) and clear execution (i.e., the proposed structure can be completed on the present sensors with slight changes), the IVWSN-based outwardly disabled zone prepared system presented in this paper could be an engaging response for automakers.

REFERENCES

[1] M. Ahmed, C. Saraydar, T. ElBatt, J. Yin, T. Talty, and M. Ames, "Intravehicular wireless networks," in Proc. IEEE Globe communication Workshop, Nov. 2007, pp. 1–9.

[2] J. Yick, B. Mukherjee, and D. Ghosal, "Wireless sensor network survey," Computer Network, vol. 52, no. 12, pp. 2292–2330, 2008.

[3] F. Kong and J. Tan, "A collaboration-based hybrid vehicular sensor network architecture," in Proc. IEEE Int. Conf. Inf. Autom. (ICIA), 2008, pp. 584–589.

[4] I. Demirkol, C. Ersoy, and F. Alagoz, "Mac protocols for wireless sensor networks: A survey," IEEE Communications. Mag., vol. 44, no. 4, pp. 115–121, Apr. 2006.

[5] S. C. Ergen and P. Varaiya, "Tdma scheduling algorithms for wireless sensor networks," Wireless Netw, vol. 16, no. 4, pp. 985–997, 2010.

[6] J.-R. Lin, T. Talty, and O. K. Tonguz, "On the potential of Bluetooth low energy technology for vehicular applications," IEEE Communications. Mag., Ad Hoc Sensor Networks. Series, vol. 53, no. 1, pp. 267–275, Jan 2015.

[7] J.-R. Lin, T. Talty, and O. K. Tonguz, "An empirical performance study of intra-vehicular wireless sensor networks under Wi-Fi and Bluetooth interference," in Proc. IEEE Global Commun. Conf. (GLOBECOM), Dec. 2013, pp. 581–586.

[8] H. Lee, H.-M. Tsai, and O. K. Tonguz, "On the security of intra-car wireless sensor networks," in Proc. IEEE 70th Veh. Technol. Conf. (VTC), 2009, pp. 1–5.