

Vehicle to Vehicle Communication for Crash Avoidance System Based on CAN Bus

Prof. S. B. Mandlik¹, Vikas Raut², Sadaphal Sanket³, Sabale Tejas⁴

¹Professor, Pravara Rural Engineering College, Loni, India

^{2,3,4}Student, Pravara Rural Engineering College, Loni, India

Abstract: *Controlled Area Network (CAN) architecture has been implemented to avoid accidents that are happening around the world. The benefits of CAN based bus network over other communication protocols will offer increased flexibility for future technology insertions. This paper presents the specific application of wireless communication, Automotive Wireless Communication also called as Vehicle-to-Vehicle Communication. The paper first gives an introduction to the Automotive Wireless Communication. It explains the technology used for Automotive Wireless Communication along with the various automotive applications relying on wireless communication. Vehicle-to-Vehicle communication is the wireless transmission of data between motor vehicles in a real time. The main aim of V2V communication is to prevent accidents by allowing vehicles in transit to send position and speed data to one another. The vehicle's driver may simply receive a warning should there be a risk of an accident or the vehicle itself may take pre-emptive actions as braking to slow down.*

Keywords: *Collision Warning System, CAN Protocol, Vehicle to Vehicle Communication, Atmega Controller.*

REFERENCES

- [1] Kanarachos, Stratis (2009). "A new method for computing optimal obstacle avoidance steering manoeuvres of vehicles". International Journal of Vehicle Autonomous Systems 7 (1): 73–95. doi:10.1504/IJVAS.2009.027968. Retrieved 29 July 2015.
- [2] P. S. Kedareshwar and V. Krishnamoorthy, "A CAN protocol based embedded system to avoid rear-end collision of vehicles," 2015 IEEE International Conference on Signal Processing, Informatics, Communication and Energy Systems (SPICES), Kozhikode, 2015, pp. 1-5.
- [3] T. Kasuga and S. Yakubo, "Design of a dependable model vehicle for rear-end collision avoidance and its evaluation," in Instrumentation and Measurement Technology Conference (I2MTC), 2010 IEEE, 2010, pp. 641-646.
- [4] R. Girshick, J. Donahue, T. Darrell, and J. Malik, "Rich feature hierarchies for accurate object detection and semantic segmentation," in Proceedings of the IEEE conference on computer vision and pattern recognition, 2014, pp. 580–587.
- [5] J. B. Kenney, "Dedicated short-range communications (DSRC) standards in the United States," Proceedings of the IEEE, vol. 99, no. 7, pp. 1162–1182, 2011.
- [6] Liang Li, "A Rear-end Collision Avoidance System of Connected Vehicles" 2014 IEEE 17th International Conference on Intelligent Transportation Systems (ITSC) October 8-11, 2014. Qingdao, China
- [7] M. Hashimoto, T. Konda, Bai. Zhitao and K. Takahashi, "Laser-based tracking of randomly moving people in crowded environments," IEEE Int. Conf. Automation and Logistics, 2010.