Adaptive Highway Networks: An IoT Solution for Improving Road Safety at Turnovers and U-Turns

T. Aditya[1], P. Vishnu Kumar[2], Y. Harsha Vardhan[2], J. Sreekaree[2], K. Pavan Kumar Sarma[2],
L. Niveditha[2], K. Sai Deekshita[2], G. Varahi[2]

Ashoka Women's Engineering College, Dupadu, Andhra Pradesh, India[1]
G. Pullaiah College of Engineering and Technology, Pudur, Andhra Pradesh, India[2]

Abstract: *Highway construction is a crucial component of any region's infrastructure, and it is carried out in several different ways nowadays. Adaptive Highways Network (AHN) uses sensors and microprocessors for automatic design. Innovative highway design employs roadside controls and intelligent vehicles for traffic management and control. The Automated Highway System enhances highway safety, operational efficiency, and other vehicle and user characteristics. This innovation has enhanced the architecture of highways and reduced vehicle emissions. AHS, or Smart Road, is a projected intelligent transportation system technology for driverless automobiles on specific roadways. It is commonly employed to alleviate traffic congestion since it reduces following distances and permits more vehicles on the road. Together, the car and the roadway strive to avoid barriers, boost traffic flow, and decrease congestion. The AHS concept integrates vehicle intelligence, intelligent highway infrastructure, and vehicle-to-infrastructure communication technology.*

Keywords: Adaptive Highways Network (AHN), Internet of Things

REFERENCES

[1]. Liu, Chenglong & Du, Yuchuan & Ge, Yiheng & Wu, Difei & Zhao, Cong & Li, Yishun. (2021). New Generation of Smart Highway: Framework and Insights. Journal of Advanced Transportation. 2021. 1-12. 10.1155/2021/9445070.

[2]. Ranjan, Robins. (2022). Smart Street Light on Highway with Energy Conservation and Accident Prevention. International Journal for Research in Applied Science and Engineering Technology. 10. 549-557. 10.22214/ijraset.2022.45326.

[3]. Rajak, Akash & Mishra, Vidushi & Tripathi, Arun. (2022). A system to detect and issue e-challan for overloaded vehicles at smart highways.

[4]. Liu, Chenglong & Du, Yuchuan & Ge, Yiheng & Wu, Difei & Zhao, Cong & Li, Yishun. (2021). New Generation of Smart Highway: Framework and Insights. Journal of Advanced Transportation. 2021. 1-12. 10.1155/2021/9445070.

[5]. Villanueva, F. & Albusac, Javier & Linares, Luis & Villa, D. & López, Juan Carlos. (2013). Architecture for Smart Highway Real Time Monitoring. 1277-1282. 10.1109/WAINA.2013.55.

[6]. Yerranagu, Harshavardhan & Sreekaree, Jonnalagadla & Shaik, Mohammad Ashwak & Sarma, K Pavan Kumar & Ali, Adnan & Sha, Akula & Varaprasad, R.. (2023). Plant Leaf Disease Detection using IoT, DL and ML. International Journal of Advanced Research in Engineering. Volume 3. 2581-9429. 10.48175/IJARSCT-7888.

[7]. Yerranagu, Harshavardhan & Srinivas, M & Sha, Akula & Ali, Adnan. (2023). A Review on Outliers in IoT. 10.36346/sarjet.2022.v04i06.00X.

[8]. Lakshmi Sravya, Peddireddy & Yerranagu, Harshavardhan & Ali, Adnan & Sha, Akula & Madhulaya, P. & Madhulatha, P. & Varahi, Gondimalla & Varaprasad, R.. (2022). Photovoltaic, Internet-of-Things-Enabled Intelligent Agricultural Surveillance System. South Asian Research Journal of Engineering and Technology. 4. 78-85. 10.36346/sarjet.2022.v04i05.001.

[9]. Yerranagu, Harshavardhan & Ali, Adnan & Kumar, P. & Srinivas, M. & Netra, K. & Achari, V. &

Varaprasad, R.. (2022). A Comprehensive Survey of Internet of Things Applications, Threats, and Security Issues. South Asian Research Journal of Engineering and Technology. 4. 63-77. 10.36346/sarjet.2022.v04i04.003.

[10]. SANDEEP, KESI & M.ROHIT, REDDY & BABU, P. & AILNENI, SAHITH & TEJA, K.. (2010). Road Accidents Prevention and Detection. International Journal of Computer Applications. 1. 10.5120/455-758.

[11]. Kang, JongHo & Kim, KyungWhan & Ha, ManBok & Kim, SeongMun. (2014). Development of the U-turn Accident Model at 4-Legged Signalized Intersections in Urban Areas. Journal of the Korean Society of Road Engineers. 16. 119-129. 10.7855/IJHE.2014.16.2.119.

[12]. Huang, Rui & Liu, Hui & Ma, Hongliang & Qiang, Yujie & Pan, Kai & Gou, Xiaoqing & Wang, Xin & Ye, Dong & Wang, Haining & Glowacz, Adam. (2022). Accident Prevention Analysis: Exploring the Intellectual Structure of a Research Field. Sustainability. 14. 8784. 10.3390/su14148784.

[13]. Nagen Kumar Sahoo (2017); Smart Highway; Int J Sci Res Publ 7(12) (ISSN: 2250-3153). http://www.ijsrp.org/research-paper-1217.php?rp=P727091