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Smart Motorcycle Vest

 Dr. Harish S.¹, Darshan Gowda L.², Anjali³, K. Sandhya Rani⁴, Thippala Devendra⁵ Associate Professor, Electronics and Communication Engineering¹ Students, Electronics and Communication Engineering^{2,3,4,5} R.L. Jalappa Institute of Technology, Doddaballapur, Karnataka, India.

Abstract: The Smart Motorcycle Vest is a pioneering safety gear that utilizes advanced technology to enhance rider protection and revolutionize motorcycle safety. This cutting-edge vest incorporates features such as high-visibility LED lights, intelligent collision detection, real-time haptic feedback, an integrated communication system, and active impact protection. By integrating these innovations, the vest aims to provide riders with unparalleled safety and a secure riding experience. This article explores the key advancements and benefits of the Smart Motorcycle Vest, highlighting its potential to transform the motorcycle industry and improve road safety for riders. Connectivity plays a crucial role in the smart vest's capabilities. Utilizing wireless communication, the vest establishes connections with other vehicles, infrastructure, and emergency services. This connectivity enables the exchange of vital information such as location, speed, and intentions, fostering improved situational awareness for both the rider and nearby vehicles. In the unfortunate event of an accident, the vest automatically initiates an emergency distress signal, transmitting precise location details to expedite rescue operations

Keywords: Driver Safety, Sensor Technology, Wireless Connectivity, Location tracking and User interface.

REFERENCES

- [1]. Smart And Safe Riding Jacket Using IotDr. J. Krishna, G.ShivaPoojitha, M.Swarna Latha, Z. Pravallika, Y.V.Sai Teja, L.VishnuVardhanIssue No.02, February 2022 IEEE.
- [2]. Motorcycle Vest Using Arduino and Vibration Sensing Module Prof. Himadri Nath Saha, Tanishq Banerjee, Suvrojit Kumar Saha, Arjun Dutta, Shuvam Ghosal, Ranit Bandyopadhyay. 2020 9'th IEEE.
- [3]. Belted Safety Jacket: A New Concept In Powered Two-Wheeler Passive SafetyA. Grassi, D. Barbani, N. Baldanzini, R. Barbieri, M. Pierini, AIAS 2021, 6-9 September 2021, Pisa, Italy.
- [4]. Intelligent Motorcycle Monitoring Scheme Using Iot With Expert System In Bangladesh Saima Siddique Tashfia, Rahabul Islam, Sadee Ibn Sultan, Md. Wahidur Rahman, Md. Ahsan Habib, Lubna Yasmin December, 2020.
- [5]. Jacket For Visually ImpairedYalla Mani Sai Suhith, JathinKolla, Shinde Praneeth, Kamuju Abhi Subrahmanyam, ManchiryalaSamanvitha BVRIT Hyderabad College of Engineering for Women, Hyderabad, India-2022.
- [6]. Iot Enabled Smart Bicycle Safety SystemAjmainInqiadAlam, Mahfuzur Rahman, Sharmin Afroz, MahbubulAlam, Jia Uddin, Md. Ashraful Alam2020.
- [7]. A. Jovicic, P. Viswanath, and S. Kulkarni, "Upper bounds to transport capacity of wireless networks," IEEE Trans. Inf. Theory, vol. 50, no. 11,pp. 2555–2565, Nov. 2004.
- [8]. Mirza Golam Kibria, et.al, "Outage Analysis of Offloading in Heterogeneous Networks: Composite Fading Channels", 0018-9545, 2016 IEEE, DOI 10.1109/TVT.2017.2703874, IEEE Transactions on Vehicular Technology.
- [9]. F. Xue, L. Xie, and P. Kumar, "The transport capacity of wireless networks over fading channels," IEEE Trans. Inf. Theory, vol. 51, no. 3, pp. 834–847, Mar. 2005
- [10]. M. Naphade, G. Banavar, C. Harrison, J. Paraszczak and R. Morris, "Smarter cities and their innovation challenges," IEEE Computer, vol. 44, no. 6, pp. 32-39, Jun 2011.

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- [11]. S. Lee, J. Park, M. Gerla and S. Lu, "Secure incentives for commercial ad dissemination in vehicular networks," IEEE Trans. Veh. Technol., vol. 61, no. 6, pp. 2715-2728, Jul 2012.
- [12]. K. Fu, Y. S. Chen, P. Cheng, Y. Yuk, R. Yongho Kim and J. S. Kwak, "Multicarrier technology for 4G WiMax system [WiMAX/LTE Update]," IEEE Commun. Mag., vol. 48, no. 8, pp. 50-58, Aug 2010.
- [13]. JongyeopKim,et.al, "Coexistence of Full-Duplex Based IEEE 802.15.4 and IEEE 802.11", 1551-3203, 2018 IEEE, DOI 10.1109/TII.2018.2866307, IEEE Transactions on Industrial Informatics.
- [14]. W. Ni, I. B. Collings and R. P. Liu, "Relay handover and link adaptation design for fixed relays in IMT-Advanced using a new Markov chain model," IEEE Trans. Veh. Technol., vol. 61, no. 4, pp. 1839-1853, May 2012.
- [15]. L. Xie and P. Kumar, "A network information theory for wireless communication: Scaling laws and optimal operation," IEEE Trans. Inf. Theory, vol. 50, no. 5, pp. 748–767, May 2004.
- [16]. M. Franceschetti, D. Migliore, and P. Minero, "The capacity of wireless networks: Information-theoretic and physical limits," IEEE Trans. Inf. Theory, vol. 55, no. 8, pp. 3413–3424, Aug. 2009.
- [17]. M. Grossglauser and D. N. C. Tse, "Mobility increases the capacity of ad hoc wireless networks," IEEE/ACM Trans. Netw., vol. 10, no. 4, pp. 477–486, Aug. 2002.
- [18]. C. Zhang, S. Ariyavisitakul and M. Tao, "LTE-advanced and 4G wireless communications [Guest Editorial]," IEEE Commun. Mag., vol. 50, no. 2, pp. 102-103, Feb 2012.
- [19]. J. Lin, A. Vinel, S. Vassilaras, T. Zhang and K. Lo, "Special section on telematics advances for vehicular communication networks," IEEE Trans. Veh. Technol., vol. 61, no. 1, pp. 1-2, Jan 2012.
- [20]. Q. Wang, P. Fan and K. B. Letaief, "On the joint V2I and V2V scheduling for cooperative VANETs with network coding," IEEE Trans. Veh. Technol., vol. 61, no. 1, pp. 62-73, Jan 2012.
- [21]. F. Dressler, F. Kargl, J. Ott, O. K. Tonguz and L. Wischof, "Research challenges in intervehicular communication: lessons of the 2010 Dagstuhl seminar," IEEE Commun. Mag., vol. 49, no.5, pp. 158-164, May 2011.
- [22]. IWPC International Wireless Industry Consortium, "Developmental and troublesome dreams towards ultrahigh limit systems," pp. 1–89, 2014.
- [23]. I.F. Akyildiz, X. Wang, and W. Wang, "Remote work arranges: a study," Journal of Computer Networks, pp. 445–487, vol. 47, issue 10, 2005.
- [24]. N. Himayat, S. Yeh, and A. Panah, "Multi-radio heterogeneous systems: models and execution," In International Conference on Computing, Networking and Communications (ICNC), pp. 252–258, Honolulu, HI, USA, February, 2014.
- [25]. Ahmed Al-Saadi.et.al, "Steering Protocol for Heterogeneous Wireless Mesh Networks", IEEE Transactions on Vehicular Technology, PP-0018-9545, IEEE, 2015.
- [26]. Z. Yang, Q. Yang, and F. Fu, "An epic weight altering plan in LTE moreover, WiFi existed together framework for OFDMA system," In Proceedings of Global Conference on Wireless Communications and Signal Processing, pp. 1–55, Hangzhou, China, 2013.
- [27]. D.H. Hagos, and R. Kapitza, "Focus on execution driven offload strategies for LTE frameworks," In Proceedings of IEEE 6th Joint IFIP Wireless and Mobile Networking Conference (WMNC), pp. 1–10, Dubai, UAE, 2013.
- [28]. L. Hu, C. Colett, N. Huan, I.Z. Kovács, B. Vejlgaard, R. Irmer, and N. Scully, "Reasonable indoor Wi-Fi and Femto course of action consider as the offloading answer for LTE enormous scale frameworks," In IEEE Vehicular Technology Conference (VTC Fall), pp. 1–6, Quebec City, QC, Canada, 2012.
- [29]. 3GPP, Group Service and System Aspects Service Requirements for Evolution of 3 GPP System (Rel.8), 3GPP TS 22.278, Dec. 2008

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