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Driver Activity Detection and Alert System Using Machine Learning

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Abstract: *The Driver Activity Detection and Alert System is a crucial solution for promoting road safety by monitoring the behavior of drivers and alerting them in case of drowsiness or distraction while driving. With the rising number of road accidents globally, especially in urban areas, the need for an Intelligent Transportation System (ITS) has become more critical than ever. In India, the National Crime Records Bureau (NCRB) reports over 135,000 traffic-related deaths annually, highlighting the urgent need for such innovative systems to be implemented. The proposed method for driver activity detection and alert system involves advanced techniques such as Haar Cascade Classifiers, and Eye Aspect Ratio (EAR). These techniques enable the system to accurately detect any signs of distraction or drowsiness in the driver, and generate an audio alert to remind them to drive safely*

Keywords: Haar Cascade Classifiers, and Eye Aspect Ratio (EAR).

REFERENCES

[1]. M. Ngxande, J. -R. Tapamo and M. Burke, "Driver drowsiness detection using behavioral measures and machine learning techniques: A review of state-of-art techniques," 2017 Pattern Recognition Association of South Africa and Robotics and Mechatronics (PRASA-RobMech), 2017, pp. 156-161.

[2]. G. Sikander and S. Anwar, "Driver Fatigue Detection Systems: A Review," in IEEE Transactions on Intelligent Transportation Systems, vol. 20, no. 6, pp. 2339-2352, June 2019.

[3]. M. Singh, G. Kaur, "Drowsiness detection on eye blink Duration using algorithm", International Journal of Emerging Technology and Advanced Engineering, Volume 2, Issue 4, April 2012.

[4]. M. Ramzan, H. U. Khan, S. M. Awan, A. Ismail, M. Ilyas and A. Mahmood, "A Survey on State-of-the-Art Drowsiness Detection Techniques," in IEEE Access, vol. 7, pp. 61904-61919, 2019.

[5]. Chin-Teng Lin, Ruei-Cheng Wu, Sheng-Fu Liang, Wen-Hung Chao, Yu-Jie Chen and Tzyy-Ping Jung, "EEG-based drowsiness estimation for safety driving using independent component analysis," in IEEE Transactions on Circuits and Systems I: Regular Papers, vol. 52, no. 12, pp. 2726-2738.

[6]. R. N. Khushaba, S. Kodagoda, S. Lal and G. Dissanayake, "Driver Drowsiness Classification Using Fuzzy Wavelet-Packet-Based Feature-Extraction Algorithm," in IEEE Transactions on Biomedical Engineering, vol.58, no.1, pp.121-131, Jan.2011.

[7]. B. Alshaqaqi, A. S. Baquhaizel, M. E. Amine Ouis, M. Boumehed, A. Ouamri and M. Keche, "Driver drowsiness detection system," 2013 8th International Workshop on Systems, Signal Processing and their Applications (WoSSPA), 2013, pp. 151-155.

[8]. Fouzia, R. Roopalakshmi, J. A. Rathod, A. S. Shetty and K. Supriya, "Driver Drowsiness Detection System Based on Visual Features," 2018 Second International Conference on Inventive Communication and Computational Technologies (ICICCT), 2018, pp. 1344-1347.

[9]. C. -Y. Lin, P. Chang, A. Wang and C. -P. Fan, "Machine Learning and Gradient Statistics Based Real-Time Driver Drowsiness Detection," 2018 IEEE International Conference on Consumer Electronics-Taiwan (ICCE-TW), 2018, pp. 1-2.

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[10]. K. S. Sankaran, N. Vasudevan and V. Nagarajan, "Driver Drowsiness Detection using Percentage Eye Closure Method," 2020 International Conference on Communication and Signal Processing (ICCSP), 2020, pp. 1422-1425.

[11]. A. Awasthi, P. Nand, M. Verma and R. Astya, "Drowsiness detection using behavioral-centered technique-A Review," 2021 11th International Conference on Cloud Computing, Data Science & Engineering (Confluence), 2021, pp. 10081013.

[12]. N. Radha, E. M. Malathy, R. Swathika, R. B. Jananie and A. A. Silviya, "Drowsiness Detection System using Visual Articulators," 2021 Third International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV), 2021, pp. 1086-1091.

[13]. M. Kahlon and S. Ganesan, "Driver Drowsiness Detection System Based on Binary Eyes Image Data," 2018 IEEE International Conference on Electro/Information Technology (EIT), 2018, pp. 0209-0215.

[14]. C. Yashwanth and J. S. Kirar, "Driver's Drowsiness Detection," TENCON 2019 - 2019 IEEE Region 10 Conference (TENCON), 2019, pp.1622-1625

[15]. A. Sinha, R. P. Aneesh and S. K. Gopal, "Drowsiness Detection System Using Deep Learning," 2021 Seventh International conference on Bio Signals, Images, and Instrumentation (ICBSII), 2021, pp. 1-6.

[16]. Girish, A. Kumar, A. Kumar and A. M, "Driver Fatigue Detection," 2020 IEEE 17th India Council International Conference (INDICON), 2020, pp. 1-6.

[17]. Ghourabi, H. Ghazouani and W. Barhoumi, "Driver Drowsiness Detection Based on Joint Monitoring of Yawning, Blinking and Nodding," 2020 IEEE 16th International Conference on Intelligent Computer Communication and Processing (ICCP), 2020, pp. 407-414.

[18]. Biju and A. Edison, "Drowsy Driver Detection Using Two Stage Convolutional Neural Networks," 2020 IEEE Recent Advances in Intelligent Computational Systems (RAICS), 2020, pp. 7-12.