Abstract

Now-a-days two wheelers is the most preferred mode of transport. It is highly desirable for bike riders to use helmet. This paper presents image processing technique by which motorcyclists without helmet can be detected. In this moving vehicles can be detected by thresholding and then classified into motorcyclists and non motorcyclists by area and aspect ratio. If in case motorcyclist is detected without a helmet, the number plate of motorcycle is read and noted. A simple algorithm is designed that can help to recognize number plates of motor cyclists using images taken by camera. The recognition of number plate algorithm has five parts: image procurement, preliminary processing, fringe detection and segmentation, feature extraction and recognition of character number plates using suitable machine learning algorithms. A database will be generated with the records to identify every offender accurately and arrest of suspect’s vehicle, imposing helmet violation fines, the system implements pure machine learning in order to identify ever type of helmet that it comes across with minimum computation cost.

References
1. Amit Verma et al. (2010), “Vehicle Number Plate Detection using Sobel Edge Detection Technique” IJCST, Vol. 1, Issue 2.

2. J. Chiverton “Helmet presence classification with motorcycle detection and tracking in IET Intelligent Transport Systems”, vol.6, Issue 3, IEEE 2012.

3. "Automatic detection of Motorcyclists without helmet" by Silva, Kelson Aires, Thiago Santos, Kalyf Abdala, Rodrigo Veras, Andre Soared, Departamento de Computaccao, 2013, Latin America Computing Conference, IEEE 2013.

4. “Detection of motorcyclist without helmet using video convolution neural network” by C. Vishnu, Dinesh Singh, C. Krishna Mohan, Sohan Babu; International joint conference on Neural Networks(IJCNN), IEEE 2017.

5. A. Akoum et al. (2009), “Two Neural Networks for License Number Plates Recognition” Journal of Theoretical and Information Technology Intersections, IEEE 2010.

6. “Automated number plate recognition system using machine learning algorithms (k star)” by Er. Dinesh Bhardwaj, Er. Shruthi, International Journal of Enhanced Research in Management and Computer Application, vol.3, Issue 6, June 2014, Impact factor: 1.147, available.

7. “Automatic License plate recognition using OpenCV and neural network” by Sweta kumar, Leeza gupta, Prena gupta, vol-5, issue-3, May-June 2017.

8. “Vehicle Number Plate Detection using Image Processing” by Abhay Singh, Anand Kumar Gupta, Anmol singh, Anuj Gupta, Sherish Johri, International Research Journal of Engineering and Technology (IJRJET), vol. 05, issue 03, March 2018.

9. “A Machine Learning Algorithm for Automatic Number Plate Recognition” by Reshu kumari, Surya Prakash Sharma, International Journal of Computer Appplications, vol. 174-no. 1, Sep 2017.

10. Cascade Classifier based Helmet detection using OpenCV in Image Processing” by Shreya bhagat, Dhwani Contractor, Sonai Sharma, Tanu Sharma, Mrs. Ketki C. Pathak, National Conference on Recent Trends in Computer and Communication Technology (RTCCT), May 2016.

**Index Terms**

Computer Science  
Image Processing

**Keywords**

Artificial Intelligence, Image processing, Machine learning
