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Helmet Detection using Machine Learning and Automatic License Plate Recognition

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Abstract: Bike mishaps have been quickly developing during that time in numerous nations. In India in excess of 37 million individuals utilize bikes. Subsequently, it is important to foster a framework for programmed location of protective cap wearing for street wellbeing. Subsequently, a custom item location model is made utilizing a Machine learning based calculation which can recognize Motorcycle riders. On the location of a Helmetless rider, the License Plate is separated and the License Plate number is perceived utilizing an Optical Character Recognizer. This Application can be executed continuously involving a Webcam or a CCTV as info.

Keywords: Automatic License Plate Recognition (ALPR), Deep Neural Network (DNN), Helmet Detection, Machine Learning, Mean Average Precision (mAP), Optical Character Recognition (OCR), You Only Look Once (YOLO).

REFERENCES

- [1]. Viola and Jones, "Robust Real-time Object Detection", IJCV 2001.
- [2]. Navneet Dalal and Bill Triggs, "Histogram of oriented gradients for human detection".
- [3]. Ross, Jeff, Trevor and Jitendra "Rich feature Hierarchy for Accurate object Detection".
- [4]. Shaoqing Ren, Kaiming He, Ross Girshick, Jian Sun, "Fast R-CNN" (Submitted on 4 Jun 2015 (v1), last revised 6 Jan 2016 (this version, v3)).
- [5]. Joseph Redmon, Ali Farhadi, "YOLO9000: Better, Faster, Stronger", University of Washington, Allen Institute Of AI.
- [6]. Joseph Redmon, Ali Farhadi, "YOLOv3: An Incremental Improvement", University of Washington, Allen Institute of AI.
- [7]. Wei Liu, Dragomir Anguelov, Dumitru Erhan, Christian Szegedy, Scott Reed, Cheng Yang Fu, Alexander C. Berg, "SSD: Single Shot MultiBox Detector".
- [8]. A. Adam, E. Rivlin, I. Shimshoni, and D. Reinitz, "Robust real-time unusual event detection using multiple fixedlocation monitors," IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 30, no. 3, pp. 555–560, March 2008.
- [9]. AlexeyAB, https://github.com/AlexeyAB/darknet#requirements.
- [10]. C.-Y. Wen, S.-H. Chiu, J.-J. Liaw, and C.-P. Lu, "The safety helmet detection for atm's surveillance system via the modified hough transform," in IEEE 37th Annual International Carnahan Conference on Security Technology., 2003, pp. 364–369.
- [11]. C.-C. Chiu, M.-Y. Ku, and H.-T. Chen, "Motorcycle detection and tracking system with occlusion segmentation," in WIAMIS '07, USA, 2007
- [12]. A. Hirota, N. H. Tiep, L. Van Khanh, and N. Oka, Classifying Helmeted and Non-helmeted Motorcyclists. Cham: Springer International Publishing, 2017, pp. 81–86.

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