

Traffic Sign Detection

Prof. S. P. Bholane¹, Hrishikesh Patil², Achal Shrishrimal³, Akshay Sonawane⁴, Nikhil Tekale⁵

Professor, Department of Computer Engineering ¹

Students, Department of Computer Engineering ^{2,3,4,5}

Sinhgad College of Engineering, Pune, Maharashtra, India

Abstract: Road signs are important to ensure smooth traffic flow without bottlenecks or mishaps. Road symbols are the pictorial representations having different necessary information required to be understood by driver. Road signs in front of the vehicle are ignored by the drivers and this can lead to catastrophic accidents. This paper presents an overview of the traffic sign board detection and recognition and implements a procedure to extract the road sign from a natural complex image, processes it and alerts the driver using voice command. It is implemented in such a way that it acts as a boon to drivers to make easy decisions. There are several major challenges that affect the detection and recognition process of traffic signs and makes it difficult for the driver to identify the signs in adverse weather conditions and darkness, these challenges and problems are highlighted in this study. Traffic signs are detected based on various features such as color, shape, and texture etc. Based on these features numerous methods exist for detection of traffic signs. We have describe a new, real-time traffic sign detection. This challenge gets more difficult to meet in a city like environment where multiple traffic signs, ads, parking vehicles, pedestrians, and other moving or background objects make the recognition much more difficult.

Keywords: Traffic Sign Detection, Recognition, Implementation, CNN Algorithm

REFERENCES

- [1]. David Soendoro, Iping Supriana "Traffic Sign Recognition with Color-based Method, Shape-arc Estimation and SVM," International Conference on Electrical Engineering and Informatics 17-19 July 2011.
- [2]. Rongqiang Qian, Bailing Zhang, Yong Yue and Frans Coenen "Robust Chinese Traffic Sign Detection and Recognition with Deep Convolutional Neural Network," 11th International Conference on Natural Computation (ICNC), 2015.
- [3]. Md. Abdul Alim Sheikh, Alok Koley and Tanmoy Maity "Traffic Sign Detection and Classification using Colour Feature and Neural Network," International Conference on Intelligent Control Power and Instrumentation (ICICPI), 2016
- [4]. Tiago Moura, António Valente, António Sousa, Vítor Filipe "Traffic Sign Recognition for Autonomous Driving Robot," IEEE International Conference on Autonomous Robot Systems and Competitions (ICARSC) May 14-15, 2014.
- [5]. Tiago Moura, António Valente, António Sousa, Vítor Filipe "Traffic Sign Recognition for Autonomous Driving Robot," IEEE International Conference on Autonomous Robot Systems and Competitions (ICARSC) May 14-15, 2014.
- [6]. Jia Shijie, Wang Ping, Jia Peiyi, Hu Siping "Research on Data Augmentation for Image Classification Based on Convolution Neural Networks," Chinese Automation Congress (CAC), January 2018.
- [7]. Agnieszka Mikołajczyk, Michał Grochowski "Data augmentation for improving deep learning in image classification problem," International Interdisciplinary PhD Workshop (IIPhDW), 2018