

LITERATURE SURVEY

1.COMPUTER VISION BASED TRAFFIC SIGN SENSING FOR SMART TRANSPORT

The paper puts forward a real time traffic sign sensing (detection and recognition) framework for enhancing the vehicles capability in order to have a save driving, path planning. The proposed method utilizes the capsules neural network that outperforms the convolutional neural network by eluding the necessities for the manual effort. The capsules network provides a better resistance for the spatial variance and the high reliability in the sensing of the traffic sign compared to the convolutional network. The evaluation of the capsule network with the Indian traffic data set shows a 15% higher accuracy when compared with the CNN and the RNN

The Houben,et al [1], in his paper takes into consideration the prominent approaches such as the linear classifier that depends on the HOG descriptor, viola-jones detector on the Haar features and the Hough transform and analysis the optimal method for the traffic sign classification. Cling back to same motive of detecting and recognizing the traffic sign and the De la Escalera et al [2] put forward a detection phase and the classification phase for the detection and the recognition of the traffic sign utilizing the genetic and the neural network and the Cheng et al [3], utilizes the method of the sparse Gabor filter and the support vector machines to detect and recognize the pedestrian .With the survey presented by the Mogelmoose et al [4], we could gain the various stages inherent in the traffic sign detection such as the segmentation, feature extraction and final sign detection. Real time traffic detection is proposed by the Miura et al [5] utilizes the dual camera one equipped with the wide –angles and the other equipped with the telephoto lens , a processor with the image processing supported with the recognition algorithm to have the detections of the traffic signs at ease ,with high speed

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2.SMART DATA DRIVEN TRAFFIC SIGN DETECTION METHOD BASED ON ADAPTIVE COLOR THRESHOLD AND SHAPE SYMMETRY

Detection and recognition of road traffic signs constitute an important element in Advanced Driver Assistance Systems (ADAS), which can provide real-time road sign perception information to vehicles. In this paper, we proposed a new traffic sign detection method based on adaptive color threshold segmentation and the hypothesis testing of shape symmetry by leveraging traffic signs and image data. First, we calculated an adaptive segmentation threshold using the cumulative distribution function of the image histogram. Based on this, we designed an approximate maximum and minimum normalization method, which is used to suppress the interference of high brightness area and background in image thresholding processes. Secondly, we transformed the highlight shape feature of thresholding image into a connected domain feature vector. And we formulated a shape symmetry detection algorithm based on statistical hypothesis testing to efficiently extract the ROI of traffic signs based on traffic data analysis. We performed some comprehensive experiments on the GTSDb (German Traffic Sign Detection Benchmark) dataset. The accuracy of traffic sign detection exceeded 94%. This method has higher detection accuracy and time efficiency than other methods, and better robustness under complex traffic environment.

REFERENCES

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3. TRAFFIC SIGN DETECTION AND CLASSIFICATION METHODS

Over the last few years, different traffic sign recognition systems were proposed. The present paper introduces an overview of some recent and efficient methods in the traffic sign detection and classification. Indeed, the main goal of detection methods is localizing regions of interest containing traffic sign, and we divide detection methods into three main categories: color-based (classified according to the color space), shape-based, and learning-based methods (including deep learning). In addition, we also divide classification methods into two categories: learning methods based on hand-crafted features (HOG, LBP, SIFT, SURF, BRISK) and deep learning methods. For easy reference, the different detection and classification methods are summarized in tables along with the different datasets. Furthermore, future research directions and recommendations are given in order to boost TSR's performance.

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