Abstract

The Road Sign Recognition is a field of applied computer vision research concerned with the automatically detection and classification of traffic signs in traffic scene images. The aim of the present paper is to study various classification techniques that can be used to construct a system that recognizes road signs in images. The primary objective is to develop an algorithm, which will identify various types of road signs from static digital images in a reasonable time.
frame. In the current paper, we will study various learning systems that are based on prior knowledge for classification. A road sign recognition system faces a classical problem of pattern recognition, meaning classifying between different road signs. On top of that, the location of the road sign in the picture is unknown. Once these obstacles are overcome, such system could be integrated in a Smart Driver System. A variety of MATLAB Image Processing Toolbox commands can be used to determine if a road sign is present in current image. Neural network or other classification techniques can be applied in order to classify the road signs. Finally, the relevant sign is highlighted and output to the screen. Some of the examples where this technique is used is Ford Focus, BMW-7 series, Mercedes-Benz E-class, Volkswagen, etc. car. But still, identification of road signs invariantly with respect to various natural viewing conditions still remains a challenging task. This is so because color information is affected by varying illumination; Road signs are frequently occluded partially by other vehicles; many objects are present in traffic scenes which make the sign detection hard; road signs exist in hundreds of variants often different from legally defined standard; the algorithms must be suitable for the real-time implementation. The study consists of three parts: road sign detection, classification and GUI. The actual imaging processing including color space conversion, color-thresholding is applied to determine if a road sign is present. If present, the sign will be resized and classified. The data which obtained by neural network training is used to classify the road signs. GUI will be created for user to interactive with the algorithm. The system will have the potential to help in improving road safety.

References

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