



research school of informatics

Automatic Road Sign Detection and Recognition

Automatic Road Sign Detection and Recognition systems can provide an additional level of driver assistance leading to improved safety to passengers, road-users and vehicles. Such systems can be used to alert a driver to the presence of a particular road sign in likely situations of driver distraction, fatigue and poor-driving conditions. In comparison to systems that are currently being introduced based on GPS based vehicle navigation systems that depend on maps pre-annotated with road signs, an in-car vision system will provide real-time capability of road sign recognition, enabling accurate performance despite lack of map coverage and any real-time additions of new road signs. The fully functional system is exposed as follows:



Image Acquisition:

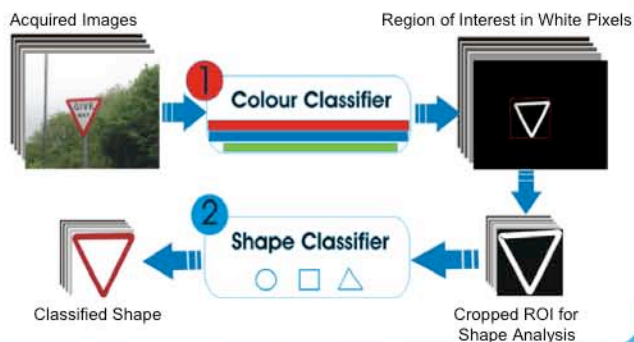
Images are acquired through the camera connected with the computer. The camera is placed on the back of windscreen mirror to control the shake/Jitter while driving the car.

Colour Segmentation:

Road signs are represented by basic colours such as Red, Green and Blue. The Colour Classifier extracts the colour information of Road Signs and removes all unnecessary colours.

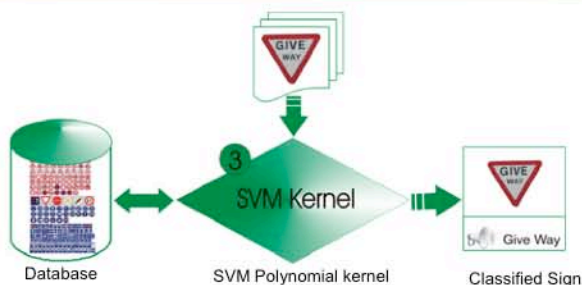
Shape Classification:

Road Signs are basic Geometric Shapes such as Triangular, circular, Square etc. The Shape Classifier takes the output of the Colour segmentation and analyze its geometric features.



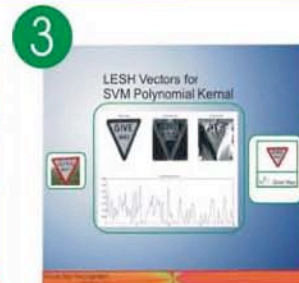
Recognition:

The recognition of road signs has been performed by training a Support Vector Machine (SVM) kernel on Local Energy based Shape Histogram (LESH) Vectors. Every candidate sign is later compared with the database of road sign classes i.e: Triangle, Circle etc.



Software Screen Shots

1. Colour Classifier
2. Shape Classifier
3. Sign Recognition



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