

Traffic sign detection

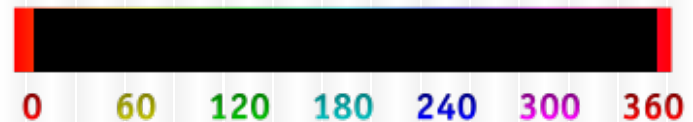
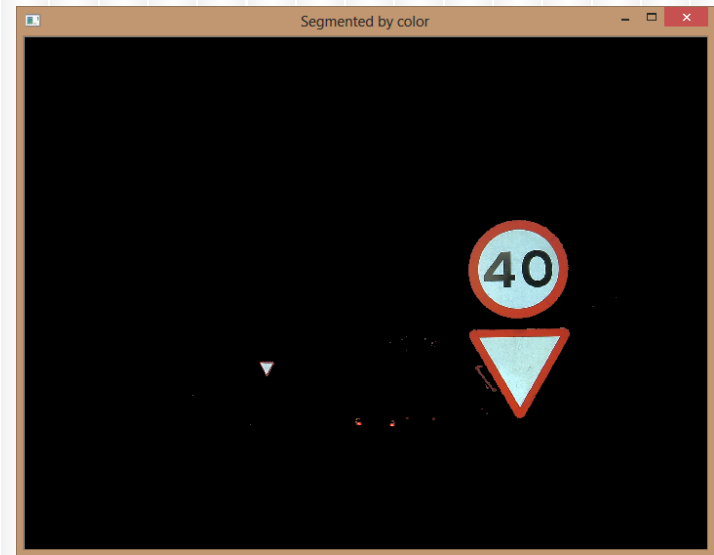
A horizontal dotted line in a light green color, positioned directly below the main title.

Speed limit

Topics

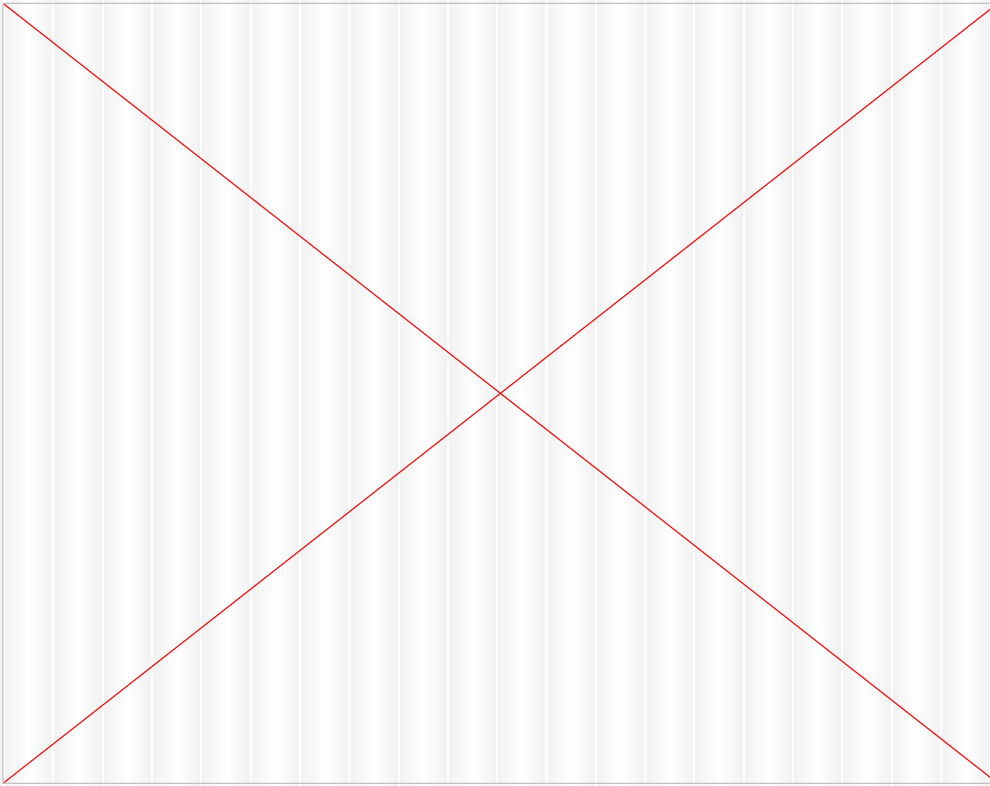
- Detection of sign candidate regions;
 - Segmentation techniques based on color;
 - Segmentation techniques based on shape;
- Identification of the speed limit;
- Efficacy of the used methods and main problems encountered;
- Status of the proposed solution.

Segmentation techniques based on color



- Highlight red color regions and maintain it's interior

Segmentation techniques ...based on shape...



- Use the Hough transformation for circle detection.

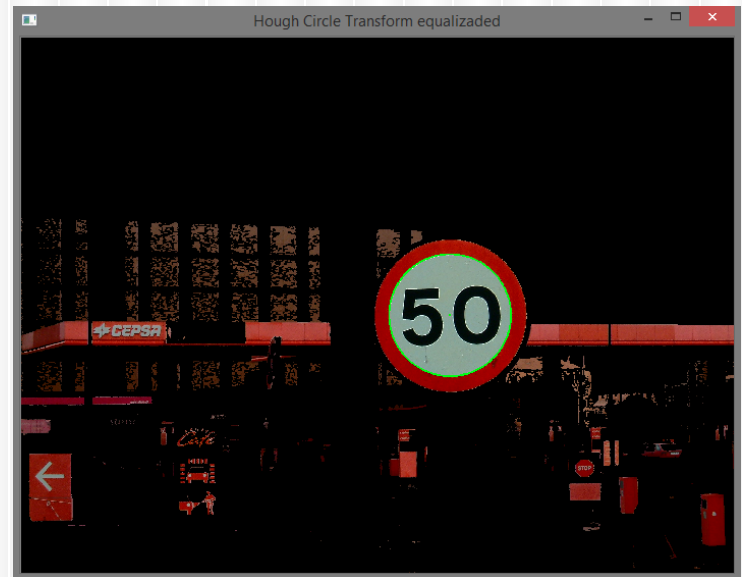
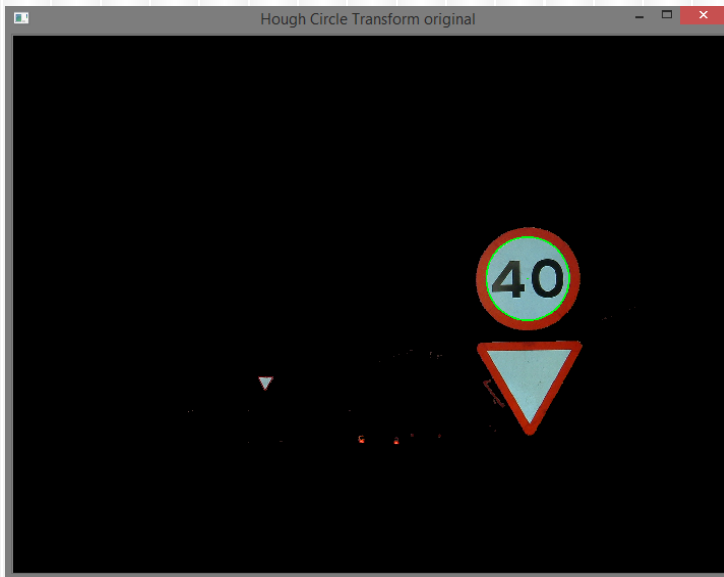
Identification of the speed limit



- Cropping the interior of the circles;
- Exact determination of the letters dimensions;
- Resize templates to that dimensions;
- Compare image with the templates using matrix cross correlation algorithm.



Efficacy of the used methods



- The Hough transformation detects with good accuracy the circles, but with complex images the detection takes more time.

Main problems encountered



```
C:\Users\Nuno\Documents\Visual Studio 2012\Projects\Tra
29 - limite_29.jpg
30 - limite_30.png

0 - Last Menu

Selection: 30

Loading input image: images/limite_30.png

Resize Image to: 700 x 510.387 (width x height)
Detected 1 circles in original image.
Detected 1 circles in equalized image.
width: 207height: 136
detetou o 10km/h com uma precisao de 0.738886%
detetou o 20km/h com uma precisao de 0.817776%
detetou o 30km/h com uma precisao de 0.821825%
detetou o 40km/h com uma precisao de 0.757972%
detetou o 50km/h com uma precisao de 0.738752%
detetou o 60km/h com uma precisao de 0.747605%
detetou o 70km/h com uma precisao de 0.779326%
detetou o 80km/h com uma precisao de 0.758687%
detetou o 90km/h com uma precisao de 0.781939%
detetou o 100km/h com uma precisao de 0.711319%
detetou o 110km/h com uma precisao de 0.762773%
detetou o 120km/h com uma precisao de 0.715119%
```

- Some values of the signals are more sensitive to the rotated numbers.

Status of the proposed solution

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Demonstration

Questions?

