Algorithm

For every composite image we split it to images of every sign candidate; And for every of sign candidates:

1. Clear the noise with Gaussian filter;
2. Convert image to grayscale;
3. Normalize histogram;
4. Dilate;
5. Extract edges with Canny;

For every known sign we extract its edges and then make chamfer matching with cleared edges. Moreover, we have to choose the best match via score of matching.

Illustration

Here are a few results of image processing:

Figure 1: "Result of composite 1"

Figure 2: "Result of composite 2"

Performance measure According to confusion matrix:

	predicted 1	predicted 0	Total
real class 1	True Positive (TP)	False Negative (FN)	P
real class 0	False Positive (FP)	True Negative (TN)	N
Total	P'	N'	$P+N$

The formulas for precision, recall and accuracy:

1) $precision = \dfrac{TP}{TP+FP}$

2) $recall = \dfrac{TP}{P}$

3) $accuracy = \frac{TP+TN}{P+N}$

The results of the program:
precision =80 %
recall = 80%
accuracy = 95.5%

The problem was to detect mismatching. All the errors goes from mismatched signs.