

Localization Poster

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1 Localisation

1.1 Data splitting

Each video from the categories was assigned to either the training set or the validation set. The training set consisted of 60% of each category's videos, and the validation set consisted of 40%. The bounding boxes of each license plate were manually computed and stored in CSV files. These were used as ground truth files used to evaluate our localisation process.

1.2 How it works?

The localization system receives as input a frame from the given video. This frame is then converted to HSV in order to make it easier to work with. In the next step we look for the yellow pixels and create a mask. At each position the mask has a value of 1 if the corresponding image pixel is yellow and 0 otherwise. In order to localize the connected yellow components in the mask breadth first search is used to calculate bounding boxes. The computed bounding boxes are then filtered, based on their dimensions and area. In the end the process outputs a list of possible license plate bounding boxes.

1.3 Evaluation

For the evaluation of our localisation system we used the above mentioned training and validation set. We used the intersection over union method. For each frame in our sets we computed the bounding boxes and compared them to the ground truths, which in the end gave us our results.

1.4 Results

The results revealed that the localisation performed well, but could stand to improve. In categories 1 and 2, there was an average score of 0.75. In category 3, the score was 0.43. Category 4 had a score of 0, as our algorithm does not consider non-yellow plates. Some weaknesses include lack of pre-processing the image, as there is no denoising or morphological operations. Furthermore, edge detection could be added in order to speed up the bounding box calculation.