Blind License Plate Detection

Max Guise, Stephan Goupille
Department of Electrical Engineering, Stanford University

Motivation

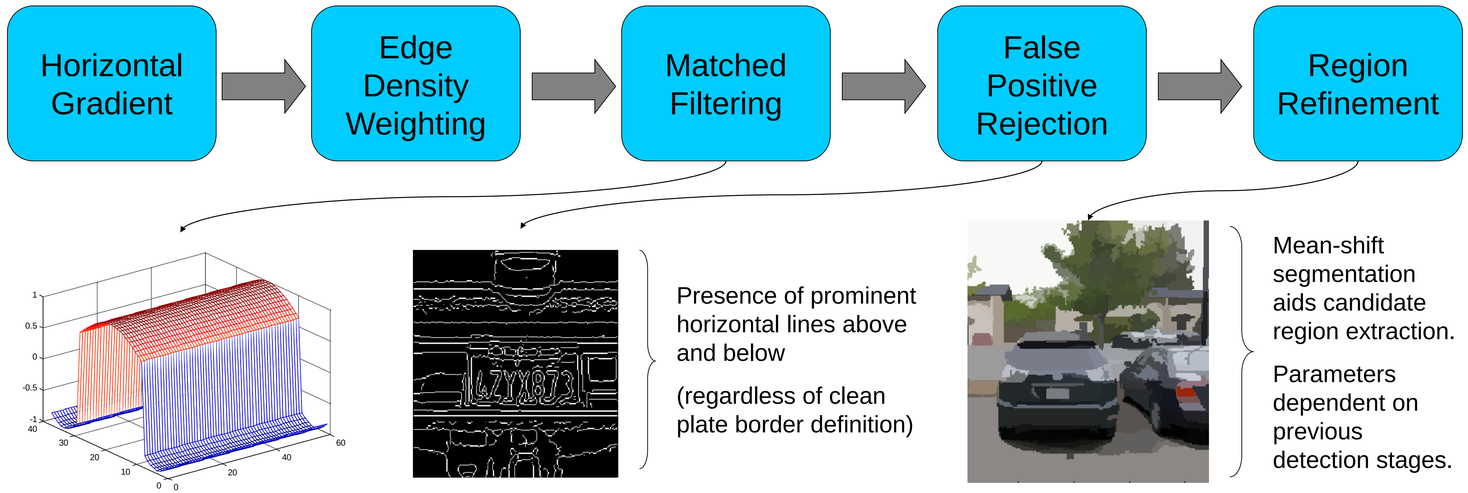
Typical automatic license plate recognition systems benefit from:

- ✓ High quality imaging
- ✓ Powerful flash
- ✓ Lack of background objects
- ✓ Minimal scaling and affine transformation

These systems usually employ a classifier and thus require a large training database and a lot of initial training overhead

Project Goal: Detect license plate regions in the presence of background clutter *without* relying on a training database. Images to be captured using the Motorola Droid.

Processing Stages



Experimental Results

For large enough plates (~100px wide in 1932x2592 image), less than ~20˚ transformation:

- ✓ **Detection rates are 80-90%**
- ✓ **False positive rate is ~5-10%**

Edge-based detection and region refinement difficulties arise from, among others:

- × Poor exposure
- × Glare (from bumper, chrome license plate holders, etc.)
- × Scaling
- × Parameter dependencies that vary across images