PLATE RECOGNITION PROCESS

This program is built by Nurhak ALTIN. The algorithm is knn for detection of plate region. For character recognition, SVM was used.

Steps With Images

imgOriginalScene

preprocess()

imgGrayscaleScene, imgThreshScene

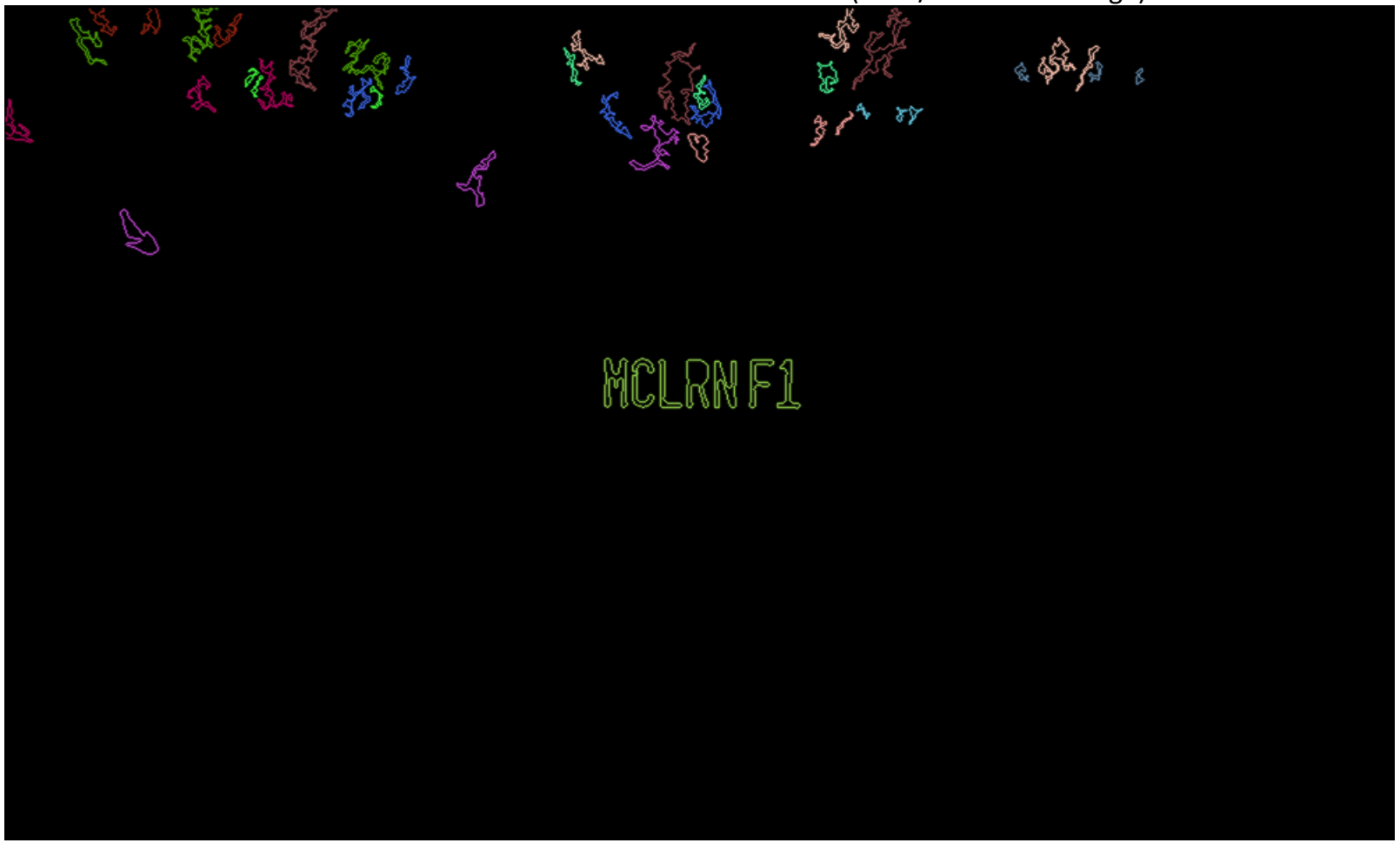
findPossibleCharsInScene()

all contours (2362 w/MCLRN F1 image)

vectorOfPossibleCharsInScene (131 w/MCLRN F1 image)

findVectorOfVectorsOfMatchingChars()

vectorOfVectorsOfMatchingCharsInScene (13 w/MCLRN F1 image)

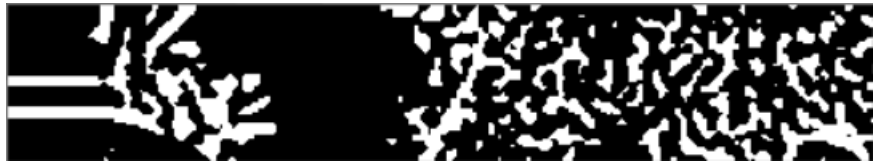


extractPlate()

vectorOfPossiblePlates (13 w/MCLRN F1 image)

preprocess()

imgGrayscale, imgThresh



findPossibleCharsInPlate()

vectorOfPossibleCharsInPlate

findVectorOfVectorsOfMatchingChars()

vectorOfVectorsOfMatchingCharsInPlate

removeInnerOverlappingChars()

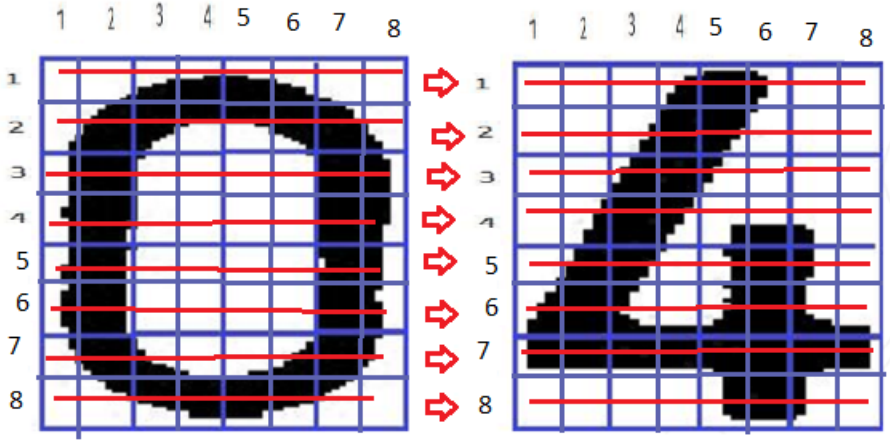
vectorOfVectorsOfMatchingCharsInPlate

within each possible plate, suppose the
longest list of potential matching chars
is the actual list of chars

longestVectorOfMatchingCharsInPlate

findContours(sub_binary,
sub_contours,
sub_hierarchy,
CV_RETR_TREE,
CV_CHAIN_APPROX_SIMPLE,
cv::Point(0, 0));

Feature Extraction

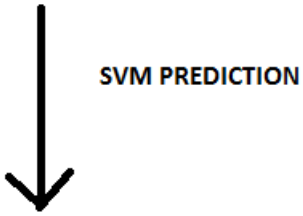


Example we have 2 character image 0 and 4

We need resize 2 image to same size and divide as 16 small area as picture

As you can see we can find difference between 2 image on sum of row cells;on those cell total back pixel are difference.

This app i used 88 features, we can use more features



CHARACTERS