

Final Project Progress Report

Definitions

Team name: *Licensed to Plate*

Team members: *Gokul Ajith, Prithu Dasgupta, Spencer Greene, Daniel Park*

Note: Once one person uploads the report to Gradescope, please add all other team members to the submission within the Gradescope interface (top right on your submission).

TA name: *Isabella Ting*

Project

- **What is your project idea?**

Our project idea is to build an application that takes in images of cars with different backgrounds and orientations, detects if the car has a license plate, highlights where the license plate is, and reads its number if exists. We are hoping to first build a license plate detector using edge detection and feature extraction, then train a neural network model to read the plate input. Then, as a stretch goal, we will look to build a web application that allows users to input data for extracting license plate numbers using our model.

- **What data have you collected?**

We have found online datasets to use for our project. This dataset contains plates and annotations from the US, Europe, and Brazil: <https://github.com/openalpr/benchmarks/tree/master/endtoend/>. It contains several hundred data points total.

If we find that this is not enough data, we also found an API online at https://dataturks.com/projects/devika.mishra/Indian_Number_plates. This API can be used easily to access hundreds of images of Indian license plates that are already labelled for plate detection before being entered into the model.

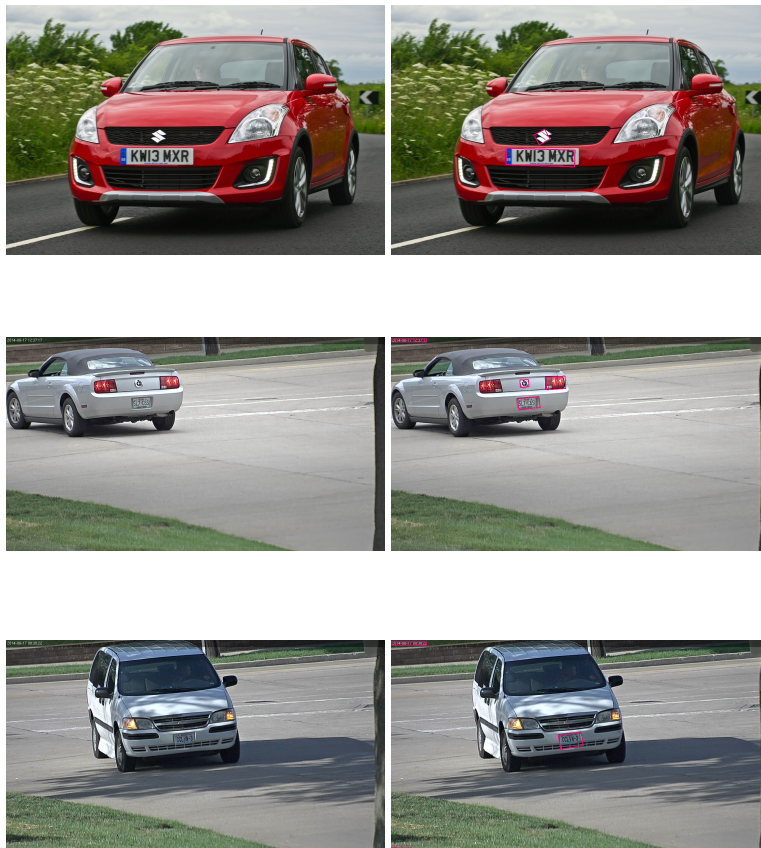
- **What software have you built or used?**

The first step of our data preprocessing will be to read in an image of a car itself and hone in on the license plate itself. Professor Thompkin pointed us to a resource where we found a Github repo of a high recall automatic number plate detector that relies on OpenCV. We found that this works well, but there are noted areas of improvement that the developer has suggested. We are currently working on expanding on these areas and seeing how improvements can be made, as well as also laying out the skeleton code to read in all our data and pass them through the detector to see our resultant plates that will be passed into our model.

- **What has each team member contributed thus far?**

Every team member has worked together to focus on accomplishing two goals: finding enough data for the model and building upon the detector shown to us by Professor Thompkin to better hone in on the license plates themselves. Everyone has done a little bit of both of these initial steps.

- **What intermediate results have you generated?** Small trials runs of the image detector. Original image on the left and resultant image (license plate scan surrounded by red box) on the right.



- **What problems have you faced or still have to consider?**

We were not able to find a dataset of only American license plates, and so our current dataset is a mix of plates from many different countries. While this may pose a problem, we feel that it also creates room for experimentation and another challenge area for our model to overcome.

Also, our detector finds license plates fairly well as is, but sometimes we receive several false negatives. We will need to do some tweaking with our parameters in order to improve this.

- **Is there anything that we can do to help? E.G., resources, equipment.**

Not at the moment!