# Number plate recognition report

Aim: recognise number plate from dashcam footage, and then make API calls to extract MOT details of the vehicle.

## Result:

Achieved human level performance using an open source package called OpenALPR to recognise number plates from video

I was unable to install OpenALPR properly – as a result my code is confined to the folder where OpenALPR is installed. Not ideal.

Success in extracting MOT history by taking the predicted registration numbers and make API call to online database

Almost real time recognition!

Algorithm performs poorly when the number plate is hard to recognise with naked eye.

MOT information about the vehicles are outputted to a csv format

There are significant inconsistencies in the format of the information returned from API calls depending on the vehicle. It would be a tedious process to define algorithms to encapsulate all possibilities.

I’ve attempted to use Super Resolution neural networks to improve quality of input video. Current open source models are way too slow and don’t yield a significant improvement “out of the box”, although we could expect a bigger quality improvement if we can retrain the model with lots of high resolution number plate images.

## Further improvement:

Improve performance of the model by training with our own images – current model only using a generic pre-trained weight which was trained on non UK specific plates.

Improve quality of input video – consider neighbouring frames as a single unit and super-impose them in a way that would help recreate fragmented information. Current model treat each frame independently.

Start guessing! Due to the nature of number plates, once we have some sort of educated guess it’s easy to obtain a genuine registration number – hopefully the one that’s being shown in the video. Then the API calls will rapidly filter out any wrong predictions.

## Conclusion:

Demonstrated how we can extract information from videos and make use of this information with existing R script from Nigel & Craig to make API calls.