

## Image Processing Assignment Report

### *Challenging images –*

Challenging images that can affect the output of the license plate detection is images with high glare on the paint or window. The high glare affects the ability of the image processing to detect the license plate and instead of detecting the numberplate, it will occasionally detect the glare or reflection of light depending on the strength of the light in the image.

Another challenging image is of photos of white cars. White cars also affect the image processing where it will detect the car body as it is the same colour as the license plate. I attempted to fix this by experimenting with the threshold value and fine tuning the threshold to be able to factor in white cars and it works well to an extent.

The image processing program is unable to detect license plates that is not white. Some European countries use different coloured numberplates like yellow for example. So, these types of coloured numberplates are un-likely to be detected by my numberplate detection program.

### *License plate text reading extension –*

Using pytesseract extensions, I was able to create an extension to the numberplate detection program which can read the numbers and letters on the license plate. The extension program first puts a filter on the image which is a median filter, then it enhances the image. Finally, it will crop the numberplate and save the image to the output\_crop\_image folder. This is done to get the best possible chance for the program to read the text on the license plate. After saving the cropped image, the program uses pytesseract functions to read the cropped image and output the numbers and letters in the python output. The text reading extension works well for simple numberplates that are clear and have no other colours, logos, or symbols on the plate. However, it runs into issues when reading some European numberplates with the blue section on the left of the plate. Sometimes it will read this part as a character. Other times, if there are extra logos or symbols on the numberplate it will also read this as a letter or number.