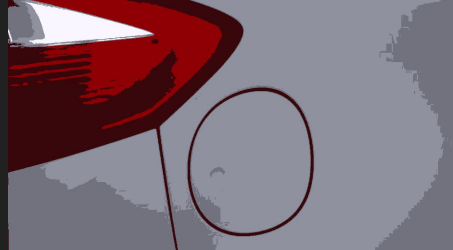


Dynamic Identification of Fuel Caps



Current Progress

- Collected training data of cars with fuel caps
- Completed KMeans clustering on the training data
 - Number of clusters is programmatically based on elbow method, utilizing the “inertia” of each KMeans clustering to identify the ideal number of clusters
 - Inertia = Sum of squared distances of samples to their closest cluster center
 - Each pixel = one sample

Current Challenges:

- Lighting in images can cause issues with clustering
 - Might have different clusters based off the angle of light hitting the car/fuel cap

Next steps:

- Potentially downsize images for real-world usage, as images would generally not be high quality in real-world
 - 480p/360p
- Collect training data of cars without fuel cap visible and run KMeans on them
- Train Neural Network using the two sets of training data to train the network to identify when a fuel cap is visible
 - Potentially identify where the fuel cap is, however this is based on time constraints

