Our Approach:

1. Data Collection

We have collected around 1050 images consisting of different road objects like cars, bikes, trucks, traffic signals etc.

2. Data Annotation

The collected data is annotated using **roboflow** annotation tool. Annotation is the process of giving labels to the classes presented in each image.

3. Organizing the data folders

After the completion of annotation, we split the data into three parts i.e. train, test and validate. And the folder structure as follows:

data

|--train

|--images

|--labels

|--test

|--images

|--labels

|--val

|--images

|--labels

4. Preparing the code

We made a data.yaml file consisting of paths, classes and class count (nc)

5. Run the training

We trained the yolov8n.pt with our custom model with 50 epochs (depending on hardware resources) to generate our own weights.

6. Testing it on an image for verification

To understand the performance of our custom model, we tested it on an image.

7. Preparing some code to make the model work on videos

We used python libraries supervision to make some changes in the output and generate bounding boxes in the same video format.