CV Report 1

Teacher: Prof.Mehul Raval

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- Team : The Weekenders
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Task Performed in this week :

We Explored different Models for object detection which can be fit for our project. The models which we explored are:

- MobileNet
- RetinaNet
- Faster-RCNN
- SqueezeNet
- GhostNet
- SSD (Single Shot detection)
- GoogleNet
- Yolo

In these Models we are mainly focused on studying the mechanism, model size, and Inference Time of the model. We Come to the conclusion that depending on the depth of the neural network model size and inference time depends.

Outcomes :

We Implement basic object detection using MobileNetV2

detection_with_mobilenet.ipy

Code

[1]:
```
import tensorflow as tf
import matplotlib.pyplot as plt
```

[3]:
```
from tensorflow.keras.preprocessing import image
import numpy as np
```

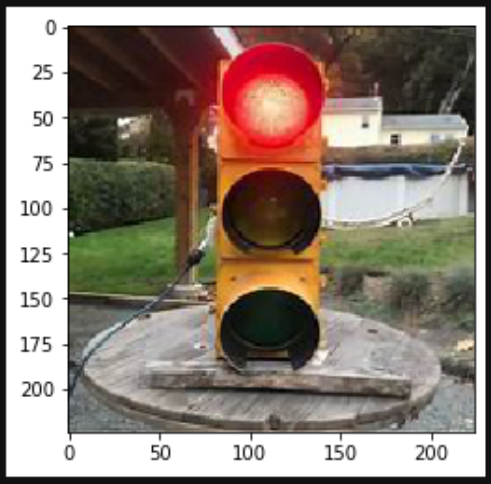
[2]:
```
model = tf.keras.applications.MobileNetV2(
    input_shape=None,
    alpha=1.0,
    include_top=True,
    weights="imagenet",
    input_tensor=None,
    pooling=None,
    classes=1000,
    classifier_activation="softmax"
)
```

[5]:
```
img_path = 'test_img/red_light.jfif'
img = image.load_img(img_path, target_size=(224, 224))

plt.imshow(img)
x = image.img_to_array(img)
x = np.expand_dims(x, axis=0)
x = tf.keras.applications.mobilenet_v2.preprocess_input(x)
```

```
[5]: img_path = 'test_img/red_light.jfif'
     img = image.load_img(img_path, target_size=(224, 224))

     plt.imshow(img)
     x = image.img_to_array(img)
     x = np.expand_dims(x, axis=0)
     x = tf.keras.applications.mobilenet_v2.preprocess_input(x)
```




```
[11]: pred = model.predict(x)
      print(tf.keras.applications.mobilenet_v2.decode_predictions(pred, top=1)[0][0][1])

      traffic_light
```

Tasks to be performed next :

- We will explore other models and check their performance and accuracy.
- We will use transfer learning for our custom dataset to be trained.