AUTOWASTIDE

Your Guide to the Autowastagator

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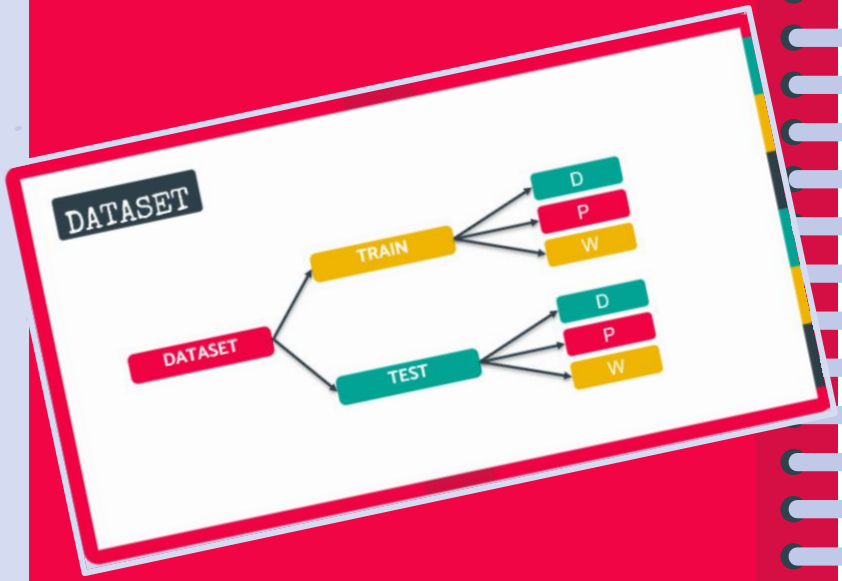
FILES

- waste_classifier.h5
- PREDICT.py
- waste_classifier_model.ipynb
- DATASET (can be extracted from zip file int the given link)
- PREDICT.ipynb
- Sample Videos
- Sample Images



DATASET!

***DATASET can be extracted from DATASET (1).zip which can be accessed in the following link: https://drive.google.com/file/d/1aPrz4VWTg_Zjby35GC6yVI9h9j0djW_B/view?usp=sharing**

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Waste_classifier.h5

```
In [10]:
steps=np.ceil(img_data_train.samples/img_data_train.batch_size)

history=model.fit(img_data_train,epochs=1,validation_data=img_data_val,steps_per_epoch=steps)

549/549 [==============================] - 2762s 5s/step - loss: 0.2368 - accuracy: 0.9148 - val_loss: 0.3032 - val_accuracy:
0.8962

In [11]: test_data=image_generator.flow_from_directory("C:\\Users\\sovin\\Desktop\\AWS\\DATASET\\TEST",
                                                       target_size=(224,224),#Batch size can be changed ,by default its 32
                                                       )

model.evaluate(test_data)

Found 3739 images belonging to 3 classes.
117/117 [==============================] - 490s 4s/step - loss: 0.8689 - accuracy: 0.7154

Out[11]: [0.8689496517181396, 0.7154319286346436]

In [12]: model.save("waste_classifier.h5")

In [13]: model.summary()

Model: "sequential"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
keras_layer (KerasLayer)     (None, 2048)              23561152
_________________________________________________________________
dense (Dense)                (None, 3)                 6147
_________________________________________________________________
```

Model Evaluation

It is the trained model created using ResNet50.

REQUIRED MODULES FOR PREDICT.py

1	numpy
2	keras
3	tensorflow
4	matplotlib
5	tensorflow hub
6	cv2
7	os
8	PIL

Note:

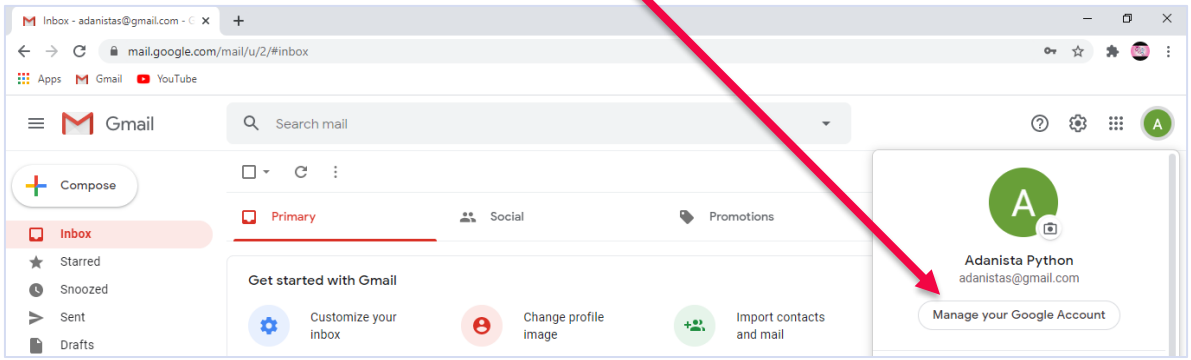
Modules can be installed using pip install module name

PREDICT.py

1. Replace C:\\Users\\sovin\\Desktop\\AWS with the path of your main folder.
2. emailfrom = duocodeltd@gmail.com
username = "duocodeltd"
password = "duocode12“
Replace the above credentials with the details with respect to the email account from which the CSV file has to be mailed.
3. To set the account to send the mail via python follow the instructions on the next page.

Instructions to set account to send email using Python

Click Manage your Google Account



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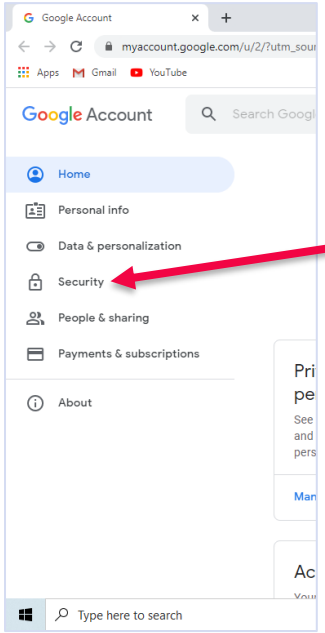
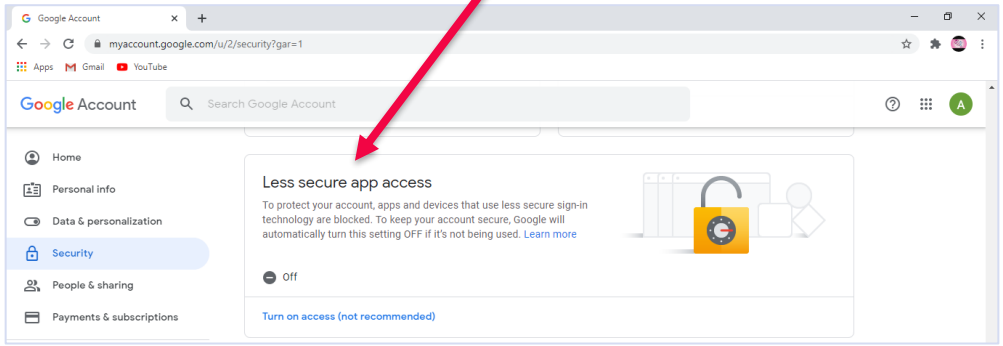
Instructions to set account to send email using Python



Click on Security

Instructions to set account to send email using Python

Click on Less Secure App Access



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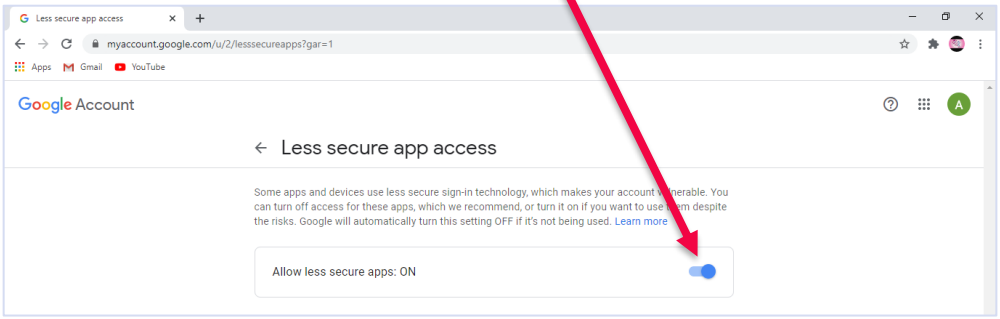
Instructions to set account to send email using Python

Switch it on



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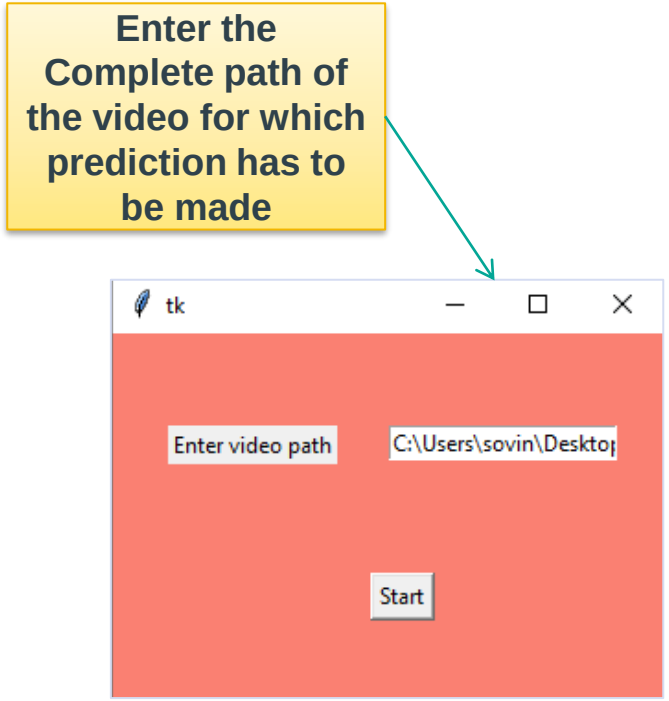
PREDICT.py

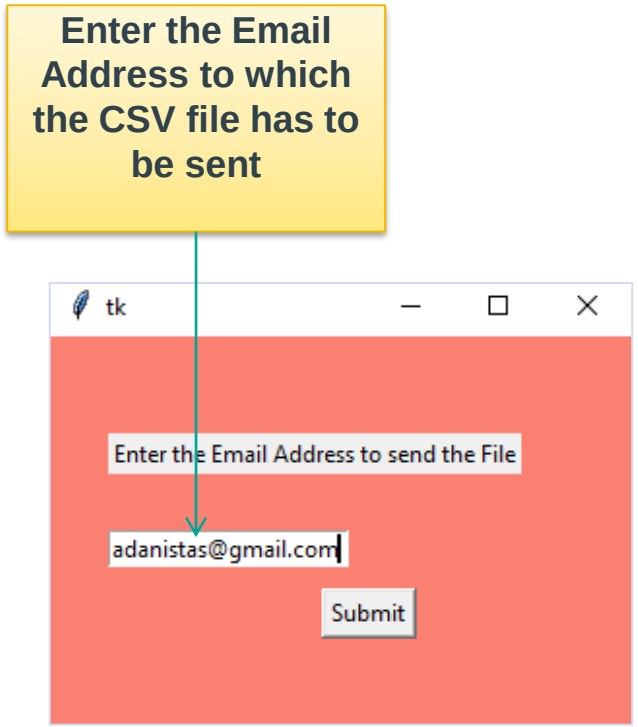
4. Run PREDICT.py file either on command line using python predict.py or IDLE.

5. A Tkinter window opens up as shown on the next page, enter the complete path of the video for which predictions are to be made.



PREDICT.py

6. Another Tkinter window opens up as shown below, enter the email address of the account you wish to send the waste classification report to.

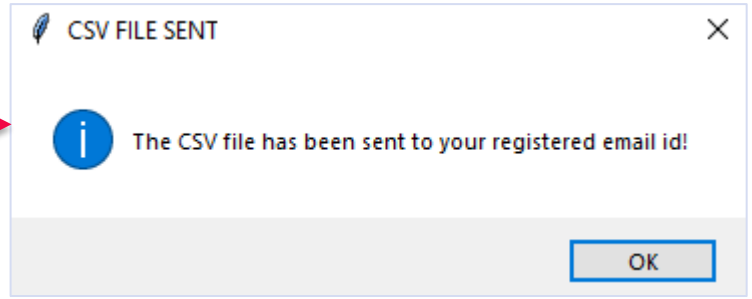


PREDICT.py

7. The mail would have successfully been sent and you can access the Waste Classification Report in .csv format for future analysis. Which will look as shown below:

PREDICT.py

Pop up message opens up once mail has been sent



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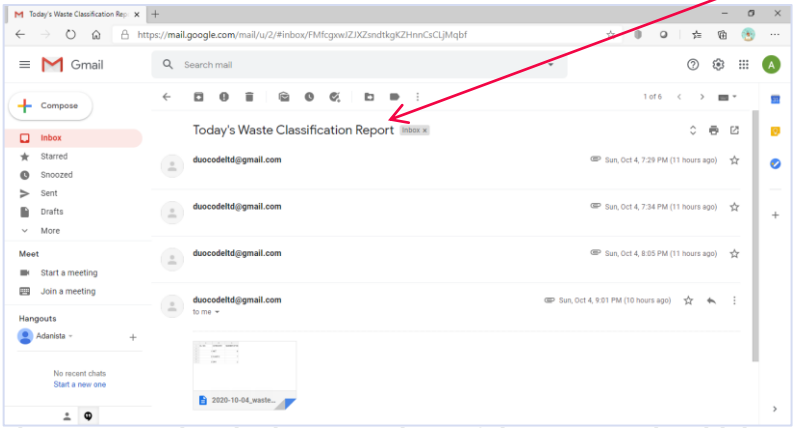
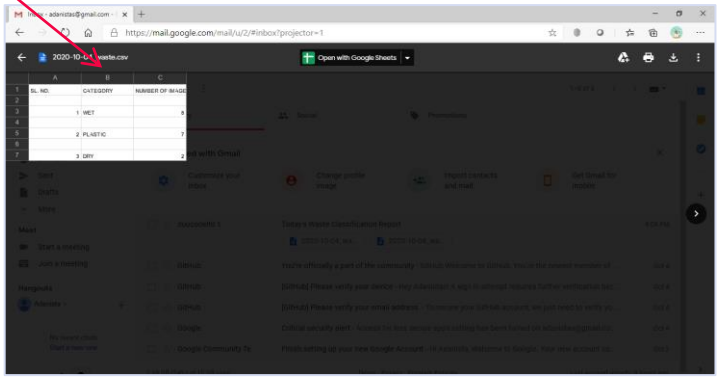
PREDICT.py

Mail with CSV file(can also be accessed from the local computer) as attachment





The PREDICT.ipynb also comprises of the same code which can be executed stepwise and you could also visualize the predictions.

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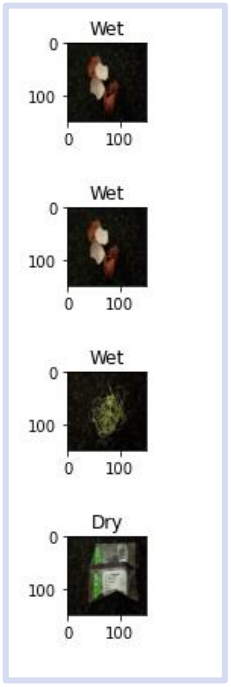
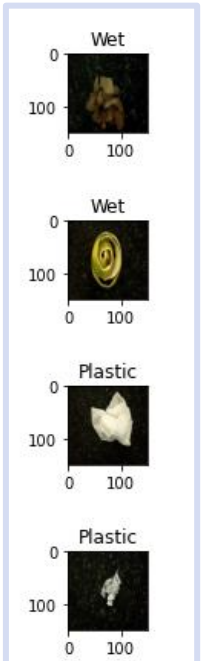
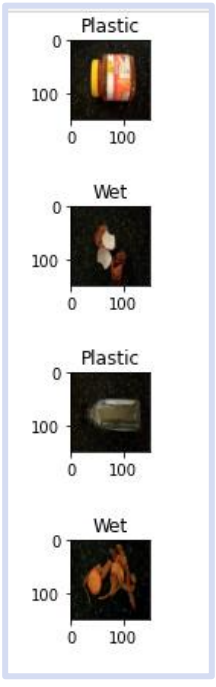
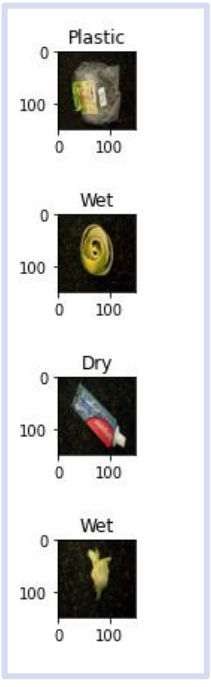
Visualization of Predictions









REQUIRED MODULES FOR waste_classifier_train.ipynb

- numpy
- tensorflow
- matplotlib
- tensorflow_hub

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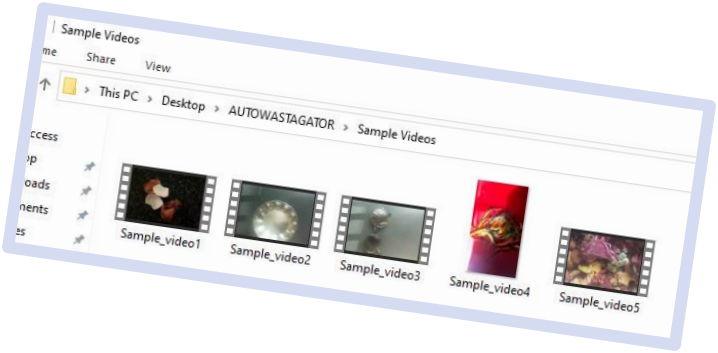
waste_classifier_train.ipynb

Steps:

1. Install the necessary modules mentioned on page .
2. C:\\Users\\sovin\\Desktop\\AWS\\DATASET should be set with respect to your dataset path wherever required.
3. Run waste_classifier_train.ipynb file using Jupyter Notebook in Anaconda.
4. Model waste_classifier.h5 will be saved on your local system which can be used for further prediction.

Sample_videos

The folder comprise of videos to test the model



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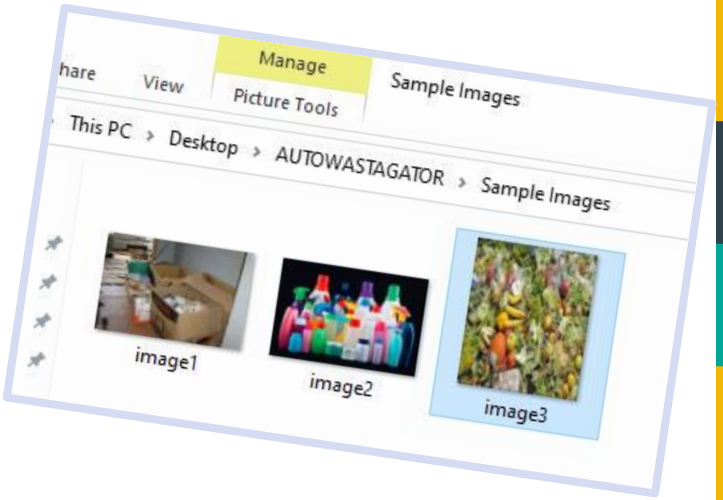
Sample_images

The folder comprise of images to test the model



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THANKS

Do you have any questions?
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