AUTOWASTIDE

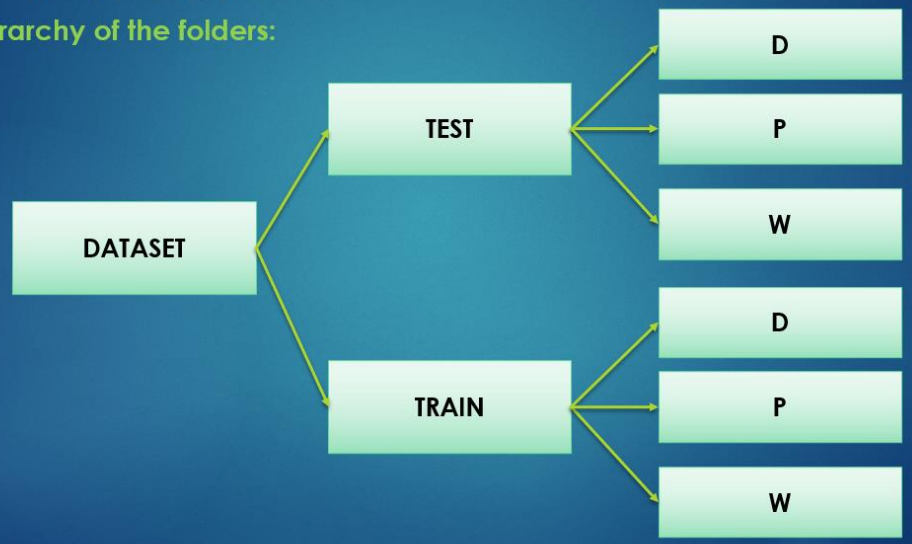
YOUR ONE STOP GUIDE TO THE AUTOWASTAGATOR

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

The hierarchy of the folders:



***DATASET can be extracted from DATASET.zip can be accessed in the following link: https://drive.google.com/file/d/1LytwxfjLmMhSZUv3dl76t_pNeBxVyD52/view?usp=sharing**

waste_classifier.h5

It is the trained model created using the custom dataset and ResNet50.

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

         model.evaluate(test_data)

         Found 5102 images belonging to 3 classes.
         160/160 [==============================] - 579s 4s/step - loss: 0.5216 - accuracy: 0.8011

Out[11]: [0.5216450691223145, 0.8010584115982056]

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
         =================================================================
         Total params: 23,567,299
         Trainable params: 6,147
         Non-trainable params: 23,561,152
```

Model Evaluation

REQUIRED MODULES FOR PREDICT.py

1. keras.
2. numpy
3. tensorflow as tf
4. matplotlib.pyplot as plt
5. tensorflow_hub
6. cv2
7. os
8. PIL

PREDICT.py

1. Replace C:\\Users\\sovin\\Desktop\\AUTOWASTAGATOR with the path of your main folder.

2. emailfrom = duocodeltd@gmail.com

username = "duocodeltd"

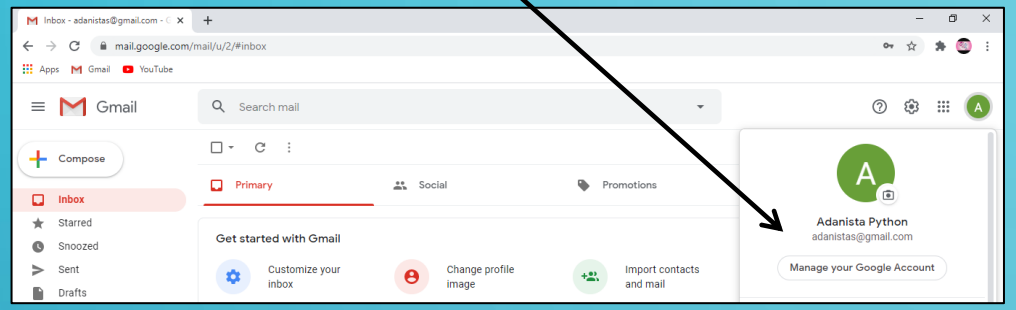
password = "duocode12“

Replace the above credentials with the details with respect to the email account from which the CSV file has to be mailed.

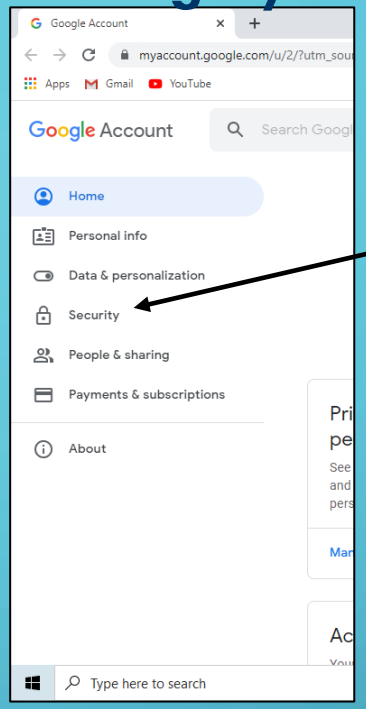
3. To set the account to send the mail via python follow the instructions on the next page.

Instructions to set account to send email using Python

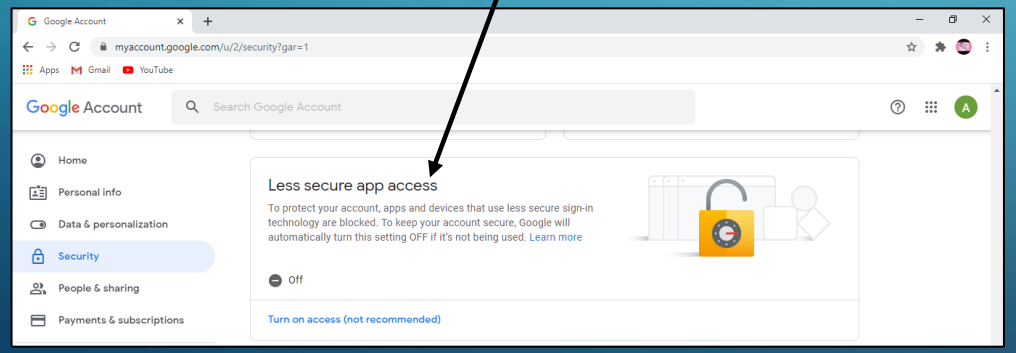
Click Manage your Google Account



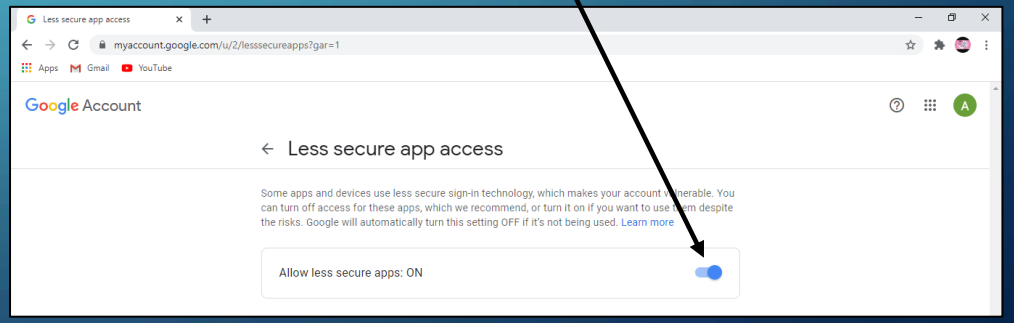
Click on Security



Click on Less Secure App Access



Switch it on

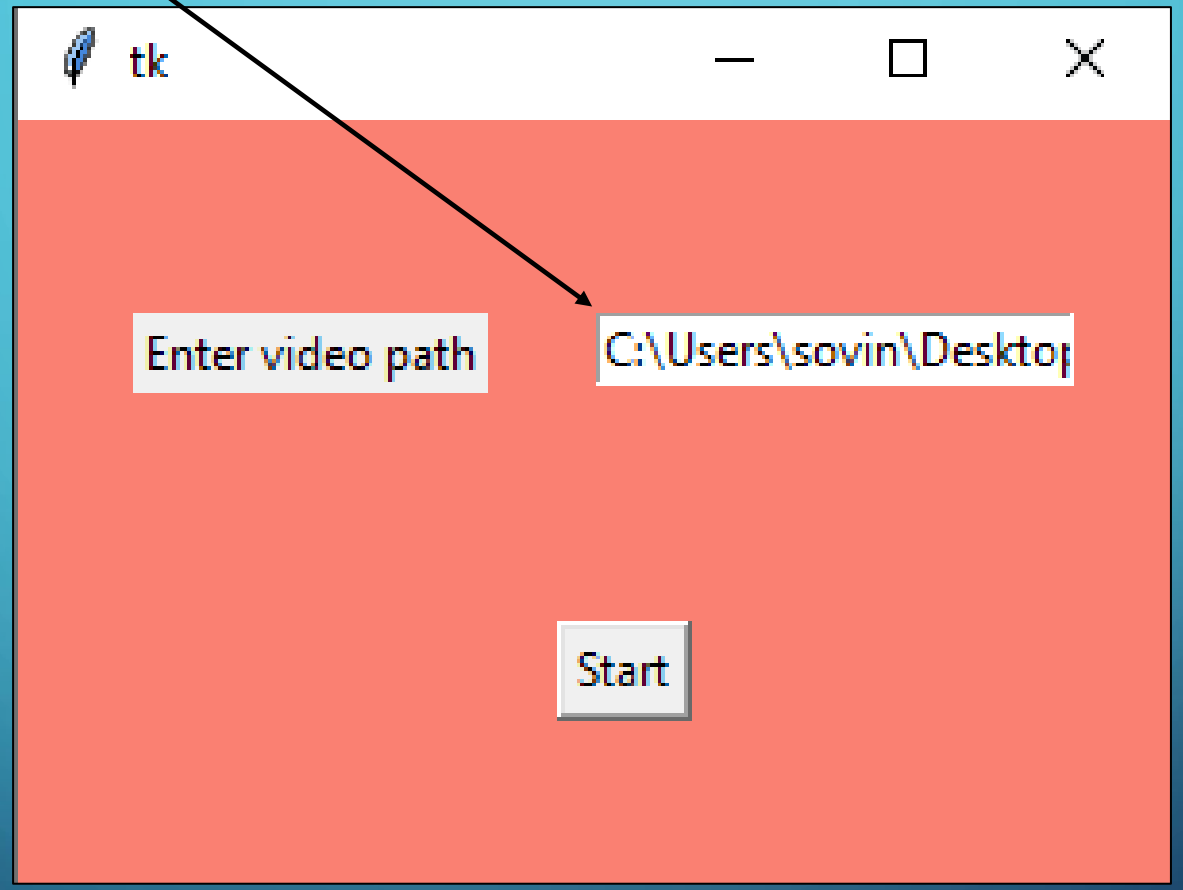


PREDICT.py

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.

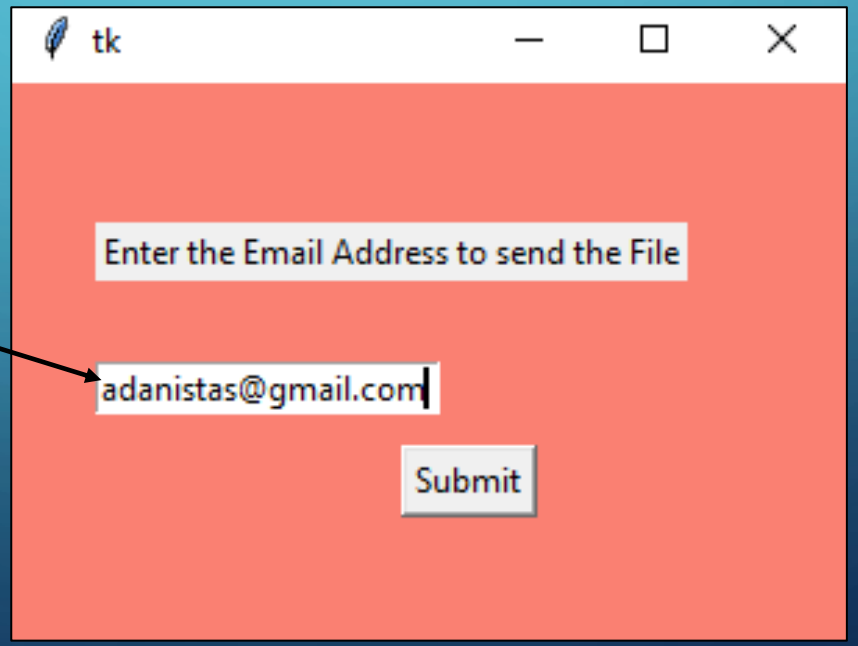
Enter the Complete path of the video for which prediction has to be made



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.

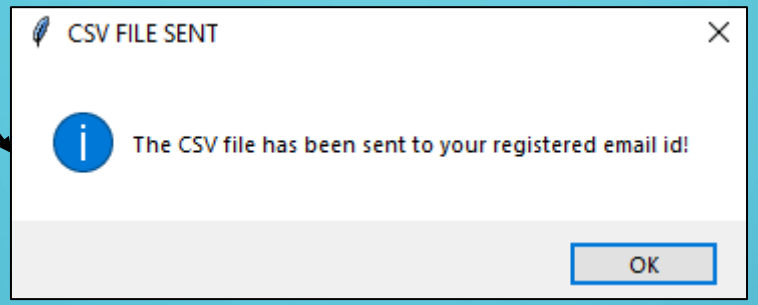
Enter the Email Address to which the CSV file has to be sent



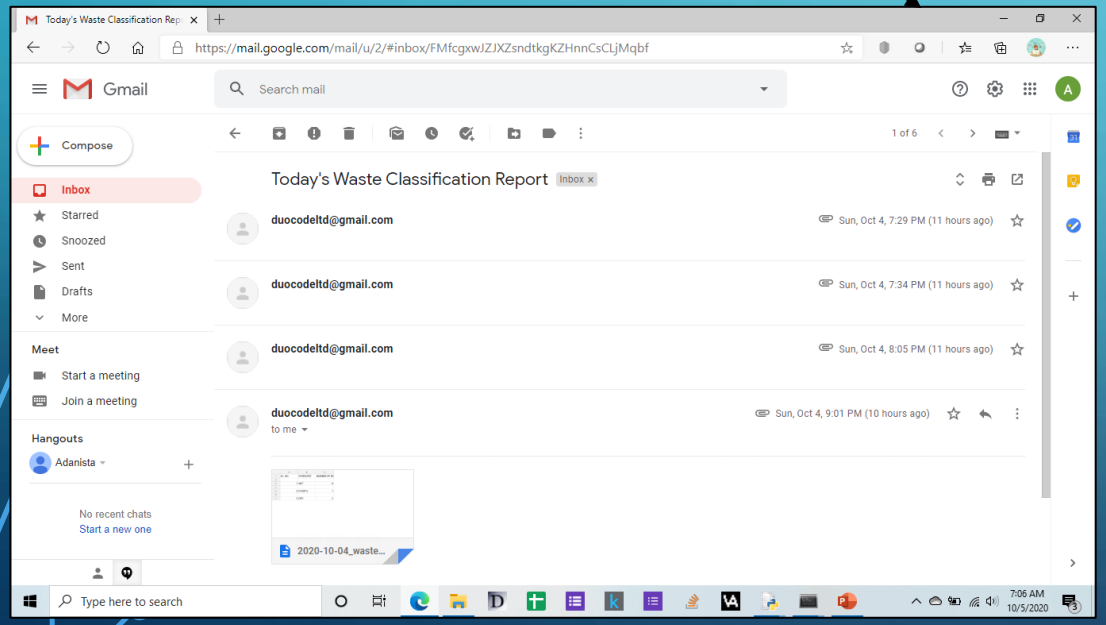
PREDICT.py

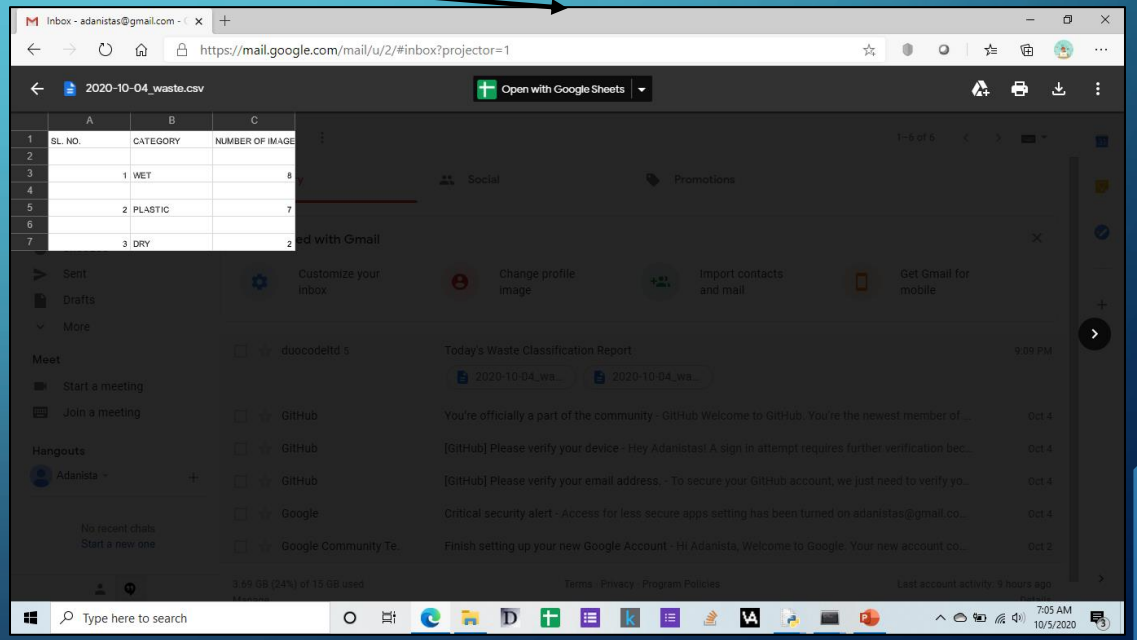
7. The mail would have successfully been sent and you can access the Waste Classification Report in .csv format for future analysis. Which will look as shown below:

Pop up message opens up once mail has been sent



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.

VISUALIZATION OF PREDICTIONS

If you wish to retrain the model with a custom dataset/to increase the accuracy follow these steps.

REQUIRED MODULES FOR waste_classifier_train.ipynb

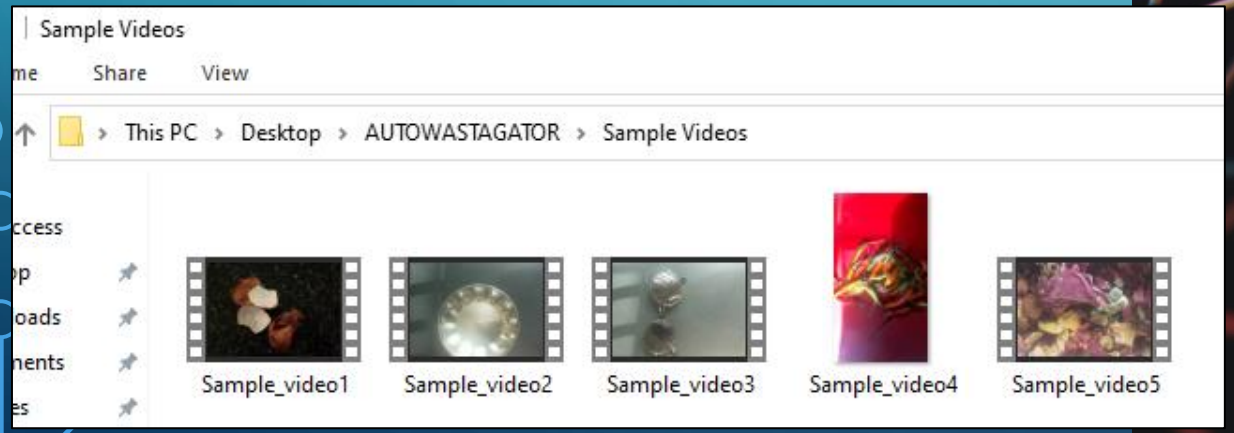
1. numpy
2. tensorflow
3. matplotlib
4. tensorflow_hub

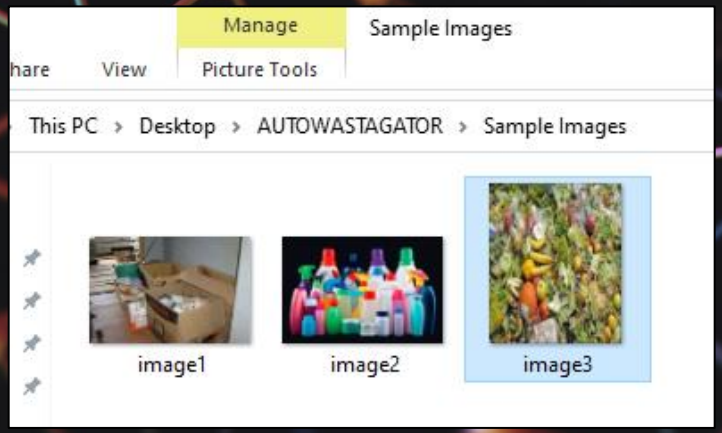
waste_classifier_train.ipynb

1. Install the necessary modules mentioned on page .
2. C:\\Users\\sovin\\Desktop\\AUTOWASTAGATOR\\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 and Sample Images

The folders comprise of videos and images to test the model





FOR ANY QUERIES WRT THE PROJECT YOU CAN CONNECT WITH US USING EITHER LINKEDIN/ GITHUB

SILPA S	PRAKRITI SHARMA KP	SONALI PREETHA NANDAGOPALAN

Click on the icons to redirect to required page.