Exporting trained model, tflite graph, tflite file

Step 1: Train the model

For train the model, you need to follow this link:
https://github.com/SafeDrive120/Documentation/blob/main/Training%20tensorflow%20model.pdf

Step 2: Exporting trained model

Once your training job is complete, you need to extract the newly trained inference graph, which will be later used to perform the object detection. This can be done as follows:

- Copy the **TensorFlow/models/research/object_detection/exporter_main_v2.py** script and paste it straight into your **training_demo** folder.
- Now, open a Terminal, **cd** inside your **training_demo** folder, and run the following command:
  ```
  python3 ./exporter_main_v2.py --input_type image_tensor --pipeline_config_path ./models/my_ssd_resnet50_v1_fpn/pipeline.config --trained_checkpoint_dir ./models/my_ssd_resnet50_v1_fpn/ --output_directory .\exported-models\
  ```

After the above process has completed, you should find 2 new folders and 1 config file under the **training_demo/exported-models/**. These files & folders furtherly used for testing our model.

For testing our trained model on images and videos, follow this link:
https://github.com/SafeDrive120/Testing

Step 3: Generate tflite graph folder

Once you complete exporting the trained model, now you will need to generate a tflite graph folder, which will furtherly used for generating .tflite file for deploying models on android phone.

- Copy the **models/research/object_detection/export_tflite_graph_tf2.py** script and paste it straight into your **training_demo** folder.
- Create folder in **training_demo/** of name **inference_graph**
- Now, open a Terminal, **cd** inside your **training_demo** folder, and run the following command:
  `python3 export_tflite_graph_tf2.py --pipeline_config_path models/my_ssd_resnet50_v1_fpn/pipeline.config --trained_checkpoint_dir models/my_ssd_resnet50_v1_fpn/ --output_directory inference_graph/`

Step 4: Generate tflite file

Once you complete generating the tflite graph folder, now you will be able to generate a tflite file, which will furtherly used for deploying models on android phones.

Convert the model into tflite by following these steps in colab or jupyter notebook or in any IDE:

```
# Convert the model
converter = tf.lite.TFLiteConverter.from_saved_model(saved_model_dir) # path to the SavedModel directory
tflite_model = converter.convert()

# Save the model.
with open('model.tflite', 'wb') as f:
  f.write(tflite_model)
```

#you will need to specify your tflite file name in above command

Hope you will enjoy this article and successfully exporting the model
Created by: Safe Drive