Setup guide for C2TSR: Concurrent Canada-based Traffic Signpost Recognition System project

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This setup guide gives us the clear instructions on how to execute the project code and all the requirements to run

Required Softwares:

- Pycharm
- Python

Required Hardware:

- Camera or phone camera to record the videos

Framework

- Darknet- https://github.com/AlexeyAB/darknet

Platform

- Google drive
- Google colab
- Jupyter lab
- Overleaf

Creating dataset

- Record videos from your phone or camera
- Keep the video files in 'video' folder under ../Data/Raw folder
- Go to scripts folder
- Run the commands in extract_frames.ipnyb
- Or manually if the video name in the script if you don't want to loop through all the videos present in folder
- Run labelimg tool using the instructions provided in the document

  Command: Python lableimg.py ..\raw\frames ..\miscFiles\classes.txt

- Select the folder where you have kept newly generated frames
- Create boundary boxes around the traffic signs in the frame and save it in Yolo version. It should create .txt annotation file for the particular frame
- Repeat this task for all frames

Training the model

- Open google drive
- Make sure following all files are present
  - obj.data
  - obj.names
  - Yolo config file
  - obj.zip
  - generate.py
  - TrainC2TSR.ipnyb
  - Last Weight file or download the weight pertained weight file from

Follow the steps in trainC2TSR.ipnyb script. I have clearly mentioned all 7 steps in detail in this script. Please refer it.

Running the model

- Following the required files
  - yolo3 config file
  - Weight file
  - Class name file
  - Deploy.py
- run requirement.txt
- Open command prompt and go to the Script folder where Deploy.py is present
- Run 'python deploy.py'
- Follow the buttons as mentioned on Button in the application

Installing python

- Downloaded Windows version of python from Pyhton.org at https://www.python.org/downloads/. Latest active and stable version of Python available is 3.8.5. I have had installed the same.

- Used pip install for installing those modules and dependent modules.

Installing pycharm

- Follow the steps mentioned on https://www.jetbrains.com/help/pycharm/installation-guide.html