Computer Vision Developer

Programming Exercise

- ❏ This test aims to gauge your ability to apply your skills and gain an understanding of your aptitude in engineering. Please aim to write well documented code that follows SOLID principles. Your code should be easily understood by another developer working on the same project.
- ❏ You are allowed to look up documentation as well as sites like StackOverflow if you need. Please credit or cite sources where used.
- ❏ You are not allowed to plagiarize, all your answers must be yours and original.
- ❏ Please submit a timesheet along with your code detailing your efforts.
- ❏ Please ask Eleanor or Gunawan if you need clarification or assistance. Good luck!
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Introduction

You are tasked with improving part of an ANPR system. The ANPR system is fairly accurate but does misread plates every now and again. A two factor check on each image would eliminate a large portion of inaccurate reads.

Part I

Using the video footage provided, outline and implement an algorithm that does the following:

- Samples 1 fps.
- Sends the image to BigEyes (https://bigeyes.ai) preferably (or OpenALPR, Sighthound or other ANPR provider of choice).
- Receive a prediction, confidence score and processing time
- Stores these details in a SQLite database.

Part II

Next, in trying to improve this system being able to identify the make, model and colour of a vehicle would be very useful:

- Describe and implement an approach to identifying make, model and colour given an image of a vehicle.
- The input will be the same images used above and the output is the predicted make, model and colour of the vehicle along with confidence scores for each of these.

Part III

Use the additional information (make, model and colour) to decide whether the license plate read from BigEyes (Part I) is accurate:

- The output from Part I is sent to a license plate registry such as CarJam
- Extract the registered make, model and colour from the CarJam response
- Does this output match the make, model and colour obtained from processing the image of the vehicle in Part II?
- Final output will be a list of ANPR reads along with the predicted make, model and colour followed by whether the read was correct or incorrect based on the CarJam check.

Part IV

- Describe any issues you came across or any further improvements you might make to your approach given more time.

Note: You can choose to train your own model or use a pre-trained one. Please specify the approach taken, document and credit your sources where applicable.