Abstract

Computer Vision (CV) is a computer science field where the focus is to study how can computers be trained to identify and process images data like how humans do. The study has advanced far and a lot of open source CV framework has appeared and becomes standard, like OpenCV for example. This opens up the possibility to try and find out whether implementation of CV frameworks with open source devices such as Arduino is possible or not. In order to do that, we pit two similarly performing methods against each other, namely YOLO-LITE and YOLOV3, both of which are based on the same root, YOLO.

This research analyzes the performance of both YOLO-LITE and YOLOV3 when used by itself on several test case as well as testing it real-time with the help of Arduino camera implementation. The tests we did shows that Arduino and camera isn't an ideal device at only 0.3 frames per second (fps), but it did work with YOLO-LITE and YOLOV3 implementation. This research results shows that YOLO-LITE performs at 1 second faster on average while YOLOV3 performs at 30% better accuracy on average.

Keywords: object recognition, computer vision, opencv, arduino, yolo, yolo-lite