

Abstract

Computer Vision (CV) is part of science where the main focus is to go in depth within how the computer see, identify, and understand an image similar as humans. Computer vision has been rapidly developing since the mid 1980s. Computer Vision opens up the opportunity to be implemented using open source devices such as Arduino and Raspberry Pi. In order to test such opportunity, we will use 2 different methods, YOLOv2 and CamShift. YOLO (You Only Look Once) is a Real Time Object Detection, and YOLOv2 is based on YOLO itself. Meanwhile, Continuous Adaptive Mean-Shift (or CamShift for short) is an efficient and light tracing algorithm that was developed based on Mean-Shift. This research analyzes the performance of both CamShift and YOLOv2 with the help of Raspberry Pi 3 camera implementation when used in several situations. The tests we did shows that YOLOv2 has the highest accuracy with IoU for animated object of 0.77 and 0.89 for inanimate object, but with lower FPS of 1.66. However, CAMshift has the FPS of 3.5 despite having lower IoU accuracy of 0.41 for animate object and 0.37 for inanimate object.

Keywords: object recognition, computer vision, opencv, raspberry pi, yolo, yolo-lite