

Task 4 Results:

Part 1: Original Box being detected (not fully monochrome, makes it more difficult)

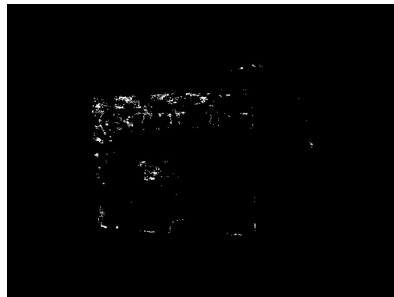


2 Colors were chosen for being the upper bound/lower bound

With HSV Colorspace: Struggles more in some angles than others



With RGB Colorspace: No detection, Threshold image added

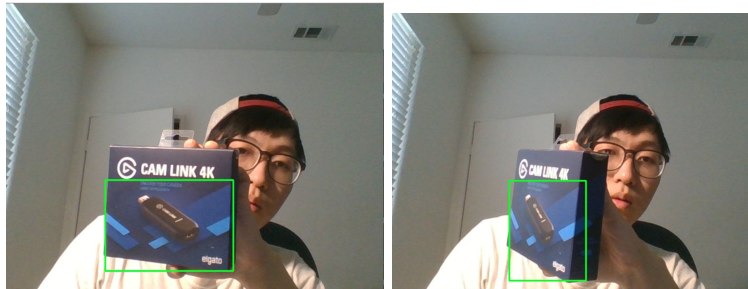


This is due to colorspace being different; the “inRange” function from cv2 maps differently between 2 colorspace so the result is worse.

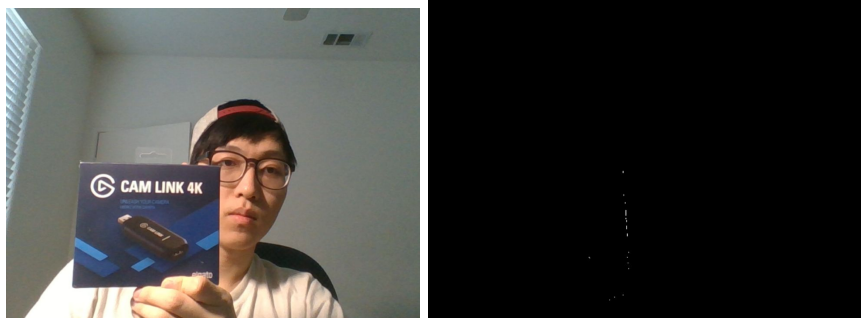
I found HSV better in my experiment. Threshold for RGB would have to become much wider than the HSV Colorspace.

Part 2: With Added Lights

HSV: Result is better overall all angles, however the threshold values still has a lot of noise(still less than before, due to webcam’s small sensor)



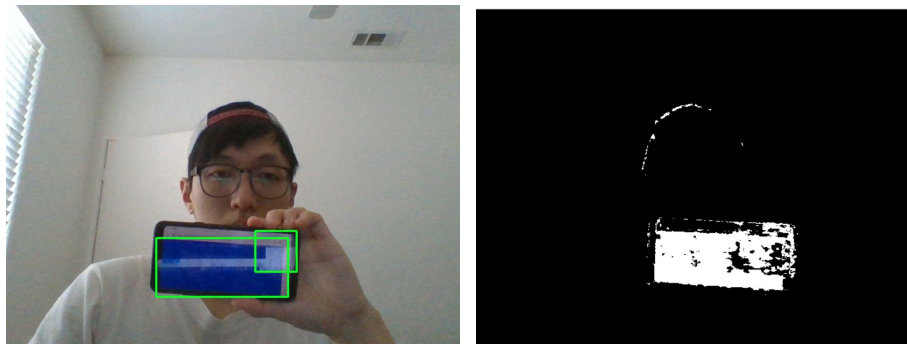
RGB: Still no detection, threshold image added. It's worse than before (the colorspace likely doesn't match up)



Part 3:

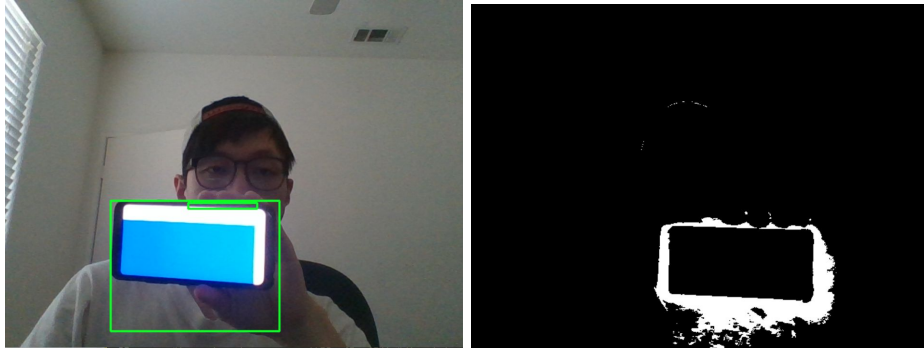
HSV color spectrum was used. Angles/Reflection added noise to the threshold values.

Low Brightness: picks up well, but noisy due to reflections/other lights being shed up on it



High brightness:

Since the color was so bright, it actually moved away from the threshold values. Interestingly, the surrounding area was detected, as it was in the less bright blue.



Part 4:

This was too difficult for somebody with little/no experience with OpenCV/ numPy library, so I did not finish (had many bugs). Matplotlib was too slow to use for live feedback as well. (Will see If I finish by deadline)