import cv2 as cv

import numpy as np

cam = cv.VideoCapture(0)

lower\_red = np.array([0,125,125])

upper\_red = np.array([10,255,255])

while(1):

ret, frame = cam.read()

frame = cv.flip(frame,1)

w = frame.shape[1]

h = frame.shape[0]

image\_smooth = cv.GaussianBlur(frame,(7,7),0)

mask = np.zeros\_like(frame)

mask[50:350, 50:350] = [255,255,255]

image\_roi = cv.bitwise\_and(image\_smooth, mask)

cv.rectangle(frame, (50,50), (350,350), (0,0,255), 2)

cv.line(frame, (150,50), (150,350), (0,0,255), 1)

cv.line(frame, (250,50), (250,350), (0,0,255), 1)

cv.line(frame, (50,150), (350,150), (0,0,255), 1)

cv.line(frame, (50,250), (350,250), (0,0,255), 1)

image\_hsv = cv.cvtColor(image\_roi, cv.COLOR\_BGR2HSV)

image\_threshold = cv.inRange(image\_hsv, lower\_red, upper\_red)

contours, heirarchy = cv.findContours(image\_threshold, \

cv.RETR\_TREE, \

cv.CHAIN\_APPROX\_NONE)

if(len(contours)!=0):

areas = [cv.contourArea(c) for c in contours]

max\_index = np.argmax(areas)

cnt = contours[max\_index]

M = cv.moments(cnt)

if(M['m00'] != 0):

cx = int(M['m10']/M['m00'])

cy = int(M['m01']/M['m00'])

cv.circle(frame, (cx,cy), 4, (0,255,0),-1)

if cx in range(150,250):

if cy < 150:

print("Upper Middle")

elif cy > 250:

print("Lower Middle")

else:

print("Center")

if cy in range(150,250):

if cx < 150:

print("Left Middle")

elif cx > 250:

print("Right Middle")

else:

print("Center")

cv.imshow('Frame',frame)

key = cv.waitKey(100)

if key == 27:

break

cam.release()

cv.destroyAllWindows()