import cv2

import numpy as np

import serial,time

arduino = serial.Serial('COM4',9600, timeout=.1)

time.sleep(2)

objeto = False

def dibujar(mask,color):

contornos,\_ = cv2.findContours(mask, cv2.RETR\_EXTERNAL,

cv2.CHAIN\_APPROX\_SIMPLE)

for c in contornos:

area = cv2.contourArea(c)

if area > 3000:

M = cv2.moments(c)

if (M["m00"]==0): M["m00"]=1

x = int(M["m10"]/M["m00"])

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

nuevoContorno = cv2.convexHull(c)

cv2.circle(frame,(x,y),7,(0,255,0),-1)

cv2.putText(frame,'{},{}'.format(x,y),(x+10,y), font, 0.75,(0,255,0),1,cv2.LINE\_AA)

cv2.drawContours(frame, [nuevoContorno], 0, color, 3)

objeto = True

else:

objeto = False

cap = cv2.VideoCapture(0)

amarilloBajo = np.array([11,100,20],np.uint8)

amarilloAlto = np.array([32,255,255],np.uint8)

font = cv2.FONT\_HERSHEY\_SIMPLEX

while True:

ret,frame = cap.read()

if ret == True:

frameHSV = cv2.cvtColor(frame,cv2.COLOR\_BGR2HSV)

maskAmarillo = cv2.inRange(frameHSV,amarilloBajo,amarilloAlto)

#print(maskAmarillo)

dibujar(maskAmarillo,(0,255,255))

cv2.imshow('frame',frame)

if ((amarilloAlto>=1).any() | (amarilloBajo>=1).any()):

arduino.write(b'P')

else:

arduino.write(b'A')

break

if cv2.waitKey(1) & 0xFF == ord('s'):

break

cap.release()

cv2.destroyAllWindows()

arduino.close()