Project - 1

Virtual Paint

In [ ]:

```
import numpy as np
from cv2 import cv2

cap = cv2.VideoCapture(0)
cap.set(3,640)
cap.set(4,480)
cap.set(10,300)

kernel_e = np.ones((7,7),np.uint8)
kernel_d1 = np.ones((5,5),np.uint8)
kernel_d2 = np.ones((3,3),np.uint8)

points = []

while True:
# Take each frame
    ret, frame = cap.read()
    frame = cv2.flip(frame,1)

    if not ret:
        break
    # Convert BGR to HSV
    hsv = cv2.cvtColor(frame, cv2.COLOR_BGR2HSV)

    # define range of blue color in HSV
    lower_blue = np.array([26,53,0])
    upper_blue = np.array([79,255,255])

    # Threshold the HSV image to get only blue colors
    mask = cv2.inRange(hsv, lower_blue, upper_blue)

    # erosion = cv2.erode(mask,kernel_e,iterations = 1)
    # # dilate1 = cv2.dilate(erosion,kernel_d1,iterations = 3)
    # dilate2 = cv2.dilate(erosion,kernel_d2,iterations = 1)


    contours, hierarchy = cv2.findContours(mask,cv2.RETR_TREE,cv2.CHAIN_APPROX_SIMPLE)
    # img = cv2.drawContours(frame, contours, -1, (0,255,0), 3)

    print(len(contours))

    # img = np.copy(frame)

    # print(contours[0])

    for cnt in contours:
        if cv2.contourArea(cnt)>800:
```

```
            # cv2.drawContours(frame, [cnt], -1, (0,255,0), 3)
            epsilon = 0.02*cv2.arcLength(cnt,True)
            approx = cv2.approxPolyDP(cnt,epsilon,True)

            x,y,w,h = cv2.boundingRect(approx)
            cv2.rectangle(frame,(x,y),(x+w,y+h),(255,0,0),3)

            cv2.circle(frame,(((x+(x+w))//2),y),4,(0,0,255),-1)

            points.append([((x+(x+w))//2),y])

    for p in points:
        cv2.circle(frame,(p[0],p[1]),4,(0,0,255),-1)

    cv2.imshow('frame',frame)
    # cv2.imshow('mask',mask)
    # cv2.imshow('mask',erosion)
    # cv2.imshow('mask',dilate2)


    # cv2.imshow('res',res)
    k = cv2.waitKey(1) & 0xFF
    if k == 27:
        break

cv2.destroyAllWindows()
```