

## LISTING PROGRAM

```
import cv2
import numpy as np
import argparse
import imutils
from collections import deque

cap = cv2.VideoCapture(0)

while(1):

    # Mengambil setiap frame
    _, frame = cap.read()

    frame = imutils.resize(frame, width=600)

    # ubah BRG menjadi HSV
    hsv = cv2.cvtColor(frame, cv2.COLOR_BGR2HSV)

    # define range of blue color in HSV
    lower_blue = np.array([110, 50, 50], dtype=np.uint8)
    upper_blue = np.array([130,255,255], dtype=np.uint8)
    lower_red = np.array([50, 50, 100], dtype=np.uint8)
    upper_red = np.array([120,120,255], dtype=np.uint8)
    lower_green = np.array([110, 50, 50], dtype=np.uint8)
    upper_green = np.array([255,120,120], dtype=np.uint8)

    # Threshold gambar HSV untuk mendapat 1 warna
    mask = cv2.inRange(hsv, lower_blue, upper_blue)
    maskred = cv2.inRange(hsv, lower_red, upper_red)
    maskgreen = cv2.inRange(hsv, lower_green, upper_green)

    cnts = cv2.findContours(mask.copy(), cv2.RETR_EXTERNAL,
        cv2.CHAIN_APPROX_SIMPLE)[-2]
    center = None

    cnts2 = cv2.findContours(maskred.copy(), cv2.RETR_EXTERNAL,
        cv2.CHAIN_APPROX_SIMPLE)[-2]
    center = None

    cnts3 = cv2.findContours(maskgreen.copy(), cv2.RETR_EXTERNAL,
        cv2.CHAIN_APPROX_SIMPLE)[-2]
    center = None

    if len(cnts) > len(cnts2):
```

```

c = max(cnts, key=cv2.contourArea)
((x, y), radius) = cv2.minEnclosingCircle(c)
M = cv2.moments(c)
center = (int(M["m10"] / M["m00"]), int(M["m01"] / M["m00"]))
res = cv2.bitwise_and(frame,frame, mask= mask)
cv2.putText(frame, "WarnaBiru", (10, 20),
            cv2.FONT_HERSHEY_SIMPLEX, 0.5, (255, 255, 255), 2)

if len(cnts2) > len(cnts):

    c = max(cnts2, key=cv2.contourArea)
    ((x, y), radius) = cv2.minEnclosingCircle(c)
    M = cv2.moments(c)
    center = (int(M["m10"] / M["m00"]), int(M["m01"] / M["m00"]))
    res = cv2.bitwise_and(frame,frame, mask= maskred)
    cv2.putText(frame, "WarnaHijau", (10, 20),
                cv2.FONT_HERSHEY_SIMPLEX, 0.5, (255, 255, 255), 2)

if len(cnts3) > len(cnts2) :

    c = max(cnts3, key=cv2.contourArea)
    ((x, y), radius) = cv2.minEnclosingCircle(c)
    M = cv2.moments(c)
    center = (int(M["m10"] / M["m00"]), int(M["m01"] / M["m00"]))
    res = cv2.bitwise_and(frame,frame, mask= maskgreen)
    cv2.putText(frame, "WarnaMerah", (10, 20),
                cv2.FONT_HERSHEY_SIMPLEX, 0.5, (255, 255, 255), 2)

cv2.imshow('frame',frame)
cv2.imshow('mask',mask)
cv2.imshow('res',res)

k = cv2.waitKey(5) & 0xFF
if k == 27:
break
cv2.destroyAllWindows()

```

























