LAMPIRAN A

DAFTAR PROGRAM *RASPBERRY PI* 4

A. Program *Raspberry Pi* 4

```
import cv2
import numpy as np
from smbus2 import SMBus
from mlx90614 import MLX90614
import time
import RPi.GPIO as GPIO

GPIO.setwarnings(False)
GPIO.setmode(GPIO.BCM)
GPIO.setup(2,GPIO.OUT)



sensor = MLX90614(SMBus(1), address=0x5a)

cameraEnter = cv2.VideoCapture(0)
cameraExit = cv2.VideoCapture(2)

face_cascade =
cv2.CascadeClassifier("haarcascade_face.xml")

cv2.namedWindow('frame', cv2.WINDOW_NORMAL)

flagEnter = False
flagExit = False
countEnter = 0
countExit = 0

def main() :
    global flagEnter
    global flagExit
    global countEnter
    global countExit

    ret, frameCameraEnter = cameraEnter.read()
```

```
    ret, frameCameraExit = cameraExit.read()

    frameCameraEnterGray =
cv2.cvtColor(frameCameraEnter, cv2.COLOR_BGR2GRAY)
    frameCameraExitGray = cv2.cvtColor(frameCameraExit,
cv2.COLOR_BGR2GRAY)

    faceCameraEnter =
face_cascade.detectMultiScale(frameCameraEnterGray,
scaleFactor = 1.5, minNeighbors = 2)
    faceCameraExit =
face_cascade.detectMultiScale(frameCameraExitGray,
scaleFactor = 1.5, minNeighbors = 2)

    if len(faceCameraEnter) > 0 :
        if (countEnter -countExit) > 10 :
            GPIO.output(2,GPIO.LOW)
        else :
           GPIO.output(2,GPIO.HIGH)

        x, y, w, h = faceCameraEnter[0]
        frameCameraEnter = cv2.rectangle(
            frameCameraEnter,
            (x,y),
            (x+w, y+h),
            (0, 255, 0),
            3
        )
        if w > 200 :
            if not(flagEnter) :
                countEnter = countEnter + 1
                flagEnter = True
                print('enter', countEnter)
                temp = 0
                lastTemp = -1
                while 1 :
                    temp = sensor.get_obj_temp() + 4
                    frameCameraEnterLabeled =
cv2.putText(frameCameraEnter.copy(), 'Suhu=' + str(temp),
```

```
(0, 25), cv2.FONT_HERSHEY_SIMPLEX, 1, (255,
255,255), 2, cv2.LINE_AA)
                cv2.imshow('frame captured',
frameCameraEnterLabeled)
                cv2.waitKey(1)
                if temp > 35 :
                    GPIO.output(2,GPIO.LOW)
                    lastTemp = temp
                    if int(temp) == int(lastTemp) :
                        cv2.imwrite('captured/' + str(time.time()) +
'.png', frameCameraEnterLabeled)
                        break


    else :
        GPIO.output(2,GPIO.HIGH)
        flagEnter = False

    if len(faceCameraExit) > 0 :
        x, y, w, h = faceCameraExit[0]
        frameCameraExit = cv2.rectangle(
            frameCameraExit,
            (x,y),
            (x+w, y+h),
            (0, 255, 0),
            3
        )
        if w > 200 :
            if not(flagExit) :
                countExit = countExit + 1
                flagExit = True
                print('exit', countExit)
    else :
        flagExit = False

    frameAll = np.concatenate((frameCameraEnter,
frameCameraExit), axis=1)
    frameSmall = cv2.resize(frameAll, (0, 0), fx=0.4, fy=0.4)
```

```
    frameSmall = cv2.putText(frameSmall, 'Masuk=' +
str(countEnter), (0, 25), cv2.FONT_HERSHEY_SIMPLEX,
1, (255, 255,255), 2, cv2.LINE_AA)
    frameSmall = cv2.putText(frameSmall, 'Keluar=' +
str(countExit), (0, 50), cv2.FONT_HERSHEY_SIMPLEX, 1,
(255, 255,255), 2, cv2.LINE_AA)

    cv2.imshow('frame', frameSmall)
    cv2.waitKey(1)

while 1 :
    main()
```

LAMPIRAN B

DOKUMENTASI ALAT

Box alat dan LCD

Hasil mekanik keseluruhan

BIODATA PENULIS

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