

LAMPIRAN

Program Utama

```
import cv2
import pytesseract
from pytesseract import Output
from TA2 import *
import RPi.GPIO as GPIO # importing GPIO library
import time # importing time library for delay

cap = cv2.VideoCapture(0)
cap.set(cv2.CAP_PROP_BUFFERSIZE, 1)

while True:
    # Capture frame-by-frame
    ret, frame = cap.read()

    d = pytesseract.image_to_data(frame, output_type=Output.DICT)
    n_boxes = len(d['text'])
    for i in range(n_boxes):
        if int(d['conf'][i]) > 60:
            (text, x, y, w, h) = (d['text'][i], d['left'][i], d['top'][i], d['width'][i], d['height'][i])
            # don't show empty text
            if text and text.strip() != "":
                frame = cv2.rectangle(frame, (x, y), (x + w, y + h), (0, 255, 0), 2)
                frame = cv2.putText(frame, text, (x, y - 10), cv2.FONT_HERSHEY_SIMPLEX, 1.0, (0, 0, 255),
3)
                #print('capture pola!Hasil',text )
                key=cv2.waitKey(1)
                #key = cv2.waitKey(0)
                if key == ord('q'):
                    print("Capture pola!Hasil=",text )

                    if text == 'titikA':
time.sleep(1)
                    #print("AGV parkir di pola", text)
                    print("")
time.sleep(1)
                    tujuan = input ("Pergike mana ? ")
                    print("")

                    if tujuan == "A": # Tujuan A
Pola_A()
                    if tujuan == "B": # Tujuan B
Pola_B()
                    if tujuan == "C": # Tujuan C
Pola_C()
                    if tujuan == "D": # Tujuan D
Pola_D()
                    if tujuan == "E": # Tujuan B
Pola_E()
```

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        if text == 'titikB':
time.sleep(1)
        #print("AGV parkir di pola", text)
        print("")
time.sleep(1)
tujuan = input ("Pergike mana ? ")
        print("")
        if tujuan == "A": # Tujuan A
Pola_A()
        if tujuan == "B": # Tujuan B
Pola_B()
        if tujuan == "C": # Tujuan C
Pola_C()
        if tujuan == "D": # Tujuan D
Pola_D()

        if text == 'titikC':
time.sleep(1)
        #print("AGV parkir di pola", text)
        print("")
time.sleep(1)
tujuan = input ("Pergike mana ? ")
        print("")
        if tujuan == "A": # Tujuan A
Pola_A()
        if tujuan == "B": # Tujuan B
Pola_B()
        if tujuan == "C": # Tujuan C
Pola_C()
        if tujuan == "D": # Tujuan D
Pola_D()

        if text == 'titikD':
time.sleep(1)
        #print("AGV parkir di pola", text)
        print("")
time.sleep(1)
tujuan = input ("Pergike mana ? ")
        print("")
        if tujuan == "A": # Tujuan A
Pola_A()
        if tujuan == "B": # Tujuan B
Pola_B()
        if tujuan == "C": # Tujuan C
Pola_C()
        if tujuan == "D": # Tujuan D
Pola_D()

```

```

# Display the resulting frame
cv2.imshow('frame', frame)

```

```

cv2.waitKey(1)
#key = cv2.waitKey(0)

#key=cv2.waitKey(1)
#key = cv2.waitKey(0)
#if key == ord('q'):
# print("Capture pola!Hasil=",text )

# Deteksi Led A #mulai darititik A Led Menyala

GPIO.setmode(GPIO.BOARD) # enable BOARD pin numberings
GPIO.setup(37,GPIO.OUT) # Set pin 37 as output
while(True):
GPIO.output(37,1) # Send Output 5V to pin 37
time.sleep(1) # introduce 1 second time delay before executing next line of code

GPIO.output(37,0) # Send Output 0V to pin 37
time.sleep(1) # introduce 1 second time delay
# Deteksi Led B #mulai darititikB Led Menyala

GPIO.setmode(GPIO.BOARD) # enable BOARD pin numberings
GPIO.setup(36,GPIO.OUT) # Set pin 36 as output
while(True):
GPIO.output(36,1) # Send Output 5V to pin 36
time.sleep(1) # introduce 1 second time delay before executing next line of code

GPIO.output(36,0) # Send Output 0V to pin 36
time.sleep(1) # introduce 1 second time delay
# GPIO.cleanup()

# When everything done, release the capture
cap.release()
cv2.destroyAllWindows()

```

Program Motor DC dan Motor Servo

```
import RPi.GPIO as
GPIOimporttime
from time import
sleepGPIO.setmode(GPIO.
BCM)GPIO.setwarnings(Fa
lse)
Ena,In1,In2=22,17,27

#=====
#      mulai dari titik
P#=====
def
  Pola_A():GPIO.setup(25,G
  PIO.OUT)pwm=GPIO.PW
  M(25,360)
  pwm.start(0)pwm.ChangeD
  utyCycle(42)sleep(1)
  pwm.stop(1)GPIO.setup(Ena
  ,GPIO.OUT)GPIO.setup(In1,
  GPIO.OUT)GPIO.setup(In2,
  GPIO.OUT)pwm=GPIO.PW
  M(Ena,25)
  pwm.start(0)GPIO.output(In1,
  GPIO.LOW)GPIO.output(In2,
  GPIO.HIGH)
  pwm.ChangeDutyCycle(100)
  sleep (1.6)
  pwm.stop(1)

  print("BERADADITITIKA")
  print("")
  print("")#####
#
def
  Pola_B():GPIO.setup(25,G
  PIO.OUT)pwm=GPIO.PW
  M(25,360)
  pwm.start(0)pwm.ChangeD
  utyCycle(42)sleep(1)
  pwm.stop(1)GPIO.setup(Ena
  ,GPIO.OUT)GPIO.setup(In1,
  GPIO.OUT)GPIO.setup(In2,
  GPIO.OUT)pwm=GPIO.PW
  M(Ena,25)
  pwm.start(0)GPIO.output(In1,
  GPIO.LOW)GPIO.output(In2,
  GPIO.HIGH)
  pwm.ChangeDutyCycle(100)
  sleep (0.8)
  pwm.stop(1)GPIO.setup(25
  ,GPIO.OUT)pwm=GPIO.P
  WM(25,360)
```

```
pwm.start(0)pwm.ChangeDutyCycle(53)sleep(1)
pwm.stop(1)GPIO.setup(Ena,GPIO.OUT)GPIO.setup(In1,GPIO.OUT)GPIO.setup(In2,GPIO.OUT)pwm=GPIO.PWM(Ena,25)
pwm.start(0)GPIO.output(In1,GPIO.LOW)GPIO.output(In2,GPIO.HIGH)
pwm.ChangeDutyCycle(100)
sleep (2.3)
pwm.stop(1)
print("BERADADITITIKB")
print("")
print("")
```

#####

```
def
Pola_C():GPIO.setup(25,GPIO.OUT)pwm=GPIO.PWM(25,360)
pwm.start(0)pwm.ChangeDutyCycle(31)sleep(1)
pwm.stop(1)GPIO.setup(Ena,GPIO.OUT)GPIO.setup(In1,GPIO.OUT)GPIO.setup(In2,GPIO.OUT)pwm=GPIO.PWM(Ena,25)
pwm.start(0)GPIO.output(In1,GPIO.LOW)GPIO.output(In2,GPIO.HIGH)
pwm.ChangeDutyCycle(100)
sleep (1.5)
pwm.stop(1)GPIO.setup(25,GPIO.OUT)pwm=GPIO.PWM(25,360)
pwm.start(0)pwm.ChangeDutyCycle(53)sleep(1)
pwm.stop(1)GPIO.setup(Ena,GPIO.OUT)GPIO.setup(In1,GPIO.OUT)GPIO.setup(In2,GPIO.OUT)pwm=GPIO.PWM(Ena,25)
pwm.start(0)GPIO.output(In1,GPIO.LOW)GPIO.output(In2,GPIO.HIGH)
pwm.ChangeDutyCycle(100)
sleep (1.5)
pwm.stop(1)
print("BERADADITITIKC")
print("")
print("")
```



```
#####
```

```
def  
  Pola_D():GPIO.setup(25,G  
    PIO.OUT)pwm=GPIO.PW  
    M(25,360)  
    pwm.start(0)pwm.ChangeD  
    utyCycle(42)sleep(1)  
    pwm.stop(1)GPIO.setup(Ena  
    ,GPIO.OUT)GPIO.setup(In1,  
    GPIO.OUT)GPIO.setup(In2,  
    GPIO.OUT)pwm=GPIO.PW  
    M(Ena,25)  
    pwm.start(0)GPIO.output(In1,  
    GPIO.LOW)GPIO.output(In2,  
    GPIO.HIGH)  
    pwm.ChangeDutyCycle(100)  
    sleep (1)  
    pwm.stop(1)GPIO.setup(25  
    ,GPIO.OUT)pwm=GPIO.P  
    WM(25,360)  
    pwm.start(0)pwm.ChangeD  
    utyCycle(31)sleep(1)  
    pwm.stop(1)GPIO.setup(Ena  
    ,GPIO.OUT)GPIO.setup(In1,  
    GPIO.OUT)GPIO.setup(In2,  
    GPIO.OUT)pwm=GPIO.PW  
    M(Ena,25)  
    pwm.start(0)GPIO.output(In1,  
    GPIO.LOW)GPIO.output(In2,  
    GPIO.HIGH)  
    pwm.ChangeDutyCycle(100)  
    sleep (1.2)  
    pwm.stop(1)  
    print("BERADADITITIKD")  
    print("")  
    print("")
```

```
def  
  Pola_E():GPIO.setup(25,G  
    PIO.OUT)pwm=GPIO.PW  
    M(25,360)  
    pwm.start(0)pwm.ChangeD  
    utyCycle(31)sleep(1)  
    pwm.stop(1)GPIO.setup(Ena  
    ,GPIO.OUT)GPIO.setup(In1,  
    GPIO.OUT)GPIO.setup(In2,  
    GPIO.OUT)pwm=GPIO.PW  
    M(Ena,25)  
    pwm.start(0)GPIO.output(In1,  
    GPIO.LOW)GPIO.output(In2,  
    GPIO.HIGH)  
    pwm.ChangeDutyCycle(100)  
    sleep (1.2)  
    pwm.stop(1)
```



```

GPIO.setup(25,GPIO.OUT)
pwm=GPIO.PWM(25,360)
pwm.start(0)pwm.ChangeD
utyCycle(53)sleep(1)
pwm.stop(1)GPIO.setup(Ena
,GPIO.OUT)GPIO.setup(In1,
GPIO.OUT)GPIO.setup(In2,
GPIO.OUT)pwm=GPIO.PW
M(Ena,25)
pwm.start(0)GPIO.output(In1,
GPIO.LOW)GPIO.output(In2,
GPIO.HIGH)
pwm.ChangeDutyCycle(100)
sleep (1.2)
pwm.stop(1)
print("BERADADITITIKE")
print("")
print("")

def
Pola_F():GPIO.setup(25,GP
IO.OUT)pwm=GPIO.PWM
(25,360)
pwm.start(0)pwm.ChangeD
utyCycle(42)sleep(1)
pwm.stop(1)GPIO.setup(Ena
,GPIO.OUT)GPIO.setup(In1,
GPIO.OUT)GPIO.setup(In2,
GPIO.OUT)pwm=GPIO.PW
M(Ena,25)
pwm.start(0)GPIO.output(In1,
GPIO.LOW)GPIO.output(In2,
GPIO.HIGH)
pwm.ChangeDutyCycle(100)
sleep (0.8)
pwm.stop(1)GPIO.setup(25
,GPIO.OUT)pwm=GPIO.P
WM(25,360)
pwm.start(0)pwm.ChangeD
utyCycle(48)sleep(1)
pwm.stop(1)GPIO.setup(Ena
,GPIO.OUT)GPIO.setup(In1,
GPIO.OUT)GPIO.setup(In2,
GPIO.OUT)pwm=GPIO.PW
M(Ena,25)
pwm.start(0)GPIO.output(In1,
GPIO.LOW)GPIO.output(In2,
GPIO.HIGH)
pwm.ChangeDutyCycle(100)
sleep (0.9)
pwm.stop(1)
print("BERADADITITIKF")

```

```

print("")
print("")

def
Pola_G():GPIO.setup(25,G
PIO.OUT)pwm=GPIO.PW
M(25,360)
pwm.start(0)pwm.ChangeD
utyCycle(42)sleep(1)
pwm.stop(1)GPIO.setup(Ena
,GPIO.OUT)GPIO.setup(In1,
GPIO.OUT)GPIO.setup(In2,
GPIO.OUT)pwm=GPIO.PW
M(Ena,25)
pwm.start(0)GPIO.output(In1,
GPIO.LOW)GPIO.output(In2,
GPIO.HIGH)
pwm.ChangeDutyCycle(100)
sleep (1.3)
pwm.stop(1)GPIO.setup(25
,GPIO.OUT)pwm=GPIO.P
WM(25,360)
pwm.start(0)pwm.ChangeD
utyCycle(53)sleep(1)
pwm.stop(1)GPIO.setup(Ena
,GPIO.OUT)GPIO.setup(In1,
GPIO.OUT)GPIO.setup(In2,
GPIO.OUT)pwm=GPIO.PW
M(Ena,25)
pwm.start(0)GPIO.output(In1,
GPIO.LOW)GPIO.output(In2,
GPIO.HIGH)
pwm.ChangeDutyCycle(100)
sleep (1.9)
pwm.stop(1)
print("BERADADITITIKG")
print("")
print("")

def
Pola_P():GPIO.setup(25,GP
IO.OUT)pwm=GPIO.PWM
(25,360)
pwm.start(0)pwm.ChangeD
utyCycle(42)sleep(1)
pwm.stop(1)GPIO.setup(Ena
,GPIO.OUT)GPIO.setup(In1,
GPIO.OUT)GPIO.setup(In2,
GPIO.OUT)pwm=GPIO.PW
M(Ena,25)
pwm.start(0)GPIO.output(In1,
GPIO.LOW)GPIO.output(In2,
GPIO.HIGH)
pwm.ChangeDutyCycle(100)

```



```
sleep
(1)pwm.stop
(1)
GPIO.setup(25,GPIO.OUT)
pwm=GPIO.PWM(25,360)
pwm.start(0)pwm.ChangeD
utyCycle(31)sleep(1)
pwm.stop(1)GPIO.setup(Ena
,GPIO.OUT)GPIO.setup(In1,
GPIO.OUT)GPIO.setup(In2,
GPIO.OUT)pwm=GPIO.PW
M(Ena,25)
pwm.start(0)GPIO.output(In1,
GPIO.LOW)GPIO.output(In2,
GPIO.HIGH)
pwm.ChangeDutyCycle(100)
sleep (1.2)
pwm.stop(1)
print("BERADADITITIKP")
print("")
print("")
```



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