from RPIO import PWM

import RPi.GPIO as GPIO

from RPIO import PWM

import RPi.GPIO as GPIO

import time

from time import sleep

from subprocess import call

print"ok"

GPIO.setmode(GPIO.BCM)

GPIO.setup(19,GPIO.OUT)

GPIO.setup(26,GPIO.OUT)

GPIO.setup(16,GPIO.OUT)

GPIO.setup(20,GPIO.OUT)

GPIO.setup(21,GPIO.IN)

GPIO.setup(8,GPIO.OUT)

GPIO.setup(27,GPIO.OUT)

GPIO.setup(9,GPIO.OUT)

TRIG=18

ECHO=17

print"controls"

print"1: move forward"

print"2: move reverse"

print"3: stop robot"

print"4: take picture with user defined name"

print"5: move forward with speed control"

print"6: Rotate the Robot"

print"7: Turn the Robot"

print"8: for servo control please"

print"11 : welcome to autonomous control"

print"press enter to send command"

def takestillpic(inp):

 print" please enter photo character"

 inp = raw\_input()

 call ( ["raspistill -vf -hf -o " + str(inp) + ".jpg" ],shell=True )

def fwd():

 GPIO.output(19,True)

 GPIO.output(26,False)

 GPIO.output(16,True)

 GPIO.output(20,False)

def rev():

 GPIO.output(19,False)

 GPIO.output(26,True)

 GPIO.output(16,False)

 GPIO.output(20,True)

def stop():

 GPIO.output(19,False)

 GPIO.output(26,False)

 GPIO.output(16,False)

 GPIO.output(20,False)

def distmeas():

 print" Distance measurement in progress"

 GPIO.setup(TRIG,GPIO.OUT)

 GPIO.setup(ECHO,GPIO.IN)

 GPIO.output(TRIG,False)

 print" waiting for sensor to settle please"

 time.sleep(2)

 GPIO.output(TRIG,True)

 time.sleep(0.00001)

 GPIO.output(TRIG,False)

 while GPIO.input(ECHO)==0:

 pulse\_start=time.time()

 while GPIO.input(ECHO)==1:

 pulse\_end=time.time()

 pulse\_duration = pulse\_end - pulse\_start

 distance = pulse\_duration \* 17150

 distance = round(distance,2)

 print " Distance ", distance, "cm"

 if distance < 50 :

 GPIO.output(19,False)

 GPIO.output(26,False)

 GPIO.output(16,False)

 GPIO.output(20,False)

 time.sleep(1)

 print " robot stopped as distance is less"

 print " Now Robot going Backward"

 GPIO.output(19,False)

 GPIO.output(26,True)

 GPIO.output(16,False)

 GPIO.output(20,True)

 time.sleep(1)

 GPIO.output(19,False)

 GPIO.output(26,False)

 GPIO.output(16,False)

 GPIO.output(20,False)

 TLr()

 time.sleep(4)

 fwd()

 distmeas()

 else:

 distmeas()

def TL():

 GPIO.output(19,True)

 GPIO.output(26,False)

 GPIO.output(16,False)

 GPIO.output(20,False)

def TLr():

 GPIO.output(19,True)

 GPIO.output(26,False)

 time.sleep(0.75)

 GPIO.output(19,False)

 GPIO.output(26,False)

while True:

 inp= raw\_input()

 if inp =="1":

 fwd()

 print"robot moving in fwd direction"

 elif inp =="2":

 rev()

 print"robot moving in rev direction"

 elif inp=="3":

 stop()

 print"robot stopped"

 elif inp =="4":

 takestillpic(inp)

 print " photo please"

 elif inp =="5":

 GPIO.output(7,False)

 GPIO.output(8,False)

 elif inp =="6":

 TL()

 elif inp =="7":

 TLr()

 elif inp =="8":

 servo = PWM.Servo()

 servo.set\_servo(27,1000)

 time.sleep(2)

 servo.stop\_servo(27)

 elif inp =="9":

 servo = PWM.Servo()

 servo.set\_servo(27,1500)

 time.sleep(2)

 servo.stop\_servo(27)

 elif inp =="10":

 servo = PWM.Servo()

 servo.set\_servo(27,2000)

 time.sleep(2)

 servo.stop\_servo(27)

 elif inp == "11":

 fwd()

 distmeas()

GPIO.cleanup()