Code EXP 5

October 17, 2019

[ ]:
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import busio
import digitalio
import board
import adafruit_mcp3xxx.mcp3008 as MCP
from adafruit_mcp3xxx.analog_in import AnalogIn
import time
import pynput
from pynput.keyboard import Key,Controller

def hand_motion():
    spi = busio.SPI(clock=board.SCK, MISO=board.MISO, MOSI=board.MOSI)
    cs = digitalio.DigitalInOut(board.D5)

    # Create an MCP3008 object
    mcp = MCP.MCP3008(spi, cs)
    # Create an analog input channel on the MCP3008 pin 0
    channel1 = AnalogIn(mcp, MCP.P0) #left sensor
    channel2 = AnalogIn(mcp, MCP.P1) # right sensor

    initial = True
    initial_channel1 = 0
    initial_channel2 = 0
    time_loop_value = 0.2
    max_time_value = 2
    max_time_list_length = max_time_value/time_loop_value
    # assuming that the voltage values decreases as it gets darker/(motion␣
 ↪moves????)

    difference_channel1_values = []
    difference_channel2_values = []
    keyboard = Controller()

    while True:
        #print('Left Sensor - Raw ADC Value: ', channel1.value)
        #print('Left Sensor -ADC Voltage: ' + str(channel1.voltage) + 'V')
        #print('Right Sensor - Raw ADC Value: ', channel2.value)
        #print('Right Sensor -ADC Voltage: ' + str(channel2.voltage) + 'V')
```

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        #print(difference_channel1_values)
        #print(difference_channel2_values)

        if initial == True:
            initial_channel1 = channel1.voltage
            initial_channel2 = channel2.voltage
            initial = False
        else:
            difference_channel1 = channel1.voltage - initial_channel1
            difference_channel2 = channel2.voltage - initial_channel2

            if abs(difference_channel1) < 0.15:
                difference_channel1_values.append(0)

            else: difference_channel1_values.append(difference_channel1)


            if abs(difference_channel2) < 0.15:
                difference_channel2_values.append(0)
            else: difference_channel2_values.append(difference_channel2)


            if difference_channel1_values == [0] and difference_channel2_values␣
↪== [0]:
                difference_channel1_values = []
                difference_channel2_values = []
                print("no initial movement")

            elif len(difference_channel1_values) == max_time_list_length and␣
↪len(difference_channel2_values) == max_time_list_length:
                difference_channel1_values = []
                difference_channel2_values = []
                print("Too Slow")

            elif (difference_channel1_values[0] > 0 and␣
↪difference_channel1_values[-1] <=0) and (difference_channel2_values[0]<=0␣
↪and difference_channel2_values[-1] > 0):
                print ("Left to Right Movement")
                difference_channel1_values = []
                difference_channel2_values = []
                keyboard.press(Key.right)
                keyboard.release(Key.right)
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```
            elif (difference_channel1_values[0] <= 0 and␣
 ↪difference_channel1_values[-1] > 0) and (difference_channel2_values[0]>0 and␣
 ↪difference_channel2_values[-1] <= 0):
                print ("Right to Left Movement")
                difference_channel1_values = []
                difference_channel2_values = []
                keyboard.press(Key.left)
                keyboard.release(Key.left)



            else: print ("No Movement or Did not capture or Still Moving?")



        time.sleep(time_loop_value)

hand_motion()
```