

Code EXP 6

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

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

# assuming that the voltage values decreases as it gets darker/(motion moves????
→)

difference_channel1_values = [0,0,0]
difference_channel2_values = [0,0,0]

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')

    if initial == True:
        initial_channel1 = channel1.voltage
        initial_channel2 = channel2.voltage
        initial = False
```

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else:
    difference_channel1 = channel1.voltage - initial_channel1
    difference_channel2 = channel2.voltage - initial_channel2

    print(difference_channel1)
    print(difference_channel2)

    if abs(difference_channel1) < 0.1:
        difference_channel1_values.append(0)

    else: difference_channel1_values.append(difference_channel1)

    if abs(difference_channel2) < 0.1:
        difference_channel2_values.append(0)
    else: difference_channel2_values.append(difference_channel2)

    difference_channel1_values = difference_channel1_values[1:4]
    difference_channel2_values = difference_channel2_values[1:4]

    if (difference_channel1_values[0] > 0 and difference_channel1_values[2]
→<=0) and (difference_channel2_values[0]<=0 and difference_channel2_values[2]
→> 0):
        print ("Left to Right Movement")

    elif (difference_channel1_values[0] <= 0 and
→difference_channel1_values[2] > 0) and (difference_channel2_values[0]>0 and
→difference_channel2_values[2] <= 0):
        print ("Right to Left Movement")

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

time.sleep(0.5)

```