Code EXP 4

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
time_loop_value = 0.2
max_time_value = 5
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 = []


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')

    #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) < 0.2:
           difference_channel1_values.append(0)

       else: difference_channel1_values.append(difference_channel1)


       if abs(difference_channel2) < 0.2:
           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 = []

       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 = []

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

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    time.sleep(time_loop_value)
```