임베디드응용및실습

-Github 8주차

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```python
import threading
import serial
import time
import RPi.GPIO as GPIO
PWMA = 18
PWMB = 23
AIN1 = 22
AIN2 = 27
BIN1 = 25
BIN2 = 24
GPIO.setwarnings(False)
GPIO.setmode(GPIO.BCM)
GPIO.setup(PWMA, GPIO.OUT)
GPIO.setup(AIN1, GPIO.OUT)
GPIO.setup(AIN2, GPIO.OUT)
GPIO.setup(PWMB, GPIO.OUT)
GPIO.setup(BIN1, GPIO.OUT)
GPIO.setup(BIN2, GPIO.OUT)
L1_Motor = GPIO.PWM(PWMA, 500)
L2_Motor = GPIO.PWM(PWMB, 500)
L1_Motor.start(0)
L2_Motor.start(0)
GPIO.output(AIN1, 0)
GPIO.output(AIN2, 1)
GPIO.output(BIN1, 0)
GPIO.output(BIN2, 1)
bleSerial = serial.Serial("/dev/ttyS0", baudrate=9600, timeout=1.0)
gData = ""
def serial_thread():
    global gData
    while True:
        try:
            data = bleSerial.readline()
            if data:  # 데이터가 있으면 처리
                data = data.decode(errors='ignore')  # 디코딩 오류를 무시
                gData = data
        except serial.SerialException as e:
            print(f"Serial error: {e}")
            break  # 오류가 발생하면 스레드를 종료
def main():
    global gData
    try:
        while True:
            if gData.find("go") >= 0:
                gData = ""
                GPIO.output(AIN1, 0)
                GPIO.output(AIN2, 1)
                GPIO.output(BIN1, 0)
                GPIO.output(BIN2, 1)
```

```
                L1_Motor.ChangeDutyCycle(0)
                L2_Motor.ChangeDutyCycle(0)
                L1_Motor.ChangeDutyCycle(100)
                L2_Motor.ChangeDutyCycle(100)
                print("앞")
            elif gData.find("left") >= 0:
                gData = ""
                GPIO.output(AIN1, 0)
                GPIO.output(AIN2, 1)
                GPIO.output(BIN1, 0)
                GPIO.output(BIN2, 1)
                L1_Motor.ChangeDutyCycle(0)
                L2_Motor.ChangeDutyCycle(0)
                L2_Motor.ChangeDutyCycle(100)
                print("왼")
            elif gData.find("right") >= 0:
                gData = ""
                GPIO.output(AIN1, 0)
                GPIO.output(AIN2, 1)
                GPIO.output(BIN1, 0)
                GPIO.output(BIN2, 1)
                L1_Motor.ChangeDutyCycle(0)
                L2_Motor.ChangeDutyCycle(0)
                L1_Motor.ChangeDutyCycle(100)
                print("오")
            elif gData.find("stop") >= 0:
                gData = ""
                GPIO.output(AIN1, 0)
                GPIO.output(AIN2, 1)
                GPIO.output(BIN1, 0)
                GPIO.output(BIN2, 1)
                L1_Motor.ChangeDutyCycle(0)
                L2_Motor.ChangeDutyCycle(0)
                print("정지")
            elif gData.find("back") >= 0:
                gData = ""
                GPIO.output(AIN1, 1)
                GPIO.output(AIN2, 0)
                GPIO.output(BIN1, 1)
                GPIO.output(BIN2, 0)
                L1_Motor.ChangeDutyCycle(0)
                L2_Motor.ChangeDutyCycle(0)
                L1_Motor.ChangeDutyCycle(100)
                L2_Motor.ChangeDutyCycle(100)
```

```
94                      print("뒤")
95      except KeyboardInterrupt:
96          pass
97      GPIO.cleanup()
98  if __name__ == '__main__':
99      try:
100         task1 = threading.Thread(target=serial_thread)
101         task1.start()
102         main()
103     finally:
104         bleSerial.close()  # 통신 종료 후 포트를 닫음
```