

임베디드 과제 2020161123 최선재

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Bluetooth통신으로 움직이는 자동차 만들기

코드:

```
import RPi.GPIO as GPIO
```

```
import threading
```

```
import serial
```

```
import time
```

```
bleSerial = serial.Serial("/dev/ttyS0", baudrate=9600, timeout=1.0)
```

```
gData = ""
```

```
def serial_thread():
```

```
    global gData
```

```
    while True:
```

```
        data = bleSerial.readline()
```

```
        if data:
```

```
            data = data.decode().strip()
```

```
            gData = data
```

```
PWMA = 18
```

```
AIN1 = 22
```

```
AIN2 = 27
```

```
PWMB = 23
```

```
BIN1 = 24
```

```
BIN2 = 25
```

```
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)
```

```
L_Motor = GPIO.PWM(PWMA, 500)
```

```
L_Motor.start(0)
```

```
R_Motor = GPIO.PWM(PWMB, 500)
```

```
R_Motor.start(0)
```

```
serial_thread_task = threading.Thread(target=serial_thread)
```

```
serial_thread_task.start()
```

```
try:
```

```
    while True:
```

```
        if gData.lower() == "go":
```

```
            print("OK Go")
```

```
            GPIO.output(AIN1, 0)
```

```
            GPIO.output(AIN2, 1)
```

```
            L_Motor.ChangeDutyCycle(50)
```

```
            GPIO.output(BIN1, 1)
```

```
            GPIO.output(BIN2, 0)
```

```
            R_Motor.ChangeDutyCycle(50)
```

```
            time.sleep(0.5)
```

```
            gData = ""
```

```
        elif gData.lower() == "right":
```

```
            print("OK Right")
```

```
            GPIO.output(AIN1, 0)
```

```
            GPIO.output(AIN2, 1)
```

```
            L_Motor.ChangeDutyCycle(50)
```

```
            GPIO.output(BIN1, 0)
```

```
            GPIO.output(BIN2, 0)
```

```
            R_Motor.ChangeDutyCycle(50)
```

```
            time.sleep(0.5)
```

```
            gData = ""
```

```
        elif gData.lower() == "left":
```

```
            print("OK Left")
```

```
            GPIO.output(AIN1, 0)
```

```
            GPIO.output(AIN2, 0)
```

```
            L_Motor.ChangeDutyCycle(0)
```

```
            GPIO.output(BIN1, 1)
```

```

        GPIO.output(BIN2, 0)
        R_Motor.ChangeDutyCycle(50)
        time.sleep(0.5)
        gData = ""

    elif gData.lower() == "back":

        print("OK Back")
        GPIO.output(AIN1, 1)
        GPIO.output(AIN2, 0)
        L_Motor.ChangeDutyCycle(50)
        GPIO.output(BIN1, 0)
        GPIO.output(BIN2, 1)
        R_Motor.ChangeDutyCycle(50)
        time.sleep(0.5)
        gData = ""

    elif gData.lower() == "stop":

        print("OK Stop")
        GPIO.output(AIN1, 0)
        GPIO.output(AIN2, 0)
        L_Motor.ChangeDutyCycle(0)
        GPIO.output(BIN1, 0)
        GPIO.output(BIN2, 0)
        R_Motor.ChangeDutyCycle(0)
        gData = ""

    time.sleep(0.5)

except KeyboardInterrupt:
    pass

L_Motor.stop()
R_Motor.stop()
GPIO.cleanup()

```

실행 결과는 동영상 참조

