虚谷号与pinpong之舵机控制

描述：控制舵机旋转的角度。

实现：调用pinpong库中的Servo(pin_num)函数，pin_num为引脚标号,可以直接传入引脚编号，例如 D3 或者 A5,也可以直接传入13或者 19 这样的数字。还需要调用Servo.write_angle(value)函数，让舵机转动到指定角度,Value 指角度。每种舵机的最大转动角度不一样,需要参考舵机说明书。

准备工作

将一个舵机模块接在虚谷号的D4口，推荐使用9克小舵机，大舵机需要外接舵机电源。

实验步骤

1.导入pinpong库

和前面几个例子的区别在于，要导入Servo模块

In [1]:

```
from pinpong.board import Board,Pin,Servo
```

2.初始化开发板

In [2]:

```
Board("uno").begin()  # 选择板型(uno、leonardo、xugu)和端口号，不输入端口号则进行自动识别
```

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[01] Python3.6.6 Darwin-20.2.0-x86_64-i386-64bit Board: UNO
Automatically selected ->  /dev/cu.usbmodem14101
[10] Opening /dev/cu.usbmodem14101
[15] Close /dev/cu.usbmodem14101
[32] Firmata ID: 2.6
[10] Opening /dev/cu.usbmodem14101...
[20] Waiting 4 seconds(arduino_wait) for Arduino devices to reset...
[22] Arduino compatible device found and connected to /dev/cu.usbmod
em14101
[30] Retrieving Arduino Firmware ID...
[32] Arduino Firmware ID: 2.6 DFRobot firmata
[40] Retrieving analog map...
[42] Auto-discovery complete. Found 20 Digital Pins and 6 Analog Pin
s
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All right. PinPong go...
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```

Out[2]:

```
<pinpong.board.Board at 0x7fc26ee1c358>
```

3.初始化舵机引脚

In [3]:

```
s1 = Servo(Pin(Pin.D4)) #将Pin传入Servo中初始化舵机引脚
```

4.设置舵机旋转角度

注意：最好不要将舵机角度设置为0和180，范围控制在10-170之间，避免某些舵机过度旋转而损坏。

In [4]:

```
s1.write_angle(150)  #控制舵机转到150度位置
```

In [5]:

```
s1.write_angle(10)  #控制舵机转到10度位置
```

范例：控制舵机旋转

使用光线传感器（A0）的值来控制舵机（D4）的旋转角度。

注：如果需要运行下面的程序或者关闭窗口，请先点击“服务”，执行“重启 & 清空输出”。

In [ ]:

```
from pinpong.board import Board,Pin,Servo
Board("uno").begin()
adc0 = Pin(Pin.A0, Pin.ANALOG)
s1 = Servo(Pin(Pin.D4))
while True:
    v = adc0.read_analog()
    print(v,v * 180 //1024)
    s1.write_angle(v * 180 //1024)
```

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[40] Retrieving analog map...
[42] Auto-discovery complete. Found 20 Digital Pins and 6 Analog Pin
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All right. PinPong go...
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