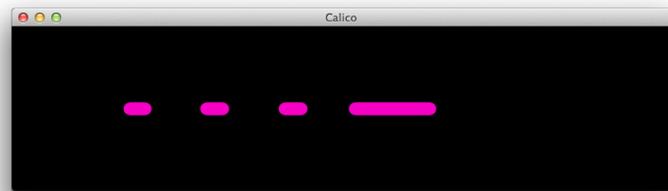


Telegraph 2: Receiving & Thinking

In the next part of the telegraph assignment, we will receive and display telegraph input and build an automatic street light. You should submit two programs: **telegraph2_lastname.py** and **streetlight_lastname.py**

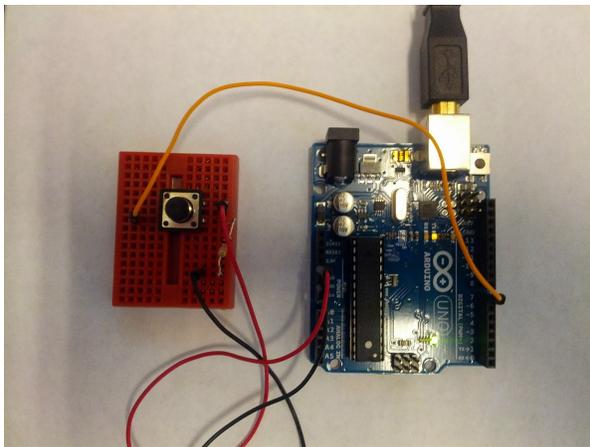
Visualizing Morse Code

Your first task is to visualize whether the button has been pressed over time.



The following code changes the background color depending on whether the button is pressed. The

Button circuit diagram is explained on page 20 of your Arduino Experimenter's Guide. A picture of the completed circuit is shown below. We use three Arduino connections: 5V power, ground, and the sensor input (digital 7 in this example). You can also find a tutorial here¹



```
from Processing import *
from Myro import *

makeRobot("Arduino",
"/dev/tty.usbmodem1421")

window(400, 400)
makeInput(7)

def draw():
    if digitalRead(7) == 0:
        background(0)
    else:
        background(255)

onLoop += draw

loop()
```

¹ <http://arduino.cc/en/tutorial/button>

Street Light: A Simple Robot

The next part of the assignment asks you to turn the LED on or off based on a sensor (e.g., a mouse press, keyboard, photoresistor, temperature sensor, pressures sensor). Eventually we'll want to use the photoresistor to control the LED based on light, but first, we can use the state of the button to decide if the LED should be on or off.

```
from Processing import *
from Myro import *

makeRobot("Arduino", "/dev/tty.usbmodem1421")

window(400, 400)
makeInput(7)
makeDigitalOutput(13)

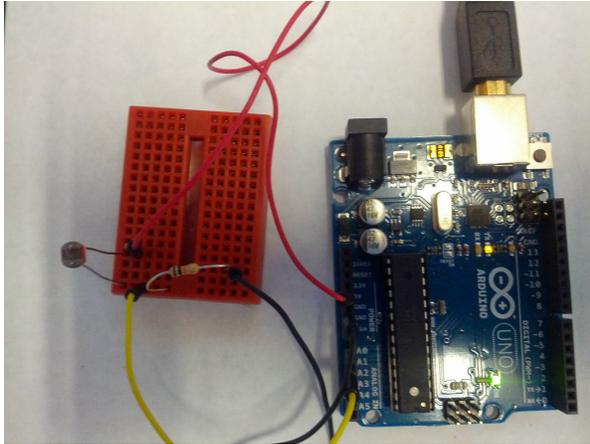
def draw():
    if digitalRead(7) == 0:
        digitalWrite(13, 1)
    else:
        digitalWrite(13, 0)

onLoop += draw

loop()
```

The Photoresistor

The photoresistor²³ changes its resistance based on how much light it senses. The following code visualizes the output of the photoresistor by plotting the values read from the second analog port. The photoresistor circuit is described on page 24 of the Arduino Experimenter's Guide.



```
from Processing import *
from Myro import *

makeRobot("Arduino",
"/dev/tty.usbmodem1421")

window(1000, 1000)
background(0)
noStroke()

for x in range(1000):
    y = analogRead(2)
    fill(255, 0, 196)
    ellipse(x, y, 3, 3)
    delay(10)
```

Note: In order to connect to your arduino you need to find the name of the USB connection. In the Calico shell type:

```
from os import listdir
listdir("/dev")
```

Your port should be named “/dev/tty.usbmodem” followed by a number.

² <http://learn.adafruit.com/photocells>

³ <http://learn.adafruit.com/photocells/using-a-photocell>