

# Arduino 101

## Day 2: Inputs

Presented by DMSC and Area515

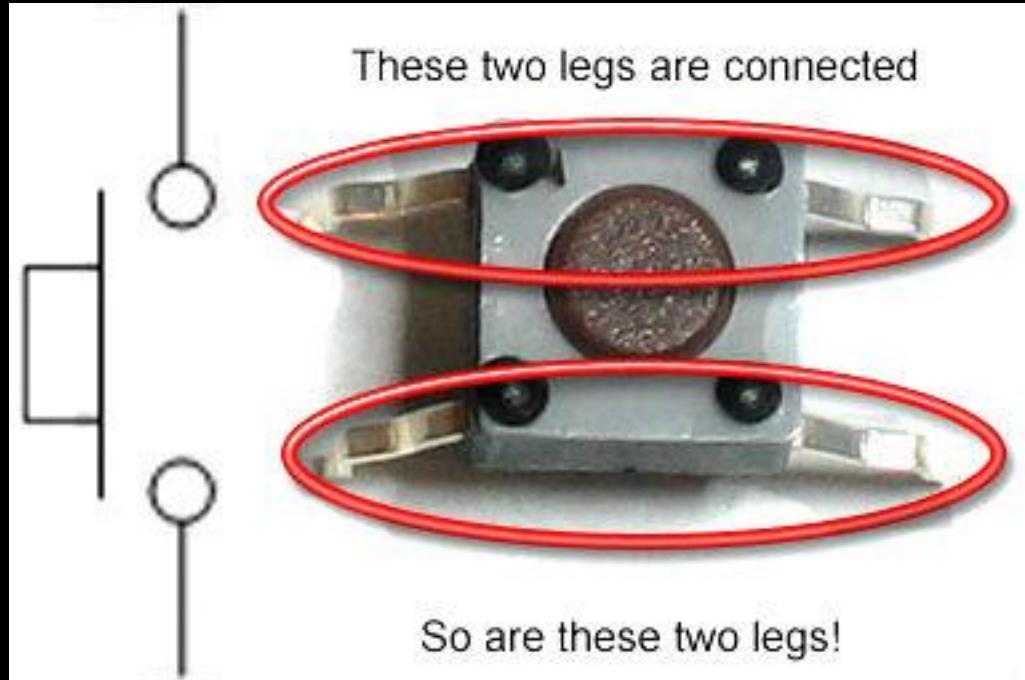
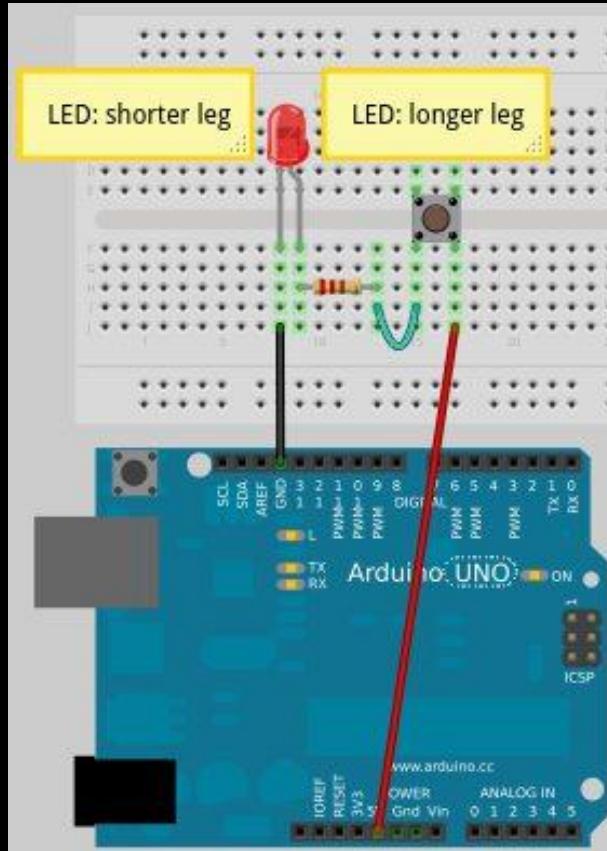
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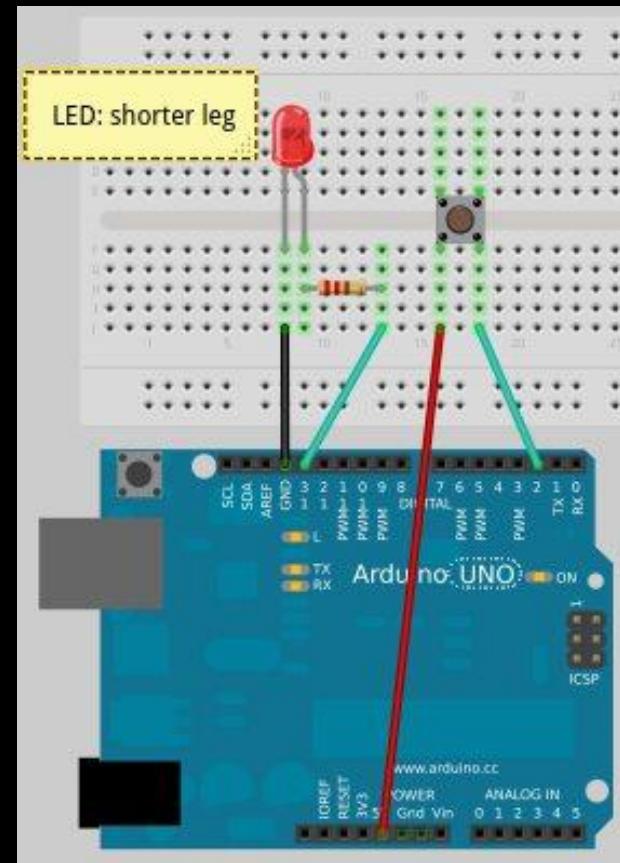
# Let's push some buttons!



Picture from [shallowsky.com](http://shallowsky.com)

# Let's review last week's class!

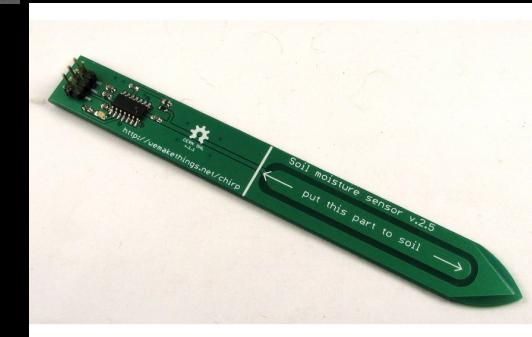
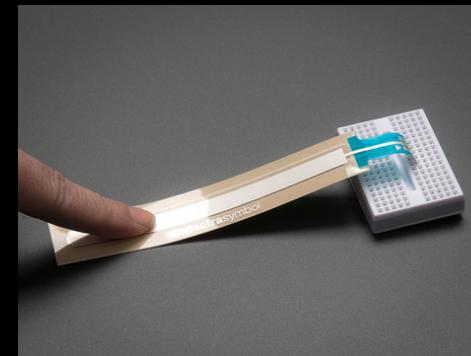
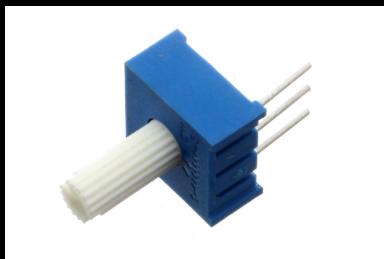
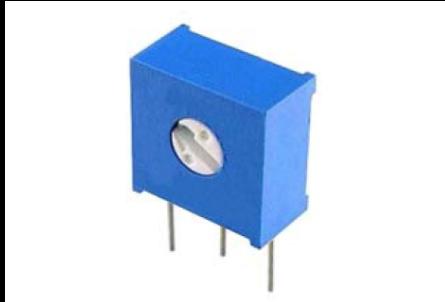
Set your board up like the picture. Make your LED blink when the button is pushed.



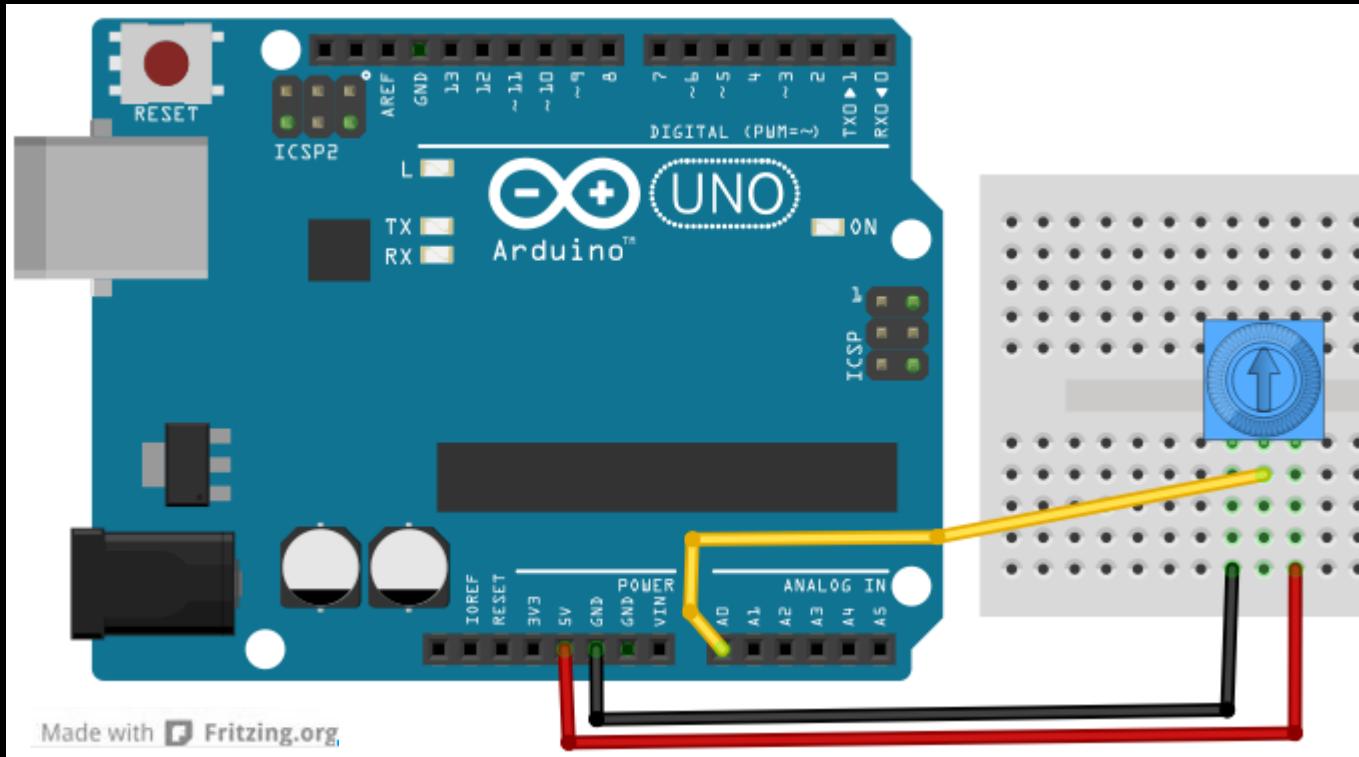
# Control knobs

## Potentiometers

### Variable Resistors



# Fritzing example for pot

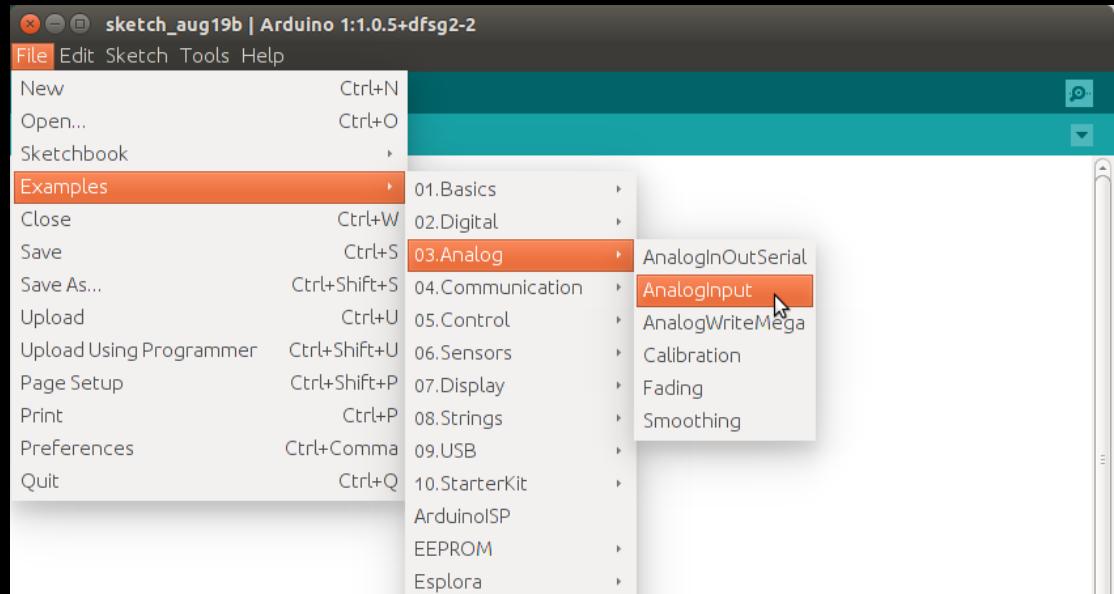


# Code for Potentiometer

```
int sensorPin = A0; // select the input pin for the pot
int ledPin = 13; // select the pin for the LED
int sensorValue = 0; // variable to store the value
coming from the sensor

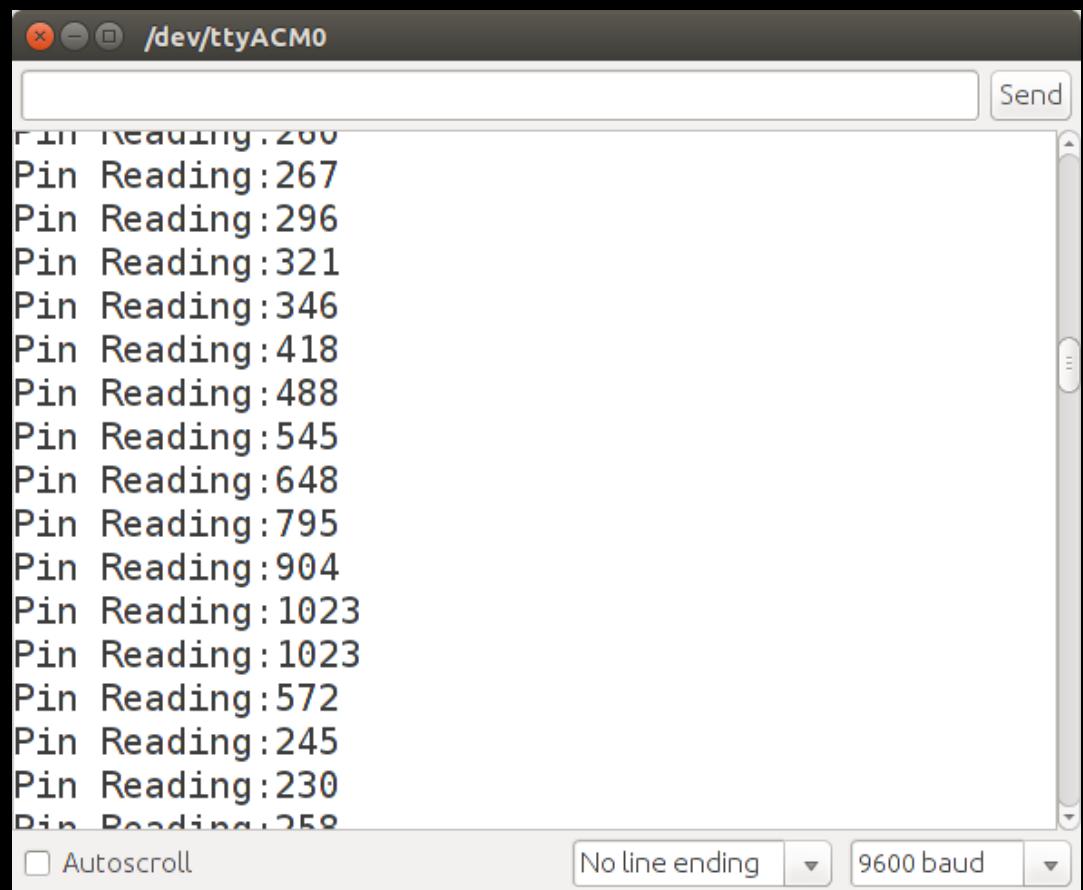
void setup() {
  pinMode(ledPin, OUTPUT);
}

void loop() {
  // read the value from the sensor:
  sensorValue = analogRead(sensorPin);
  // turn the ledPin on
  digitalWrite(ledPin, HIGH);
  // stop the program for <sensorValue> milliseconds:
  delay(sensorValue);
  // turn the ledPin off:
  digitalWrite(ledPin, LOW);
  // stop the program for for <sensorValue>
  milliseconds:
  delay(sensorValue);
}
```



# Serial Monitor

Send info to and  
from device



A screenshot of a terminal window titled '/dev/ttyACM0'. The window displays a series of text entries, each consisting of the prefix 'Pin Reading:' followed by a numerical value. The values listed are: 200, 267, 296, 321, 346, 418, 488, 545, 648, 795, 904, 1023, 1023, 572, 245, 230, and 259. The window has standard OS X-style controls (close, minimize, maximize) at the top left. On the right side, there is a vertical scroll bar. At the bottom, there are several configuration buttons: 'Autoscroll' (unchecked), 'No line ending' (selected), '9600 baud' (selected), and two small dropdown arrows.

```
Pin Reading:200
Pin Reading:267
Pin Reading:296
Pin Reading:321
Pin Reading:346
Pin Reading:418
Pin Reading:488
Pin Reading:545
Pin Reading:648
Pin Reading:795
Pin Reading:904
Pin Reading:1023
Pin Reading:1023
Pin Reading:572
Pin Reading:245
Pin Reading:230
Pin Reading:259
```

Autoscroll      No line ending      9600 baud

# Photoresistor

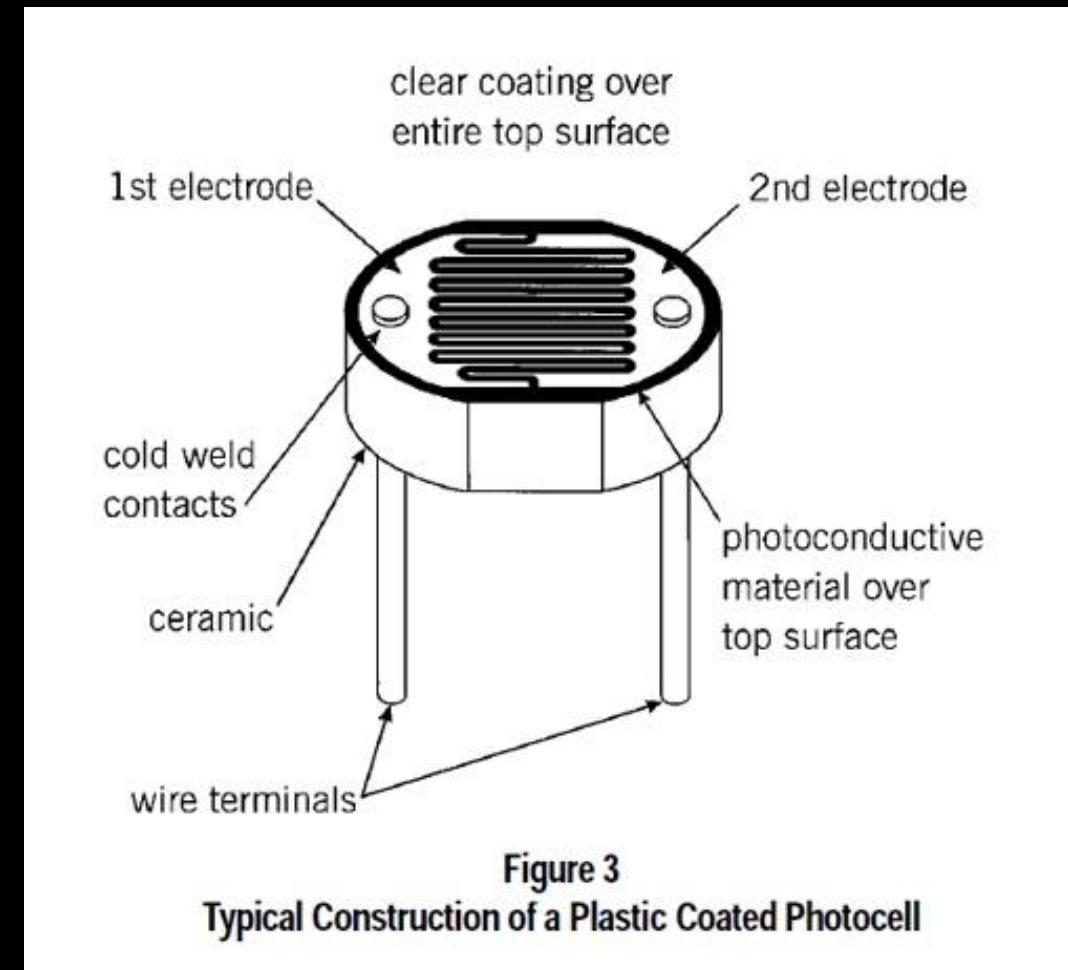


Figure 3  
Typical Construction of a Plastic Coated Photocell

# Some coding notes

Many times, you'll want to build a string from smaller strings.

Strings can be combined in many ways

```
String startString = "Hello ";
```

```
String endString = "World!";
```

```
String wholeString = startString + endString;
```

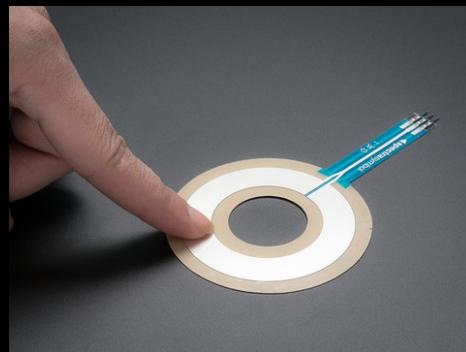
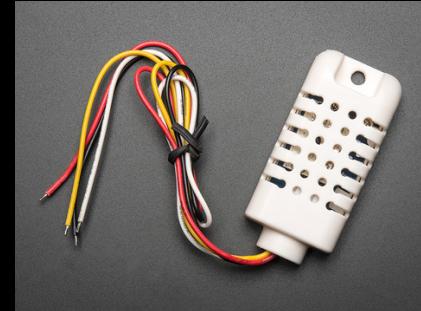
OR

```
String wholeString = startString.concat(endString);
```

OR

```
string wholeString = "Hello " + endString;
```

# Other Types of Sensors



# Theremins

Light theremins with photocells, what else could we use to make instruments?

# Further Explorations With Inputs