User's Guide

Thank you for using ARDUnity.

For more information, visit below link, please.

(https://sites.google.com/site/ardunitydoc/)

What is ARDUnity?

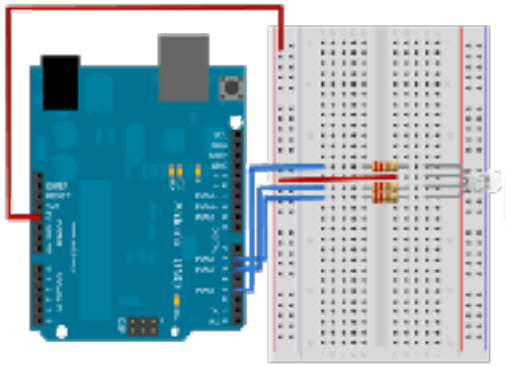
- ***ARDUnity*** is an asset that can make Unity App to interact with Arduino.
- ***ARDUnity*** is a compound word of "Arduino + Unity"

ARDUnity Edition Comparison

Features	Basic	Deluxe
Price	Free	$55
Wire Editor	Yes	Yes
Support PlayMaker	Yes	Yes
ARDUINO Board (Included compatible product)	Yes	Yes
Digital I/O (Digital Read/Write)	Yes	Yes
PWM (Analog Write)	Yes	Yes
ADC (Analog Read)	Yes	Yes
Servo Motor (Only controlling PWM)	Yes	Yes
Tone (Buzzer)	Yes	Yes
Bluetooth LE (HM-10)	No	Yes
DC Motor Driver (ex, Motor Shield)	No	Yes
Bluetooth Classic (ex, HC-06)	No	Yes
TCP/IP (ex, WiFi Shield, ESP8266)	No	Yes
Utilities for Smart Phone (Android/iOS)	No	Yes
AHRS Sensor (ex, MPU6050)	No	Yes
Support various product for ARDUINO	No	Yes

For newest information (https://sites.google.com/site/ardunitydoc/home/release-note)

How it works?



Build Arduino Circuit

Add Component using Wire Editor

Export Arduino Sketch

Upload sketch to Arduino Board

Play in Unity3D Editor
&
Connect ArdunityApp

Supported connections

Arduino Hardware

USB

Bluetooth

WiFi

PC

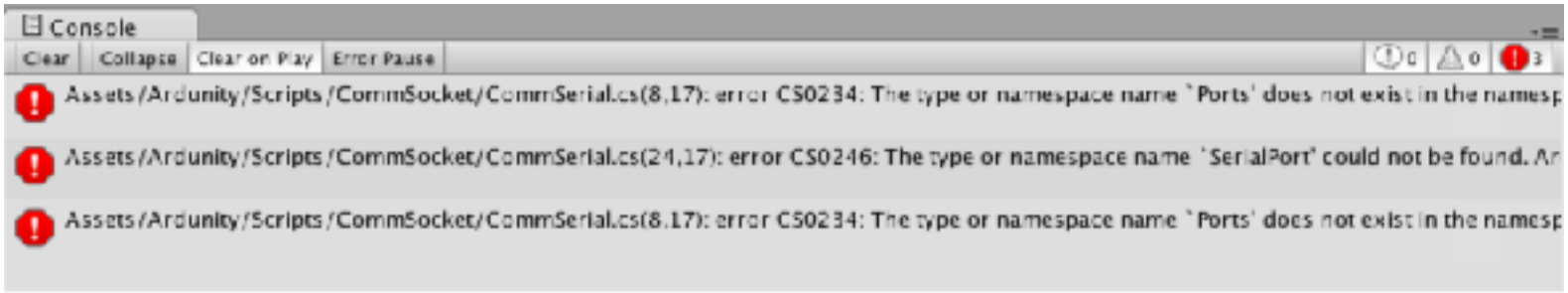
Tablet

Smart Phone

Mac OS X

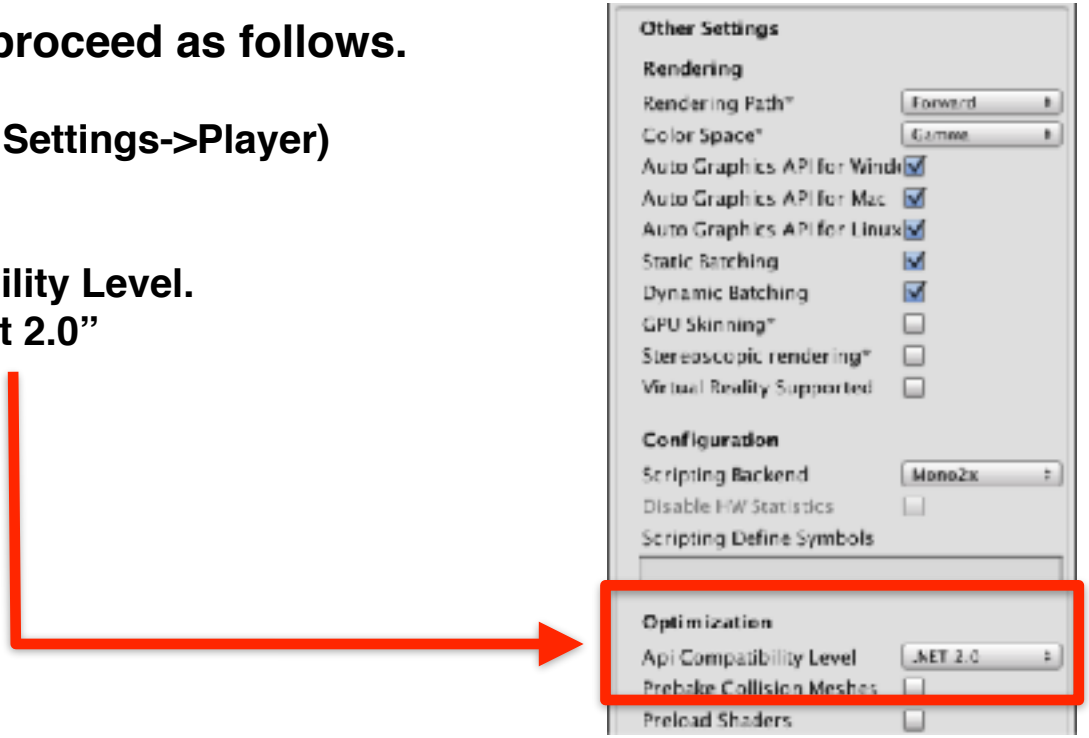
※ Some connections may not yet supported and may require additional hardware Arduino.

Resolve error



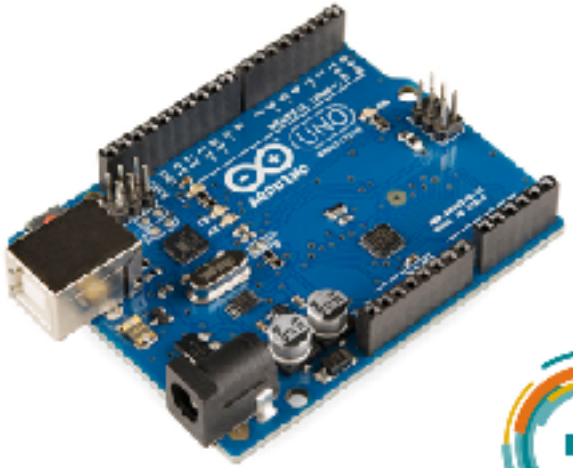
If you find an error like above, proceed as follows.

1. Find Menu & Click (Edit->Project Settings->Player)
2. See “Inspector View”
3. Click “Other Settings” tab
4. Find “Optimization/Api Compatibility Level.
5. Change “.Net 2.0 Subset” to “.Net 2.0”



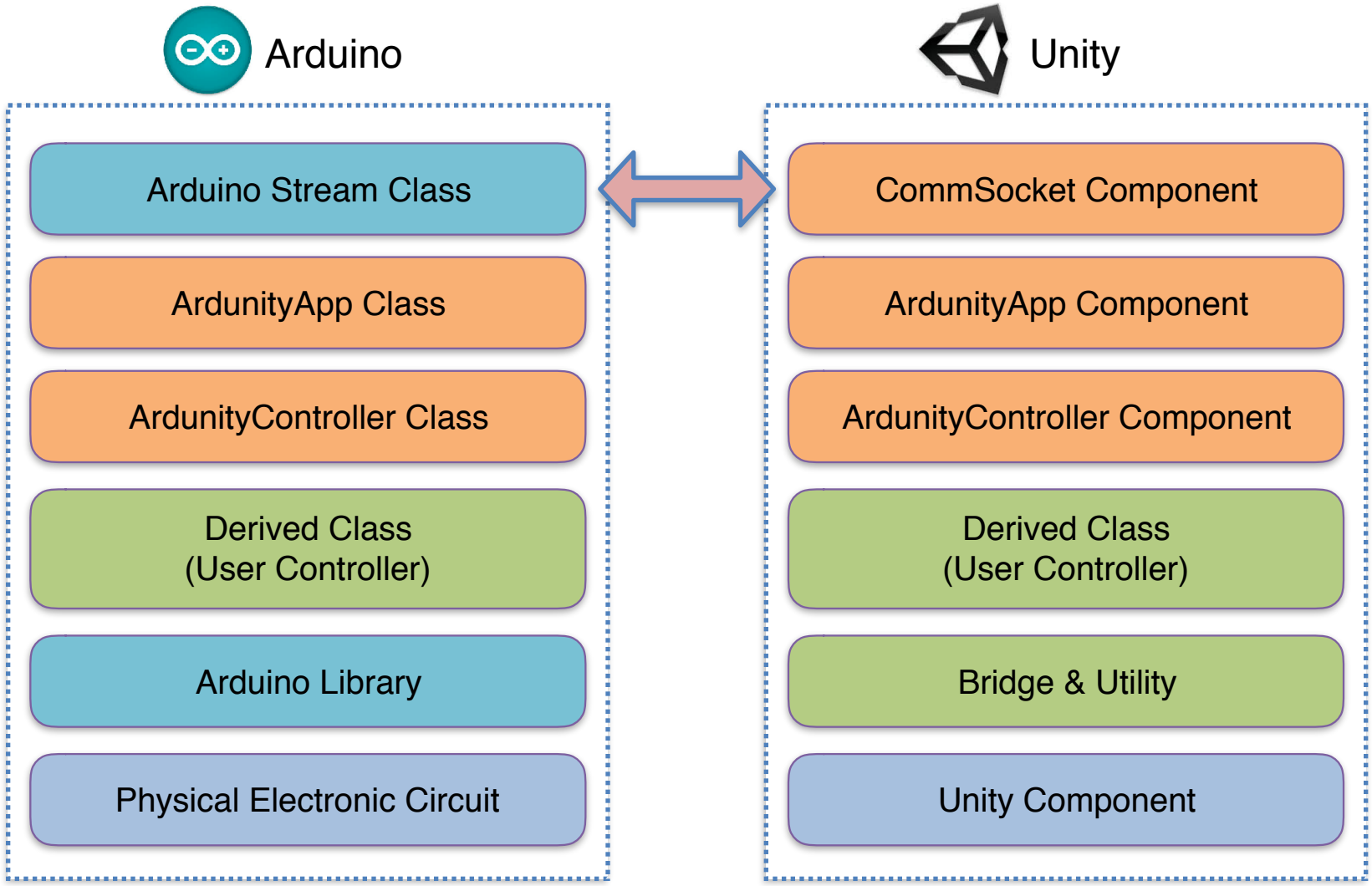
You need to Arduino

- Download & Install “Arduino IDE”
  - https://www.arduino.cc/en/Main/Software
- You must have Arduino Board
  - It does not matter what series. (Uno, Leonard, etc)

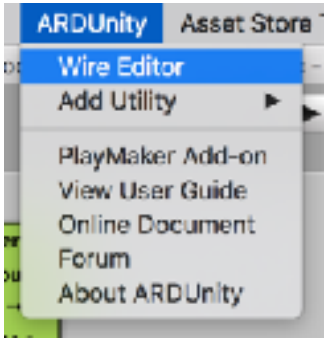


ARDUINO
OPEN-SOURCE
COMMUNITY

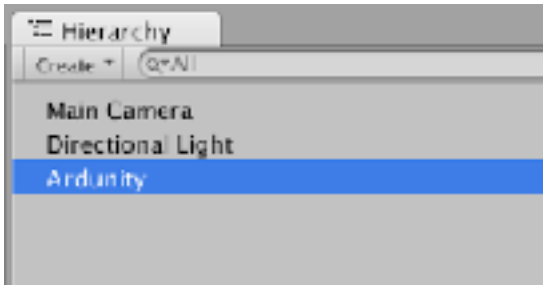
ARDUnity Architecture



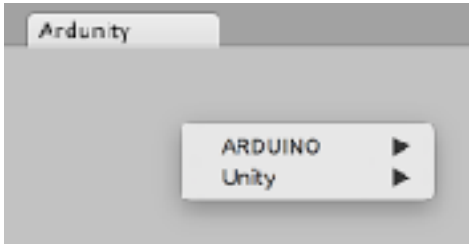
How to use Wire Editor (1/2)



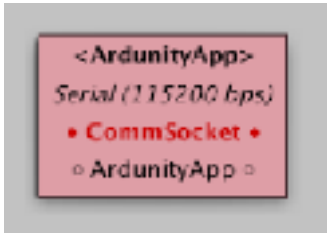
Open Wire Editor

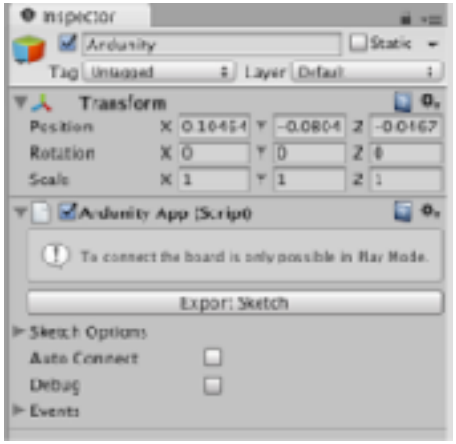


Create Empty GameObject
&
Select it

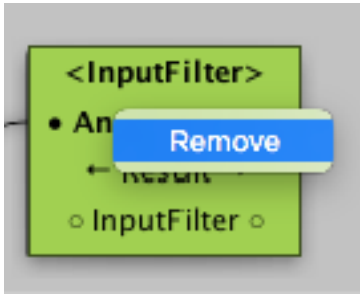


Click mouse right button



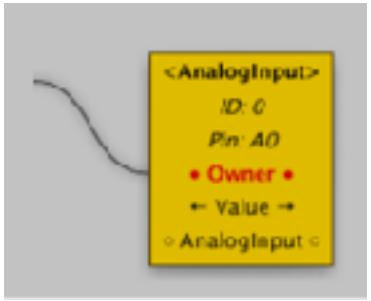


The block is appeared
&
The component is added

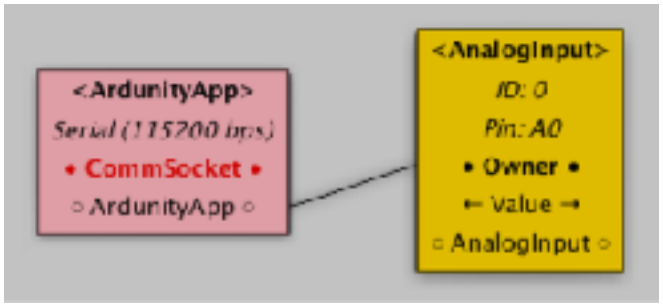


If you want to remove, select and
click mouse right button.

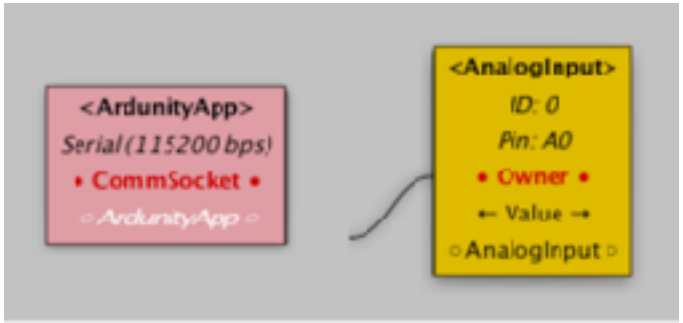
How to use Wire Editor (2/2)



Drag a node in bold font



Completed wiring



Possible connection node is displayed in white

Build for Android

- You need to modify manifest file to use bluetooth on Android.
- Since the modified manifest file is existed in ARDUnity, you have to copy it to a specified location.
  - From: ARDUnity/Plugins/Android/AndroidManifest.xml
  - To: Plugins/Android/AndroidManifest.xml

Build for Android

- If you already use the modified manifest file, you should insert some content to existed manifest file.

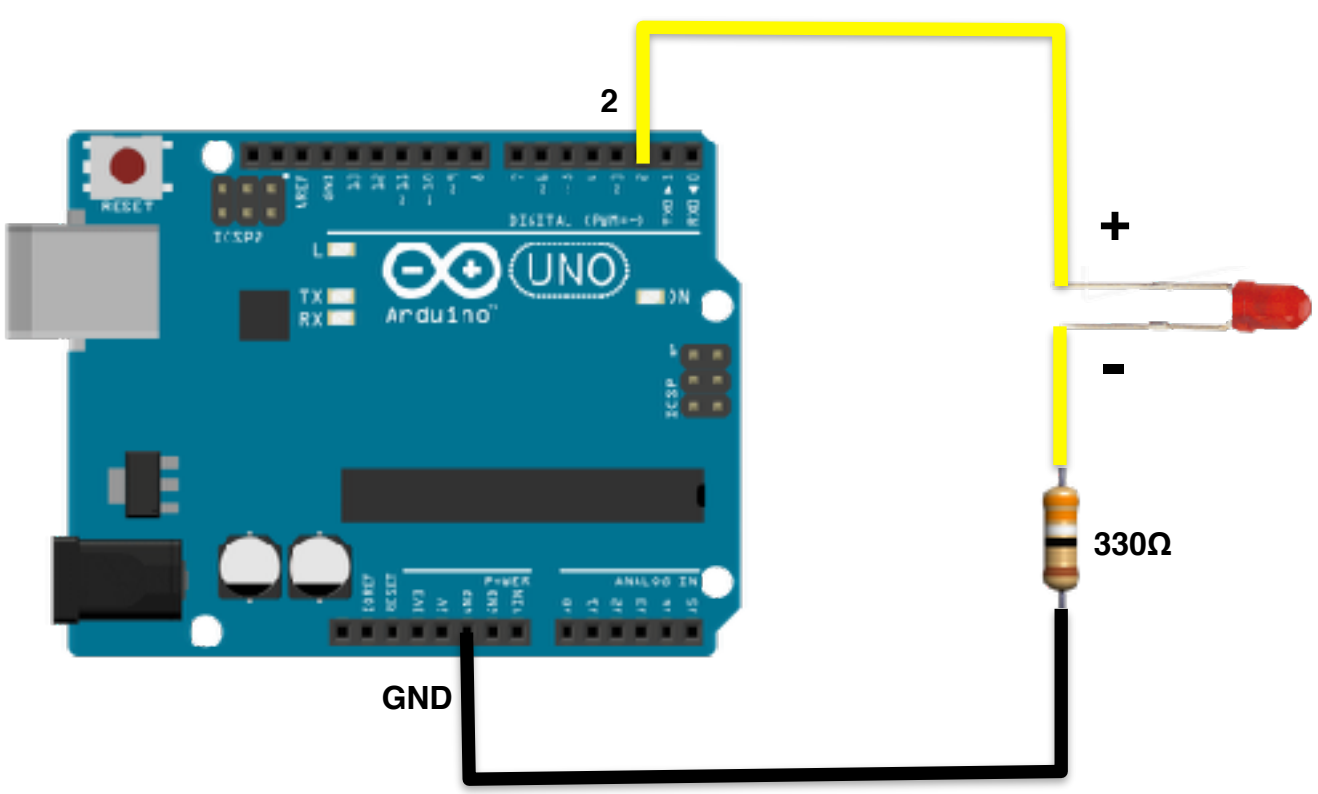
```
<uses-permission android:name="android.permission.BLUETOOTH"/>
<uses-permission android:name="android.permission.BLUETOOTH_ADMIN"/>
<uses-feature android:name="android.hardware.bluetooth" android:required="true" />
<uses-feature android:name="android.hardware.bluetooth_le" android:required="false" />
```

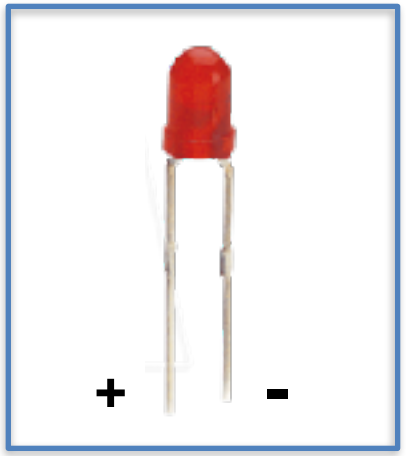
Support

- Please visit.
  - YouTube (https://www.youtube.com/channel/UCA3j4X_ic1wih0z0xs5LgTg/videos)
  - Online Document (https://sites.google.com/site/ardunitydoc/)
  - Forum (https://groups.google.com/forum/#!forum/ardunity-forum)

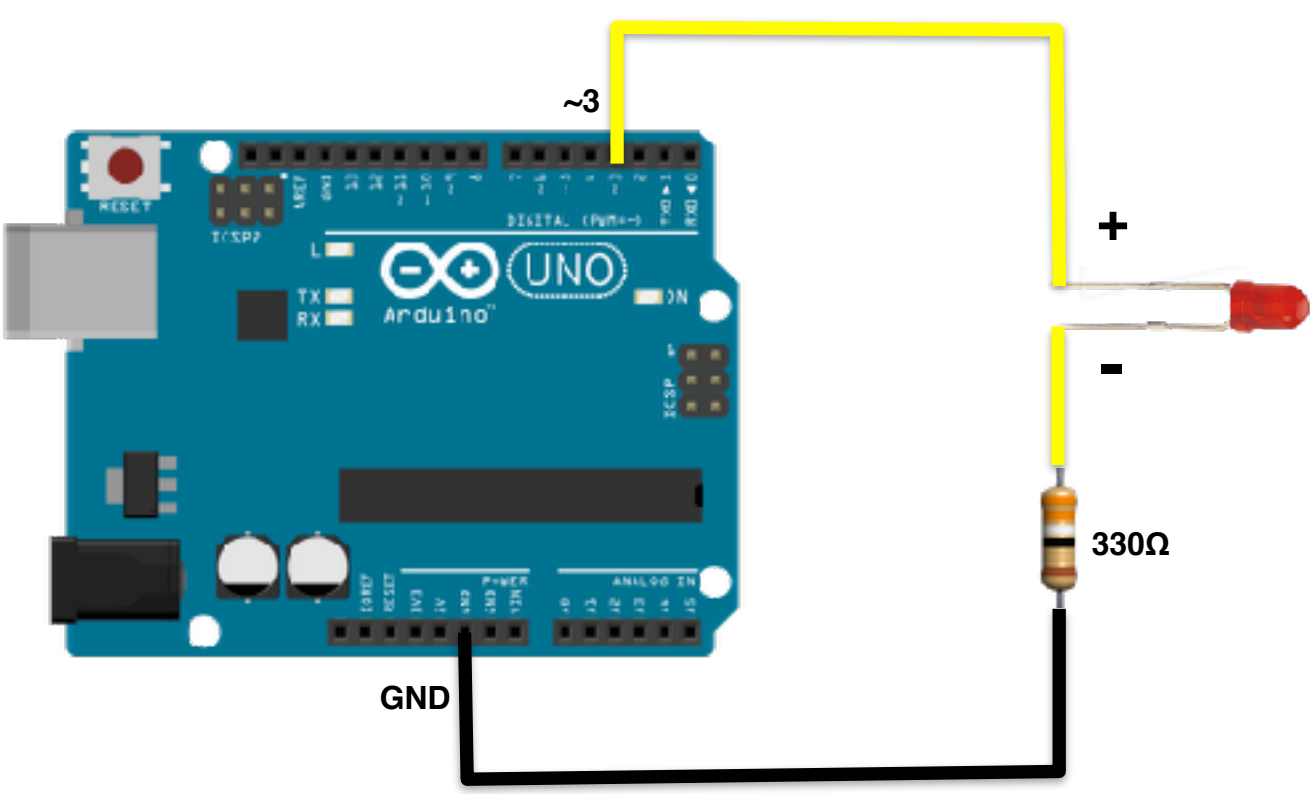
Circuits for Example

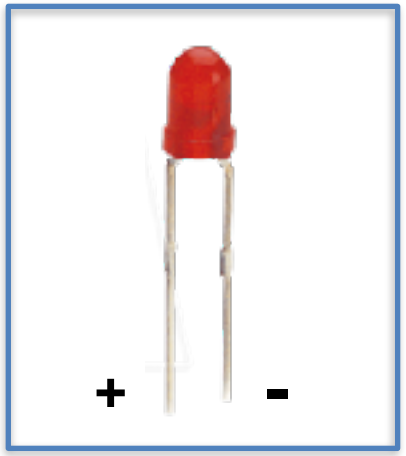
LED Circuit (Digital)



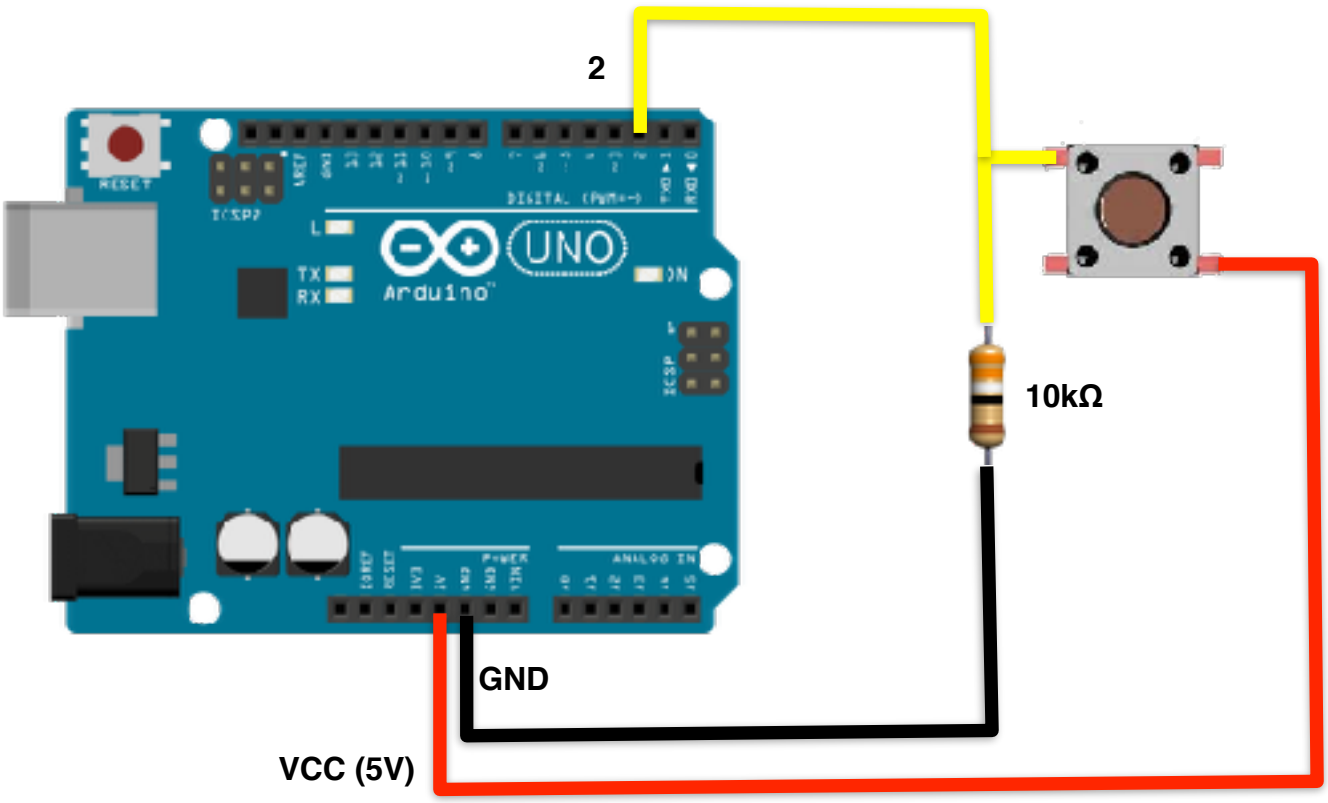


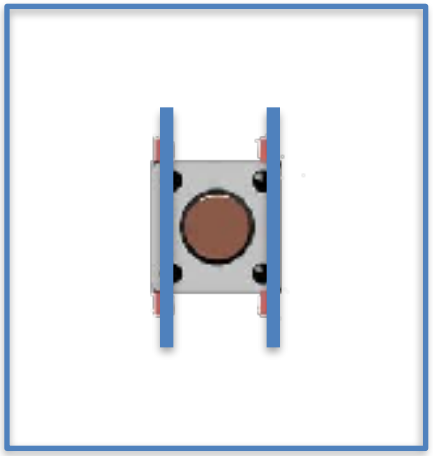
LED Circuit (Analog)



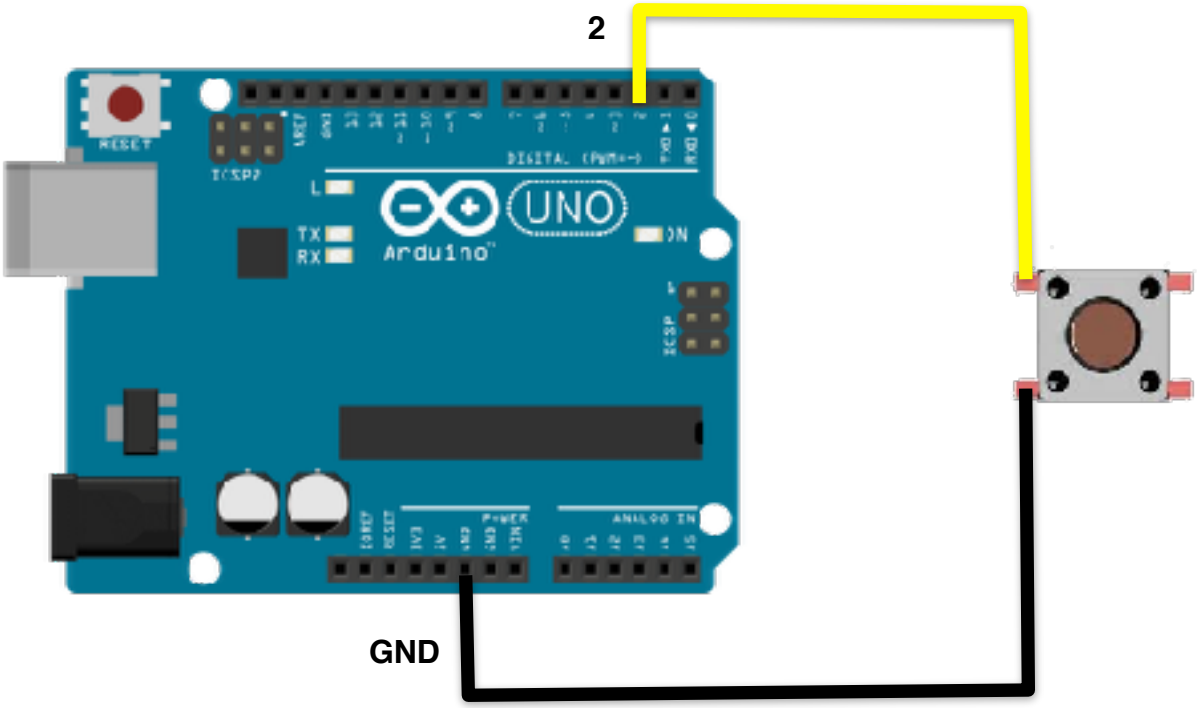


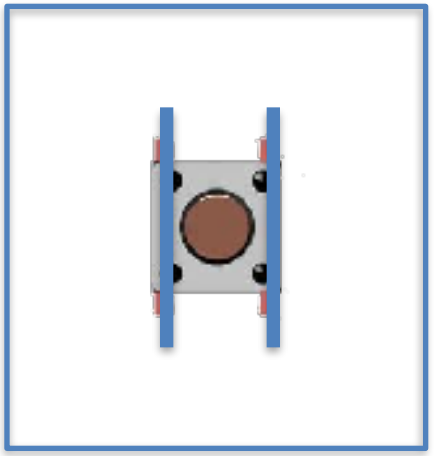
Push Button Circuit
(Use external VCC)



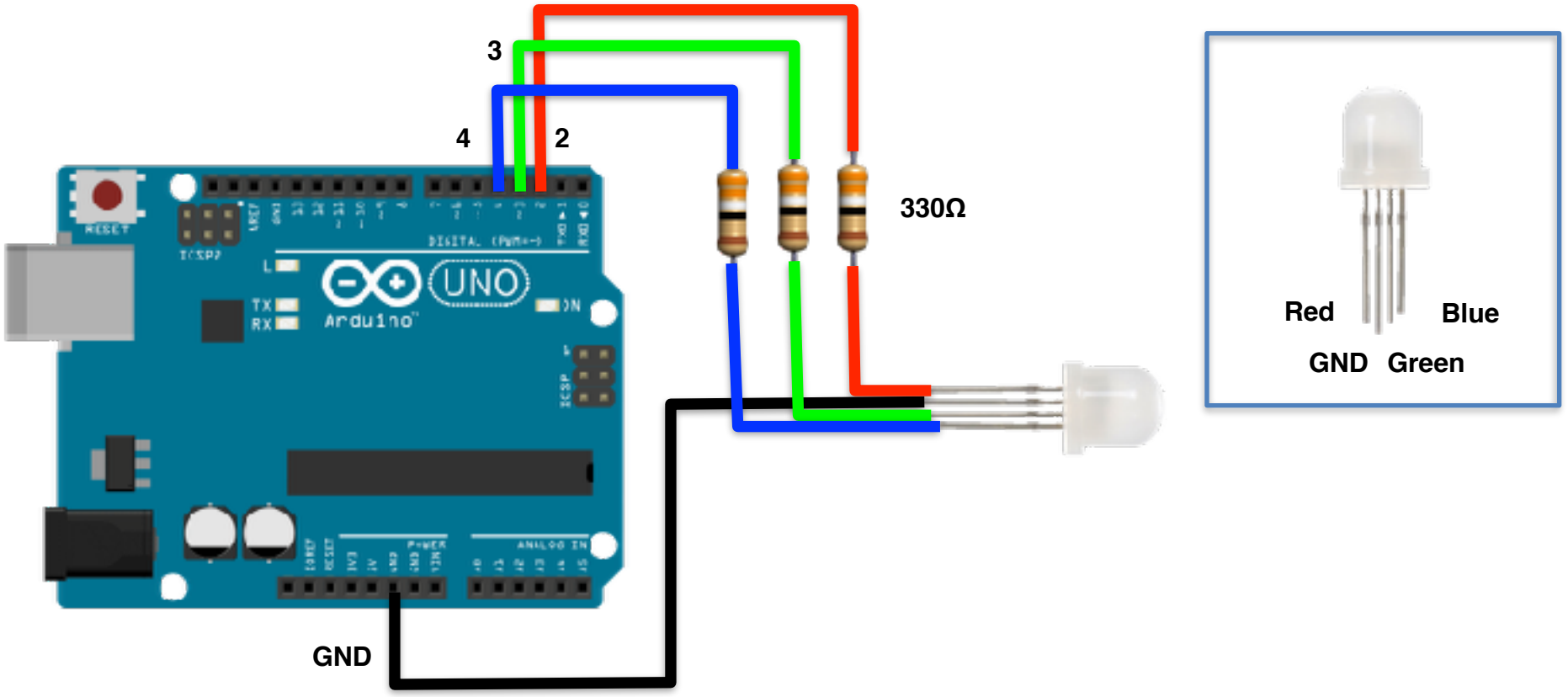


Push Button Circuit
(Use internal pull-up)

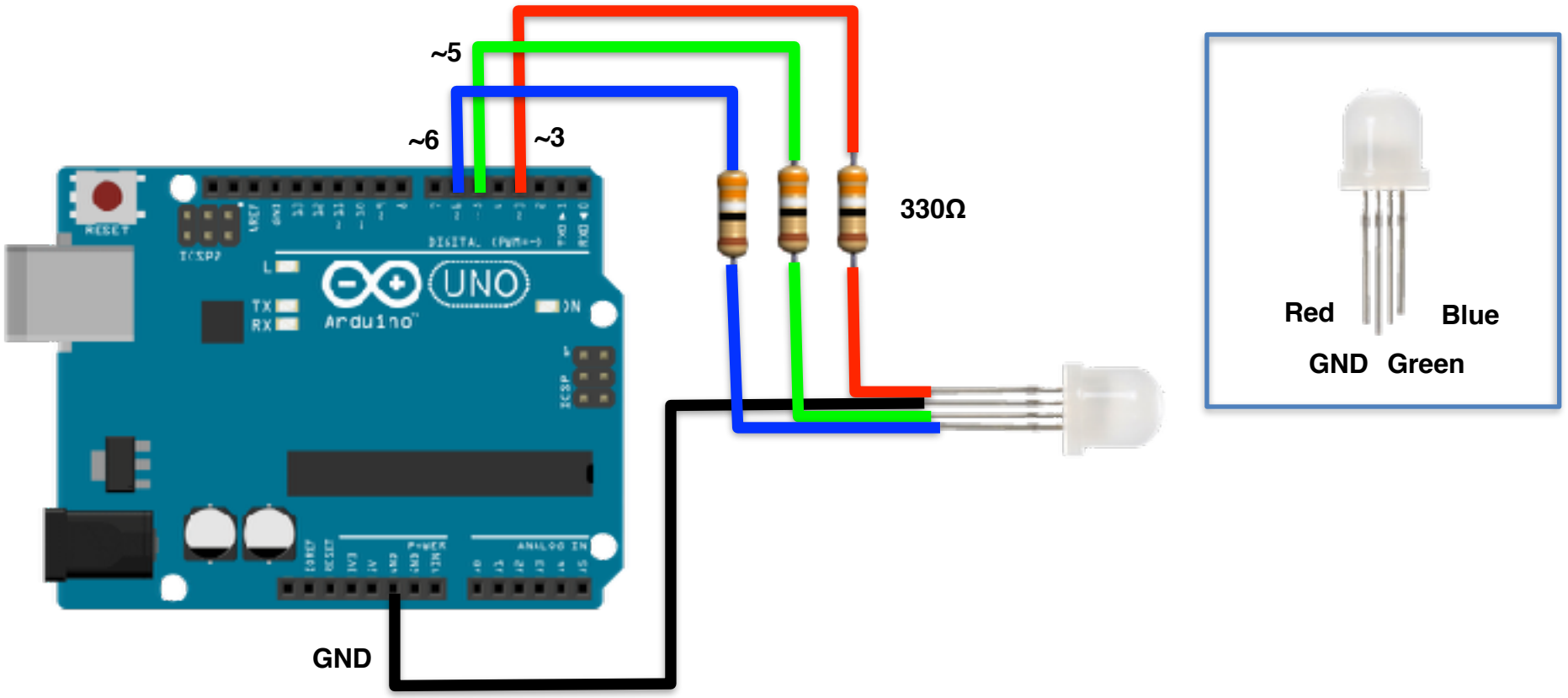




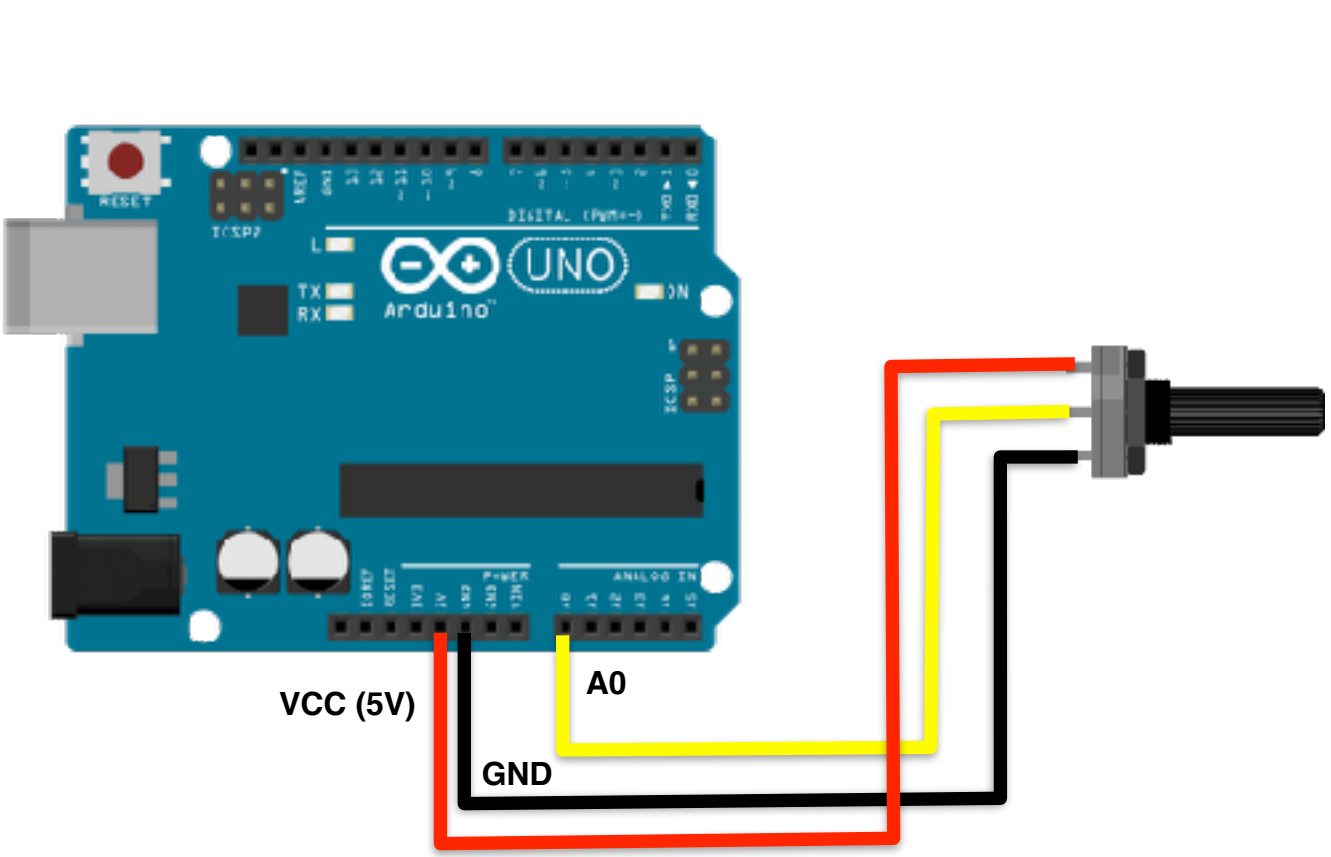
RGB LED Circuit (Digital)

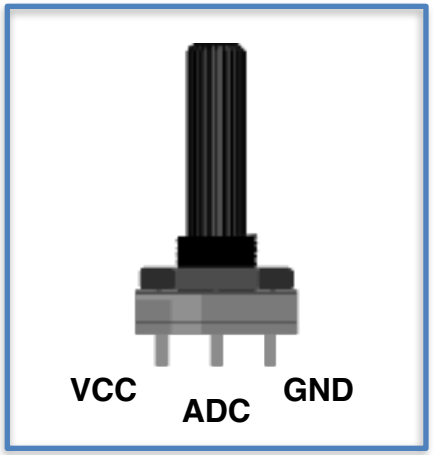


RGB LED Circuit (Analog)

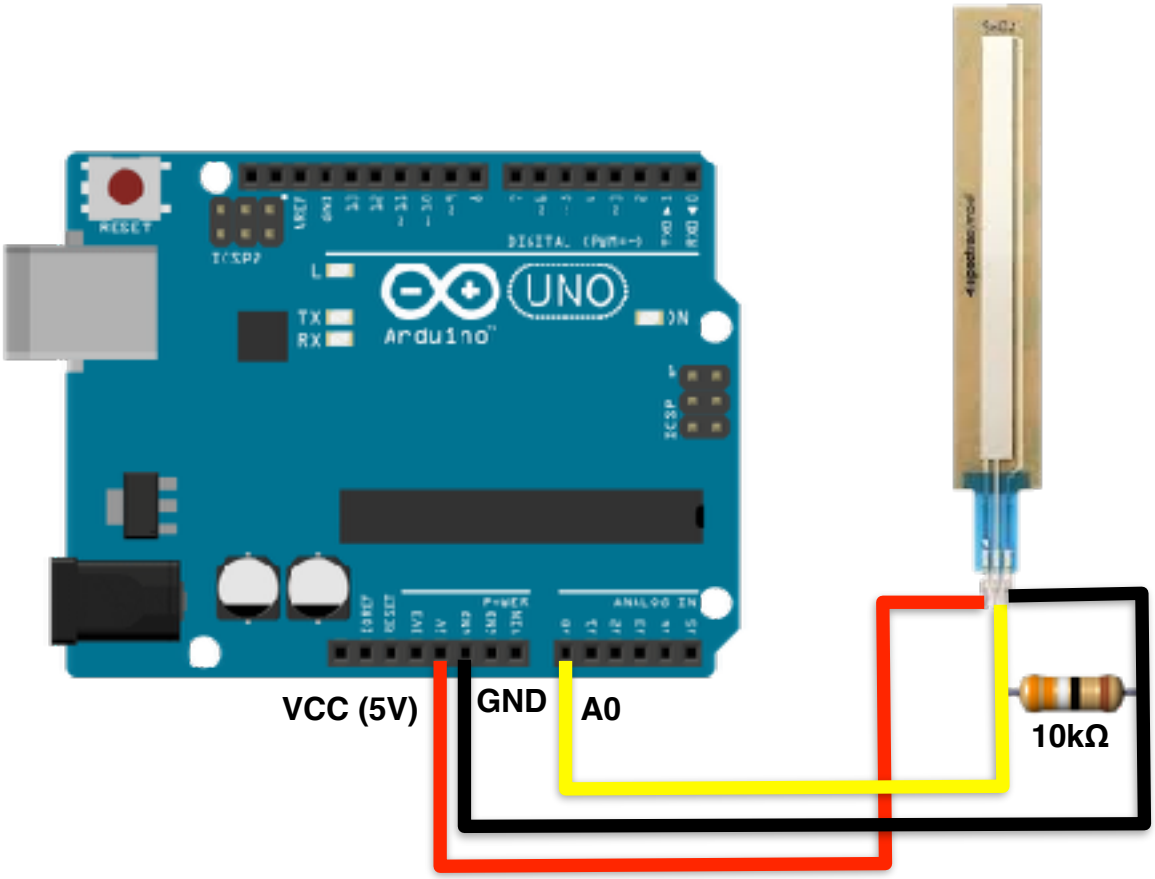


Potentiometer Circuit





Soft Potentiometer Circuit



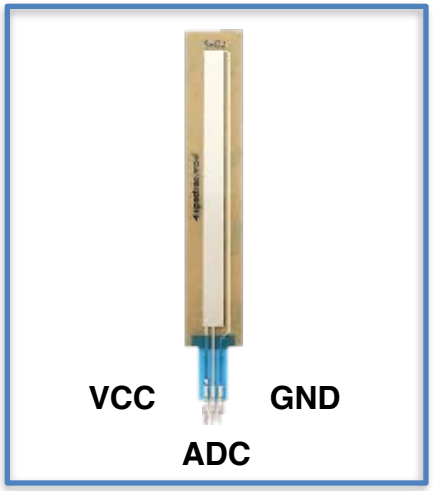
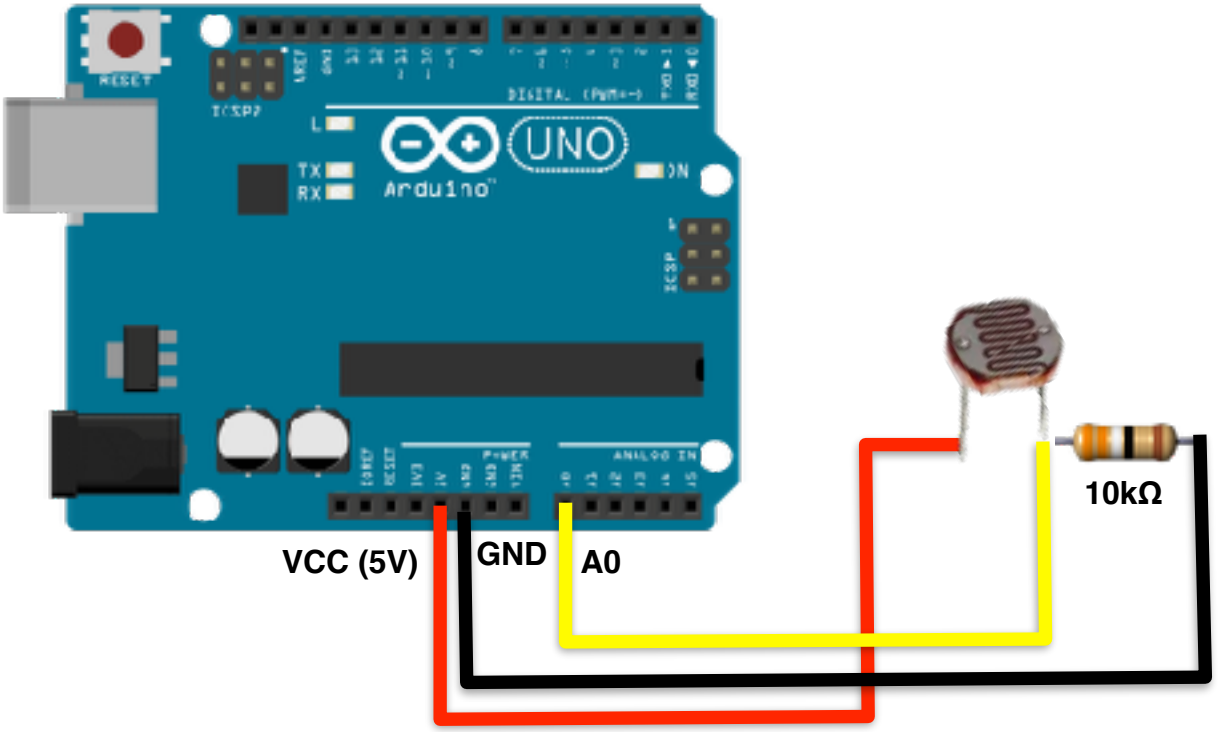
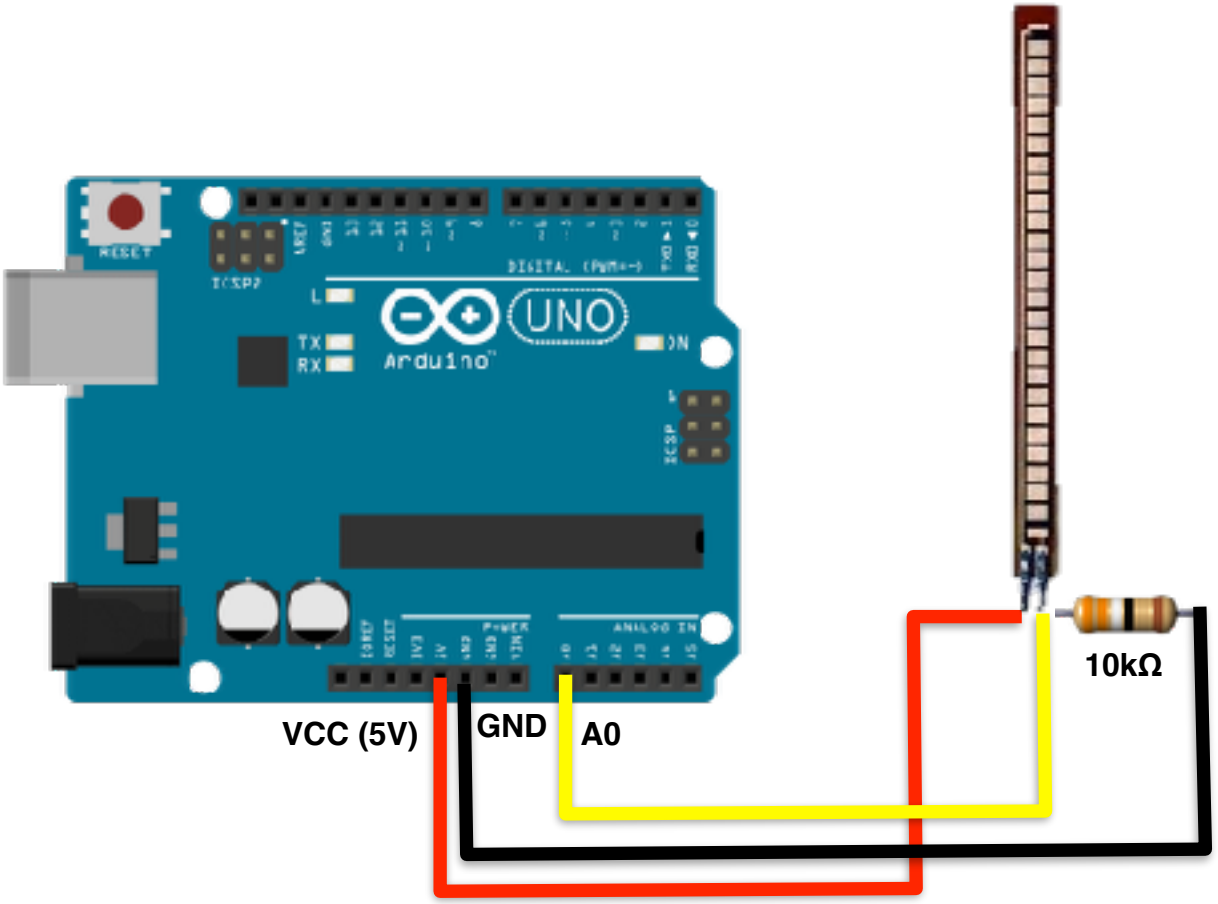
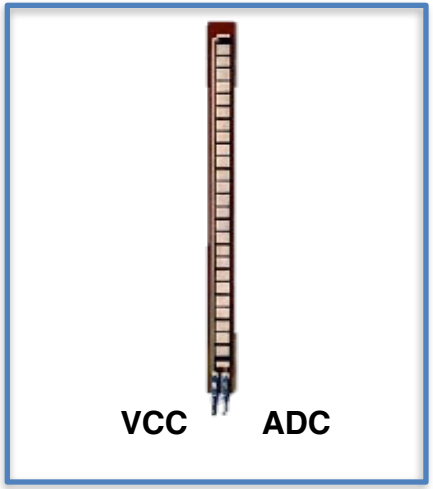


Photo Cell Circuit

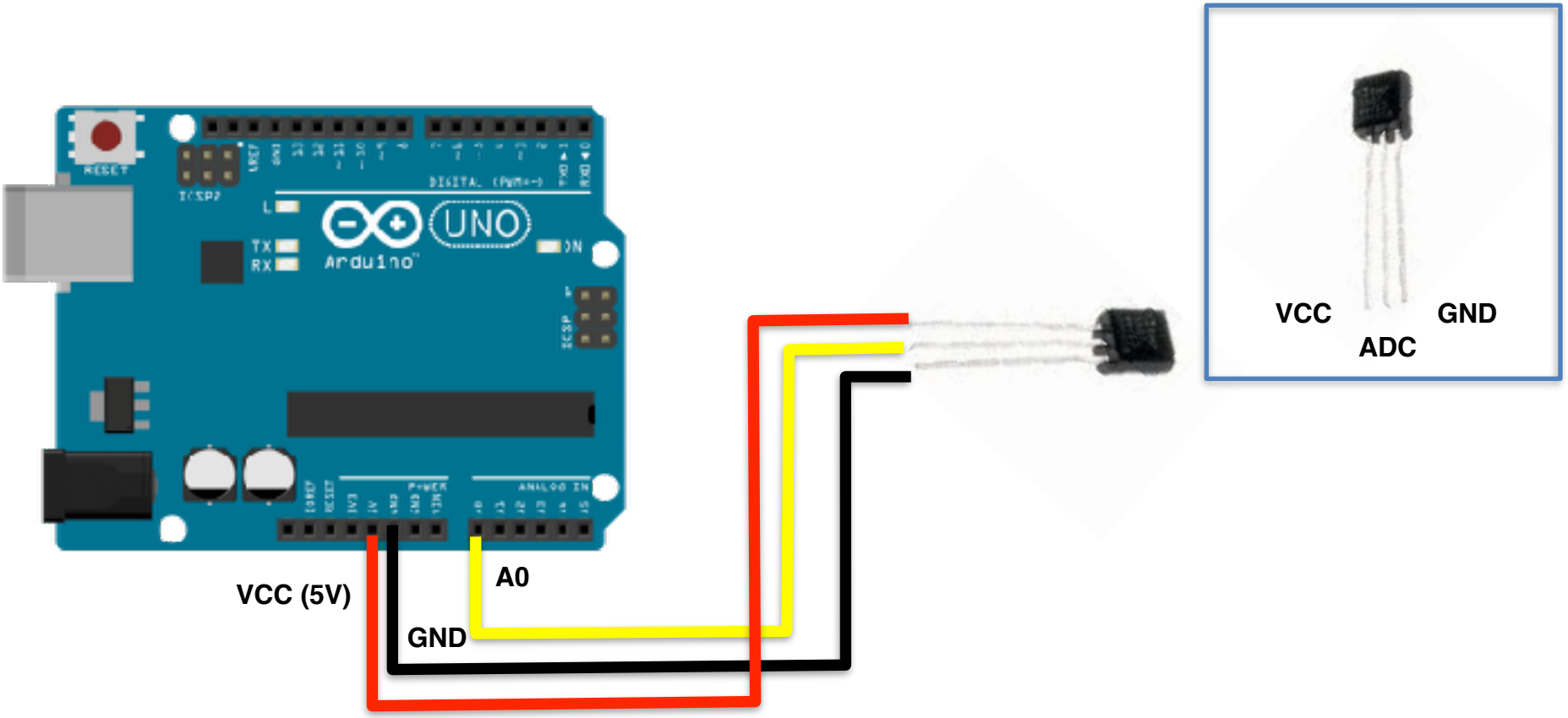


Flex Sensor Circuit

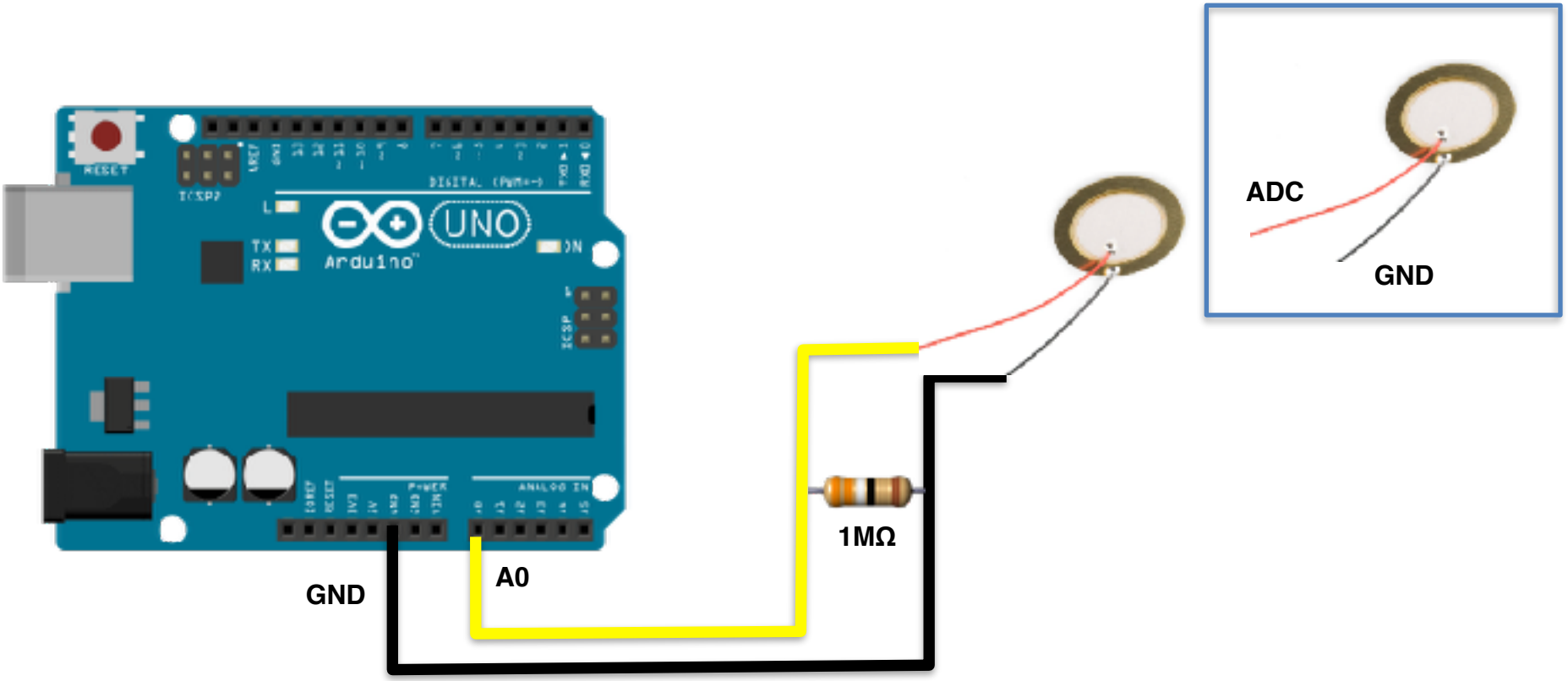




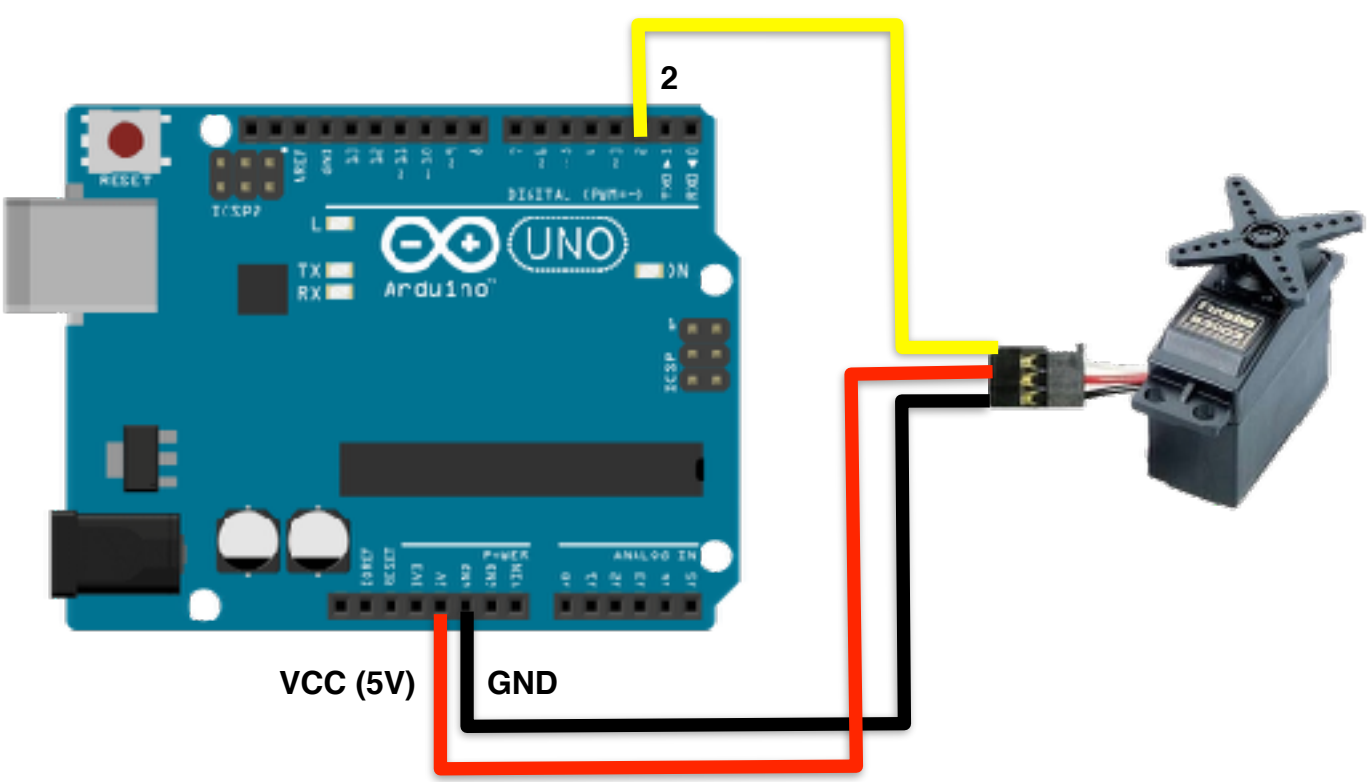
TMP36 Circuit



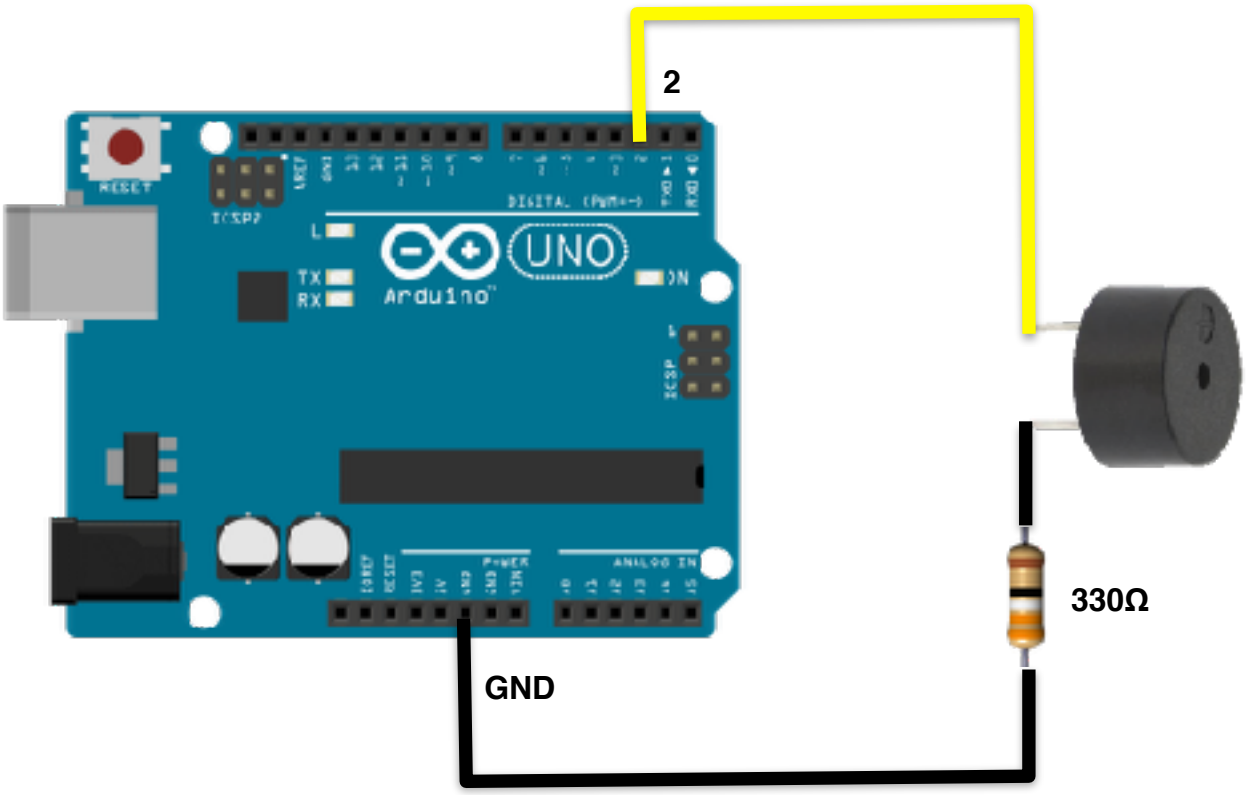
Piezo Sensor Circuit



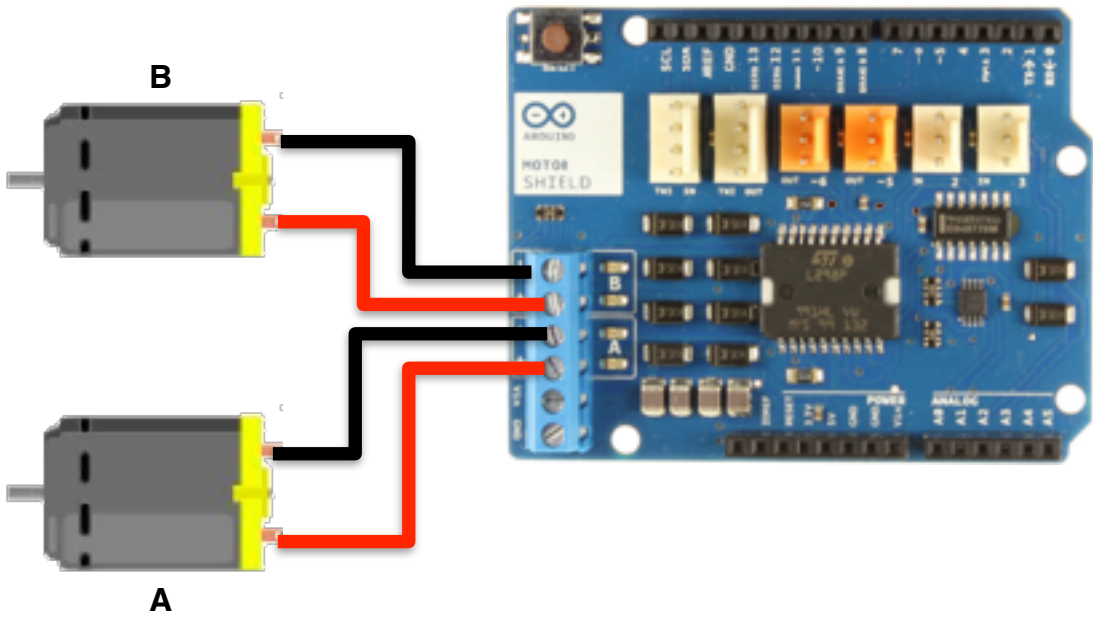
Servo Motor Circuit



Buzzer Circuit



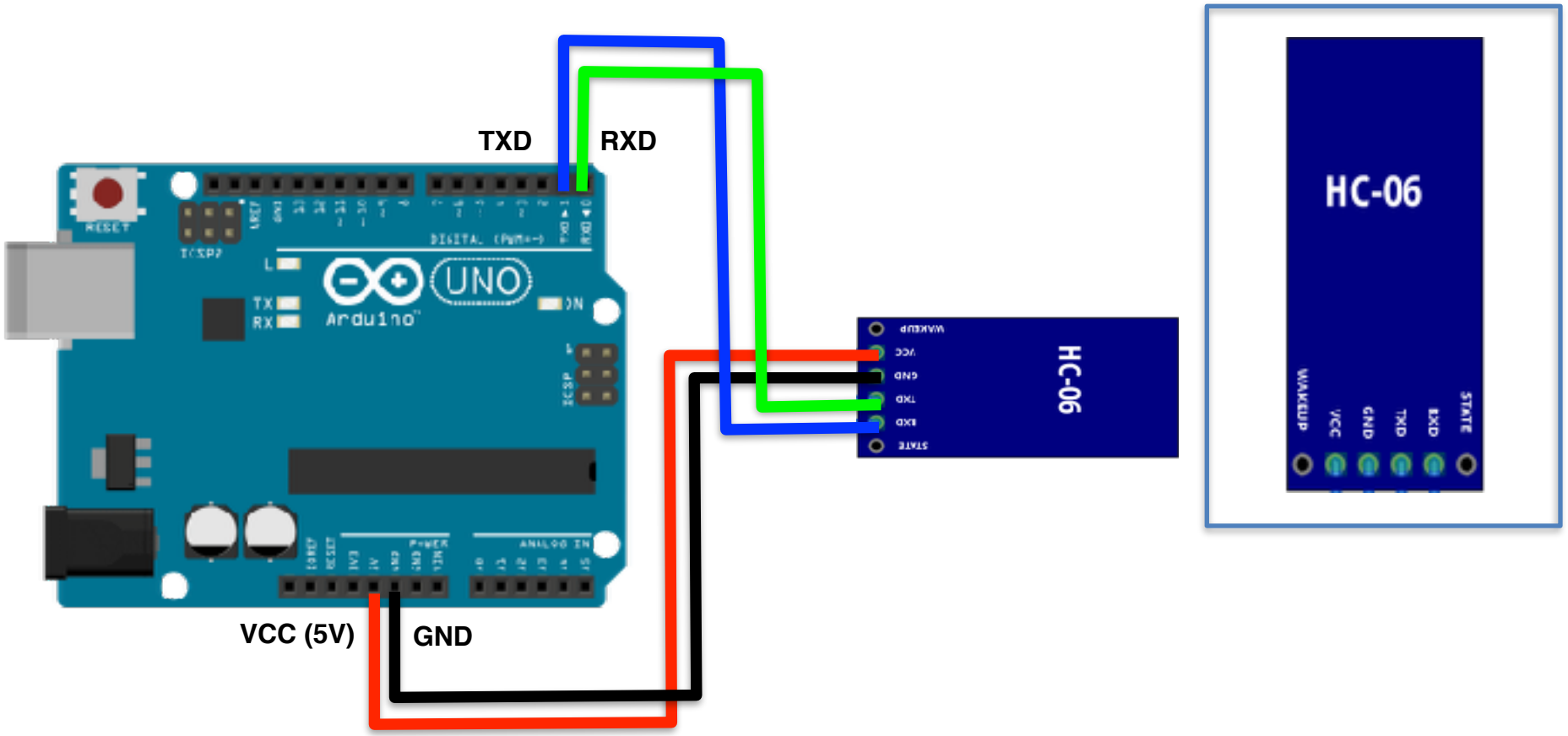
Motor Shield Circuit



< Motor A >
- Direction pin: 12
- PWM pin: ~3

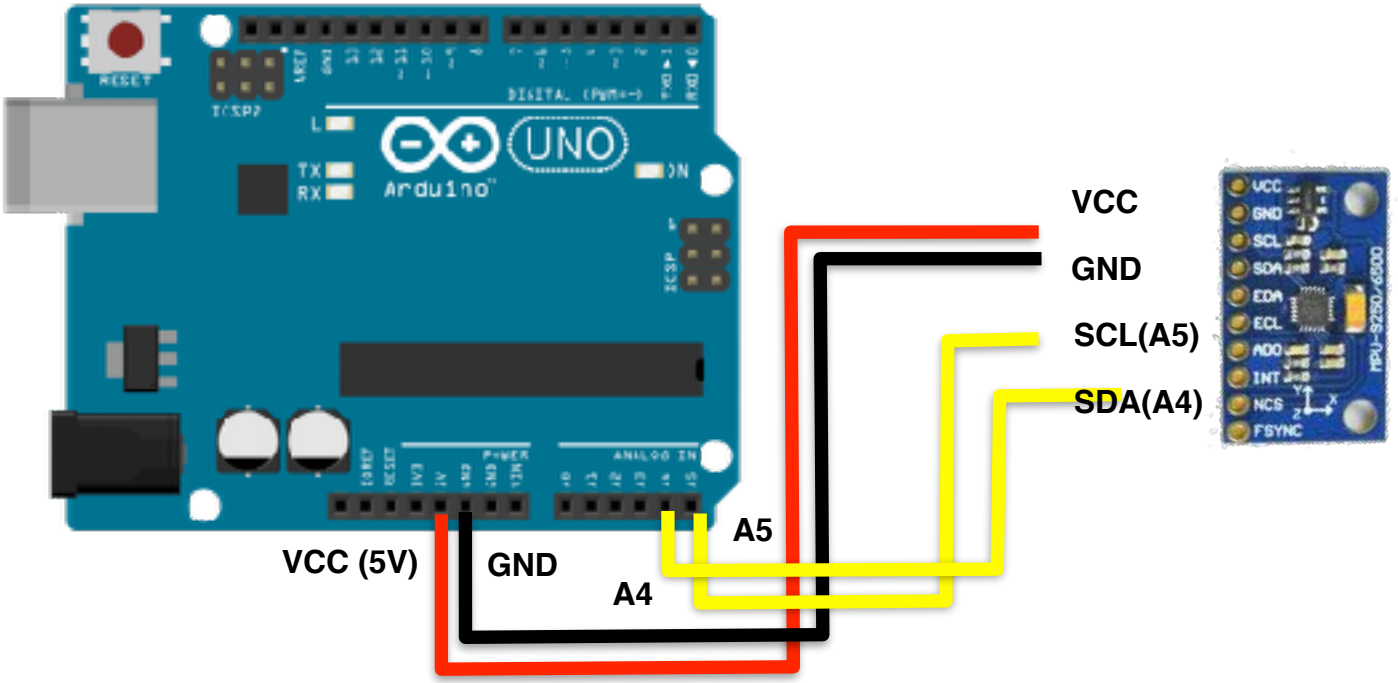
< Motor B >
- Direction pin: 13
- PWM pin: ~11

HC-06 Circuit



※ You should verify that between two devices have same baudrate (bps).

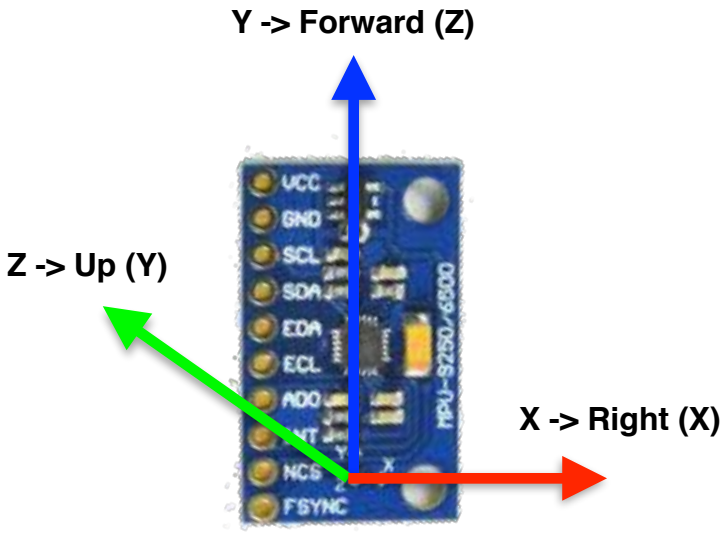
MPU Series Circuit



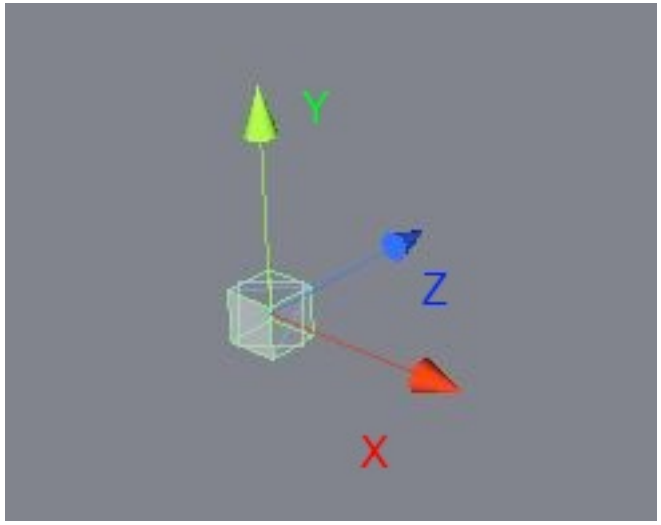
Support Model

- MPU 6050
- MPU 6500
- MPU 9150
- MPU 9250

MPU Series Orientation



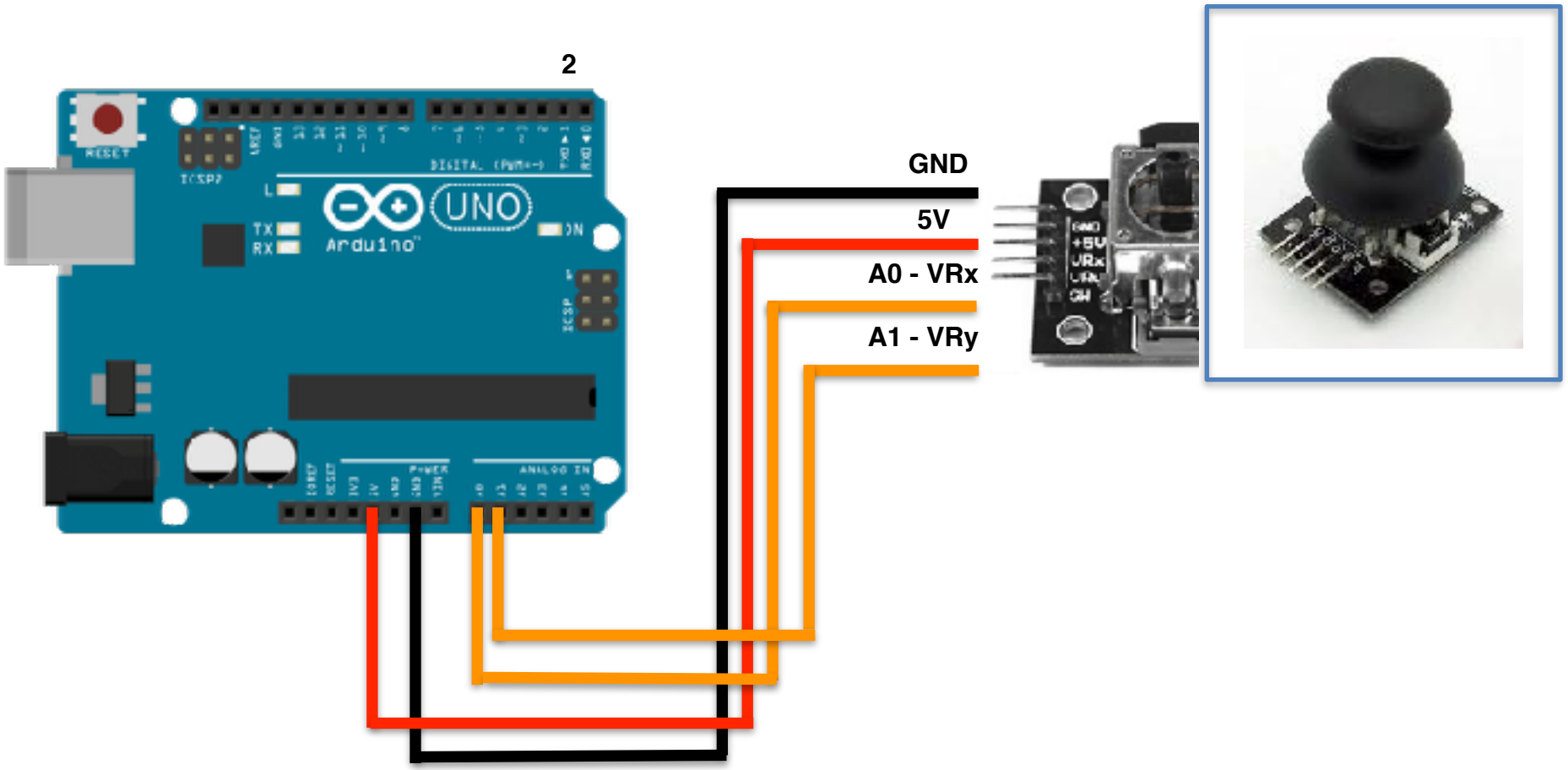
Coordinate System in MPU



Coordinate System in Unity

※MPUSeries convert a coordinate system between MPU and Unity. So, you can just think of MPU as Unity.

Joystick Circuit



Appendix

UNO Timer Conflict