

ECET 130 - Lab 2

Switches and LEDS with while and printf

Part1:

Download our version of the Arduino IDE that supports Serial.printf and floating point printf.

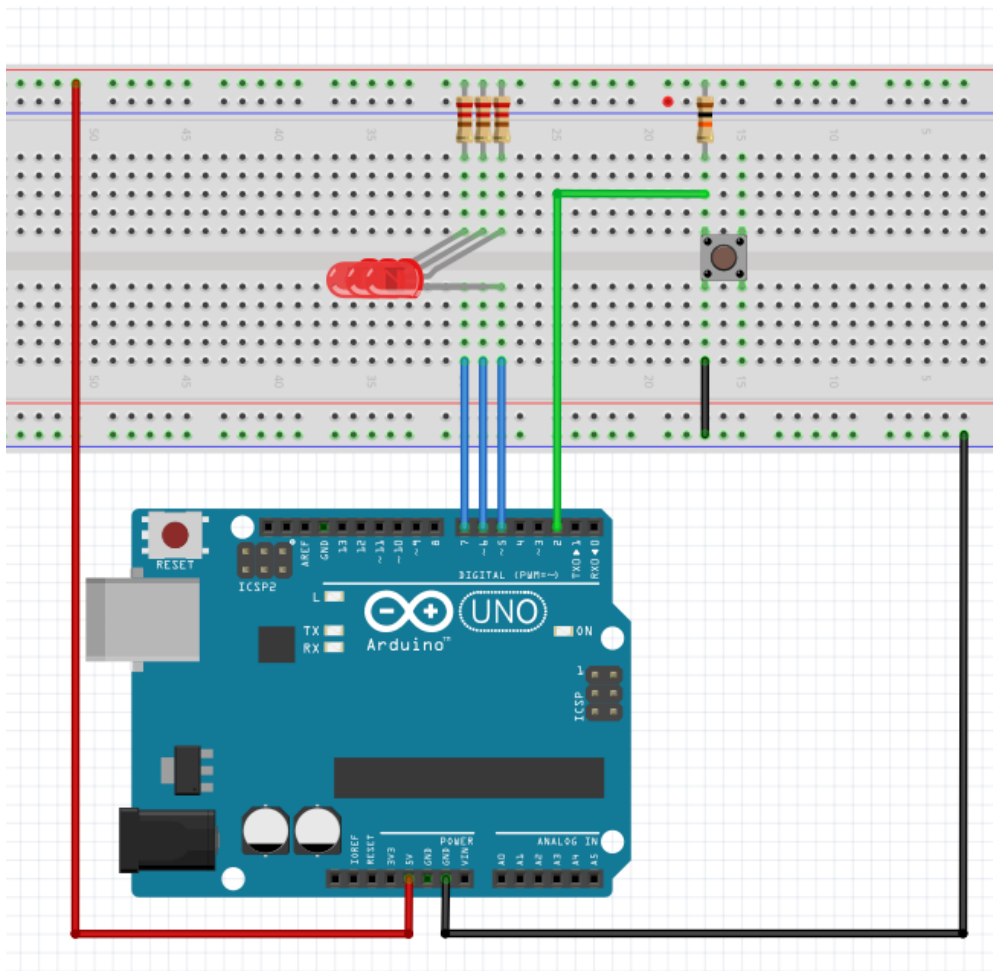
Unzip it to a directory of your choosing. You may write click its launch icon and make a shortcut to your desktop if you wish.

Launch the Arduino IDE by double clicking its icon.

Load last weeks Lab1 - Part3 code and verify it still compiles and loads on your arduino.

Part2:

Modify last weeks Lab1 – Part3 circuit to add a pushbutton to Digital pin 2. Your breadboard should now have 3 LEDs connected to your Uno on digital pins 7, 6, and 5 and a switch connected to digital pin 2. Make sure you use 220 ohm current limiting resistors for the LEDs and a 10k resistor for the pushbutton.



1) Make a **lab2p1** project and write the code to turn on each LED in turn from left to right for 200mS only when the pushbutton is pressed, otherwise all LEDs should be off. This code should run forever. Only one light at a time should be on.

Use the pinMode, while, digitalRead, digitalWrite, and delay functions.

2) Make a **lab2p2** project and write the code to turn on each LED in turn from left to right at a 200mS rate when the pushbutton is pressed and right to left when the push button is released.

Use the pinMode, while, digitalRead, digitalWrite, and delay functions.

3) Make a **lab2p3** project and add to the lab2p2 code to print out the number of times you are going left -> right and right -> left on the serial monitor.

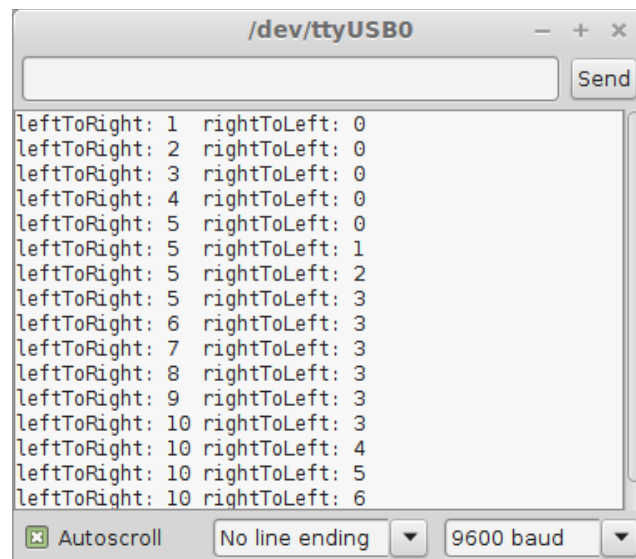


```
leftToRight: 39 rightToLeft: 17
leftToRight: 40 rightToLeft: 17
leftToRight: 41 rightToLeft: 17
leftToRight: 42 rightToLeft: 17
leftToRight: 43 rightToLeft: 17
leftToRight: 44 rightToLeft: 17
leftToRight: 45 rightToLeft: 17
leftToRight: 46 rightToLeft: 17
leftToRight: 47 rightToLeft: 17
leftToRight: 48 rightToLeft: 17
leftToRight: 49 rightToLeft: 17
leftToRight: 50 rightToLeft: 17
leftToRight: 51 rightToLeft: 17
leftToRight: 52 rightToLeft: 17
leftToRight: 53 rightToLeft: 17
```

Use the pinMode, while, digitalRead, digitalWrite, printf, and delay functions.

4) Make a **lab2p4** project. When the button is pressed, the LEDs are rotated from left to right 5 times and from right to left 3 times using 2 **for** loops. All LEDs should then be turned off until the next button press. The code should print out the number of times you are going left -> right and right -> left on the serial monitor.

Use the pinMode, while, for, digitalRead, digitalWrite, printf, and delay functions.



```
/dev/ttyUSB0
leftToRight: 1 rightToLeft: 0
leftToRight: 2 rightToLeft: 0
leftToRight: 3 rightToLeft: 0
leftToRight: 4 rightToLeft: 0
leftToRight: 5 rightToLeft: 0
leftToRight: 5 rightToLeft: 1
leftToRight: 5 rightToLeft: 2
leftToRight: 5 rightToLeft: 3
leftToRight: 6 rightToLeft: 3
leftToRight: 7 rightToLeft: 3
leftToRight: 8 rightToLeft: 3
leftToRight: 9 rightToLeft: 3
leftToRight: 10 rightToLeft: 3
leftToRight: 10 rightToLeft: 4
leftToRight: 10 rightToLeft: 5
leftToRight: 10 rightToLeft: 6
```

Submit your modified and appropriately commented programs to the dropbox Lab2 folder by the start of lab Week3.

Be prepared to demo your code in Lab3.