Arduino

CoderDojo

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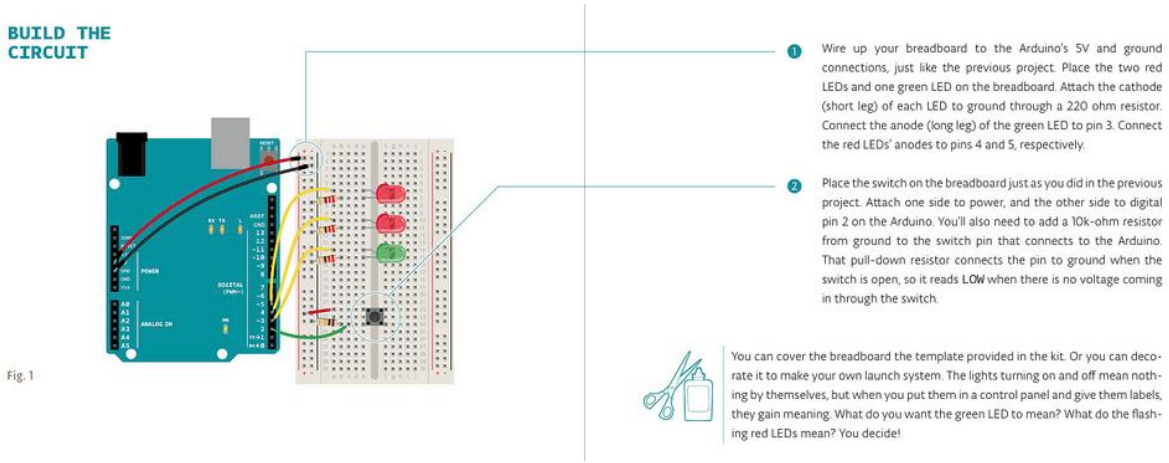
1 This exercise builds off the Blink activity by adding more LED's (Outputs) and a Switch (Input) to the circuit.

2 Change/Build your circuit to match the diagram below:



Top Tip: You will need two more LED's, a pushbutton switch, two more 220Ohm and one 10K Ohm resistors.

3 Open the sketch "p02_SpaceshipInterface" found in the StarterKit_BasicKit section of the Arduino Examples library. Examine the code and read the comments. You need to make the LEDs blink differently according to whether the button is pressed or not!

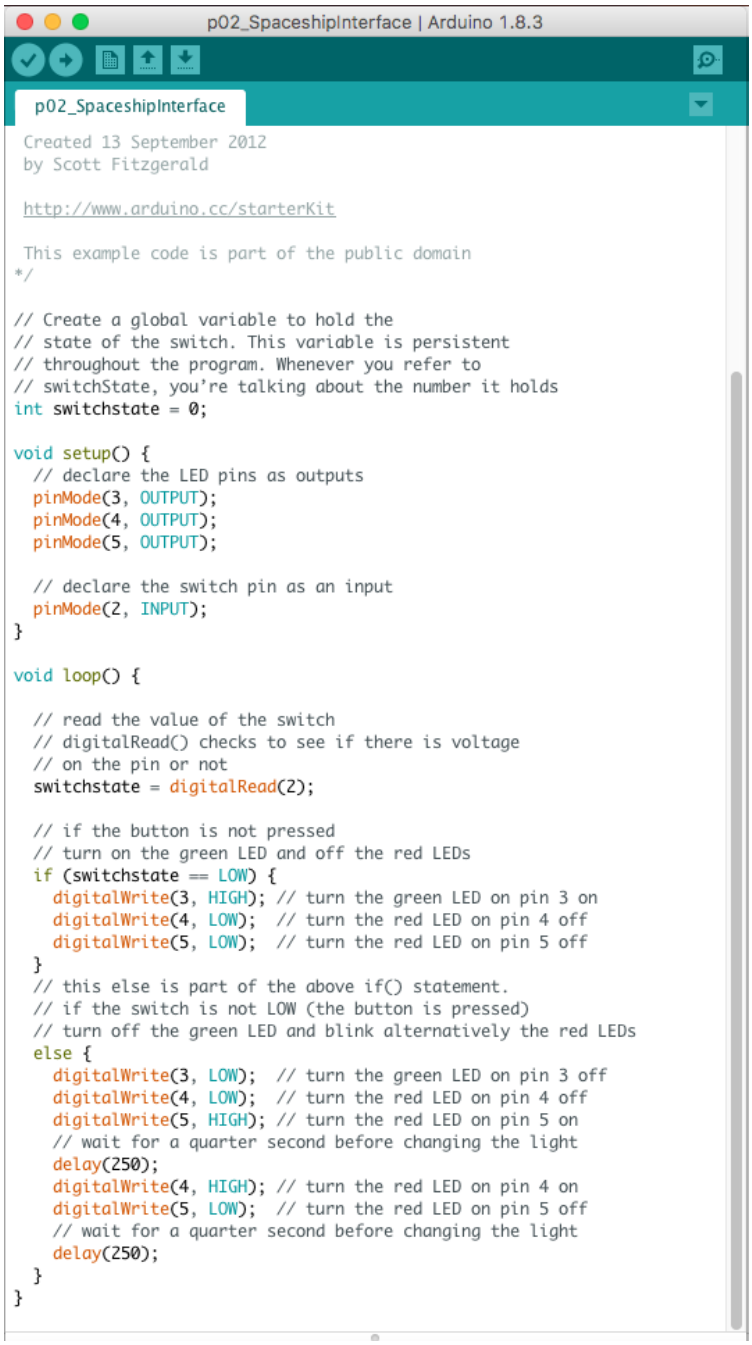
4 When you have made your changes upload your program to the Arduino and see it in action!

Try changing

1. The way the lights are flashing
2. The sequence of lightsl
3. Add a buzzer to your circuit
4. Move on to the next Challenge!

Additional instructions can be found at www.arduino.cc/starterkit

Sample Code




```
 Created 13 September 2012
 by Scott Fitzgerald

 http://www.arduino.cc/starterKit

 This example code is part of the public domain
*/

// Create a global variable to hold the
// state of the switch. This variable is persistent
// throughout the program. Whenever you refer to
// switchState, you're talking about the number it holds
int switchstate = 0;

void setup() {
  // declare the LED pins as outputs
  pinMode(3, OUTPUT);
  pinMode(4, OUTPUT);
  pinMode(5, OUTPUT);

  // declare the switch pin as an input
  pinMode(2, INPUT);
}

void loop() {

  // read the value of the switch
  // digitalRead() checks to see if there is voltage
  // on the pin or not
  switchstate = digitalRead(2);

  // if the button is not pressed
  // turn on the green LED and off the red LEDs
  if (switchstate == LOW) {
    digitalWrite(3, HIGH); // turn the green LED on pin 3 on
    digitalWrite(4, LOW);  // turn the red LED on pin 4 off
    digitalWrite(5, LOW);  // turn the red LED on pin 5 off
  }
  // this else is part of the above if() statement.
  // if the switch is not LOW (the button is pressed)
  // turn off the green LED and blink alternatively the red LEDs
  else {
    digitalWrite(3, LOW);  // turn the green LED on pin 3 off
    digitalWrite(4, LOW);  // turn the red LED on pin 4 off
    digitalWrite(5, HIGH); // turn the red LED on pin 5 on
    // wait for a quarter second before changing the light
    delay(250);
    digitalWrite(4, HIGH); // turn the red LED on pin 4 on
    digitalWrite(5, LOW);  // turn the red LED on pin 5 off
    // wait for a quarter second before changing the light
    delay(250);
  }
}
```

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