
University of Alexandria, Faculty of Engineering

Department of Computer and Systems Engineering

# CSE233 Computer Organization
# Arduino Lab 2

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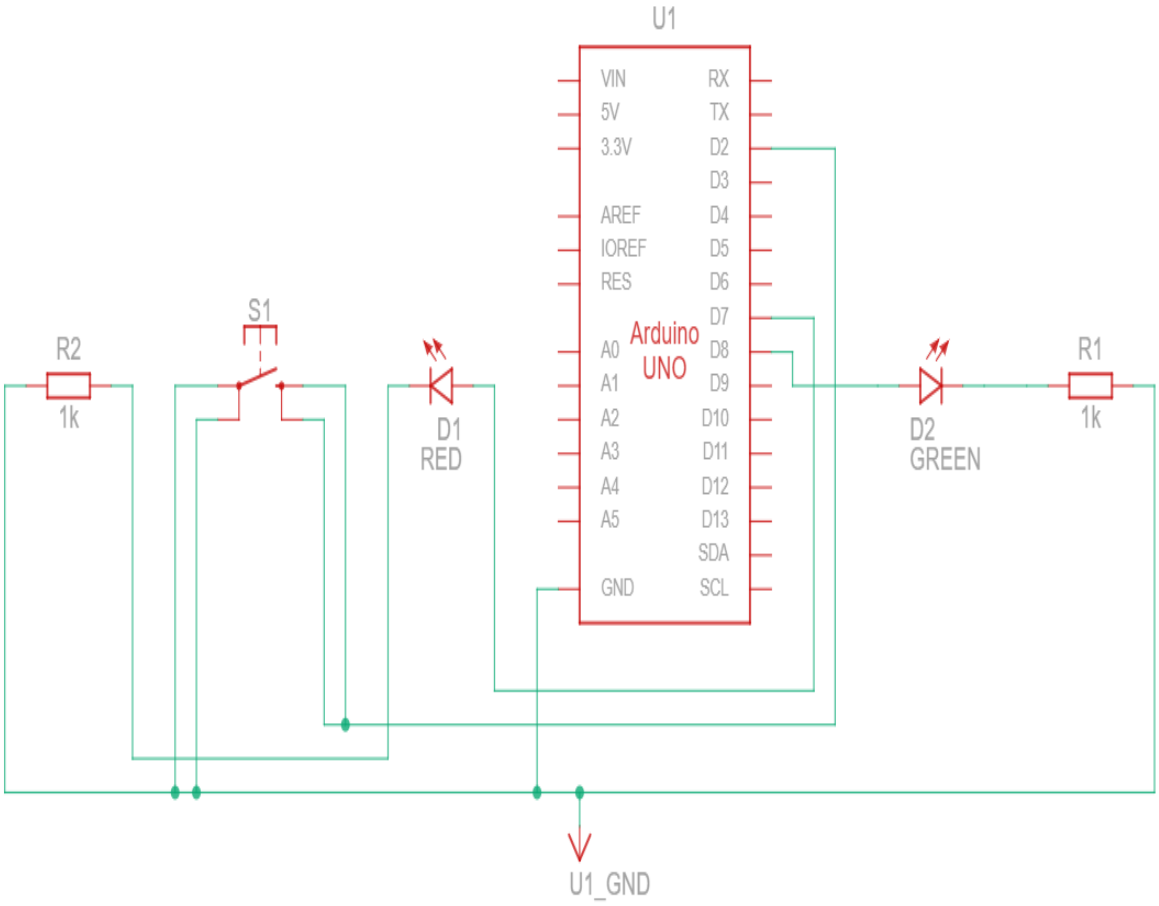
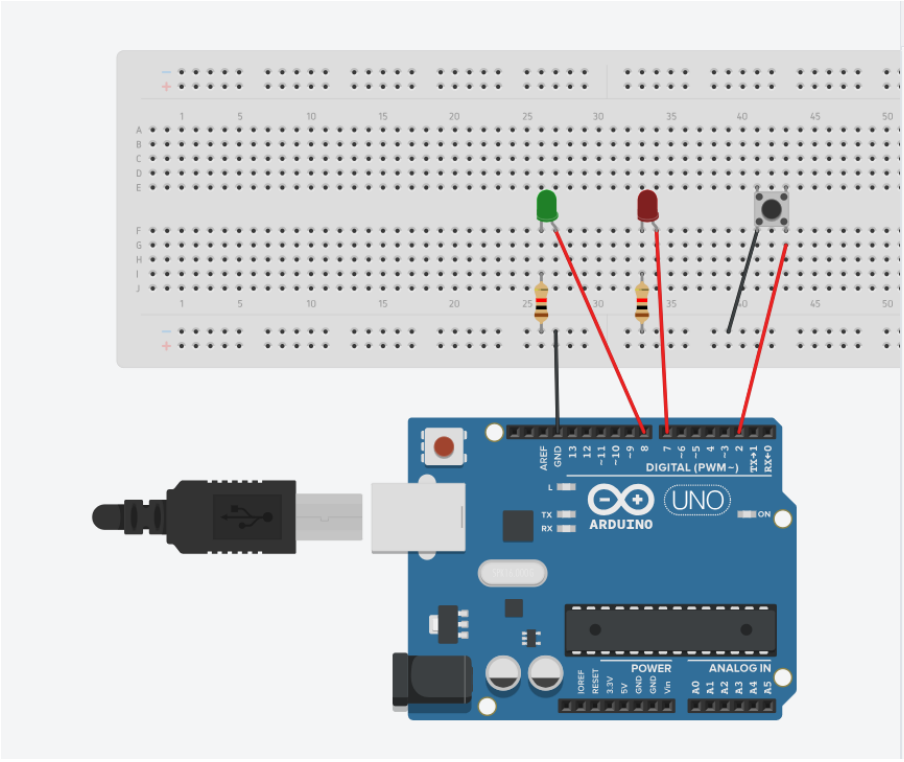
## The Documentation

First, we declared pin numbers that will be used in our code. After that, we established a boolean variable which determine which LED will be on. Then, the we coded a function which fixes the button debouncing problem by checking that state of the button is stable for some milliseconds. Next, we set which of the pins are output and which are input. Lastly, we coded our program main loop which for each iteration checks whether the button is clicked or not while considering the debouncing effect. If the button is clicked, then the other LED will turn ON and the one which was ON will be OFF.

## The Schematic Diagram






Text

```
//pin Variables
int green_pin = 8,red_pin = 7, button_pin = 2;
//state of the LEDs
boolean green_state;
//Debounce fix code
boolean debounce(int pin) {
    boolean state;
    boolean previous_state;
    previous_state = digitalRead(pin);
    for(int i = 0; i < 10; i++) {
        delay(1);
        state = digitalRead(pin);
        if(state != previous_state){
            i = 0;
            previous_state = state;
        }
    }
    return state;
}
//setup for pins and their modes
void setup() {
  pinMode(green_pin, OUTPUT);
  pinMode(red_pin, OUTPUT);
  pinMode(button_pin, INPUT_PULLUP);
}

//main program loop
void loop() {
  digitalWrite(green_pin, green_state);
  digitalWrite(red_pin, !green_state);

  if(!debounce(button_pin)) {
    green_state = !green_state;
  }
```

## The Arduino Code

```
// Second arduino Lab for CO subject

//pin Variables
const int green_pin = 8;
const int red_pin = 7;
const int button_pin = 2;

//state of the LEDs
boolean green_state;

//Debounce fix code
boolean debounce(int pin) {
    boolean state;
    boolean previous_state;
    previous_state = digitalRead(pin);
    for(int i = 0; i < 10; i++) {
        delay(1);
        state = digitalRead(pin);
        if(state != previous_state){
            i = 0;
            previous_state = state;
        }
    }
    return state;
}

//setup for pins and their modes
void setup() {
  pinMode(green_pin, OUTPUT);
```

```
30              pinMode(red_pin, OUTPUT);
31              pinMode(button_pin, INPUT_PULLUP);
32            }
33
34            //main program loop
35            void loop() {
36              digitalWrite(green_pin, green_state);
37              digitalWrite(red_pin, !green_state);
38
39              if(!debounce(button_pin)) {
40                green_state = !green_state;
41              }
42
43            }
44
```