WE-GIRLS Summer Camp (June 19-22 2017)
Project 2 – Blink 1234
Cristinel Ababei, Dept. of Electrical and Computer Engineering, Marquette University

1. Objective
To continue to work on projects that use light emitting diodes (LEDs). In this project a row of four LEDs will be turned on and off in different styles.

2. Project 2: Blinking a set of four LEDs
In this project we control a set of four LEDs to make them blink one by one from left to right.

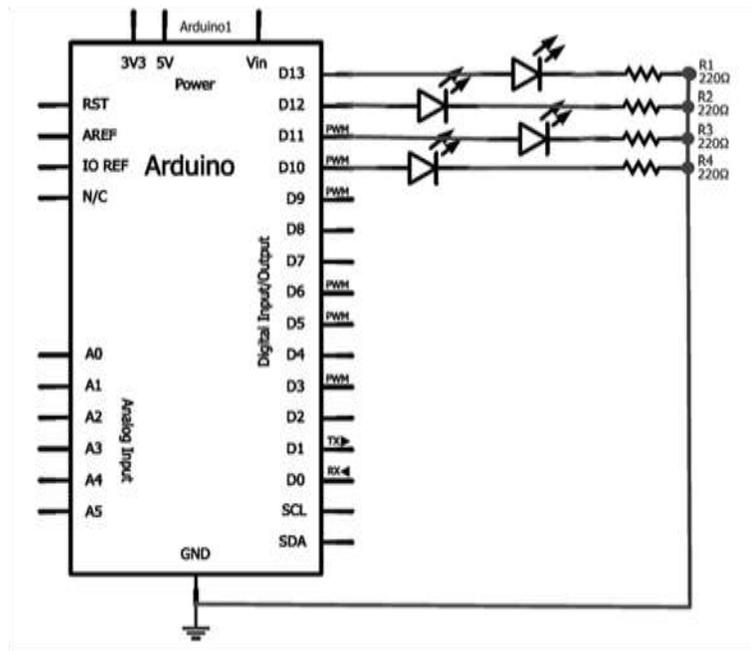The schematic diagram of this project is shown in Figure 1.

Figure 1: Schematic diagram.

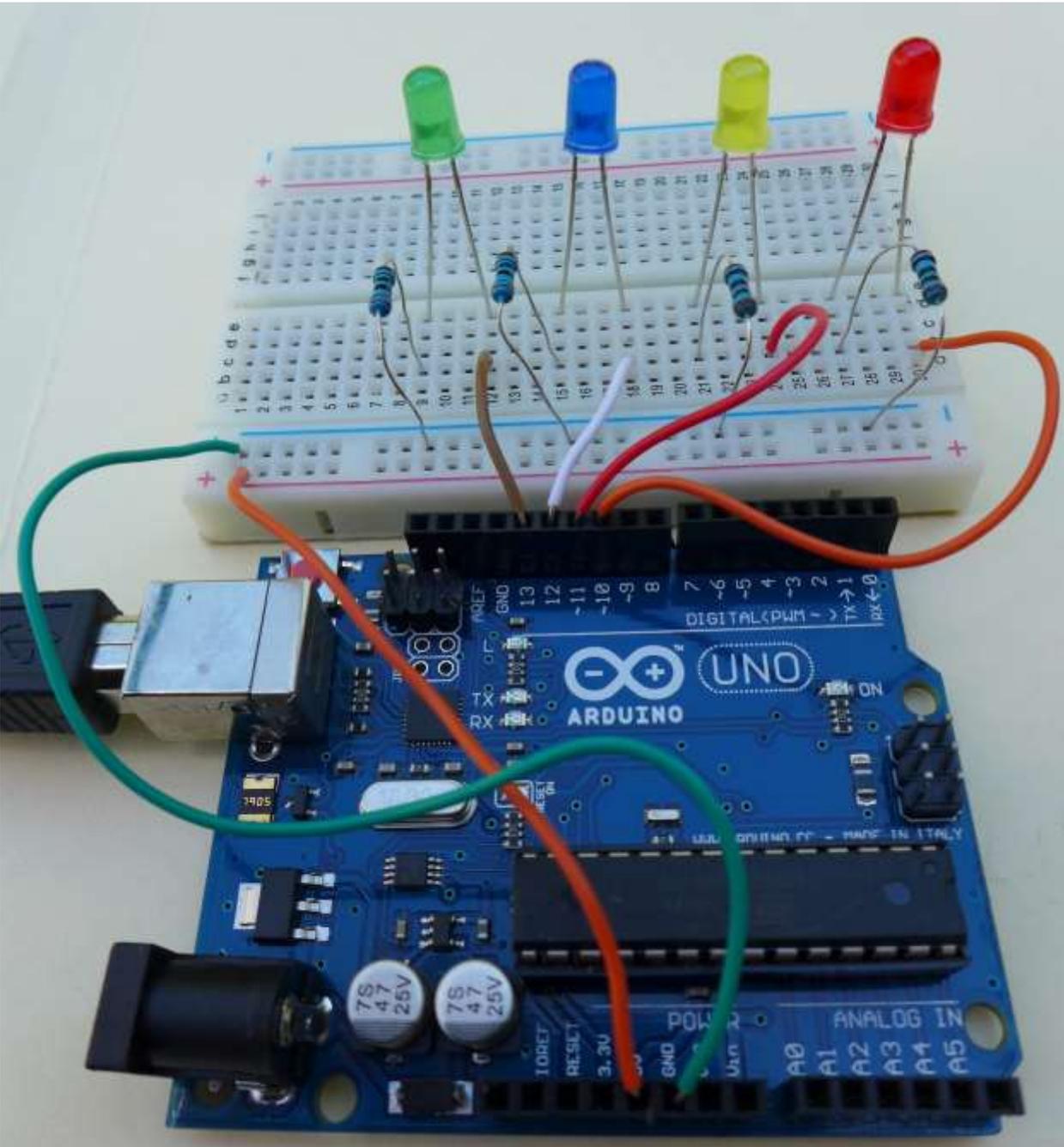The protoboard layout is shown in Figure 2.

Figure 2: Protoboard layout.

The *sketch* for this project is shown below:

```
// Project 2: Blink 1234
// turns on/off a set of four LEDs in different styles
void setup() {
  // initialize the digital pins 10,11,12,13 as outputs
  pinMode(13, OUTPUT);
  pinMode(12, OUTPUT);
  pinMode(11, OUTPUT);
  pinMode(10, OUTPUT);
}

void loop() {
  // turn LEDs on and off one by one from left to right
  digitalWrite(13, HIGH);
  delay(300);
  digitalWrite(13, LOW);
  digitalWrite(12, HIGH);
  delay(300);
  digitalWrite(12, LOW);
  digitalWrite(11, HIGH);
  delay(300);
  digitalWrite(11, LOW);
  digitalWrite(10, HIGH);
  delay(300);
  digitalWrite(10, LOW);
  // uncomment the following lines to turn the LEDs on/off
  // from left to right and then from right to left, repeatedly
  //digitalWrite(11, HIGH);
  //delay(300);
  //digitalWrite(11, LOW);
  //digitalWrite(12, HIGH);
  //delay(300);
  //digitalWrite(12, LOW);
}
```

Launch Arduino software and type-in or open the existing file with the above sketch. Once you have the sketch loaded press the "Verify" button. Once the sketch is verified, press the "Upload" button. Observe the operation and comment on it.

3. Assignment
Modify the project to make LEDs blink from left to right followed by right to left repeatedly. Modify the project to make LEDs blink all at the same time followed by a pause of 1 second. Propose your own style of blinking.

Introduce the concept of variable by for example defining:
```
int pinFirstLED = 13;
```
and then replace 13 with pinFirstLED everywhere in the sketch.