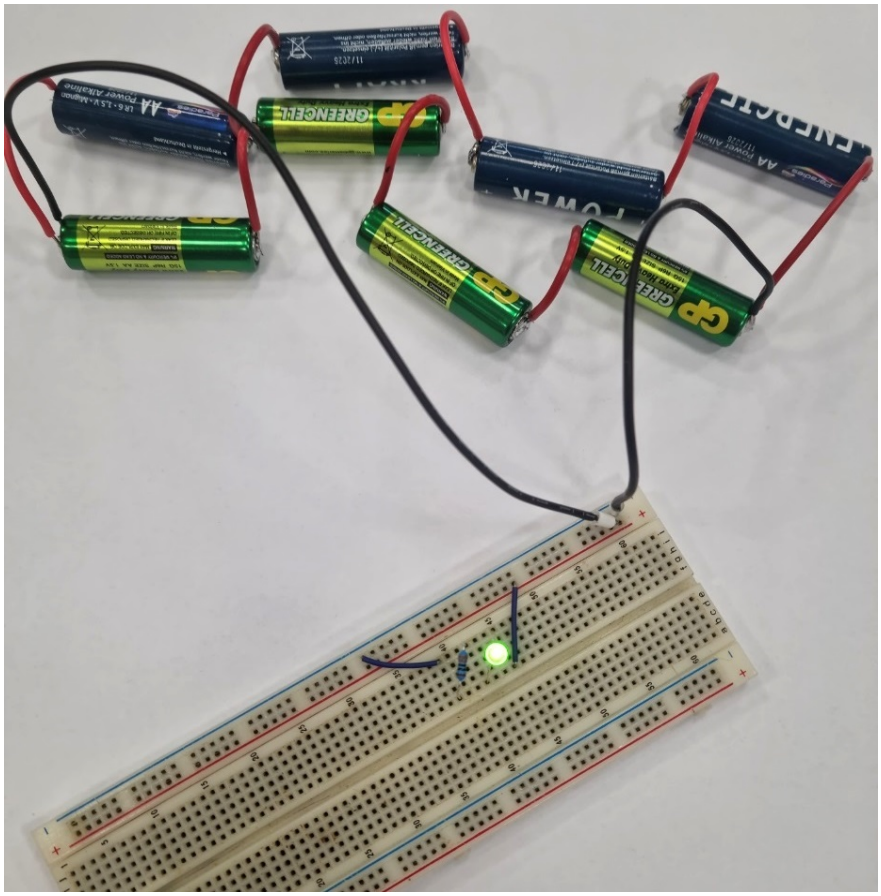
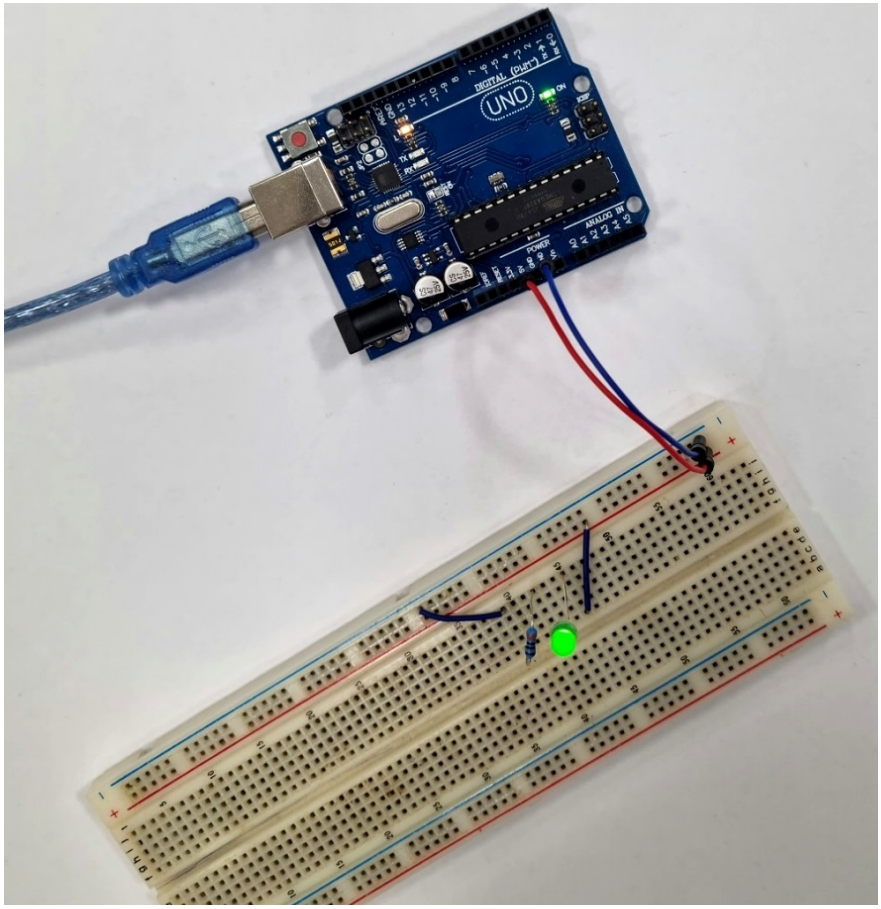
Arduino 3 - Programy a zapojenia :)

1. Jednoduchý elektrický obvod s batériami



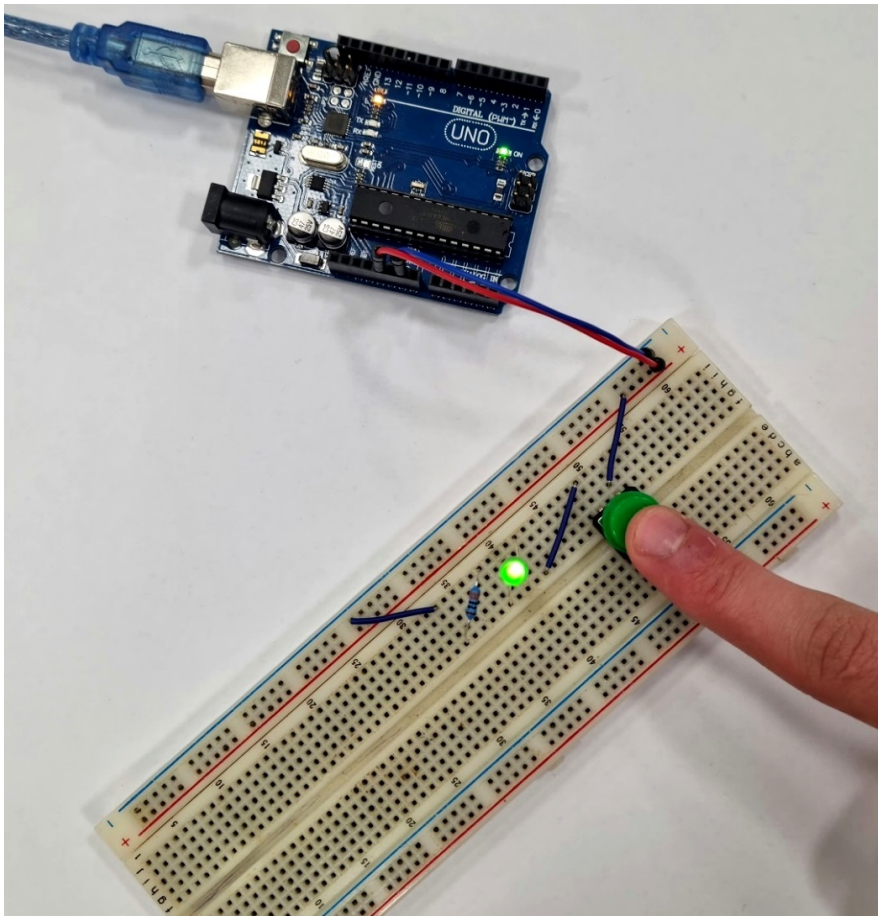
Zapojenie úlohy 1

2. Jednoduchý elektrický obvod napájaný z Arduina



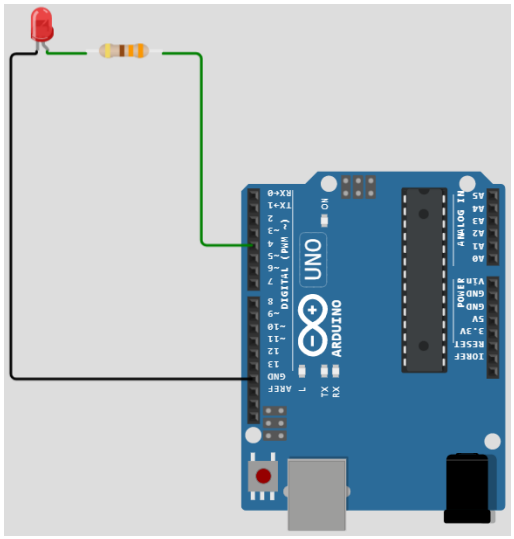
Zapojenie úlohy 2

3. Jednoduchý elektrický obvod napájaný z Arduina s tlačidlom



Zapojenie úlohy 3

4. Blikajúca LED

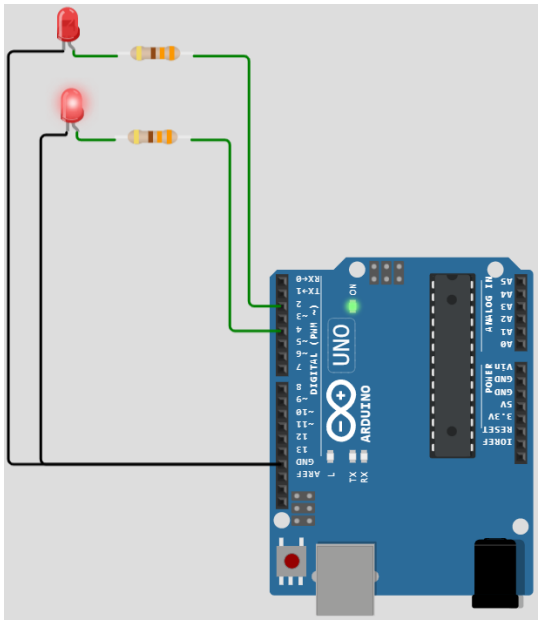


Zapojenie

```
void setup() {
  // Blikajuca LED
  pinMode(4, OUTPUT);
  }

void loop() {
  digitalWrite (4, LOW);
  delay (1000);

  digitalWrite (4, HIGH);
  delay (1000);
  }
```

Program

5. Dve blikajúce LED-ky

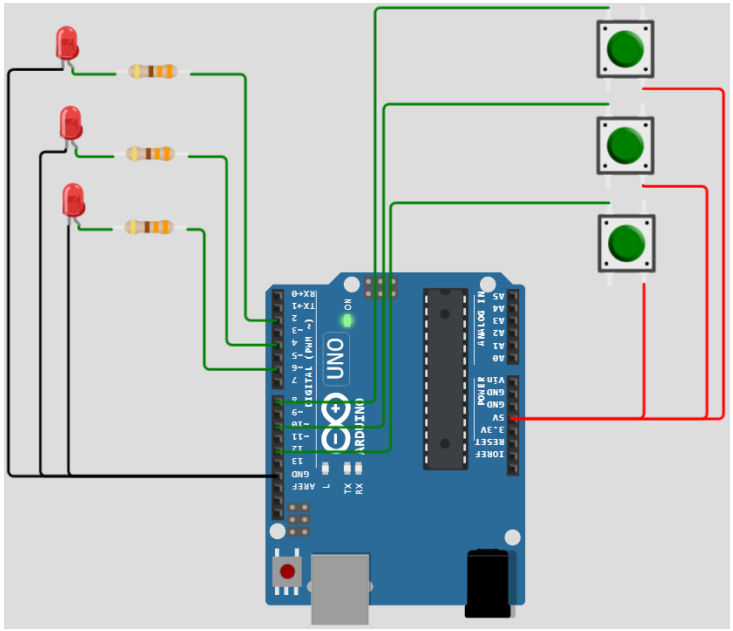


Zapojenie

```
1   void setup() {
2     // Dve blikajuce LED
3     pinMode(2, OUTPUT);
4     pinMode(4, OUTPUT);
5     }
6
7   void loop() {
8     digitalWrite (2, HIGH);
9     digitalWrite (4, LOW);
10    delay (500);
11
12    digitalWrite(2, LOW);
13    digitalWrite(4, HIGH);
14    delay (500);
15                }
```

Program

6. Prevodník Poradie/Počet realizovaný pomocou jednoduchej podmienky

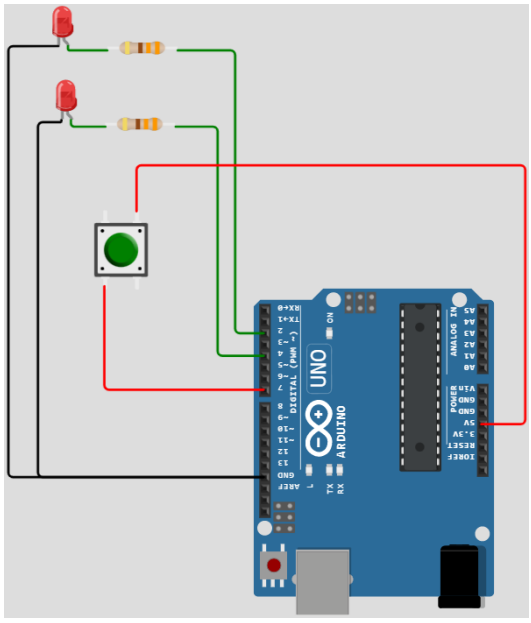


Zapojenie

```
void setup() {
  // Prevodnik Poradie tlacidla/Pocet LED
  pinMode(2, OUTPUT);
  pinMode(4, OUTPUT);
  pinMode(6, OUTPUT);
  pinMode(8, INPUT);
  pinMode(10, INPUT);
  pinMode(12, INPUT);
}

void loop() {
  if ( digitalRead  (8) == 1)  {digitalWrite(2, HIGH);}

  if ( digitalRead  (8) == 0)  {digitalWrite(2, LOW);}

  if ( digitalRead (10) == 1)  {digitalWrite(4, HIGH);
                                digitalWrite(2, HIGH);}

  if ( digitalRead (10) == 0)  {digitalWrite(2, LOW);
                                digitalWrite(4, LOW);}

  if ( digitalRead (12) == 1)  {digitalWrite(2, HIGH);
                                digitalWrite(4, HIGH);
                                digitalWrite(6, HIGH);}

  if ( digitalRead (12) == 0)  {digitalWrite(2, LOW);
                                digitalWrite(4, LOW);
                                digitalWrite(6, LOW);}
      }
```

Program

7. Prepínanie svietenia LED pomocou úplnej podmienky

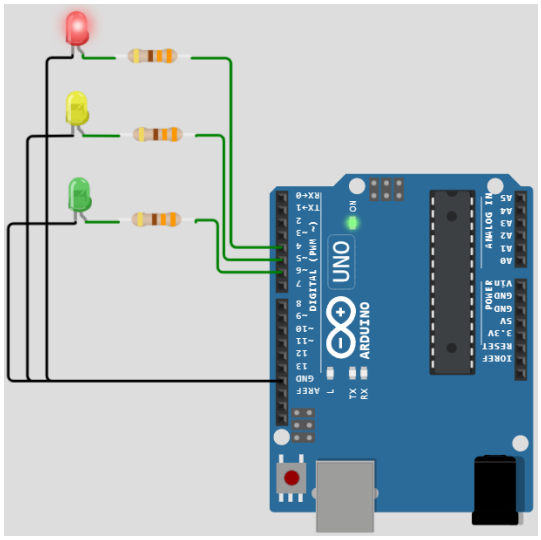


Zapojenie

```
1   void setup() {
2     // Pouzitie podmienky
3     pinMode(2, OUTPUT);
4     pinMode(4, OUTPUT);
5     pinMode(7, INPUT);
6     }
7
8   void loop()  {
9     if (digitalRead(7) == 1)
10    {
11    digitalWrite (2, HIGH);
12    digitalWrite (4, LOW);
13    }
14    else
15    {
16    digitalWrite (2, LOW);
17    digitalWrite (4, HIGH);
18    }
19            }
```

Program

8. Semafor

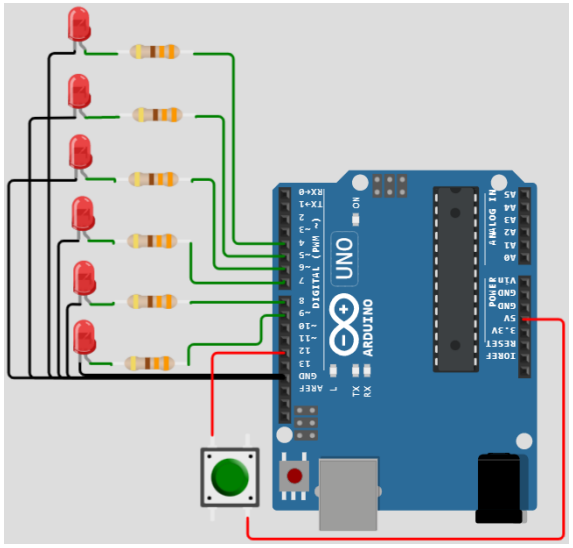


Zapojenie

```
void setup() {
  // Semafor
  pinMode(4, OUTPUT);
  pinMode(5, OUTPUT);
  pinMode(6, OUTPUT);
  }

void loop() {
  digitalWrite (4, HIGH);
  delay (1000);
  digitalWrite (4, LOW);
  delay (1000);
  digitalWrite (5, HIGH);
  delay (1000);
  digitalWrite (5, LOW);
  delay (1000);
  digitalWrite (6, HIGH);
  delay (1000);
  digitalWrite (6, LOW);
  delay (1000);
  digitalWrite (5, HIGH);
  delay (1000);
  digitalWrite (5, LOW);
  delay (1000);
      }
```

Program

9. Bežiace svetlo

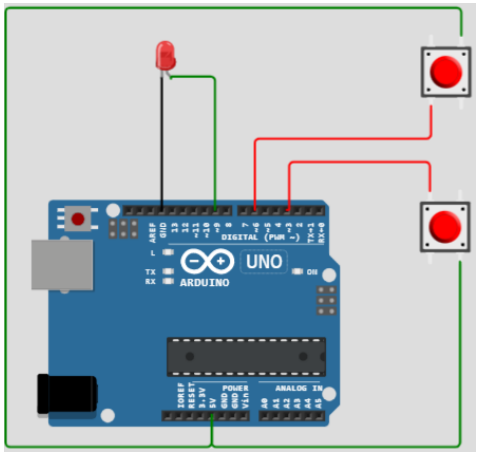


Zapojenie

```
void setup() {
  // Beziace_svetlo
  pinMode(4, OUTPUT); pinMode(5, OUTPUT); pinMode(6, OUTPUT);
  pinMode(7, OUTPUT); pinMode(8, OUTPUT); pinMode(9, OUTPUT);
  pinMode(12, INPUT);
      }

void loop() {
  digitalWrite (4, HIGH); delay (15);
  if (digitalRead(12) == 1) { delay (1000);}
  digitalWrite (4, LOW); delay (15); digitalWrite (5, HIGH); delay (15);
  if (digitalRead(12) == 1) { delay (1000);}
  digitalWrite (5, LOW); delay (15); digitalWrite (6, HIGH); delay (15);
  if (digitalRead(12) == 1) { delay (1000);}
  digitalWrite (6, LOW); delay (15); digitalWrite (7, HIGH); delay (15);
  if (digitalRead(12) == 1) { delay (1000);}
  digitalWrite (7, LOW); delay (15); digitalWrite (8, HIGH); delay (15);
  if (digitalRead(12) == 1) { delay (1000);}
  digitalWrite (8, LOW); delay (15); digitalWrite (9, HIGH); delay (15);
  if (digitalRead(12) == 1) { delay (1000);}
  digitalWrite (9, LOW); delay (15);
    }
```

Program

10. Ovládanie jasu LEDky pomocou počítadla

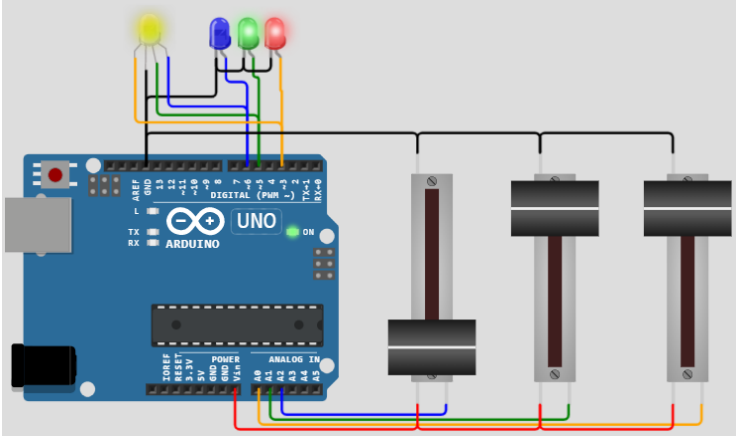


Zapojenie

```
const int pinR = 9;
int Rhodnota = 0;

void setup() {
  // ovladanie jas LEDky
  pinMode(3, INPUT);   pinMode(6, INPUT);
      }
void loop() {
  if (digitalRead(3) == 1 && Rhodnota < 255) {Rhodnota += 1; analogWrite(pinR, Rhodnota); delay(10); }
  if (digitalRead(6) == 1 && Rhodnota > 0) {Rhodnota -= 1; analogWrite(pinR, Rhodnota); delay(10); }
    }
```

Program

11. Zapojenie 3-farebnej LED, nastavenie farby pomocou potenciometrov

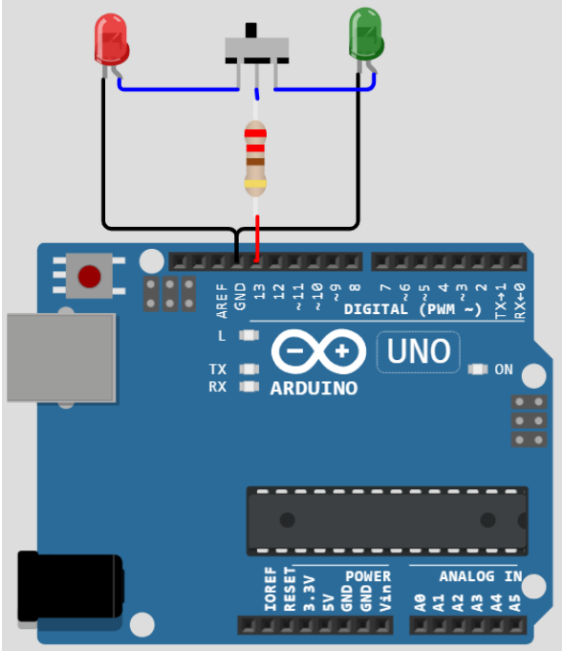


Zapojenie

```
const int pinR = 3;
const int pinG = 5;
const int pinB = 6;

const int potR = A0;
const int potG = A1;
const int potB = A2;

void setup() {
  // Demo RGB LED a potenciometre
  pinMode(pinR, OUTPUT);
  pinMode(pinG, OUTPUT);
  pinMode(pinB, OUTPUT);
  pinMode(potR, INPUT);
  pinMode(potG, INPUT);
  pinMode(potB, INPUT);
}

int readPot(int pin) {
  return map(analogRead(pin), 0, 1023, 0, 255);
}

void loop() {
  analogWrite(pinR, readPot(potR));
  analogWrite(pinG, readPot(potG));
  analogWrite(pinB, readPot(potB));
}
```

Program

14. Prepínanie blikajúcich LED



Zapojenie

```
void setup() {
  //Pouzitie prepinaca
  pinMode(LED_BUILTIN, OUTPUT);
}

void loop() {
  digitalWrite(LED_BUILTIN, HIGH);
  delay(1000);
  digitalWrite(LED_BUILTIN, LOW);
  delay(1000);
  }
```

Program

201. Vysúvanie a zasúvanie piestnice valca pomocou dvoch tlačidiel

Zapojenie

Program

202. Vysúvanie a zasúvanie piestnice valca pomocou jedného tlačidla

Zapojenie

Program

203. Zmena smeru otáčok elektrického motora troma tlačidlami

Zapojenie

Program

204. Zmena smeru otáčok elektrického motora piatimi tlačidlami

Zapojenie

Program