

CAIET DE PRACTICĂ

Realizat în cadrul

Proiectului Erasmus +, Domeniul Formare profesională (VET), **New skills for new jobs - RobotGO**, Nr. **2022-1-RO01-KA122-VET-000073693**, finanțat de Uniunea Europeană în cadrul Programului Erasmus+.

NUME: Ostopovici Alexia

LUCRAREA 1 - Blinking LED

Scopul lucrării: Realizarea unui montaj, utilizând o placă Arduino, astfel încât un LED să-și modifice starea (aprins/stins) la fiecare secundă.

Materiale:



Arduino UNO

x 1



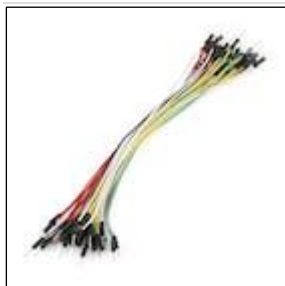
Breadboard (generic)

x 1



LED (generic)

x 1



Conductori

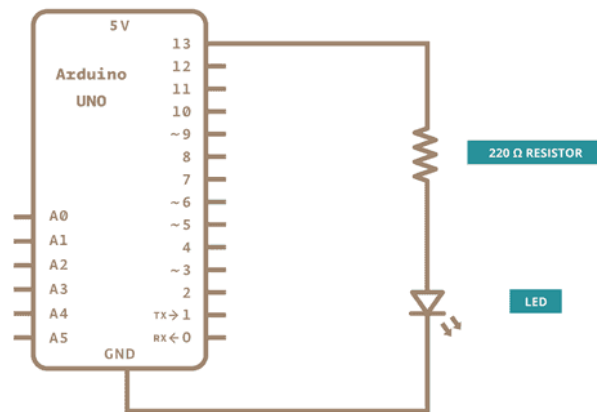
x 1



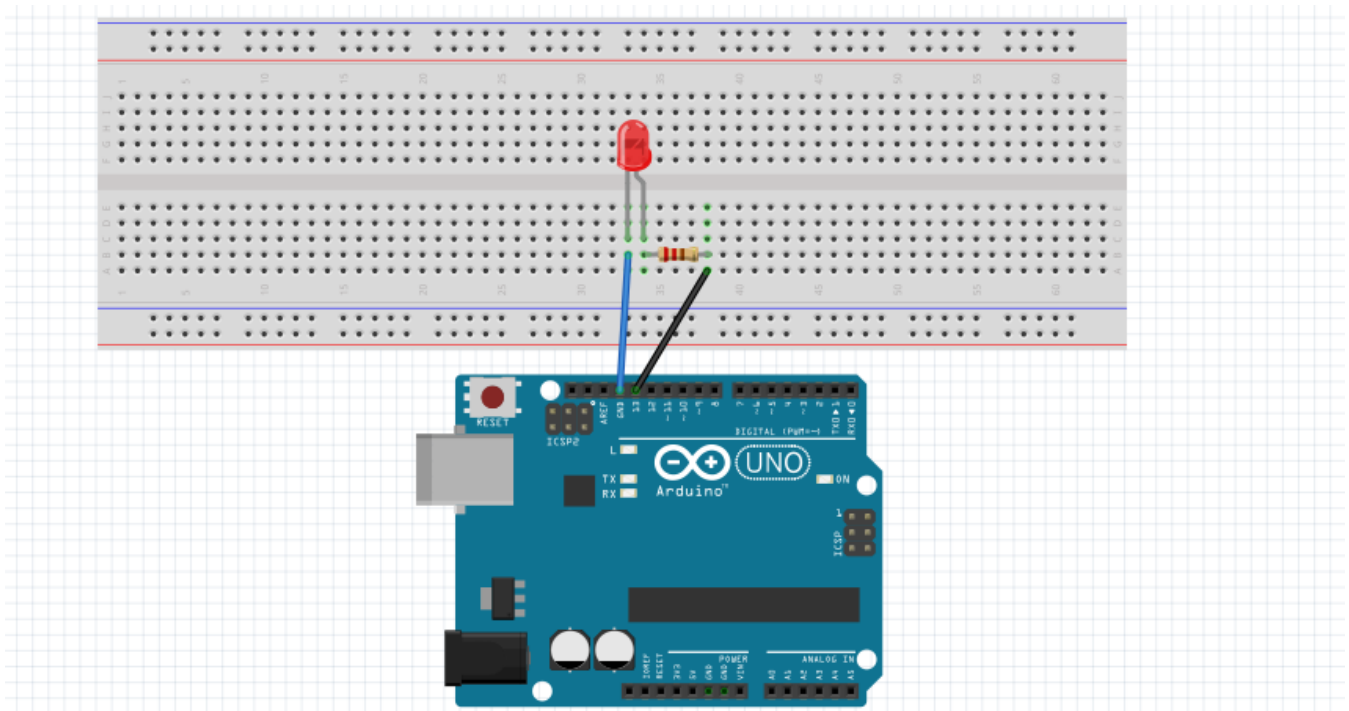
Rezistență de 220 ohm

x 1

Schema electrică:



Montaj:



Cod:

```
void setup() {  
  // initializarea pinului 13  
  pinMode(13, OUTPUT);  
}  
  
void loop() {  
  digitalWrite(13, HIGH);  
  delay(1000);  
  digitalWrite(13, LOW);  
  delay(1000);  
}
```

LUCRAREA 2 - Traffic lights

Scopul lucrării: Realizarea unui montaj, utilizând o placă Arduino, astfel încât să realizăm un semafor.

Materiale:



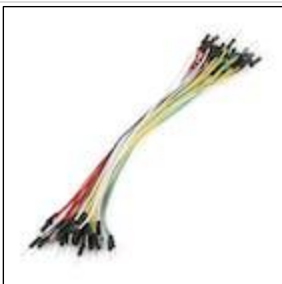
Arduino UNO

x 1



Breadboard (generic)

x 1



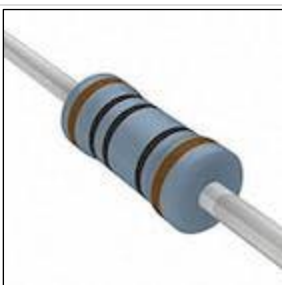
Conductori

x 1



LED (generic): roșu, galben, albastru

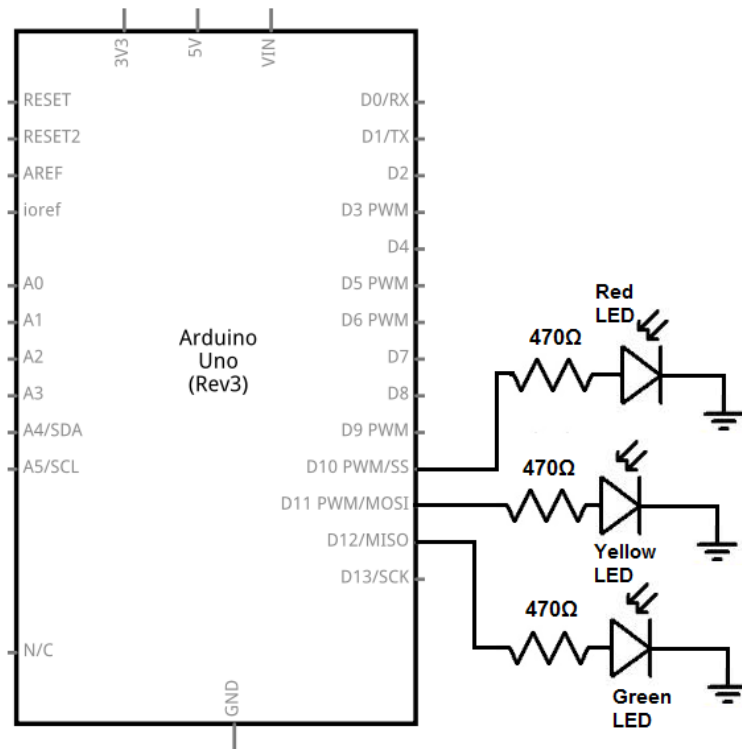
x 3



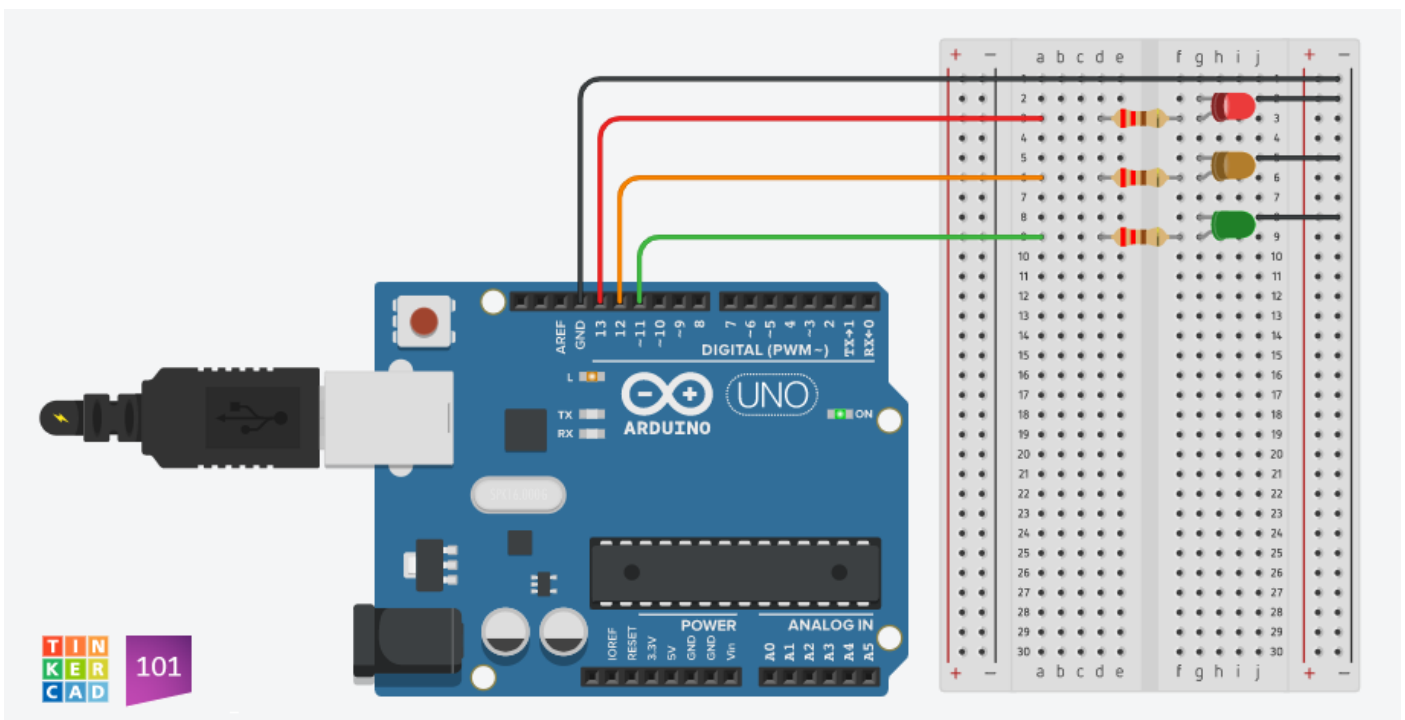
Rezistență de 220 ohm

x 1

Schema electrică:



Montaj:



Cod:

```
// variabile
int GREEN = 2;
int YELLOW = 3;
int RED = 4;
int DELAY_GREEN = 5000;
int DELAY_YELLOW = 2000;
int DELAY_RED = 5000;

void setup()
{
  pinMode(GREEN, OUTPUT);
  pinMode(YELLOW, OUTPUT);
  pinMode(RED, OUTPUT);
}

void loop()
{
  green_light();
  delay(DELAY_GREEN);
  yellow_light();
  delay(DELAY_YELLOW);
  red_light();
  delay(DELAY_RED);
}

void green_light()
{
  digitalWrite(GREEN, HIGH);
  digitalWrite(YELLOW, LOW);
  digitalWrite(RED, LOW);
}

void yellow_light()
{
  digitalWrite(GREEN, LOW);
  digitalWrite(YELLOW, HIGH);
  digitalWrite(RED, LOW);
}

void red_light()
{
  digitalWrite(GREEN, LOW);
  digitalWrite(YELLOW, LOW);
  digitalWrite(RED, HIGH);
}
```

LUCRAREA 3 - Robot Line Follower

Scopul lucrării: Realizarea unui robot, utilizând o placă Arduino, care să urmărească o dungă neagră, utilizând doi senzori de linie.

Material:



Arduino Nano R3

x 1



Breadboard (generic)

x 1



4xAA battery holder

x 1



Jumper wires (generic)

x 1



Slide Switch

x 1



DC Motor, 12 V

x 2



Digilent IR Range Sensor

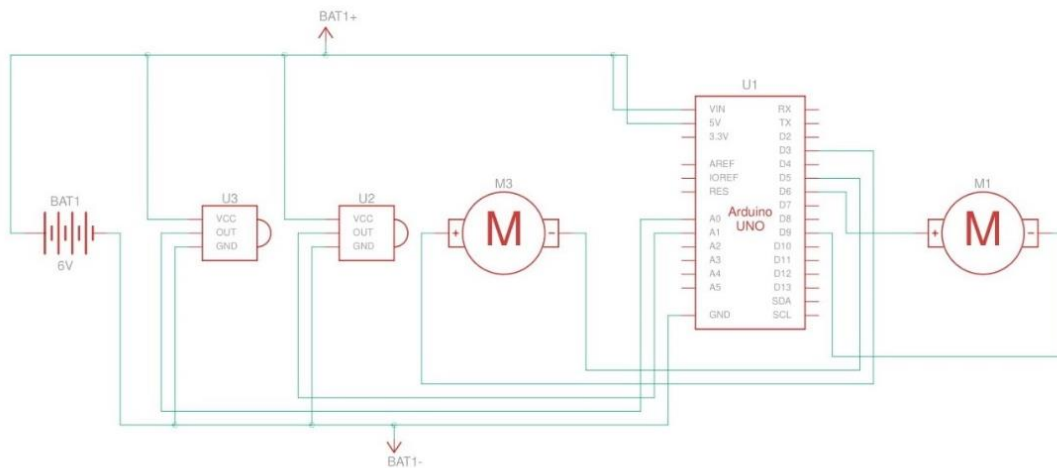
x 2



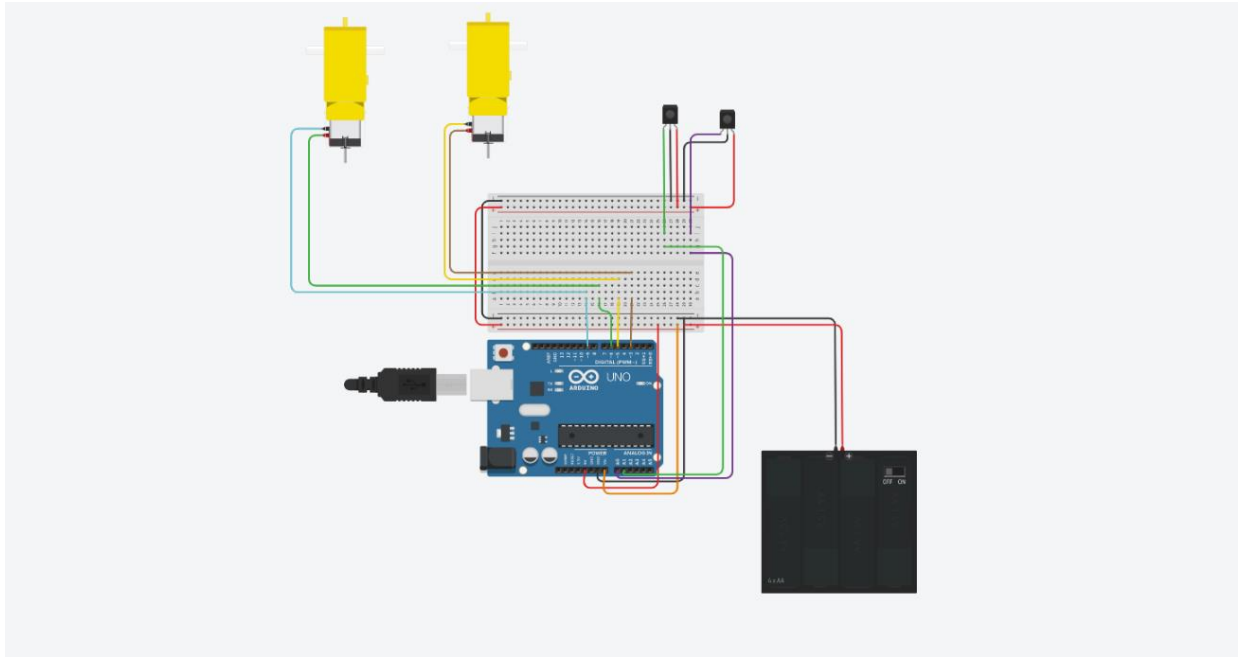
Motor Driver/Controller, H-Bridge

x 1

Schema electrică:



Montaj:



Cod:

```
int LM1 = 3, LM2 = 5, RM2 = 6, RM1 = 9;
int fwdspeed = 160;
int turnspeed = 200;

void setup() {
  pinMode(A0, INPUT);
  pinMode(A1, INPUT);

  pinMode(LM1, OUTPUT);
  pinMode(LM2, OUTPUT);
  pinMode(RM1, OUTPUT);
  pinMode(RM2, OUTPUT);
  Serial.begin(9600);
}

void loop() {
  int senz2 = digitalRead(A0);
  int senz1 = digitalRead(A1);

  if (senz1 == LOW && senz2 == HIGH) {
    analogWrite(LM1, turnspeed);
    analogWrite(LM2, 0);
    analogWrite(RM1, 0);
    analogWrite(RM2, turnspeed);
  } else if (senz1 == HIGH && senz2 == LOW) {
    analogWrite(LM1, 0);
    analogWrite(LM2, turnspeed);
    analogWrite(RM1, turnspeed);
    analogWrite(RM2, 0);
  }
}
```

```
} else {  
  analogWrite(LM1, fwdspeed);  
  analogWrite(LM2, 0);  
  analogWrite(RM1, fwdspeed);  
  analogWrite(RM2, 0);  
}  
  
}
```