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+.

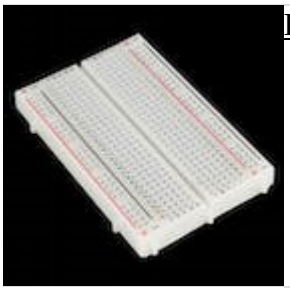
NUMELE:

IACINSCHI SEBASTIAN

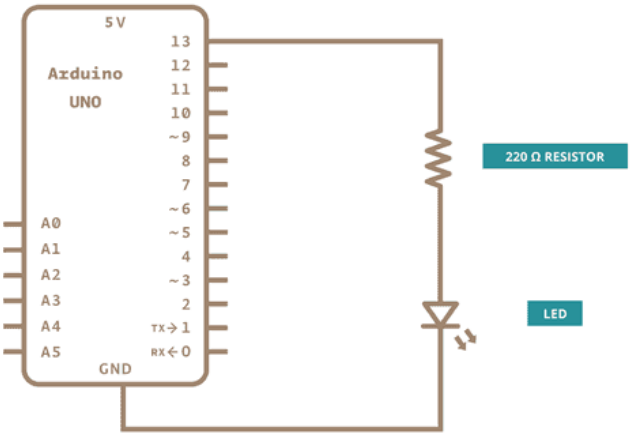
LUCRAREA 1 – Blinking LED

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

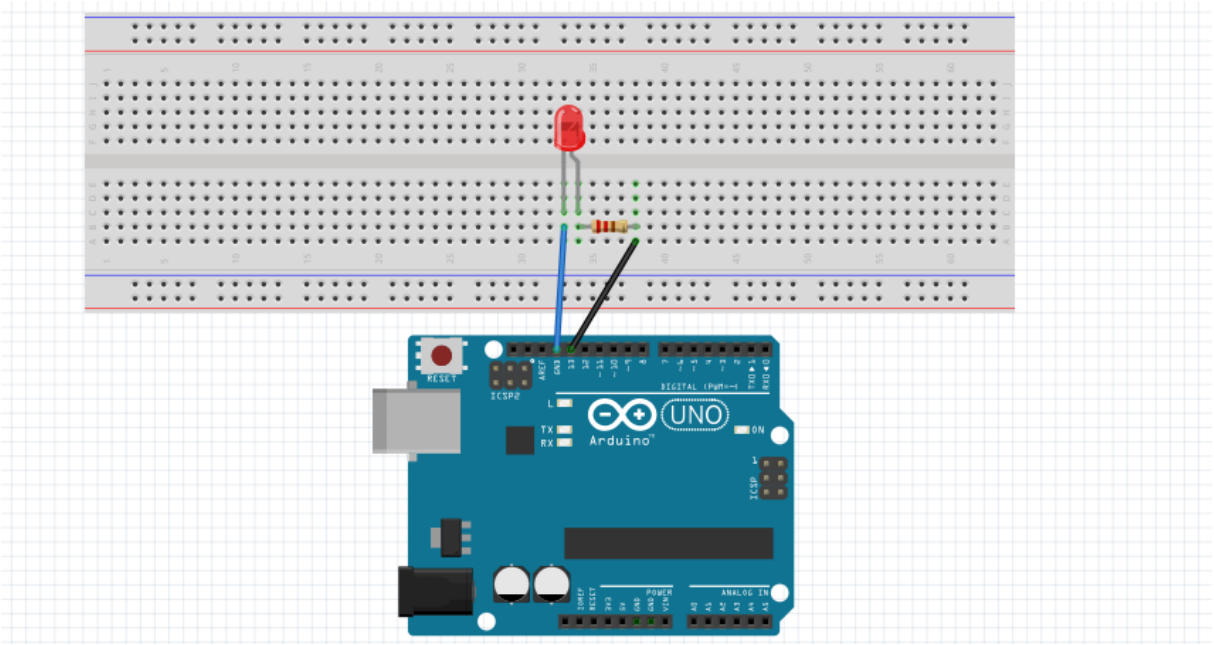
Materiale:

	Arduino UNO	×	1
	Breadboard (generic)	×	1
	LED (generic)	×	1
	Conductori	×	1
	Rezistență de 220 ohm	×	1

Schema electrică:



Montaj:



Cod:

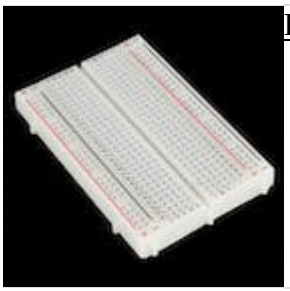
```
void setup() {
  // initializarea pinului 13
  pinMode(13, OUTPUT);
}

void loop() {
  digitalWrite(13, HIGH);
  delay(1000);
```

```
  digitalWrite(13, LOW);
  delay(1000);
}
```

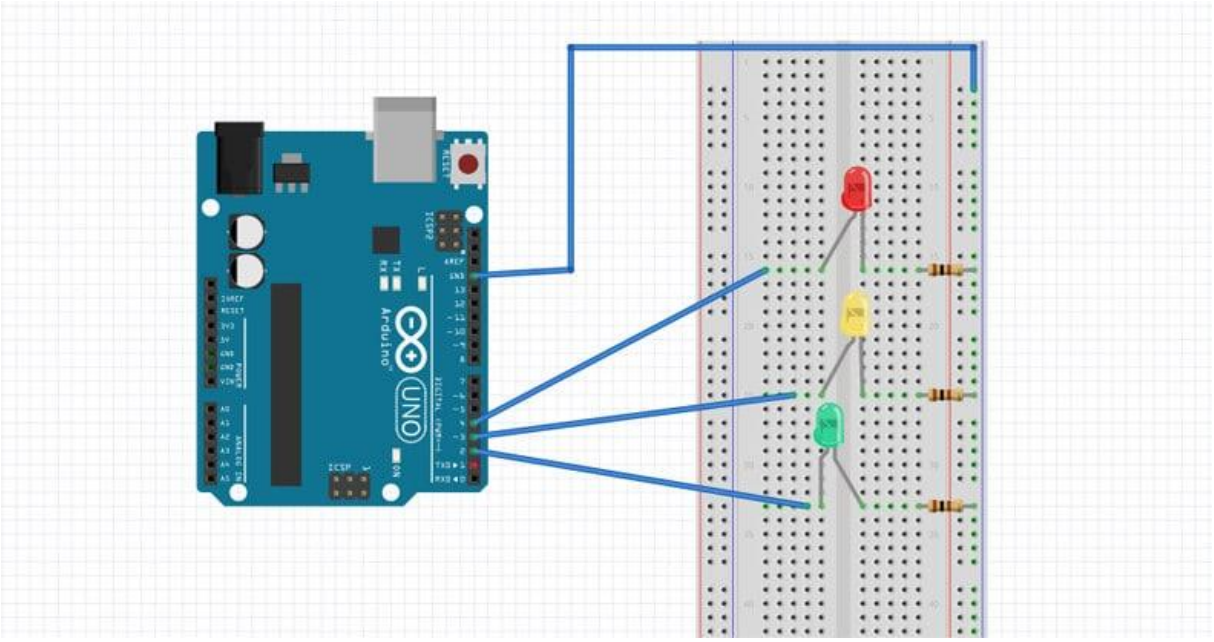
LUCRAREA 2 - SEMAFOR

SCOPUL LUCRARII:Construirea unui montaj cu 3 led-uri(verde,galben,rosu)care să se aprinda fiecare concomitent pentru o anumita durata.

Materiale:

	Arduino UNO	×	1
	Breadboard (generic)	×	1
	LED (generic)	×	3
	Conductori	×	1
	Rezistență de 220 ohm	×	1

SCHEMA ELECTRICA



COD :

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


// basic functions
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); }
```

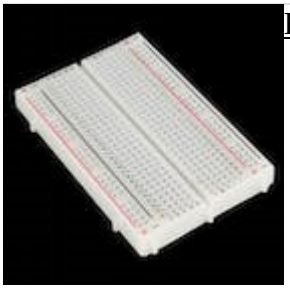
LUCRAREA 3– CONSTRUCTING YOUR OWN ROBOT

Scopul lucrarii: Construirea unui robot care sa urmărească o linie neagră.

Materiale:

Arduino UNO

× 1

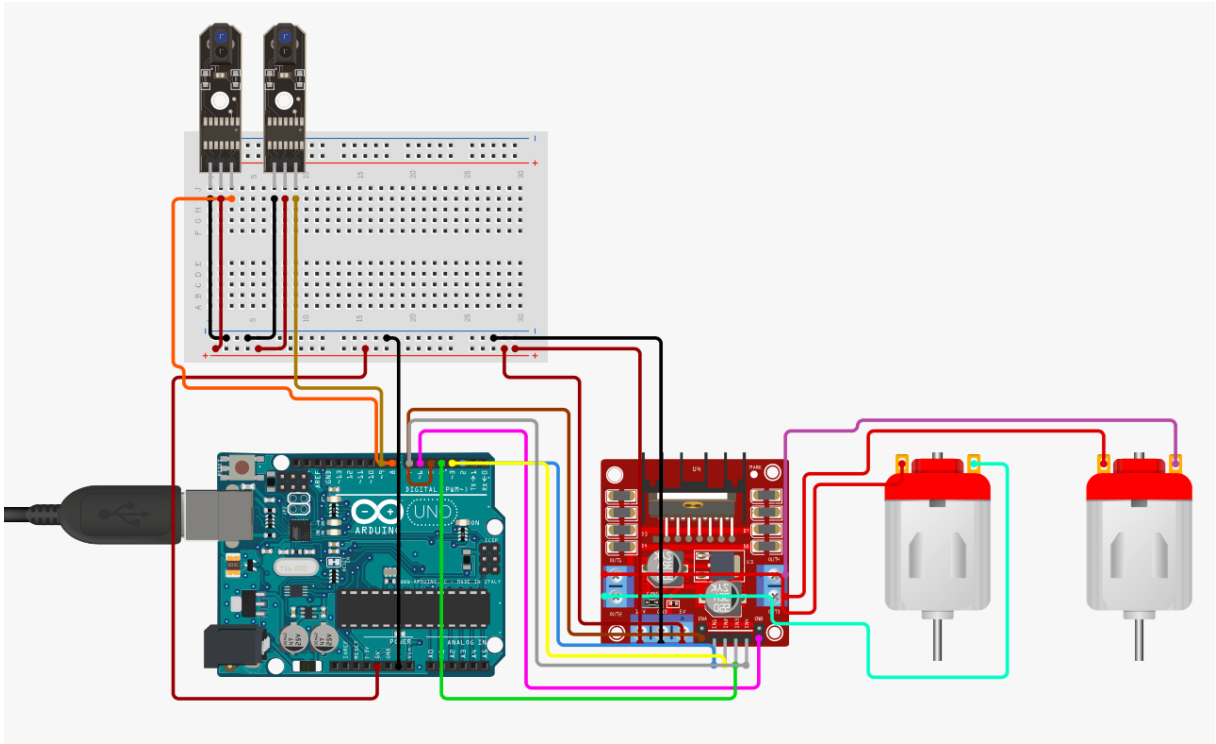


Breadboard (generic)

× 1

	Motor driver	x	1
	Conductori	×	1
	Motor	x	2
	Baterii	x	4
	Rotile	x	2
	Senzori	x	2

Schema electrică + montaj



COD:

```
int LM1 = 3, LM2 = 5, RM2 = 6, RM1 = 9;
int sp1= 160;
int sp2= 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, sp2);
    analogWrite(LM2, 0);
    analogWrite(RM1, 0);
    analogWrite(RM2, sp2);
  } else if (senz1 == HIGH && senz2 == LOW) {
    analogWrite(LM1, 0);
    analogWrite(LM2, sp2);
    analogWrite(RM1, sp2);
    analogWrite(RM2, 0);
  } else {
    analogWrite(LM1, sp1);
    analogWrite(LM2, 0);
    analogWrite(RM1, sp1);
    analogWrite(RM2, 0);
  }
}
```