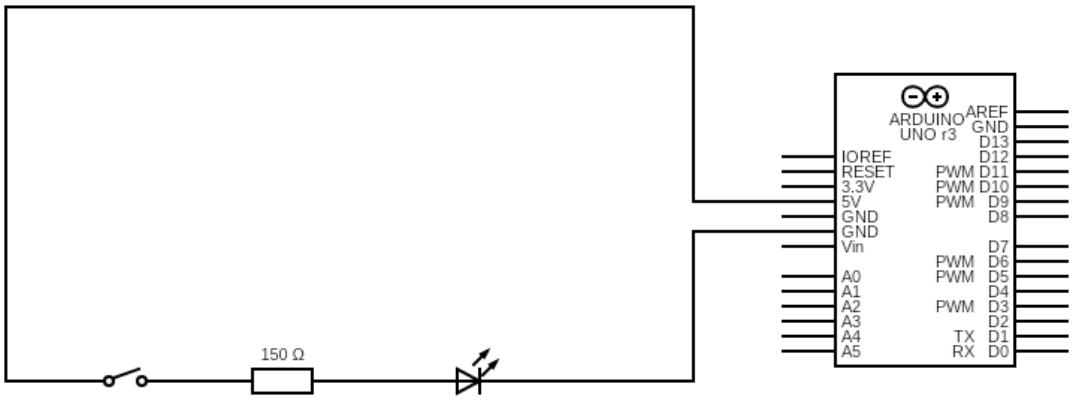
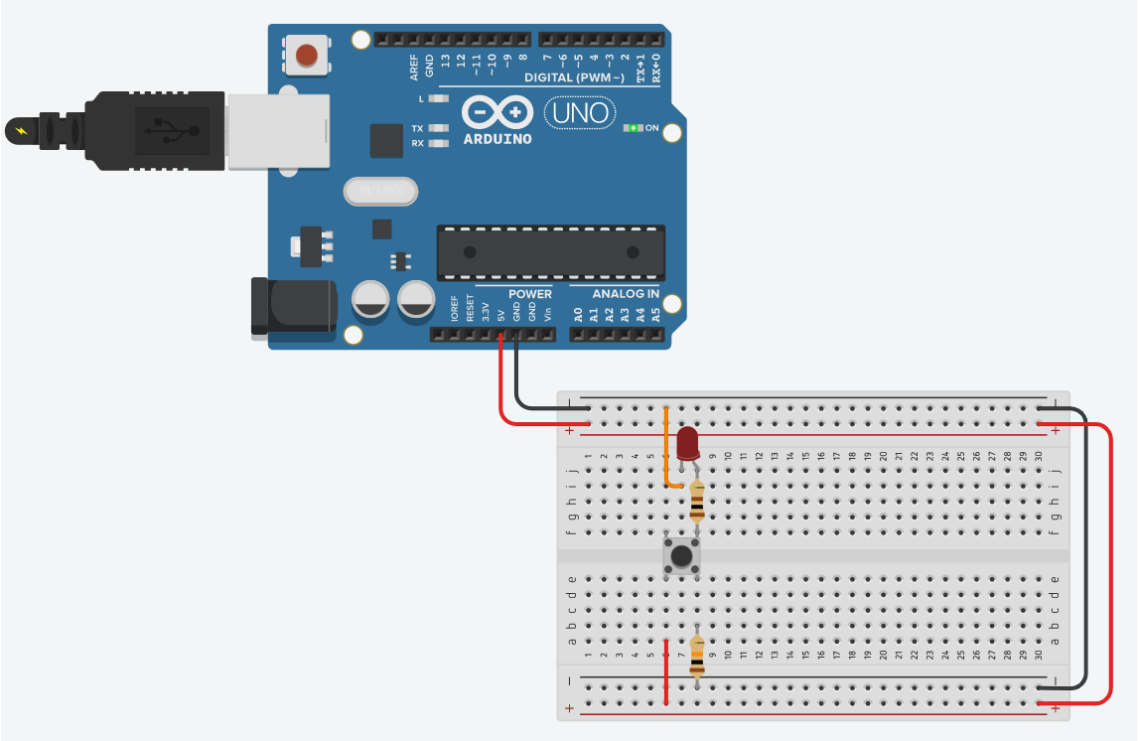
Lab. 2 de Microprocessadores e Sistemas Embebidos

PARTE 1

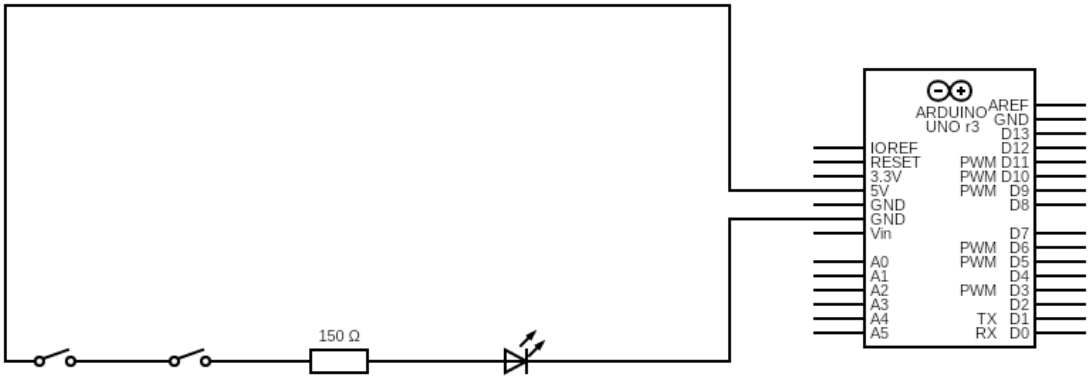
Alunos: André Silva, Gabriel Medeiros, Rui Correia

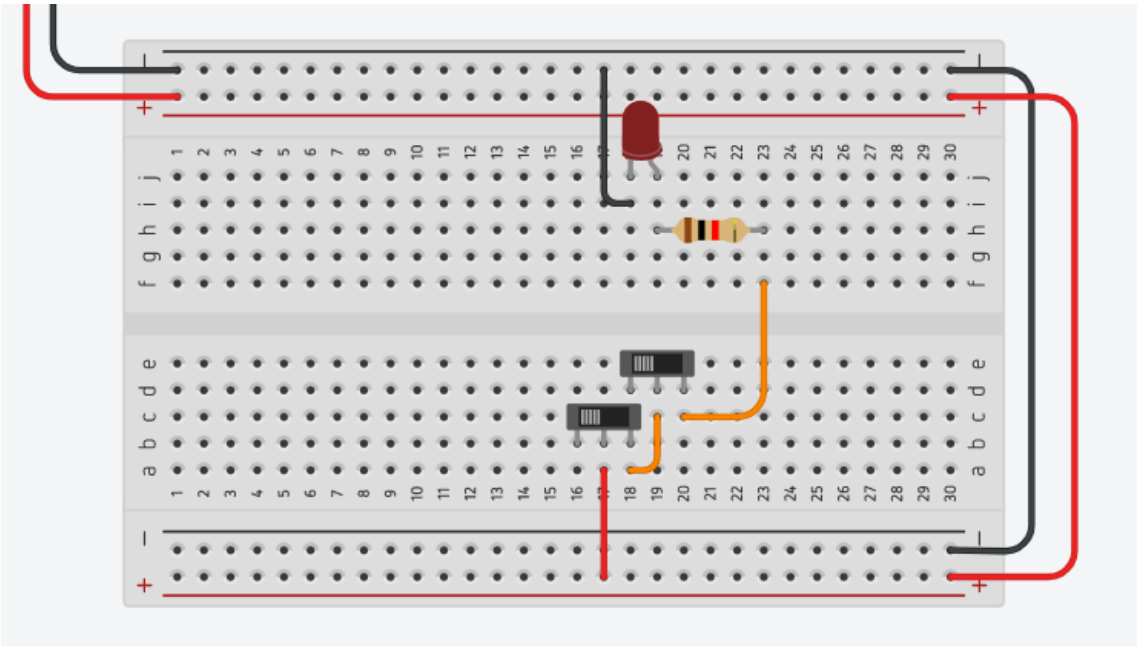
1 – LED com Botão



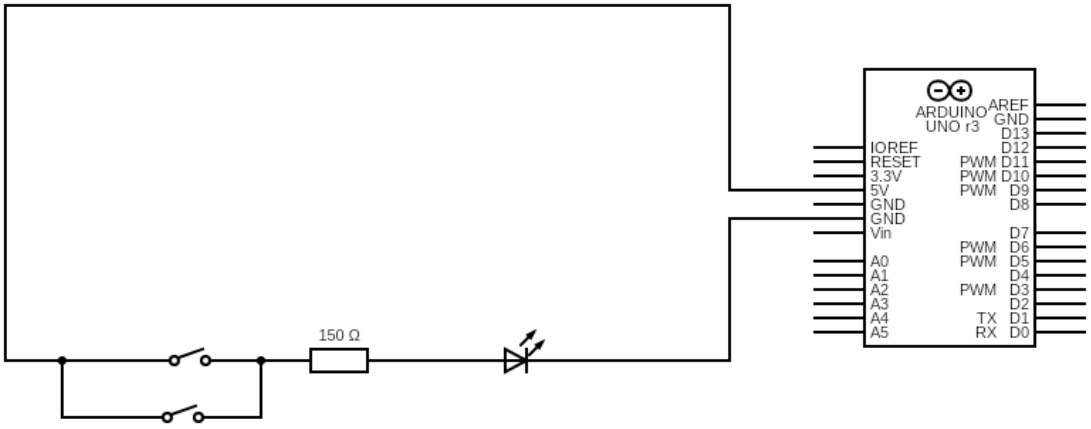


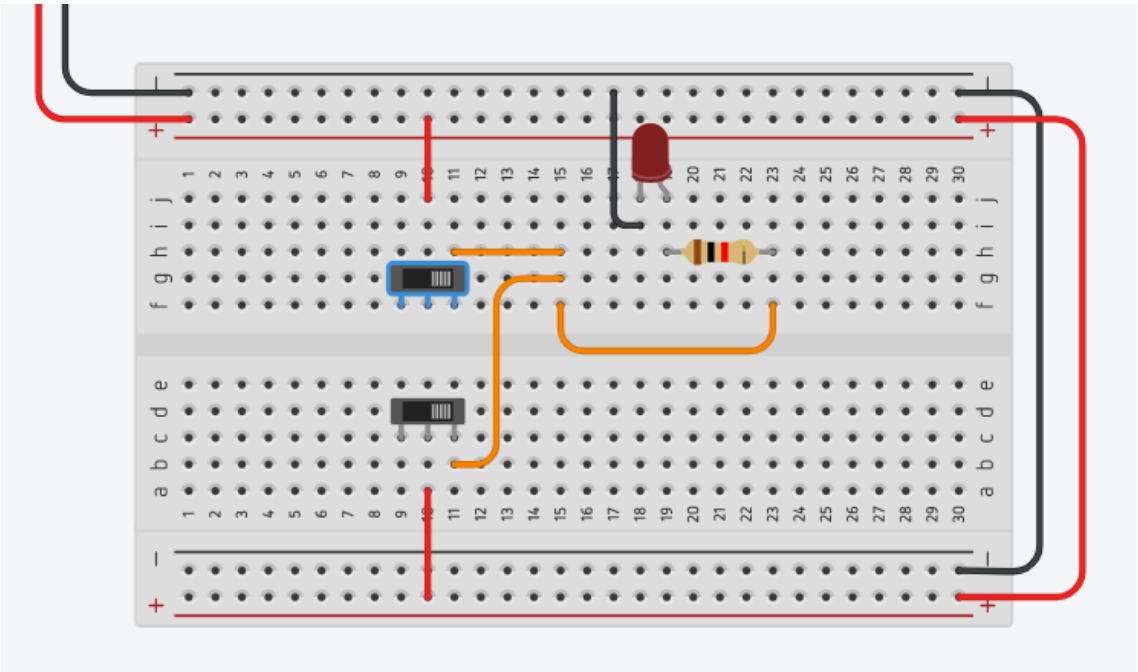
2 – PORTA AND


150 Ω
ARDUINO
UNO r3
AREF
GND
D13
D12
D11
D10
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
IOREF
RESET
3.3V
5V
GND
GND
Vin
A0
A1
A2
A3
A4
A5
PWM
TX
RX



3 – PORTA OR

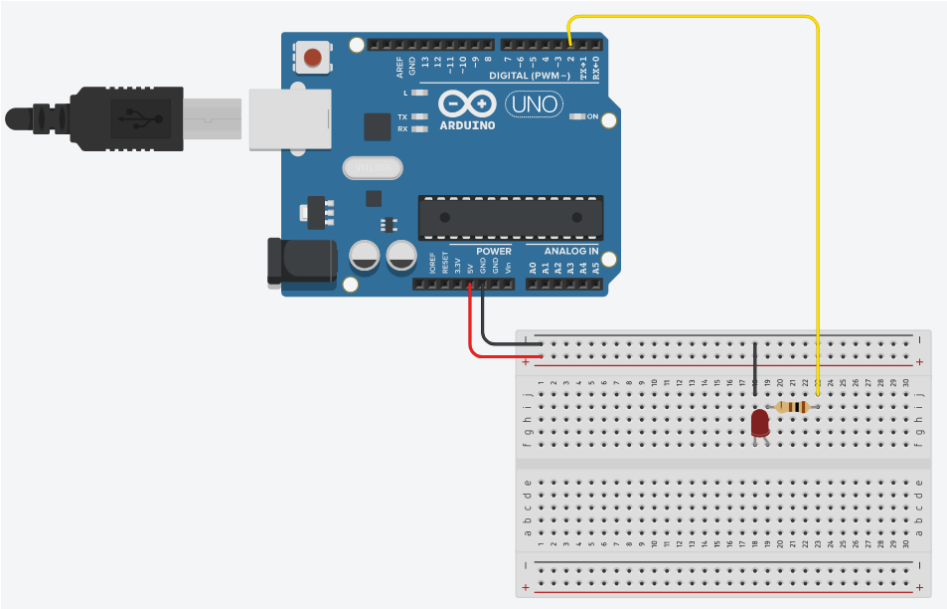

150 Ω
ARDUINO
UNO r3
AREF
GND
D13
D12
D11
D10
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
IOREF
RESET
3.3V
5V
GND
GND
Vin
A0
A1
A2
A3
A4
A5
PWM
TX
RX

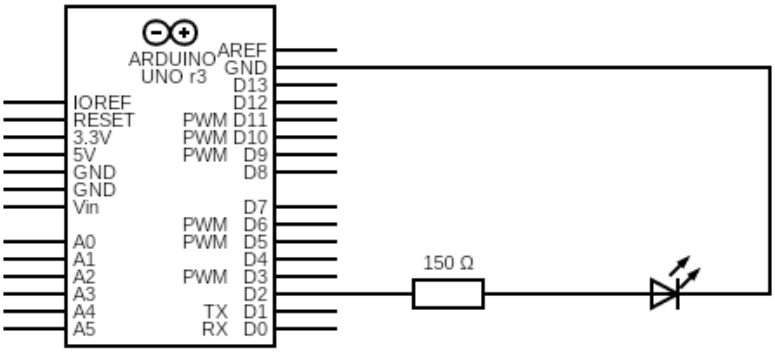


PARTE 2

1 –

A)



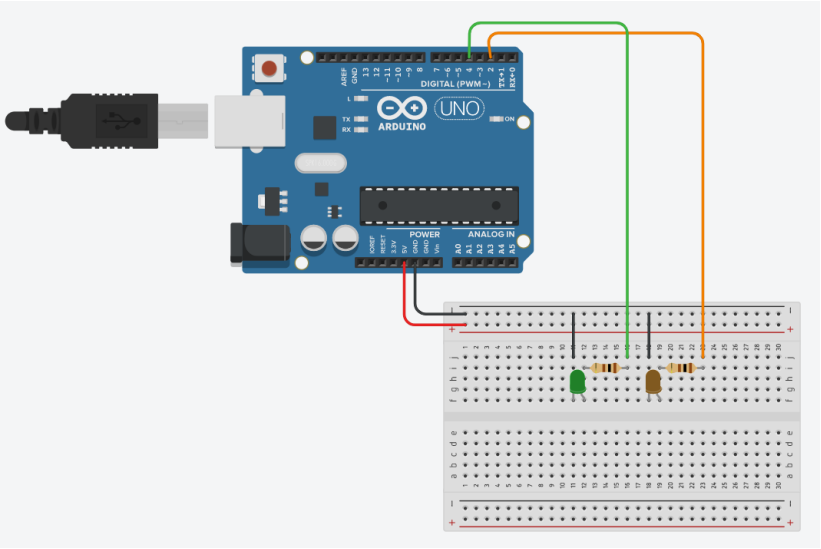


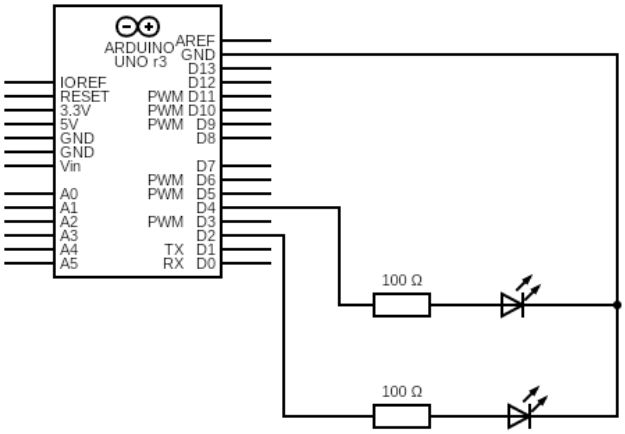
$$T = \frac{1}{F} = \frac{1}{1} = 1s = 1000ms$$

```
#define LED_PIN 2 //Define o pino 2 como LED_PIN

void setup() //Função executada somente uma vez
{
  pinMode(LED_PIN, OUTPUT); //Define o pino LED_PIN como saída
}

void loop() //Função executada infinitamente
{

  digitalWrite(LED_PIN, HIGH); //Liga o LED
  delay(500); //Espera 500ms
  digitalWrite(LED_PIN, LOW); //Desliga o LED
  delay(500); //Espera 500ms

}
```

B) A frequência máxima em que é possível visualizar o LED piscar é 10Hz (T = 100ms).

2 –





Frequência adotada: 7,14Hz

```
#define LED_PIN_1 2
#define LED_PIN_2 4

void setup()
{
  pinMode(LED_PIN_1, OUTPUT); //Define o LED1 como saída
  pinMode(LED_PIN_2, OUTPUT); //Define o LED2 como saída
}

void loop()
{

  //LED 1 fica ligado enquanto LED 2 fica desligado
  //Espera 70ms
  //LED 1 fica desligado enquanto LED 2 fica ligado
  //Espera 70ms

  digitalWrite(LED_PIN_1, HIGH);
  digitalWrite(LED_PIN_2, LOW);
  delay(70);
  digitalWrite(LED_PIN_1, LOW);
  digitalWrite(LED_PIN_2, HIGH);
  delay(70);

}
```