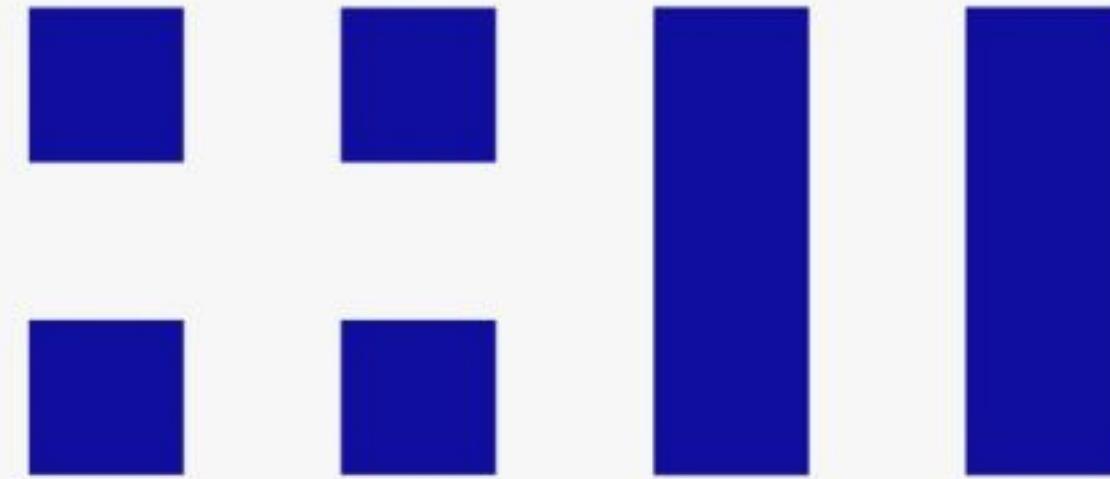
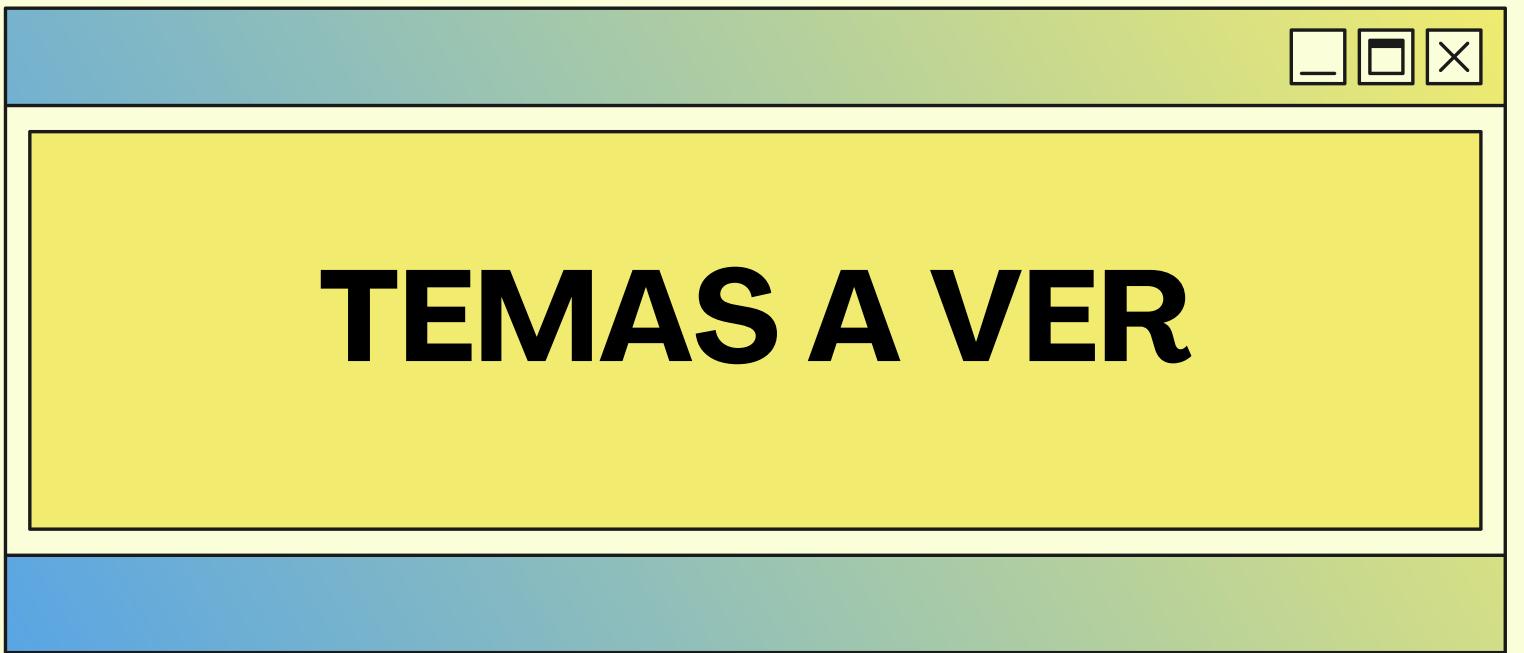


# TECLADOS CASEROS

**PARTE I:**  
**ARDUINO**



# FUNDACIÓN GABRIEL & MARY MUSTAKIS



- **Interfaces**
- **Descubriendo piezas y partes**
- **Introducción a ARDUINO**
- **Ejercicios introductorios**

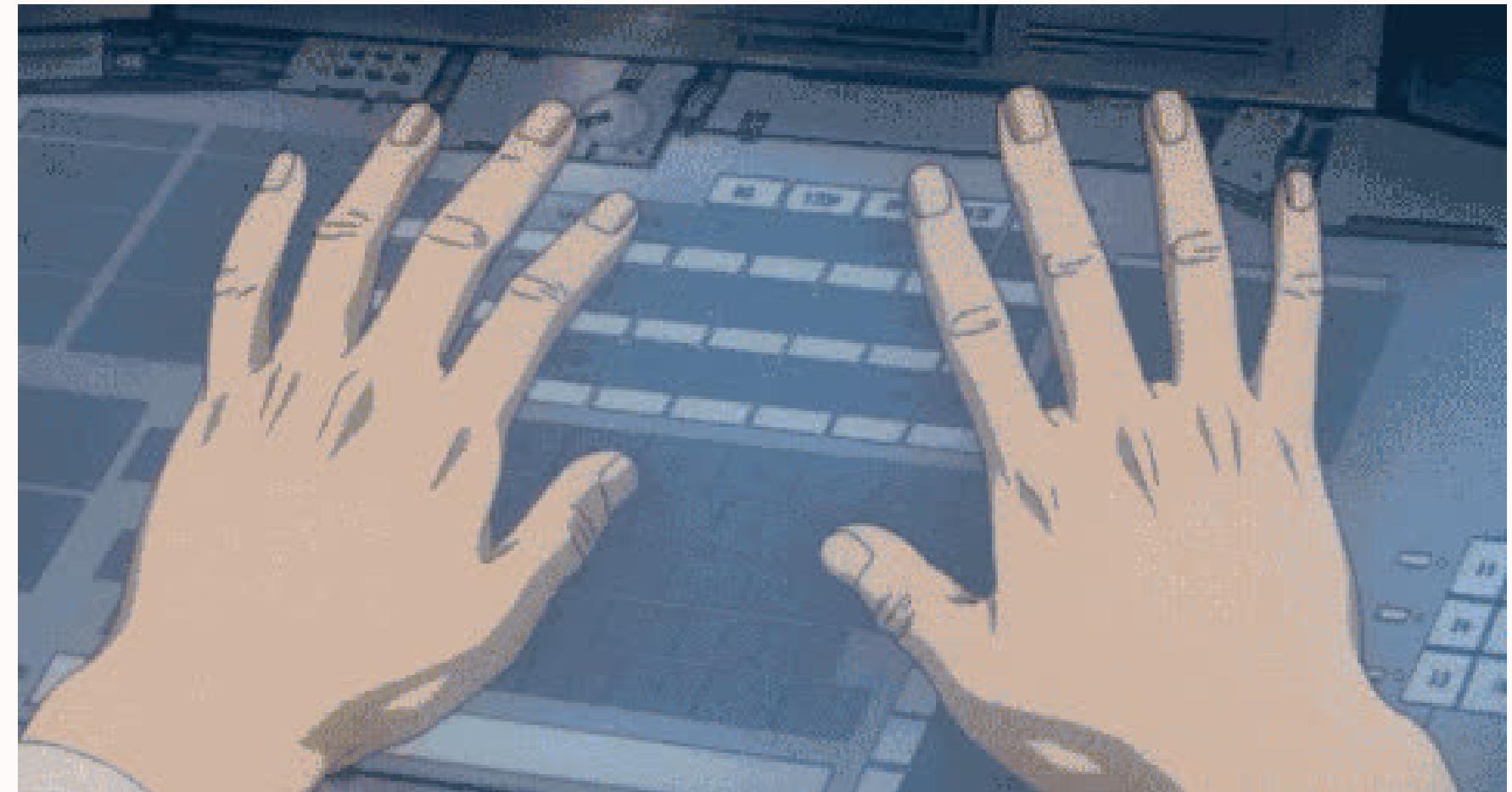


# TRACKBALL

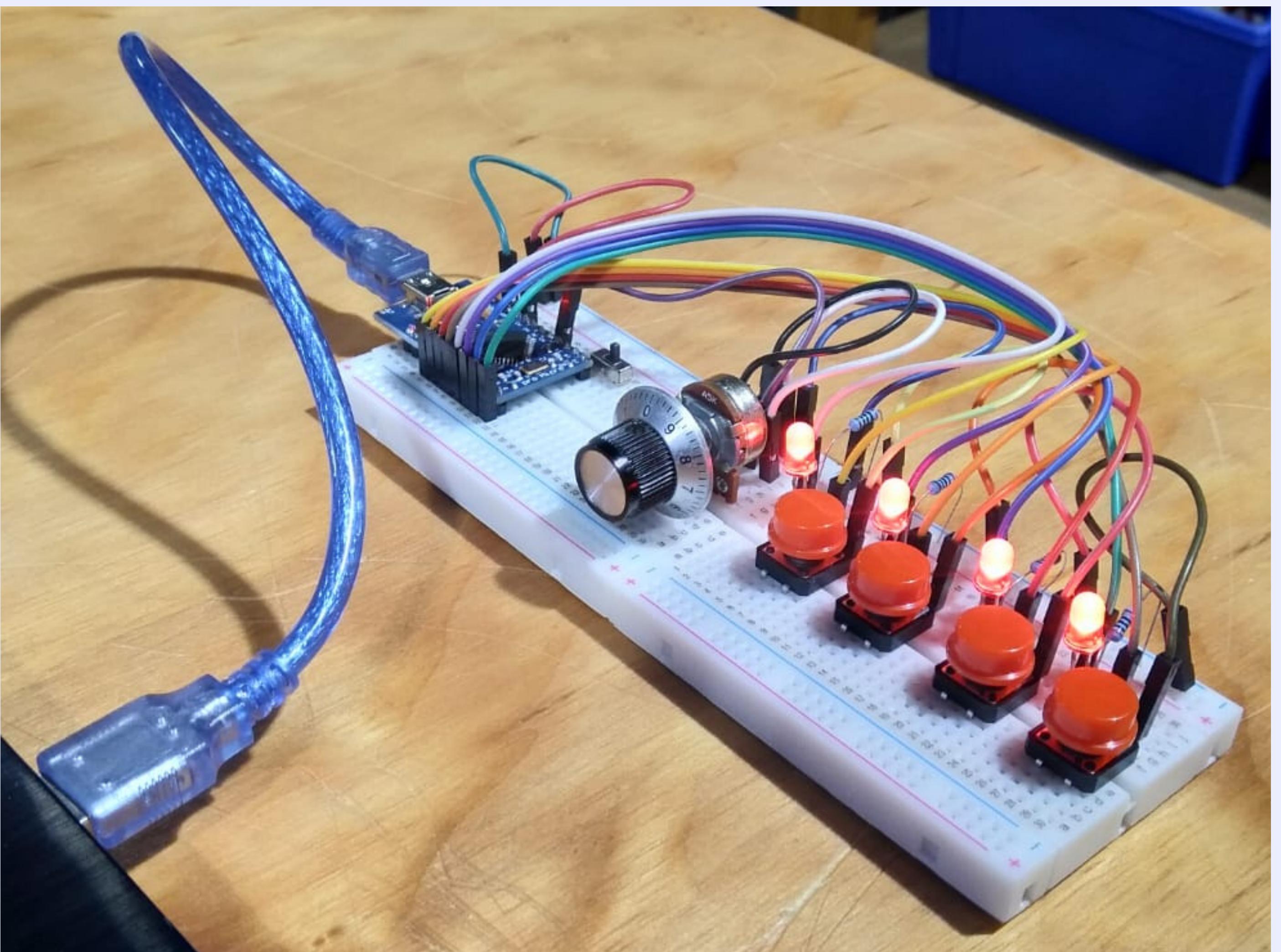




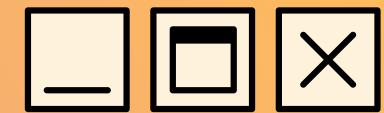
**"the matrix" - 1999**



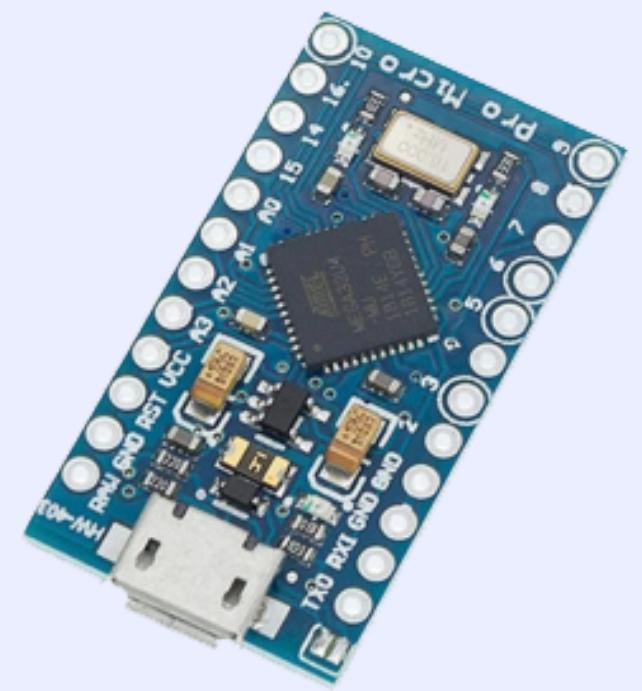
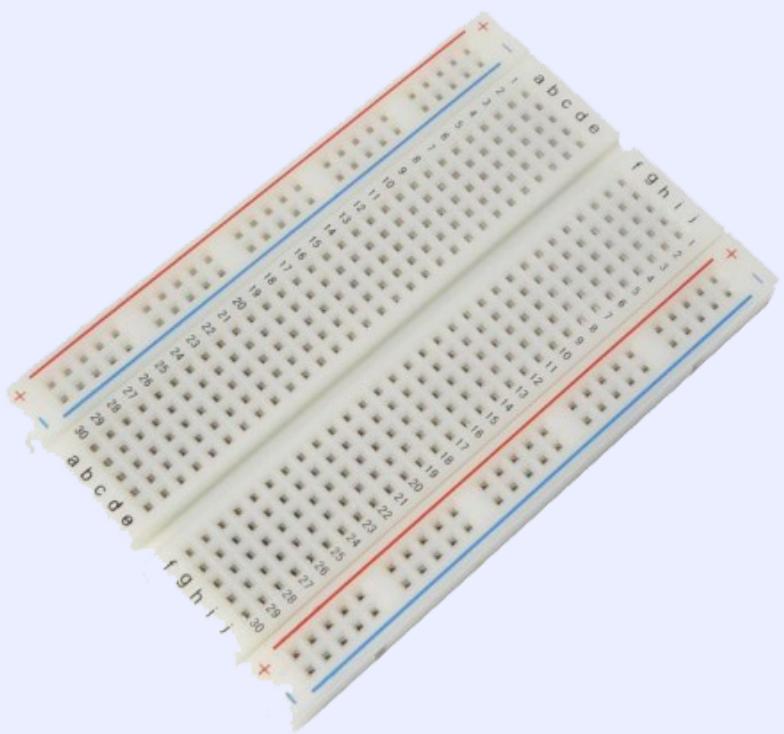
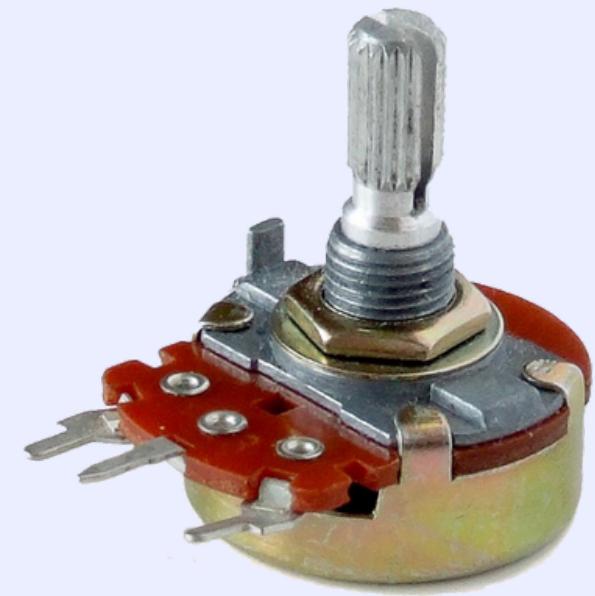
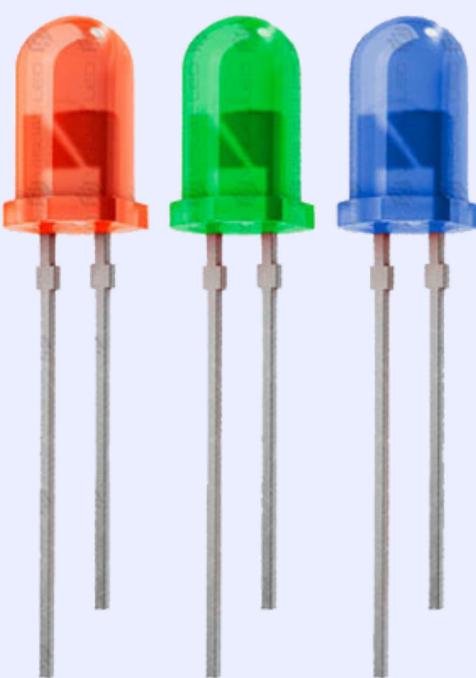
**"ghost in the shell" - 1995**



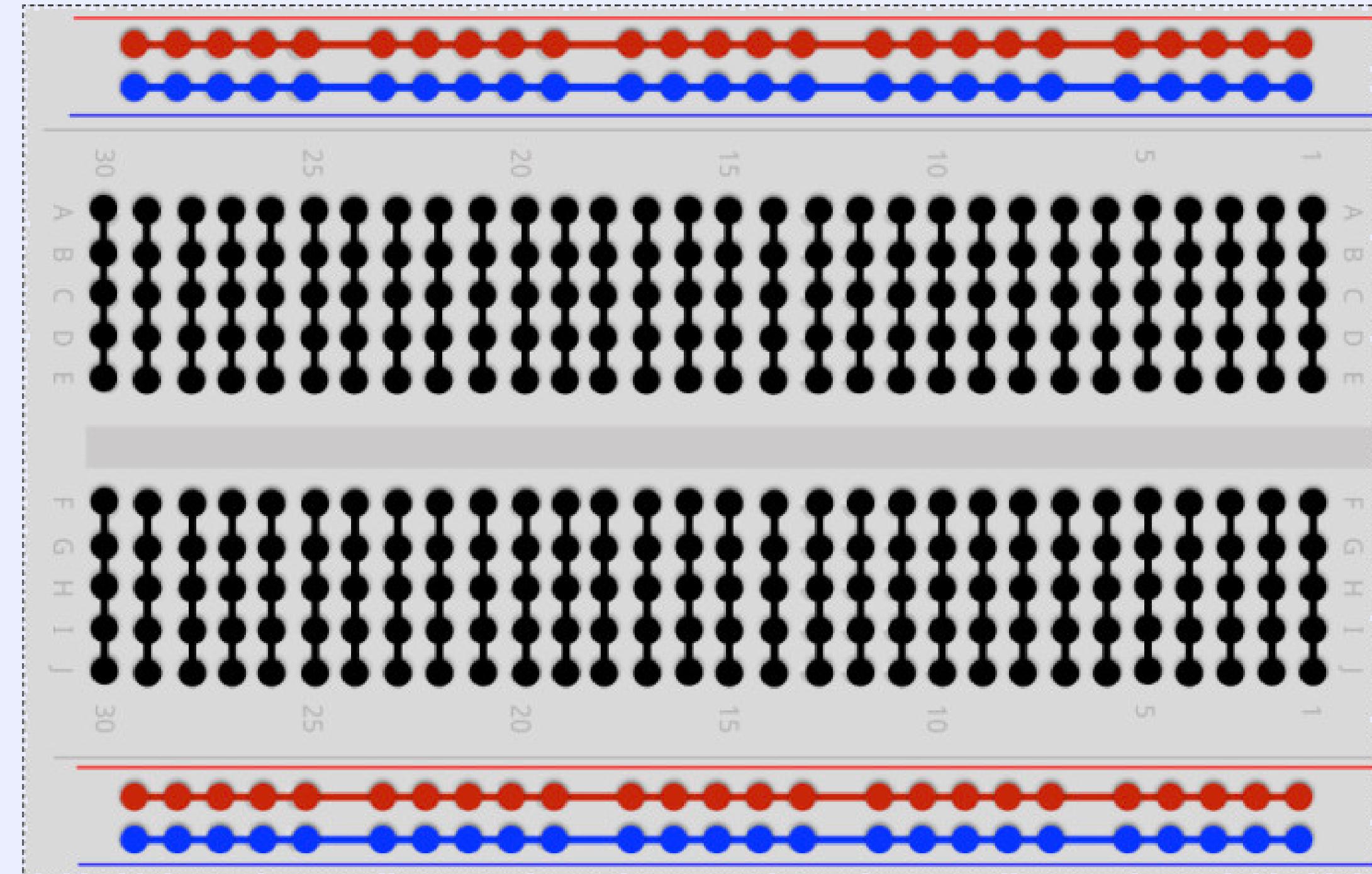
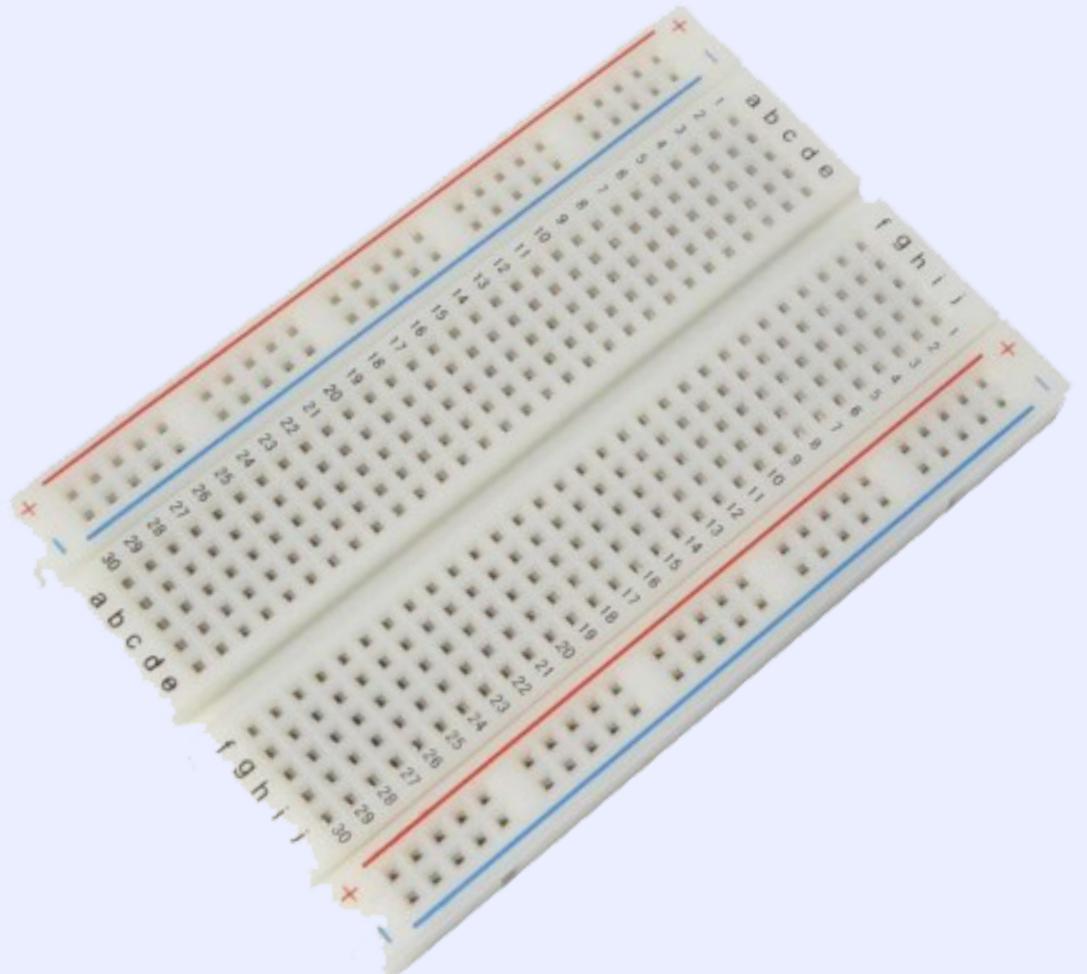
**¿POR QUÉ ESTAMOS  
HACIENDO UN  
TECLADO CASERO?**



# MATERIALES



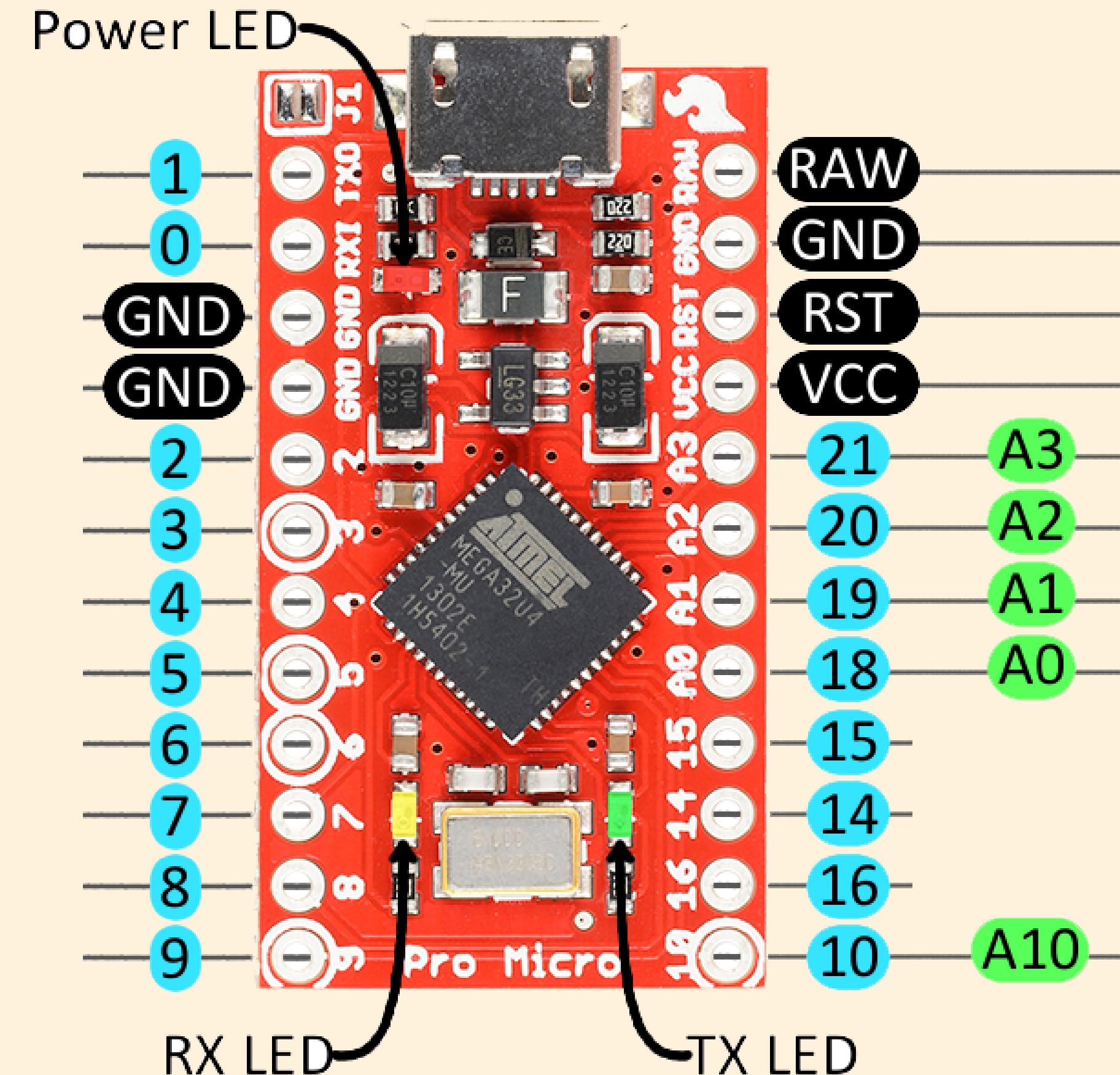
# PROTOBOARD





# TIPOS DE ENTRADA

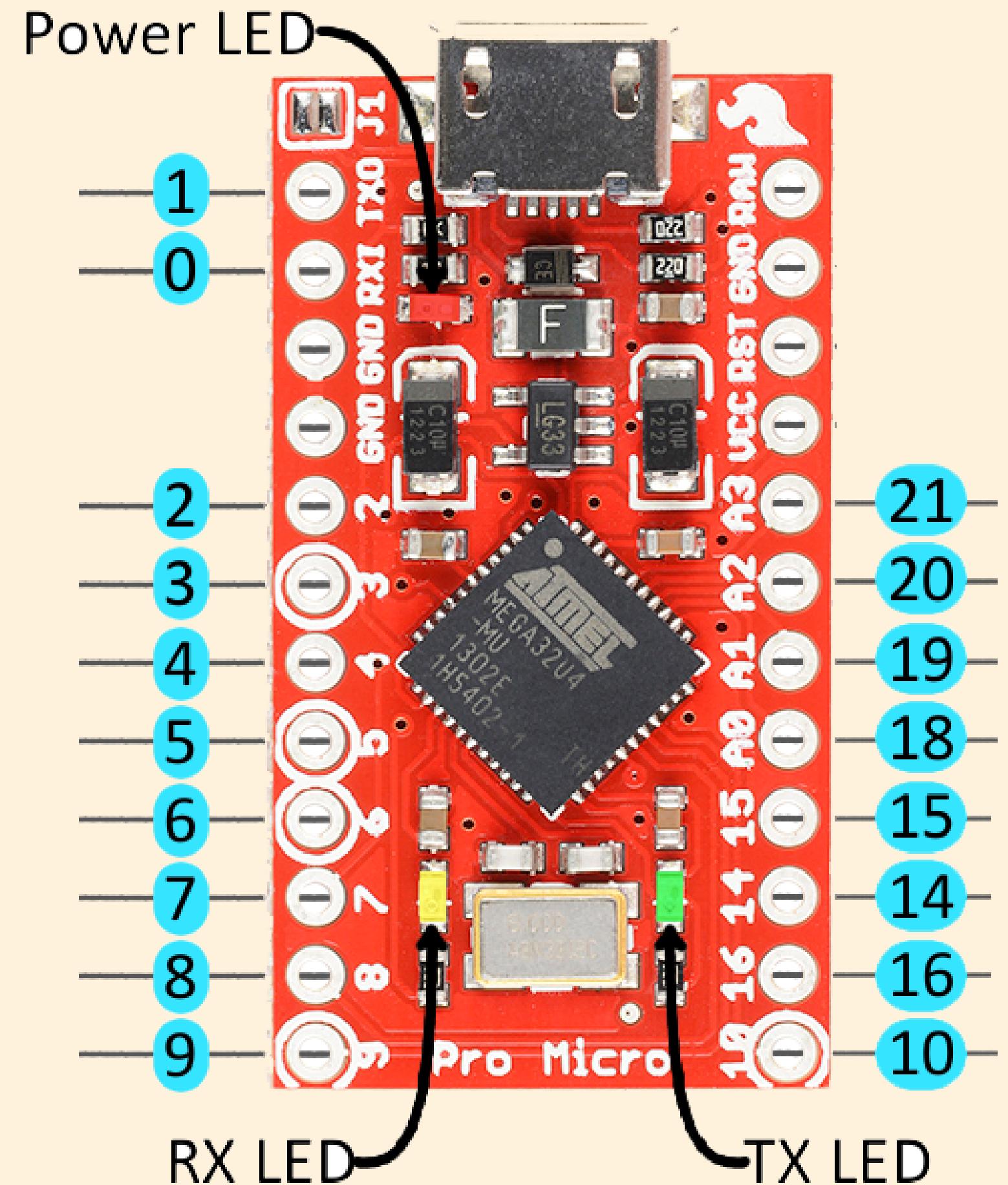
- DIGITALES
- ANALOGAS
- FUENTES DE PODER





**Entradas que reciben o  
emiten valores:**

- 0 o 1
- Apagado o Encendido
- Desactivado o Activado

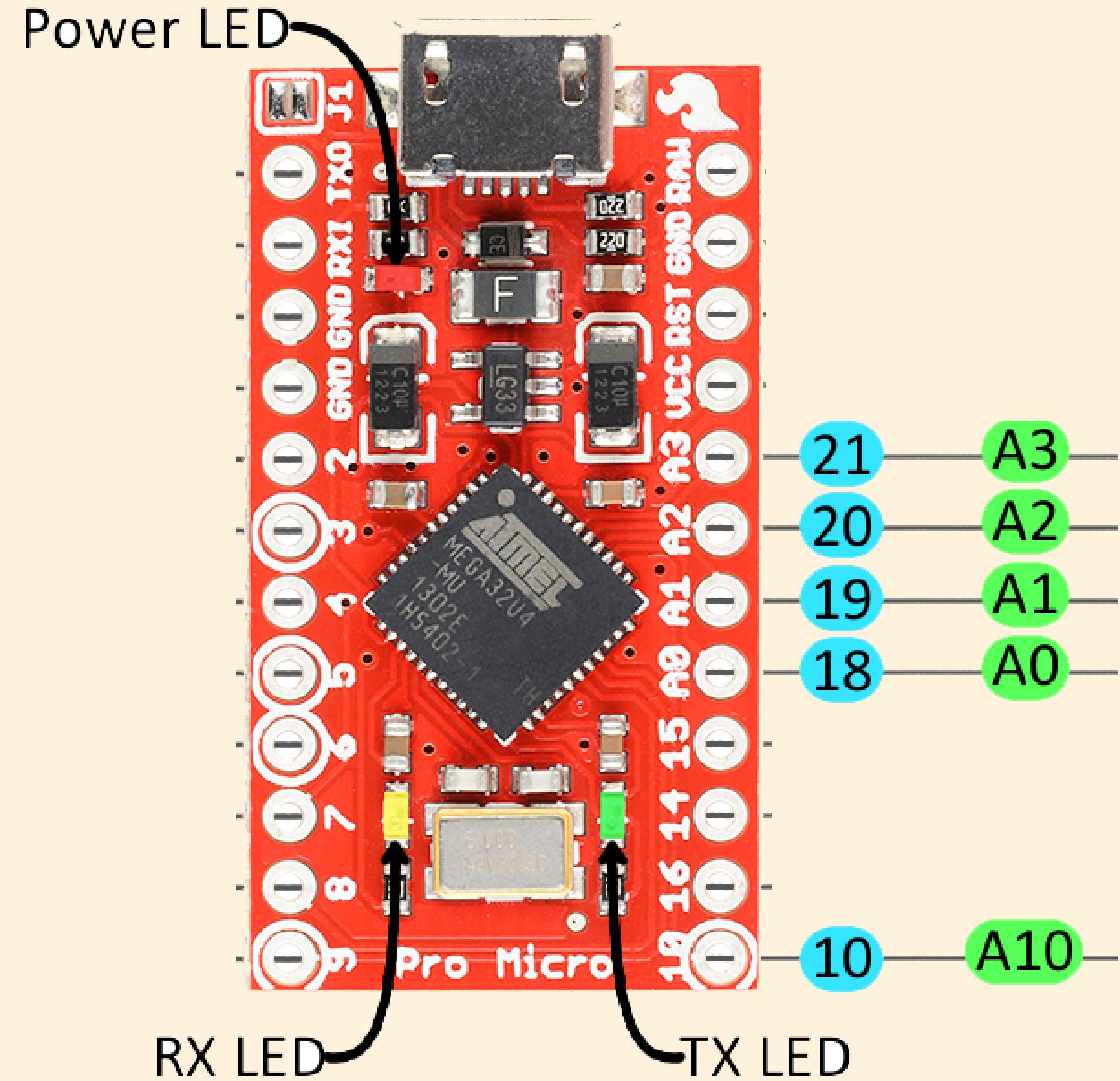


# ENTRADAS ANALOGICAS

Lee valores de tensión de 0 a  
5 v

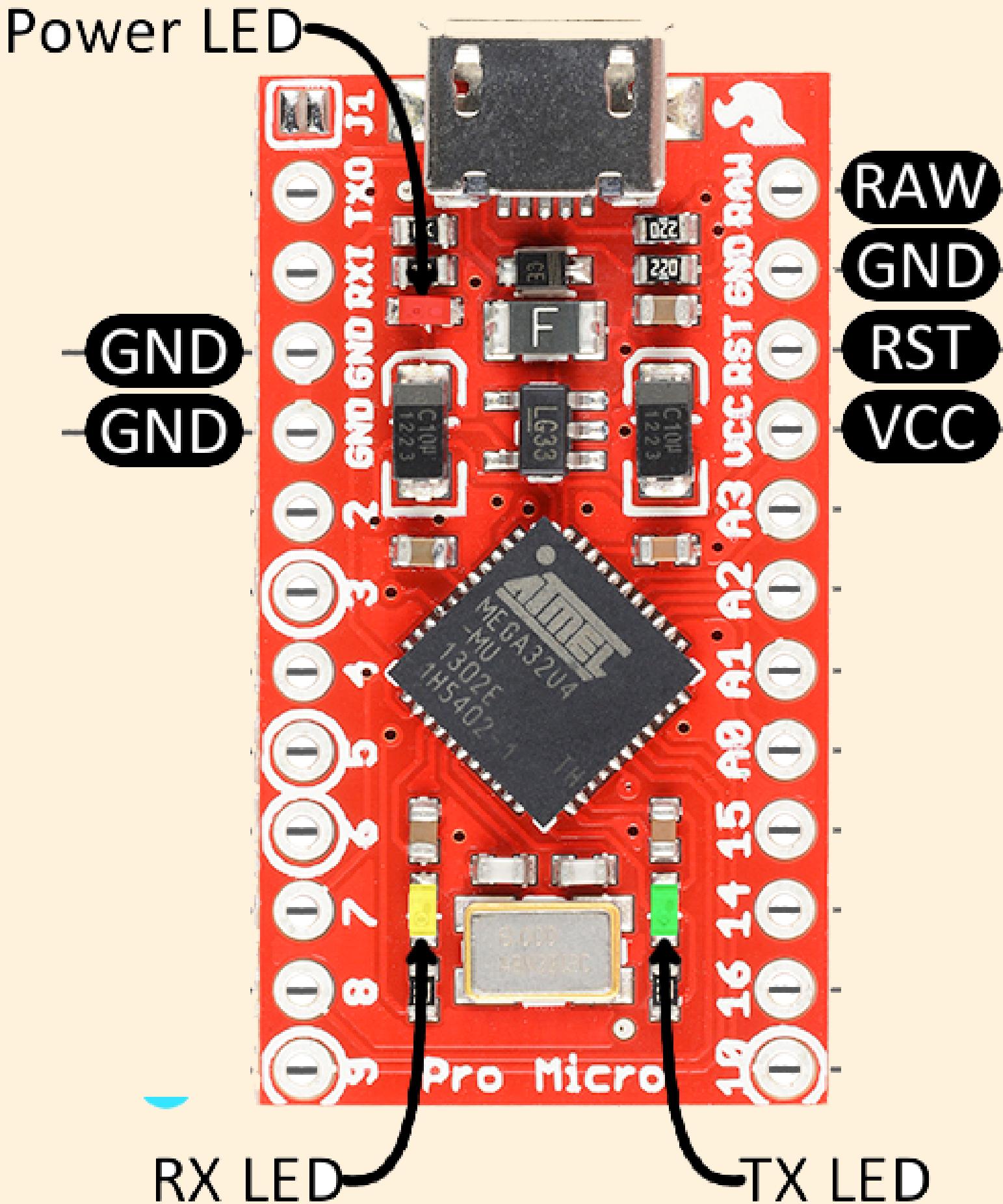
Un conversor análogo-digital transforma la lectura  
en un valor de 10 bits

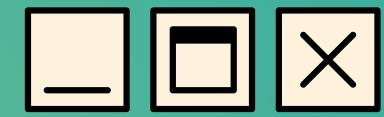
0 - 1023



# FUENTES DE PODER

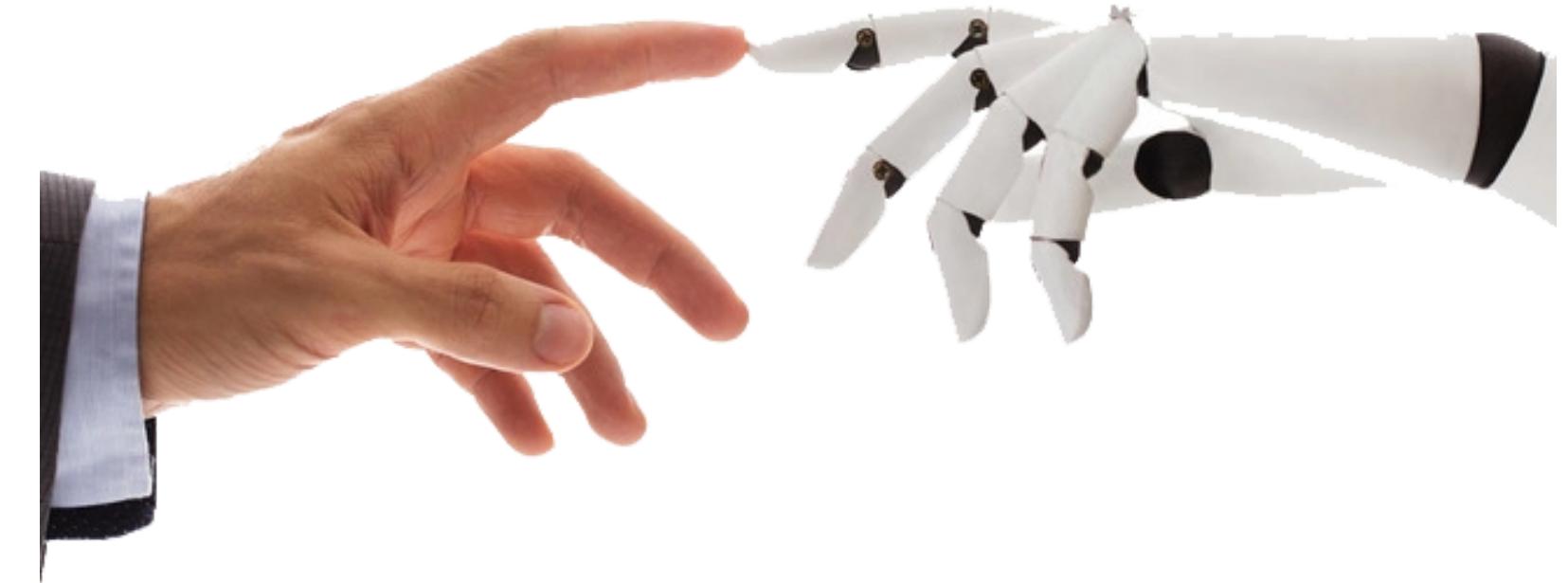
- **GND:** Tierra o corriente negativa
- **VCC:** Fuente de 5v
- **RAW:** Alimentacion independiente
- **RST:** Reinicio del arduino

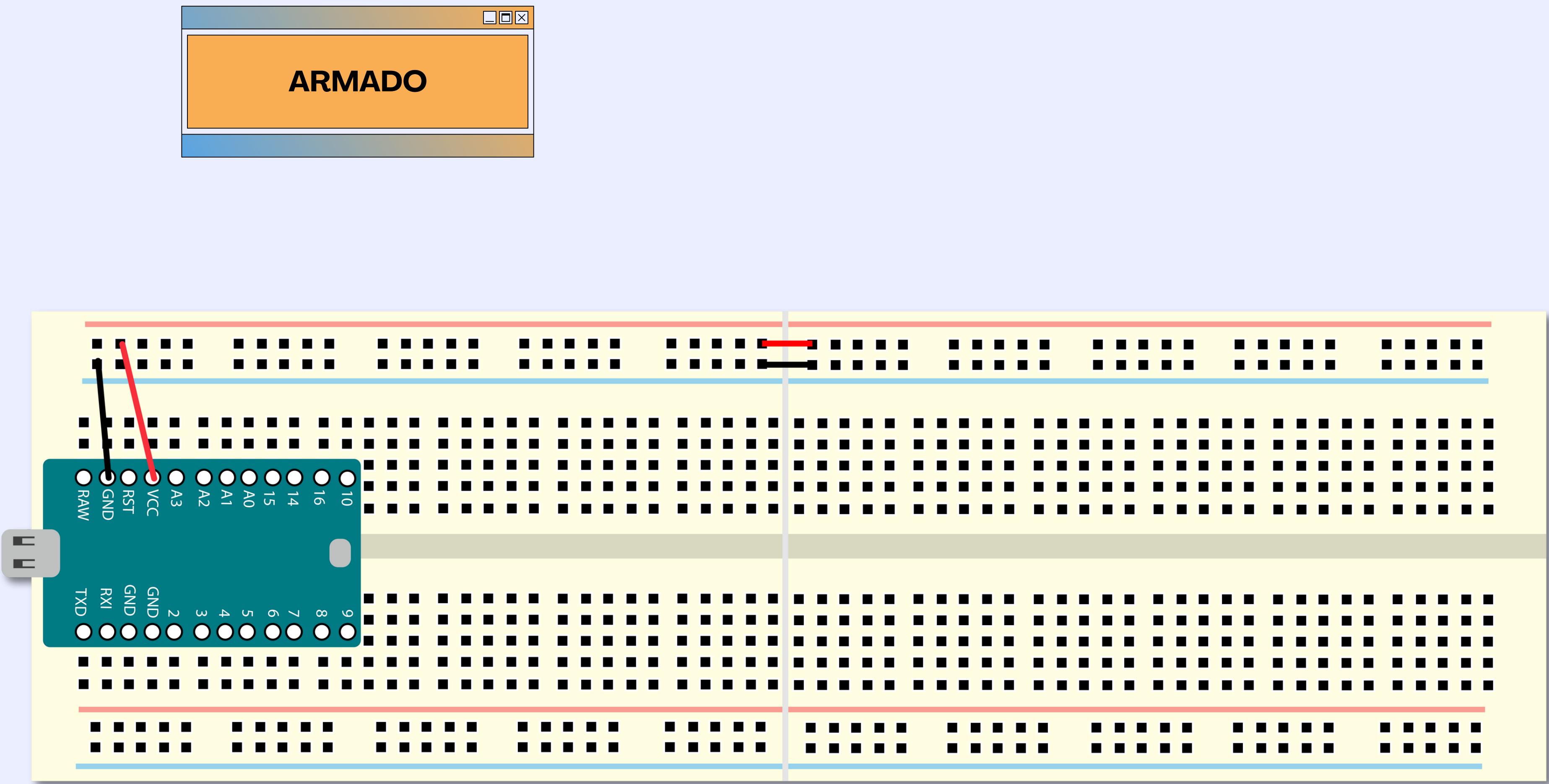




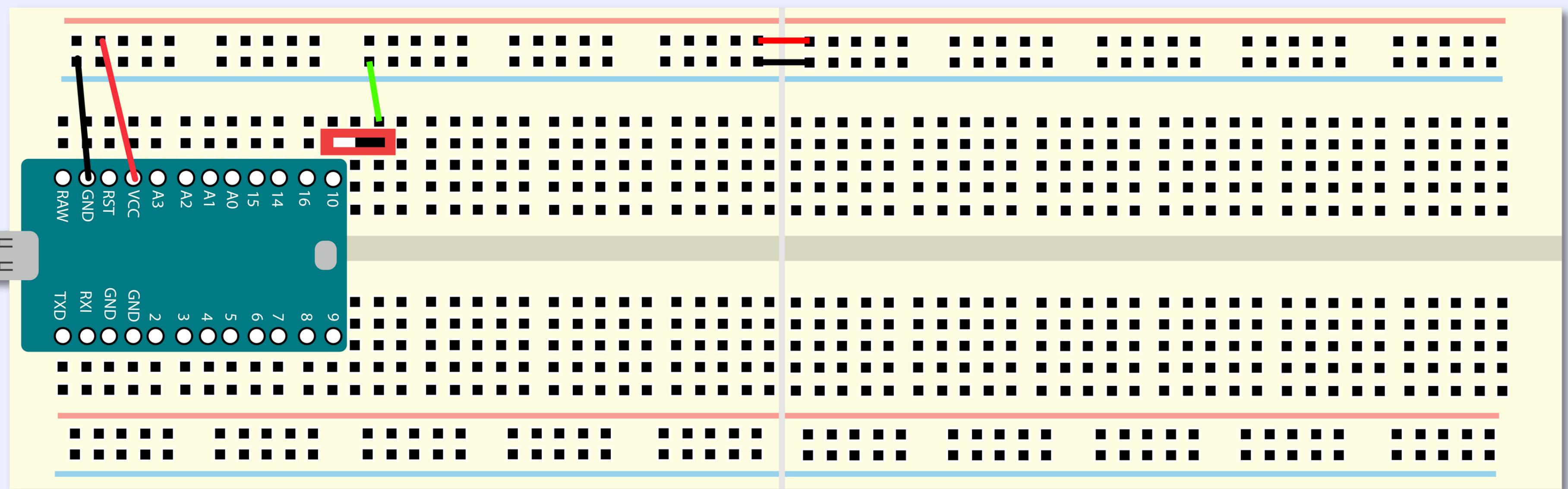
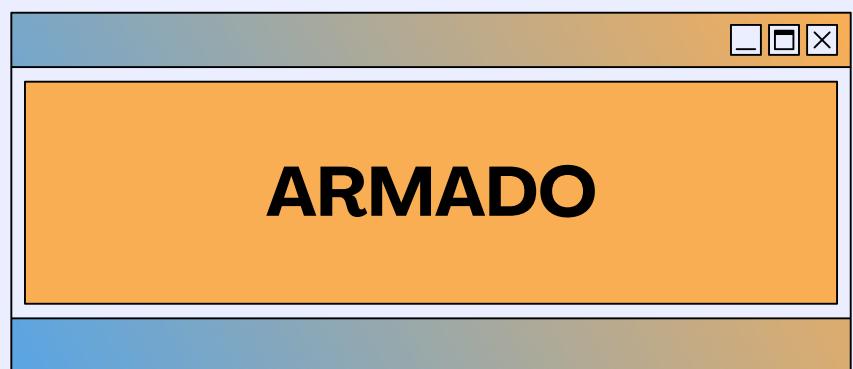
**ARMEMOS  
NUESTRO TECLADO**

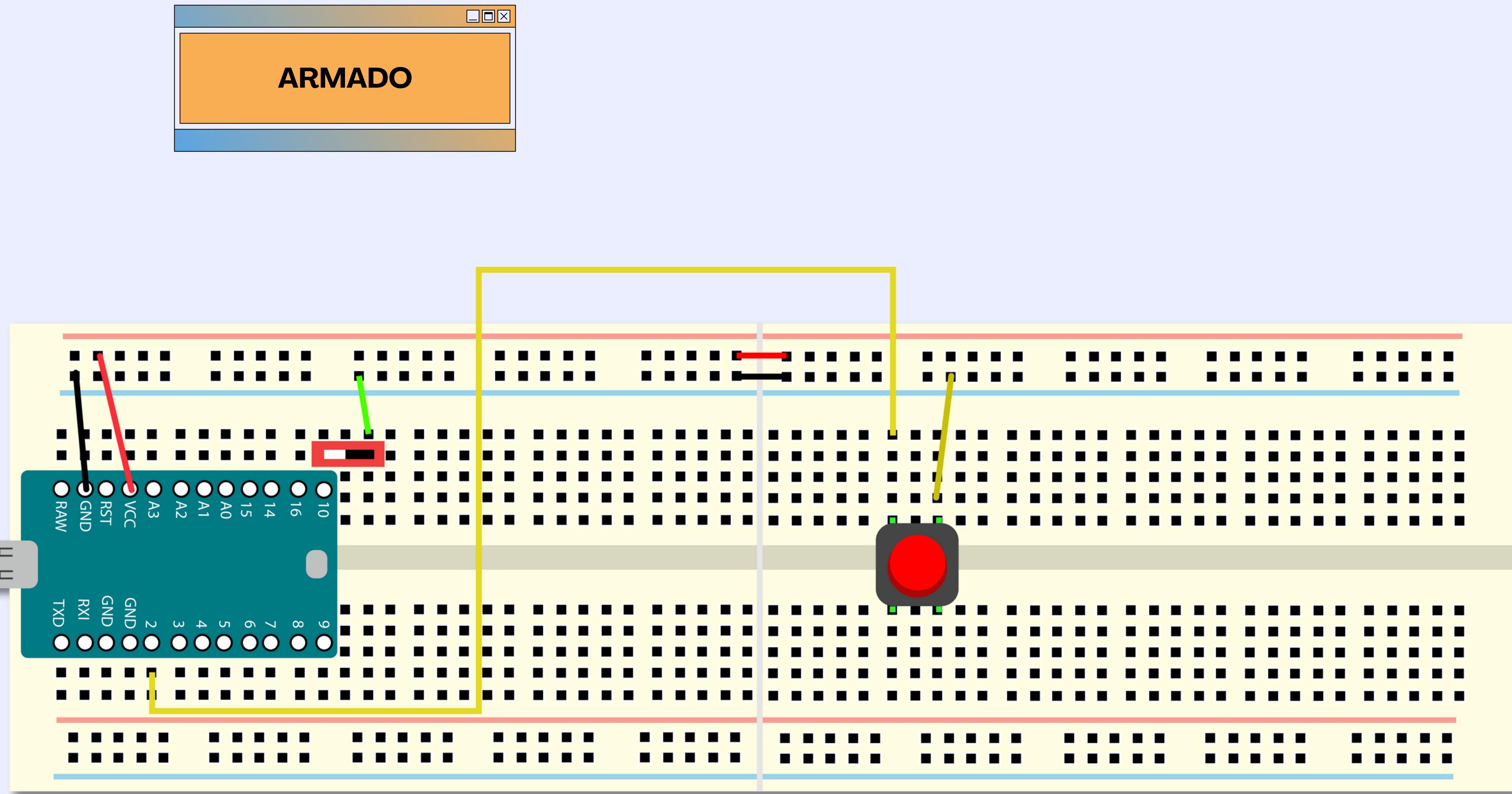
**UTILIZAREMOS  
NUESTRAS MANOS  
PARA ENSAMBLAR UN  
TECLADO CASERO**

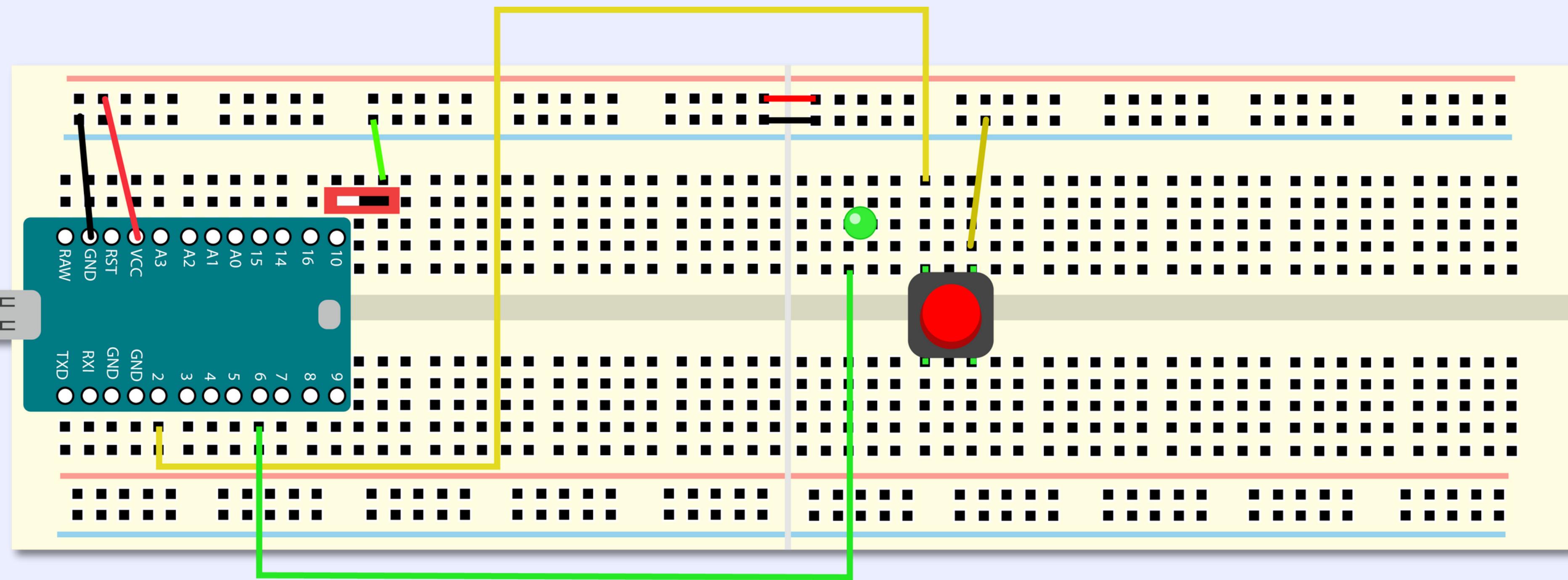
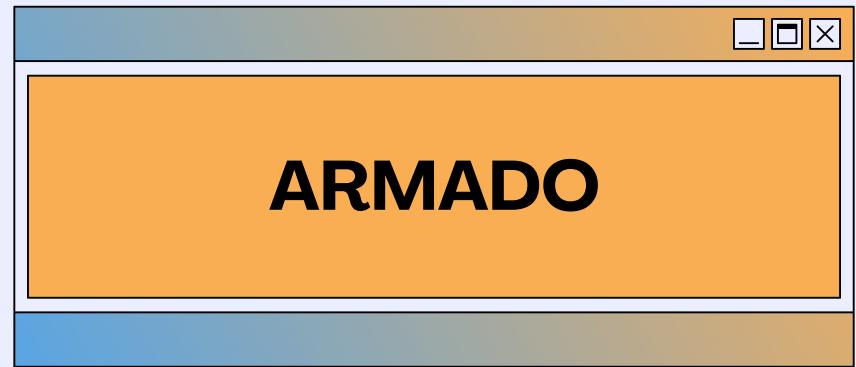


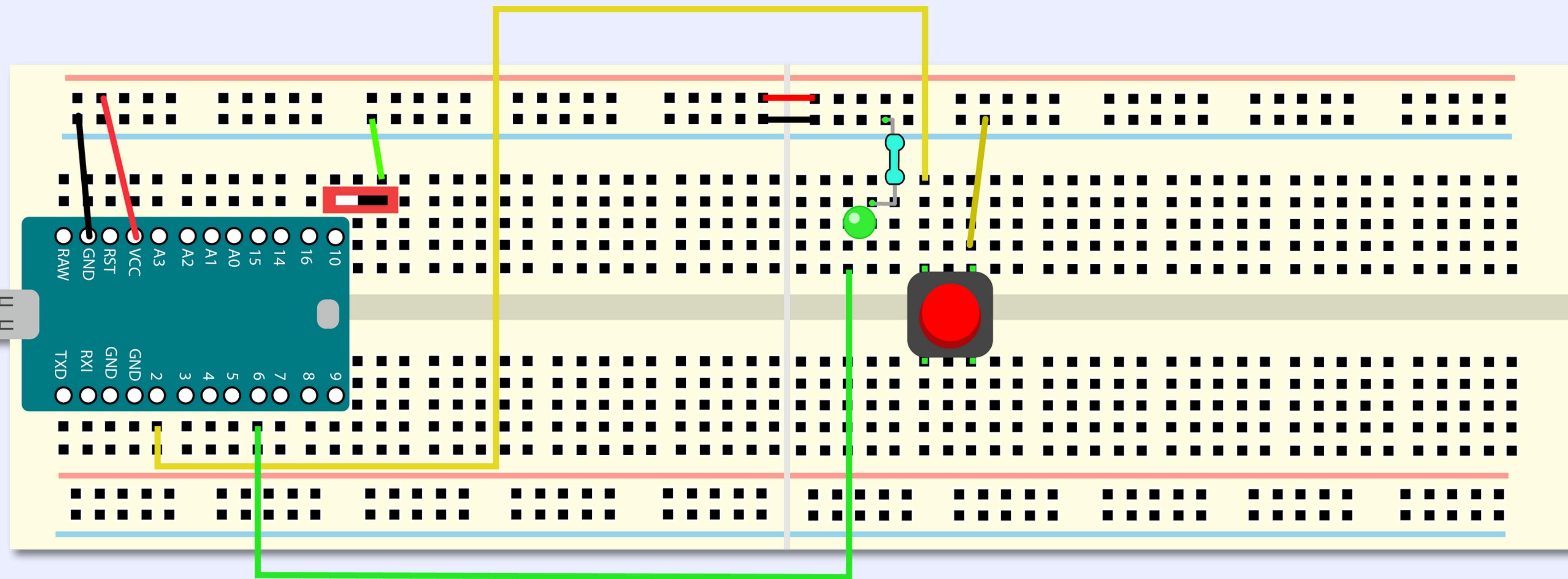
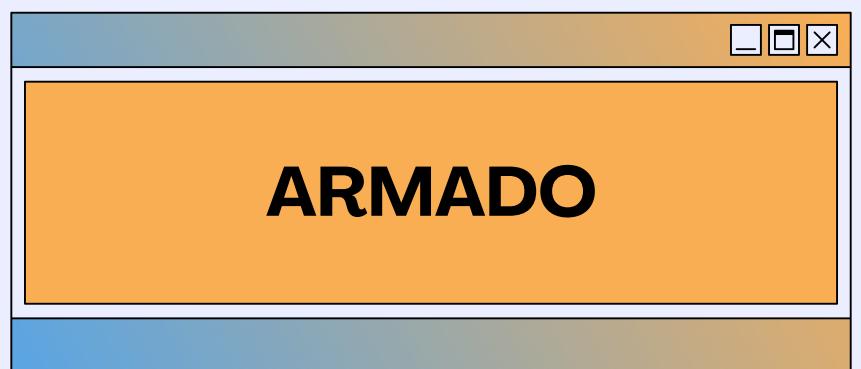


ARMADO

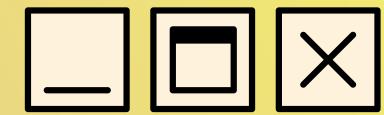








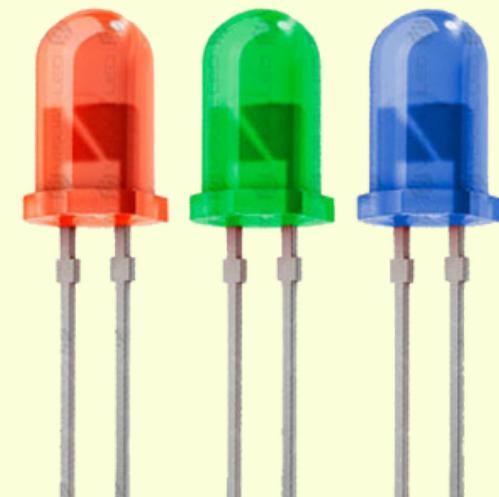
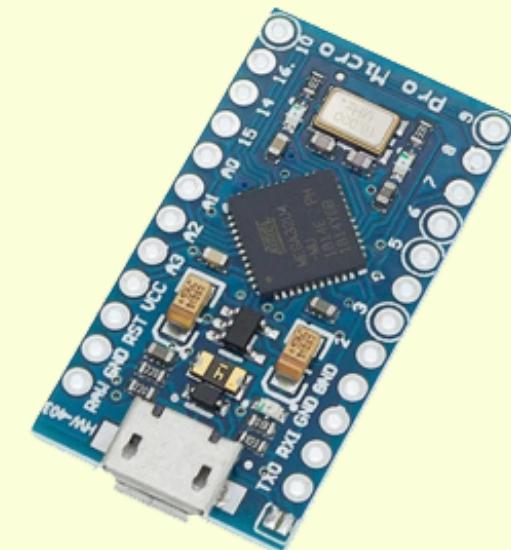




# BOTÓN-LED

**OBJETIVO:**

**CONTROLAR EL ENCENDIDO DE  
UN DIODO LED UTILIZANDO UN  
BOTON Y ARDUINO**



// Definir variables

**const int pinLed = 6;**

**const int pinBoton = 2;**

**int boton = 0;**

// Configuración, corre una vez al inicio

void setup() {

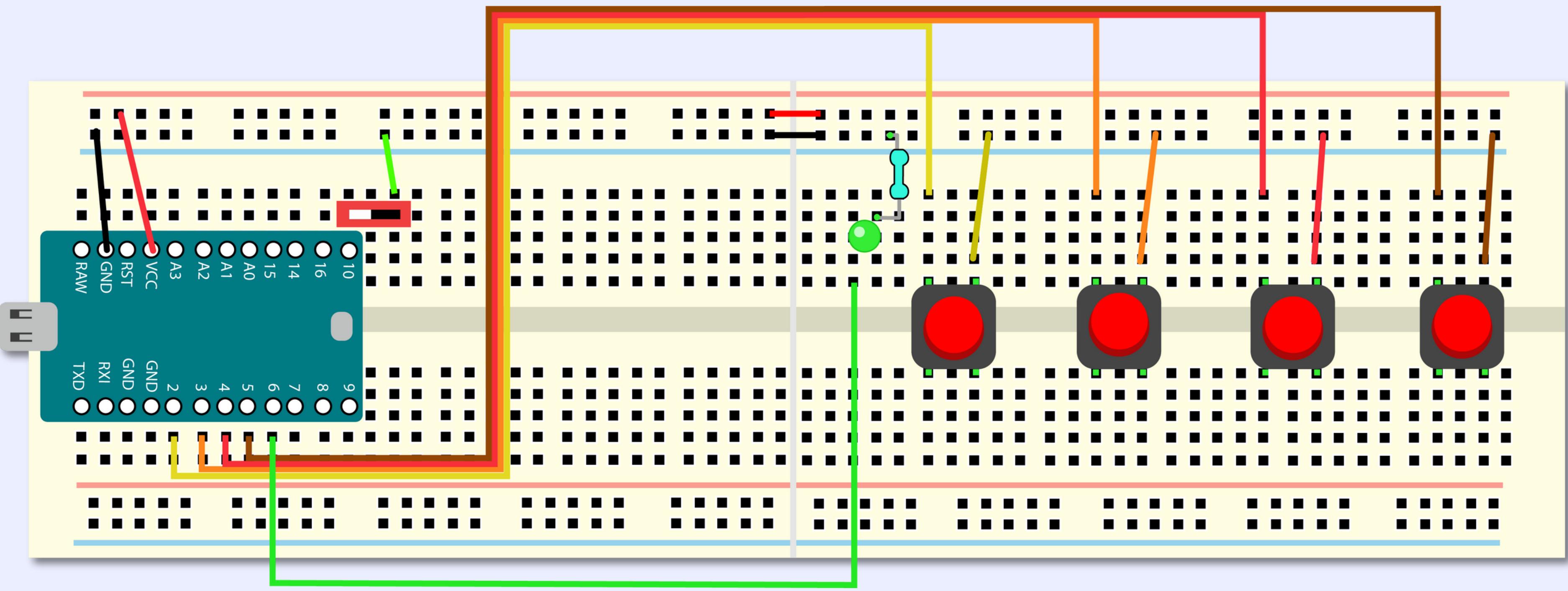
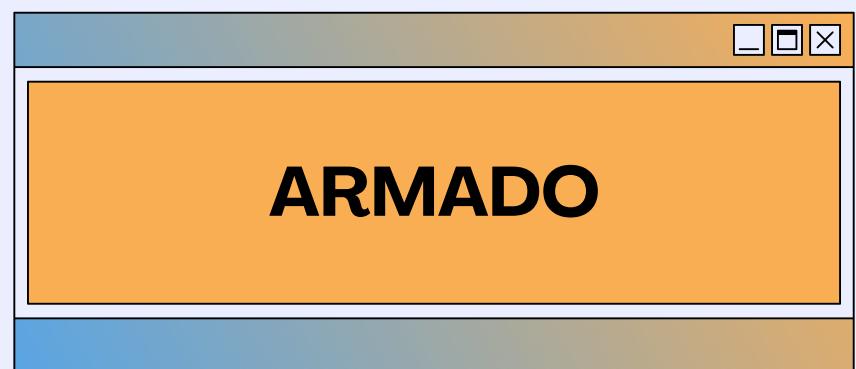
pinMode(pinLed, OUTPUT); // Definir el modo del led

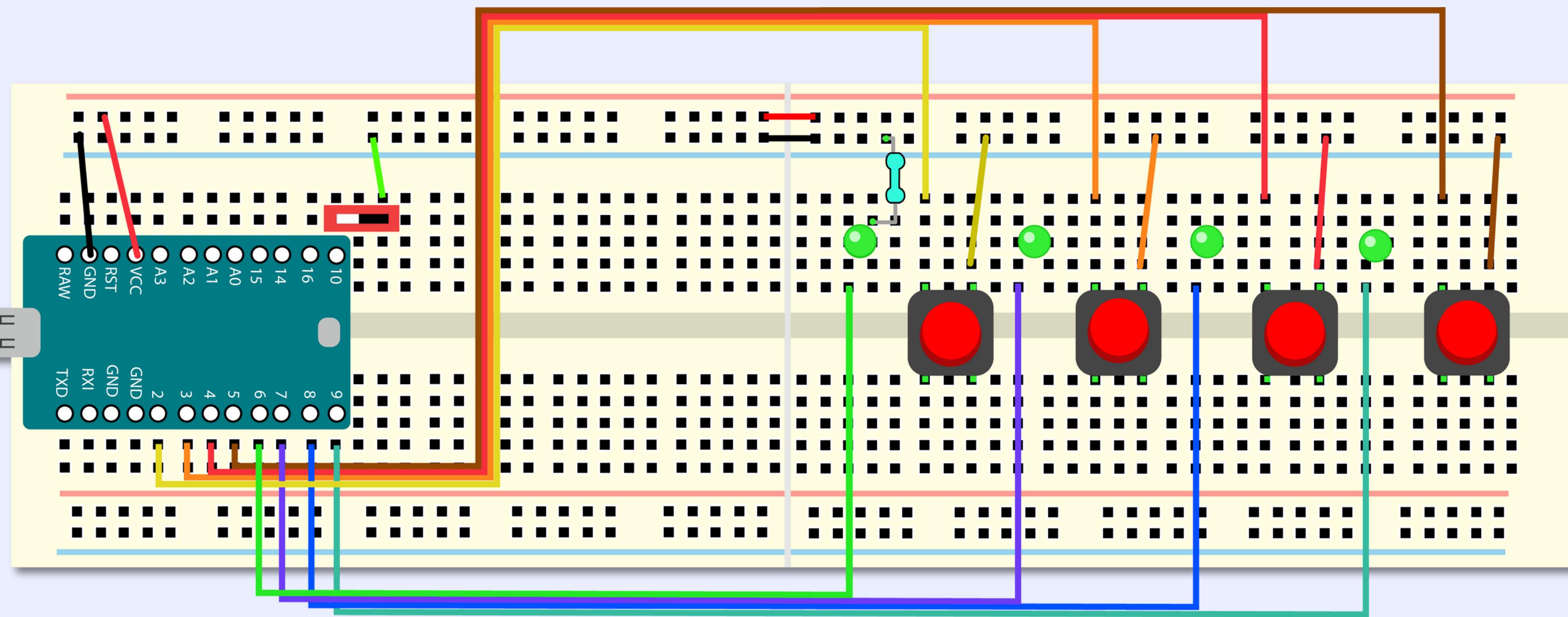
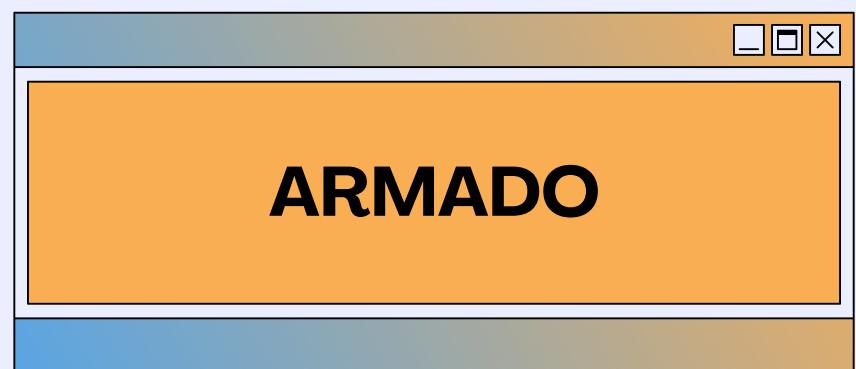
pinMode(pinBoton, INPUT\_PULLUP); //Definir el modo  
del botón

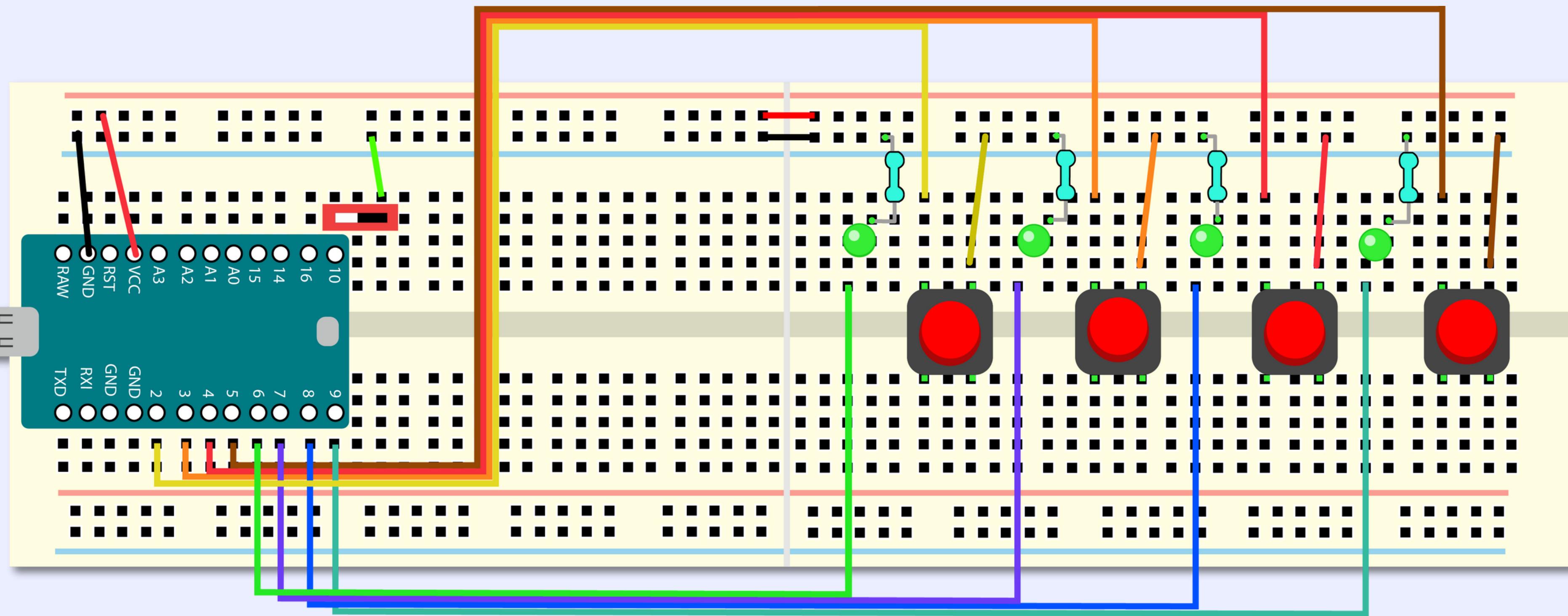
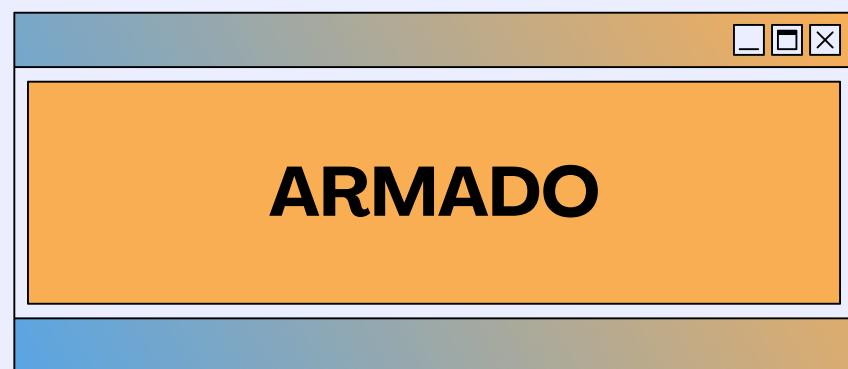
}

// Programa principal

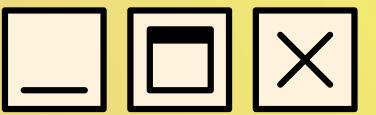
```
void loop() {  
  
    boton = digitalRead(pinBoton); //lee el estado del botón  
  
    if(boton==LOW){           //si el estado es pulsado  
  
        digitalWrite(pinLed,HIGH); //se enciende el led  
  
    }  
    else{                     //si el estado es NO  
pulsado  
  
        digitalWrite(pinLed,LOW); //se apaga el led  
  
    }  
}
```









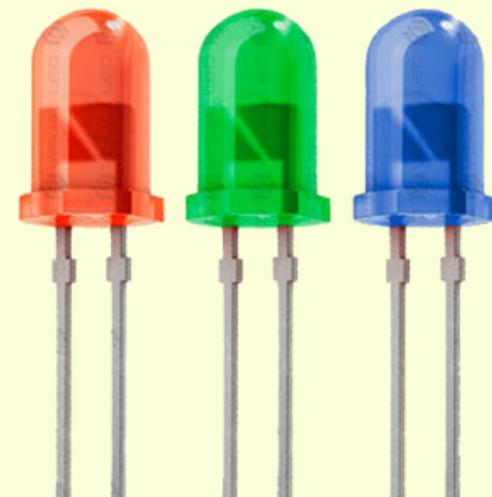
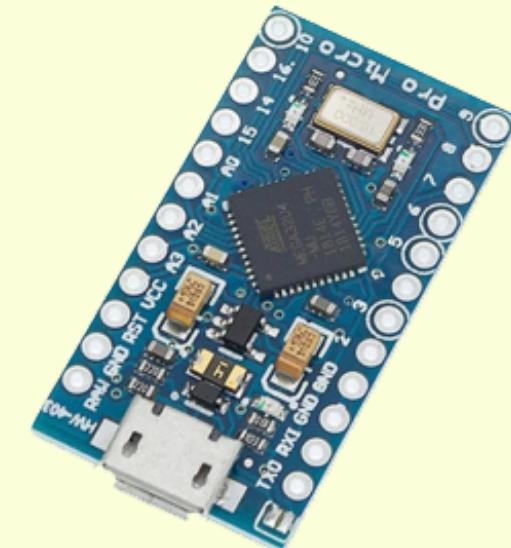


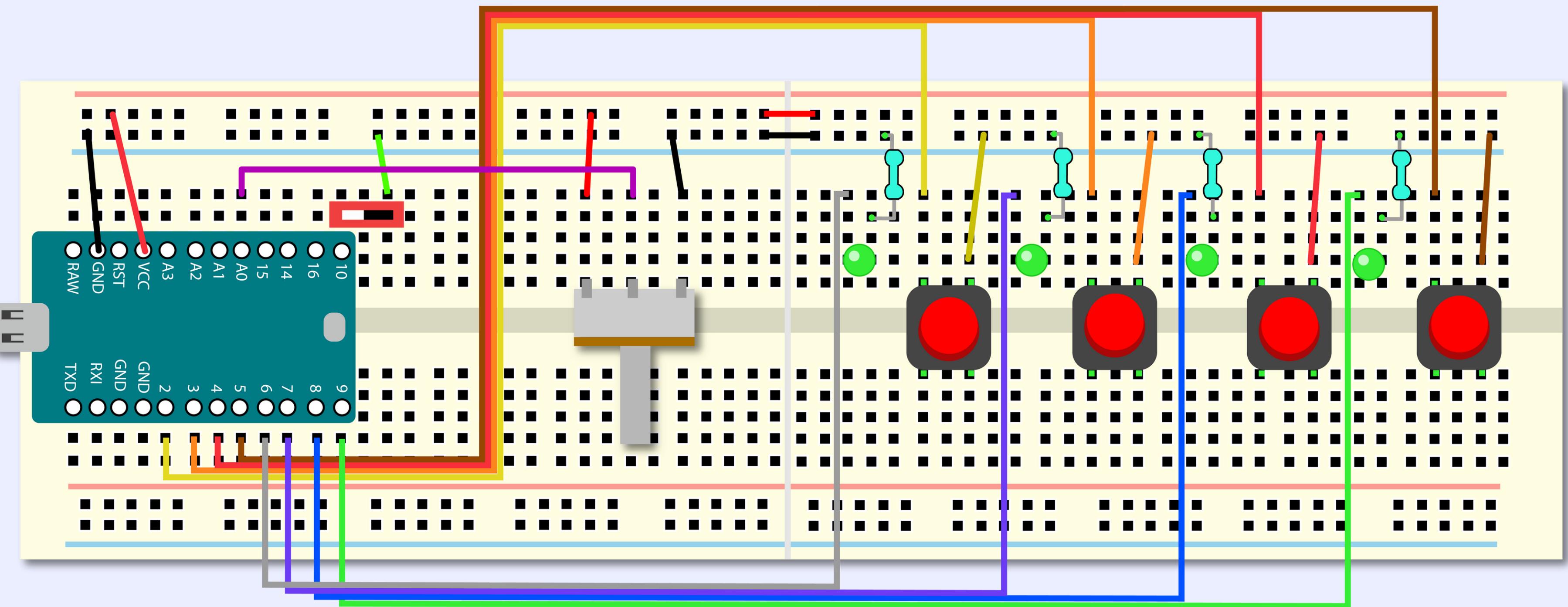
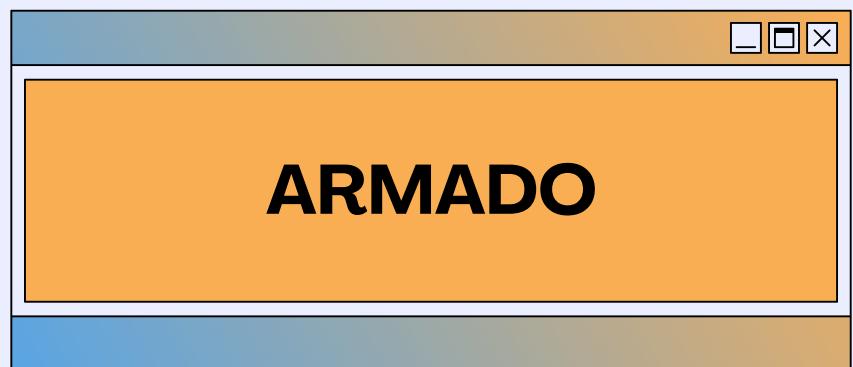
# 4BOTONES

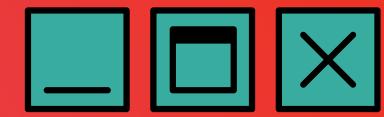
# 4LEDS

**OBJETIVO:**

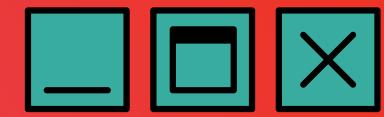
**CONTROLAR EL ENCENDIDO DE  
4 DIODOS LED UTILIZANDO 4  
BOTONES Y ARDUINO**







**BREAK  
BREAK  
BREAK**

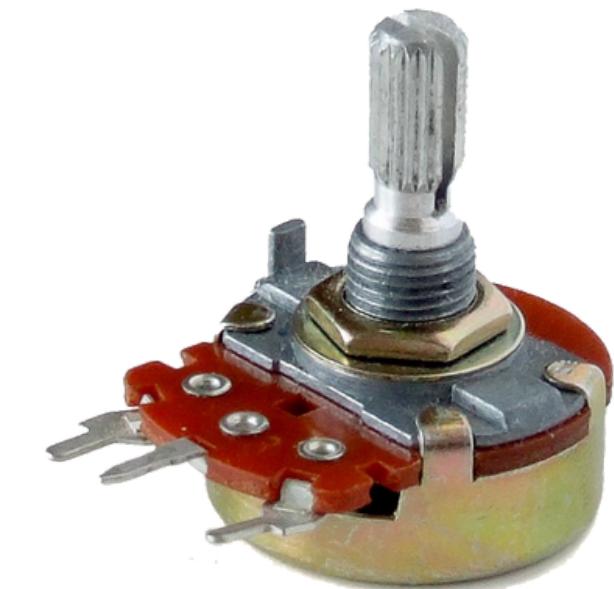


# ACTIVACIÓN MOTORA



**OBJETIVO:**

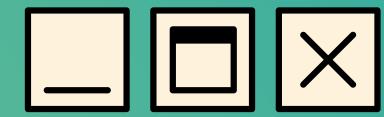
**LEER VALORES ENTREGADOS POR  
UN POTENCIOMETRO**



```
// Configuración, corre una vez al inicio
void setup() {
    // Inicio conexión serial
    Serial.begin(9600);

    // Configuración pin análogo
    pinMode(A0, INPUT);
}
```

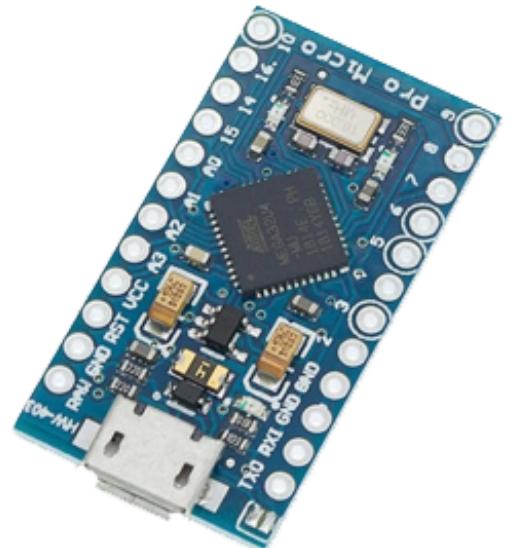
```
void loop() {  
  
    //Lectura del valor  
    int var = analogRead(A0);  
  
    //Texto  
    String texto = "El valor es = " + String(var);  
  
    //Mostrar texto en monitor serial  
    Serial.println(texto);  
  
}
```



# POTENCIOMETRO LEDS

**OBJETIVO:**

**CONTROLAR EL ENCENDIDO DE  
UNA SERIE DE DIODOS LED CON  
UN POTENCIOMETRO**



# ¿SIENTES QUE CREAESTE ALGO NUEVO?



# PRÓXIMA SESIÓN

- **¿En qué estoy ocupando mi tiempo hoy?**
- **¿Necesito optimizar mi tiempo ?**
- **¿En qué quiero ocupar mi tiempo?**