

# Curso de Arduino: Simuladores

[elCacharreo.com](http://elCacharreo.com)



ElCacharreo.com

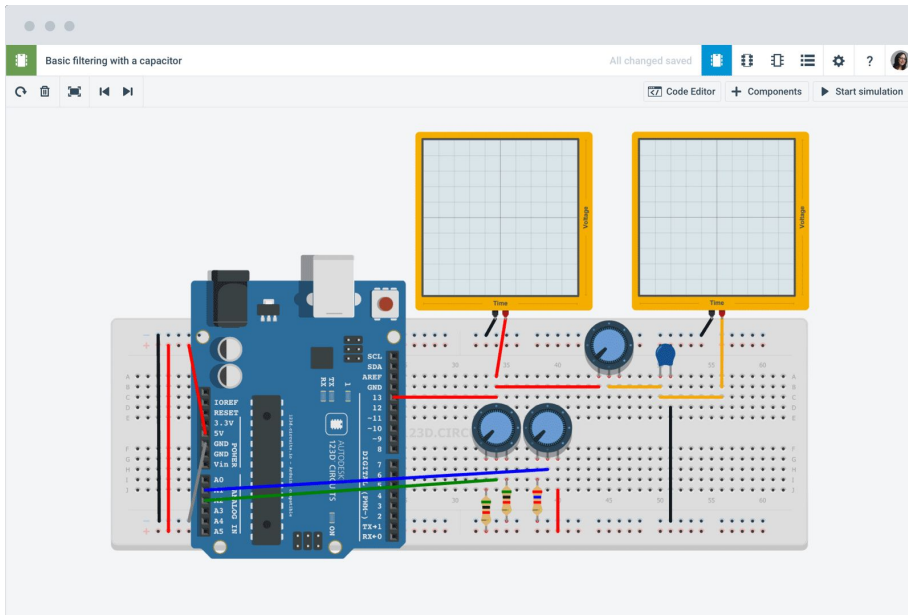
# Simuladores ¿y si no tengo arduino?

## Simuladores

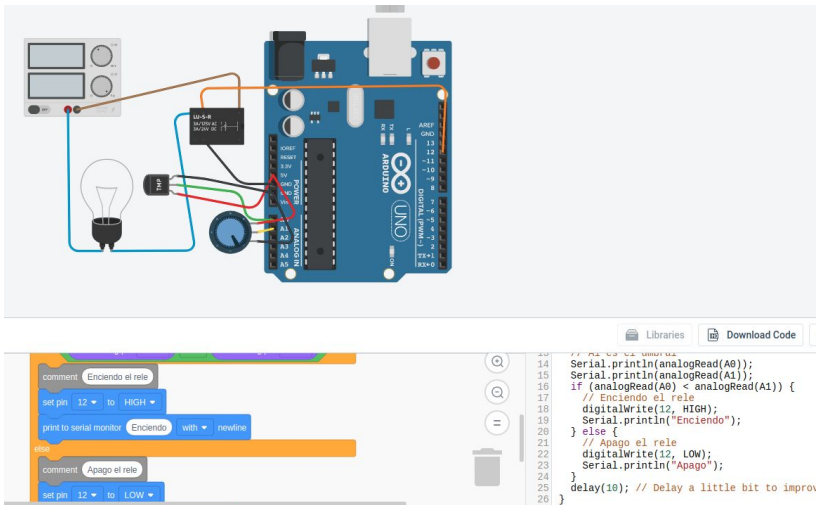
Software que nos permite probar un hardware virtualizado

Usamos el PC para ver el comportamiento de arduino en determinado proyecto

Tanto Hardware como software



# Simuladores: Ventajas/desventajas



## Ventajas:

- Podemos usar todo el hardware que queramos
- No hay riesgo de rotura
- Más económico

## Desventajas:

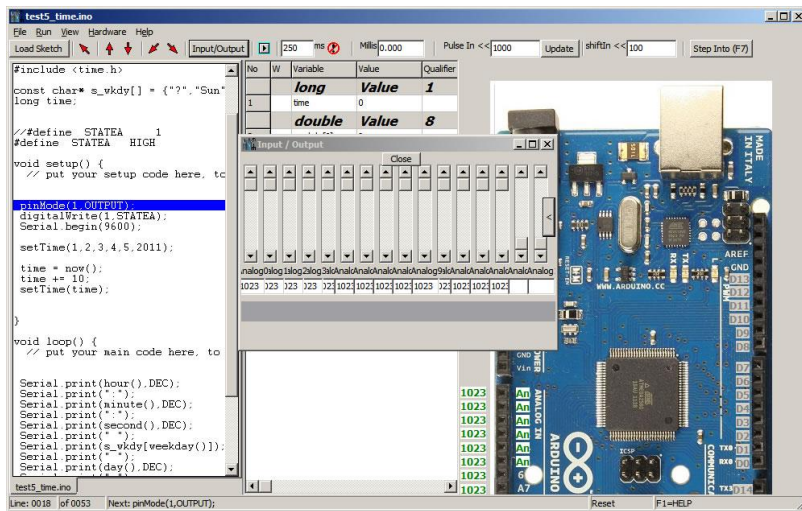
- No se puede simular todo el hardware
- No se puede simular todo el código (librerías)
- Necesitas la práctica real



# Simuladores: Productos comerciales

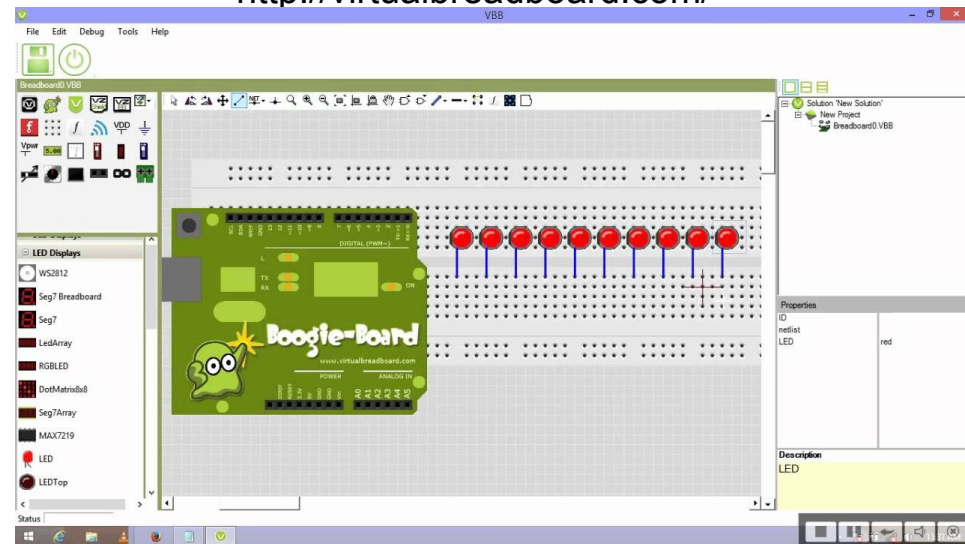
## Arduino Simulator

<http://www.virtronics.com.au/Simulator-for-Arduino.html>



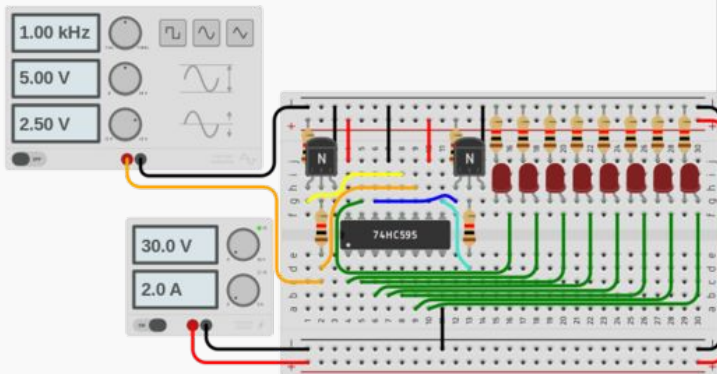
## Virtual Breadboard

<http://virtualbreadboard.com/>



# Tinkercad circuits: <http://tinkercad.com>

read ultrasonic distance sensor on pin 0 in units cm



```
1 long readUltrasonicDistance(int pin)
2 {
3   pinMode(pin, OUTPUT); // Clear the trigger
4   digitalWrite(pin, LOW);
5   delayMicroseconds(2);
6   // Sets the pin on HIGH state for 10 micro seconds
7   digitalWrite(pin, HIGH);
8   delayMicroseconds(10);
9   digitalWrite(pin, LOW);
10  pinMode(pin, INPUT);
11  // Reads the pin, and returns the sound wave travel time in  $\mu$ s
12  return pulseIn(pin, HIGH);
13 }
14
15 void setup()
16 {
17   pinMode(0, INPUT);
18 }
19
20 void loop()
21 {
22   0.01723 * readUltrasonicDistance(0);
23   delay(10); // Delay a little bit to improve simulation perfor
24 }
```



# Tinkercad circuits: registro

## Tinkercad circuits: registro

<http://tinkercad.com>

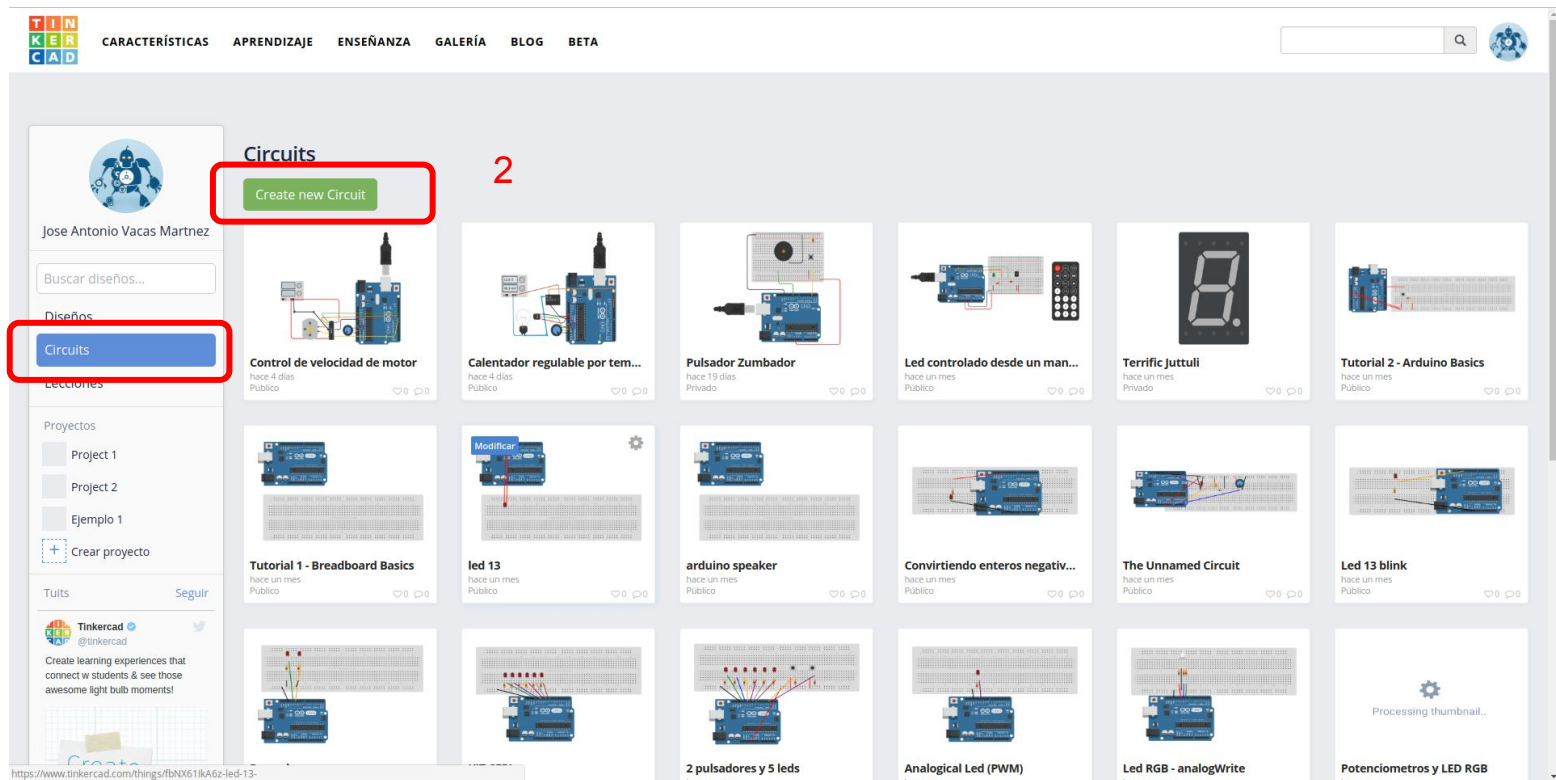
The image shows the Tinkercad website with the registration process highlighted in three steps:

- 1**: A red box highlights the **REGISTRARSE** button in the top right corner of the website header.
- 2**: A red box highlights the **Crear cuenta** form, which includes fields for **País** (set to Estados Unidos), **Cumpleaños** (Month, Day, and Year), and a **SIGUIENTE** button.
- 3**: A red box highlights the **Crear cuenta** form, which includes fields for **Correo electrónico** (set to correo@punto.com), **Contraseña**, and a **CREAR CUENTA** button.

The form also includes a checkbox for **Acepto los Términos del servicio de Tinkercad y la Declaración de privacidad de Autodesk.**



# Tinkercad circuits: Nuevo circuito





# Tinkercad circuits: Propiedades

**Design properties**

Nombre  
Hello Led

Design description  
Give your users something to talk about. Add a short description to your design.

Tags (5 maximum)  
Enter tag(s) here separated by commas. Press Enter to add a tag. ex. tag1,tag2

Visibilidad  
private Not publicly listed, visible only to you

Licencia  
Public Domain

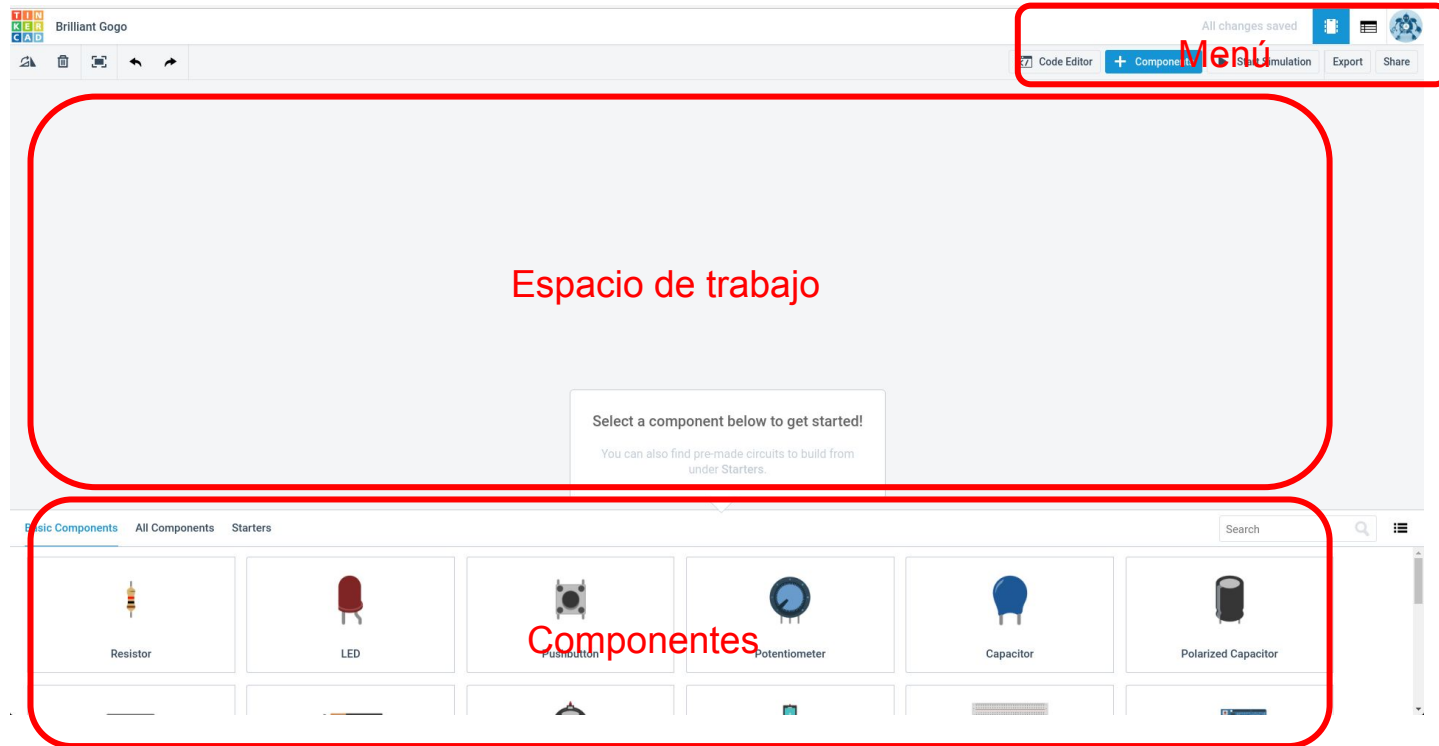
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Cancelar Guardar cambios

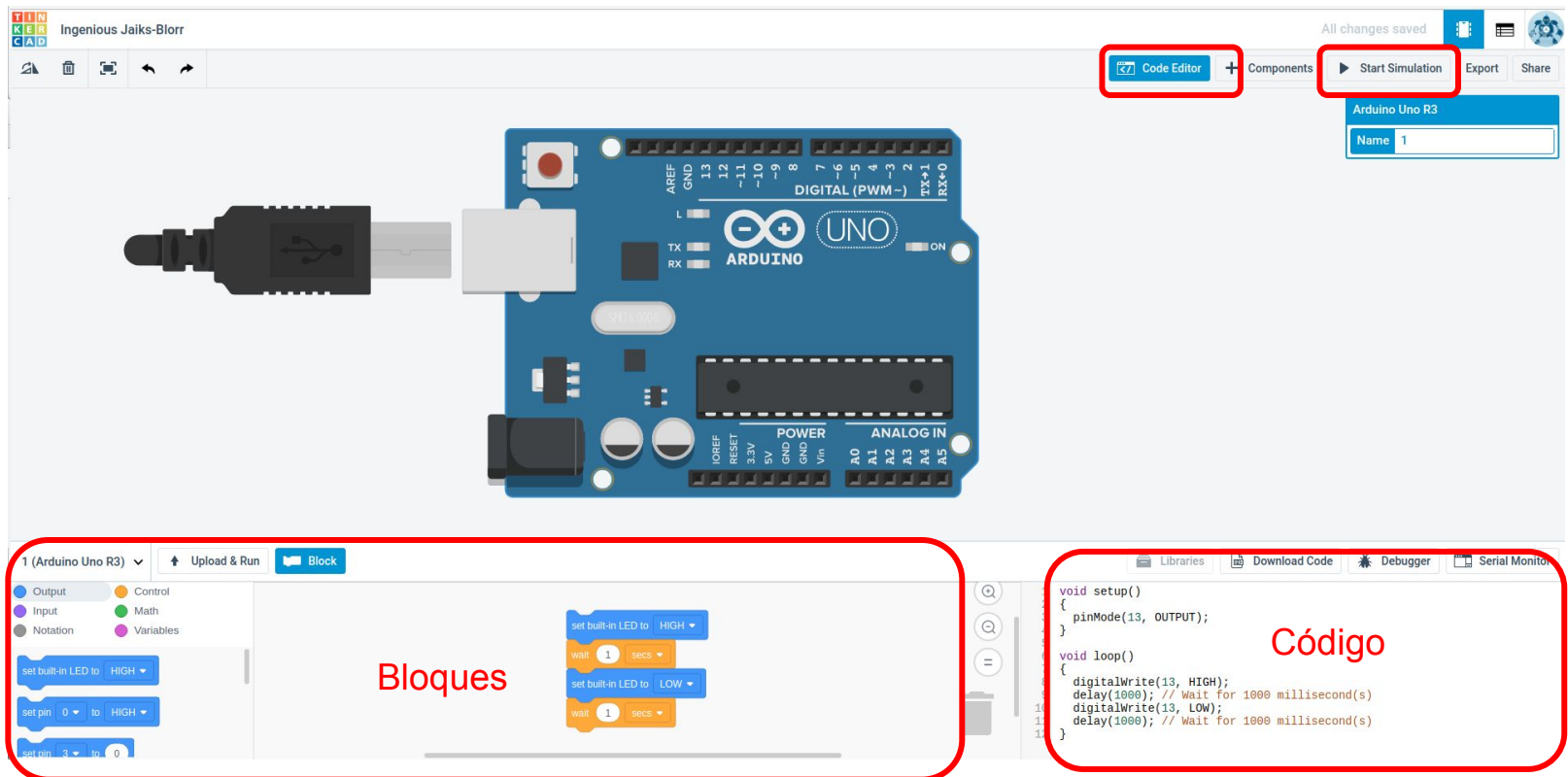




# Tinkercad circuits: Partes



# Tinkercad circuits: Código/bloques



The screenshot displays the Tinkercad web interface. At the top, a navigation bar includes the 'Code Editor' button (highlighted with a red box), a '+' button, and the 'Components' panel (also highlighted with a red box). The 'Components' panel shows 'Arduino Uno R3' selected, with a 'Name' field set to '1'. The main workspace features a 3D model of an Arduino Uno R3 board connected to a USB cable. Below the workspace, the 'Blocks' panel (highlighted with a red box) shows a list of blocks on the left and a workspace on the right. The workspace contains a sequence of blocks: 'set built-in LED to: HIGH', 'wait 1 secs', 'set built-in LED to: LOW', and 'wait 1 secs'. The 'Code' panel (highlighted with a red box) shows the corresponding C++ code for the blocks. The code is as follows:

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

void loop()
{
  digitalWrite(13, HIGH);
  delay(1000); // Wait for 1000 millisecond(s)
  digitalWrite(13, LOW);
  delay(1000); // Wait for 1000 millisecond(s)
}
```

The word 'Bloques' is written in red text over the blocks panel, and 'Código' is written in red text over the code panel.

