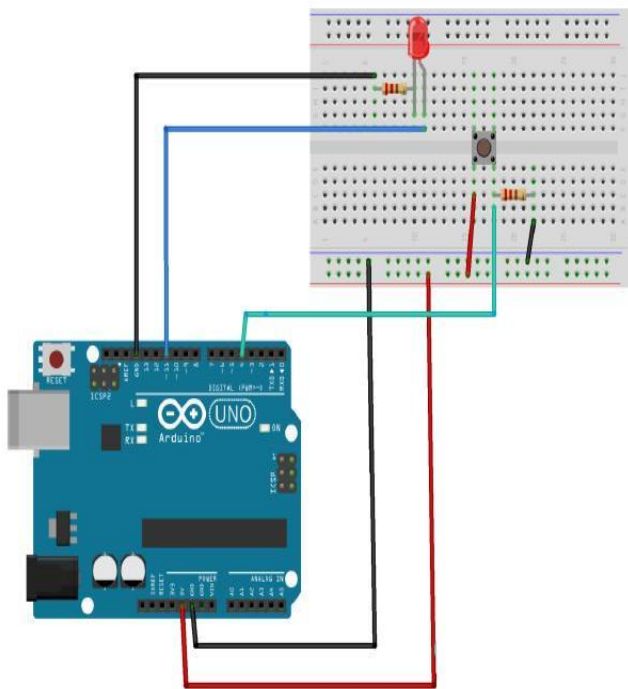




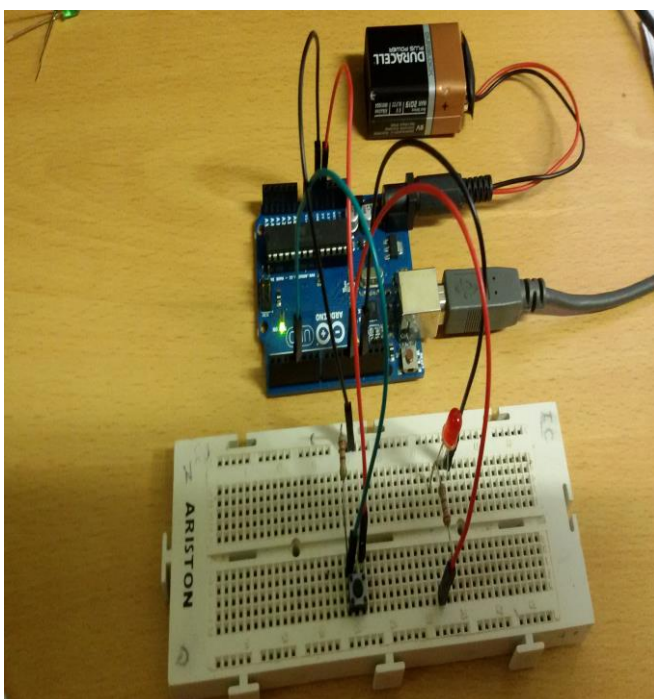
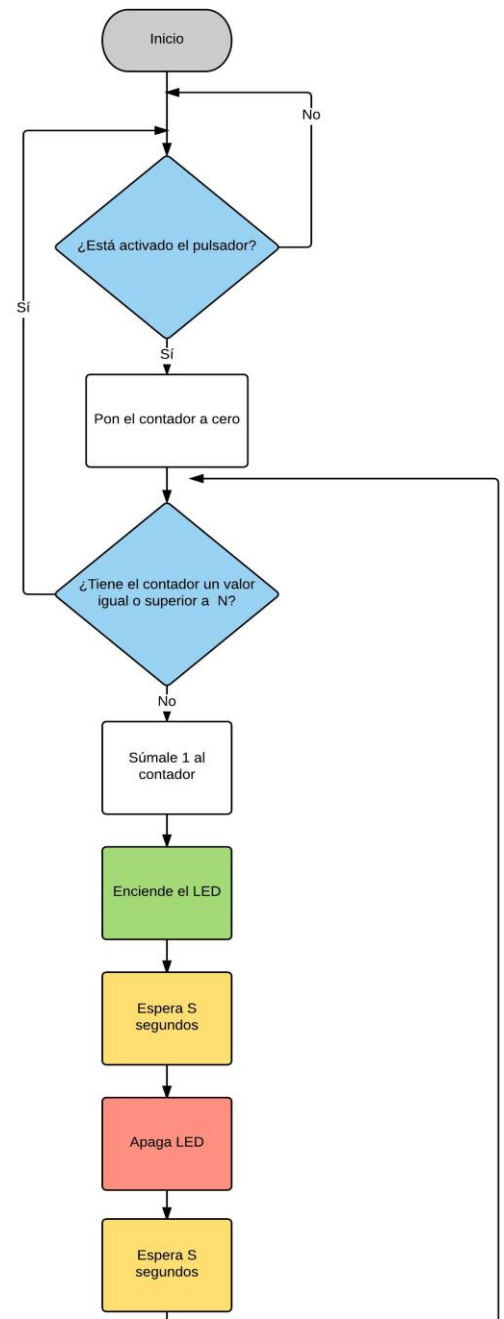
### Practice 4 – Turning on and off an LED with push-button repeat

To perform this practice, as in the previous one, we will use a protoboard board, an LED, a push button and an Arduino board. It involves connecting the positive pole of the LED to the digital 12 pin and the negative to the GND pin through a 220 ohm resistor. At the same time, the terminals of the pushbutton must be connected to the digital pin 4, 5V and GND, with a resistance of 220 ohms between the digital pin and GND, as shown in the diagram below.

Once connected, we will think about the steps that must be taken to program the Arduino board in such a way that when the button is activated, the LED will turn on and off a number of times and then turn off until a new activation of the button.



The sequence can be seen in the following flowchart:



The Arduino IDE instructions that will allow us to perform this sequence are the ones that appear in the image below:

```
encendido_led_con_repetici_n_block
int contador;

void setup()
{
  pinMode( 12 , OUTPUT);
  pinMode( 4 , INPUT);
}

void loop()
{
  if (digitalRead (4))
  {
    for (contador=0; contador< ( 5 ); ++contador )
    {
      digitalWrite( 12 , HIGH );
      delay( 2000 );
      digitalWrite( 12 , LOW );
      delay( 2000 );
    }
  }
}
```

To begin, we have to define a variable:

`int` counter; with `int` we tell you that we reserve a memory zone called counter to store whole numbers in it.

In `void setup ()` let's define two pins:

- Pin 4 as input for the pushbutton.
- The pin 12 as output for the LED.

In `void loop ()` the following actions will happen:

`if (digitalRead (4))` This instruction indicates that if pin 4 receives the pushbutton signal, an action is taken.

`for (contador=0; contador <(5); ++contador)`

This instruction tells us that the instructions in brackets will be executed cyclically until the condition is no longer satisfied. To do this, initialize the variable with the value 0. Each cycle adds one to the initial value and compares. When the variable has a value equal to or greater than five, the following instructions are no longer executed. In this case they will run five times.

`digitalWrite(12, HIGH);` This is the first action to take. Indicates that pin 12 is active and therefore the LED is lit.

Con `delay (2000);` A delay of 2 seconds occurs in executing the following instruction.

`digitalWrite(12, LOW);` This is the next action, turn off the LED.