ARDUINO

Activity

The main aim of this project is to light some leds of different colors located in letters which are hold in a board. This letters form the phrase "ICT WORLD". We are going to control these leds using an Arduino board in addition we will use Bitbloq and Arduino ID in order to control it.

Objectives

- Objective 1:
  Familiarize with Arduino environment.
- Objective 2:
- Learn how to code turning on and turning off leds.
- Objective 3:
  Control the basic concepts of Arduino.

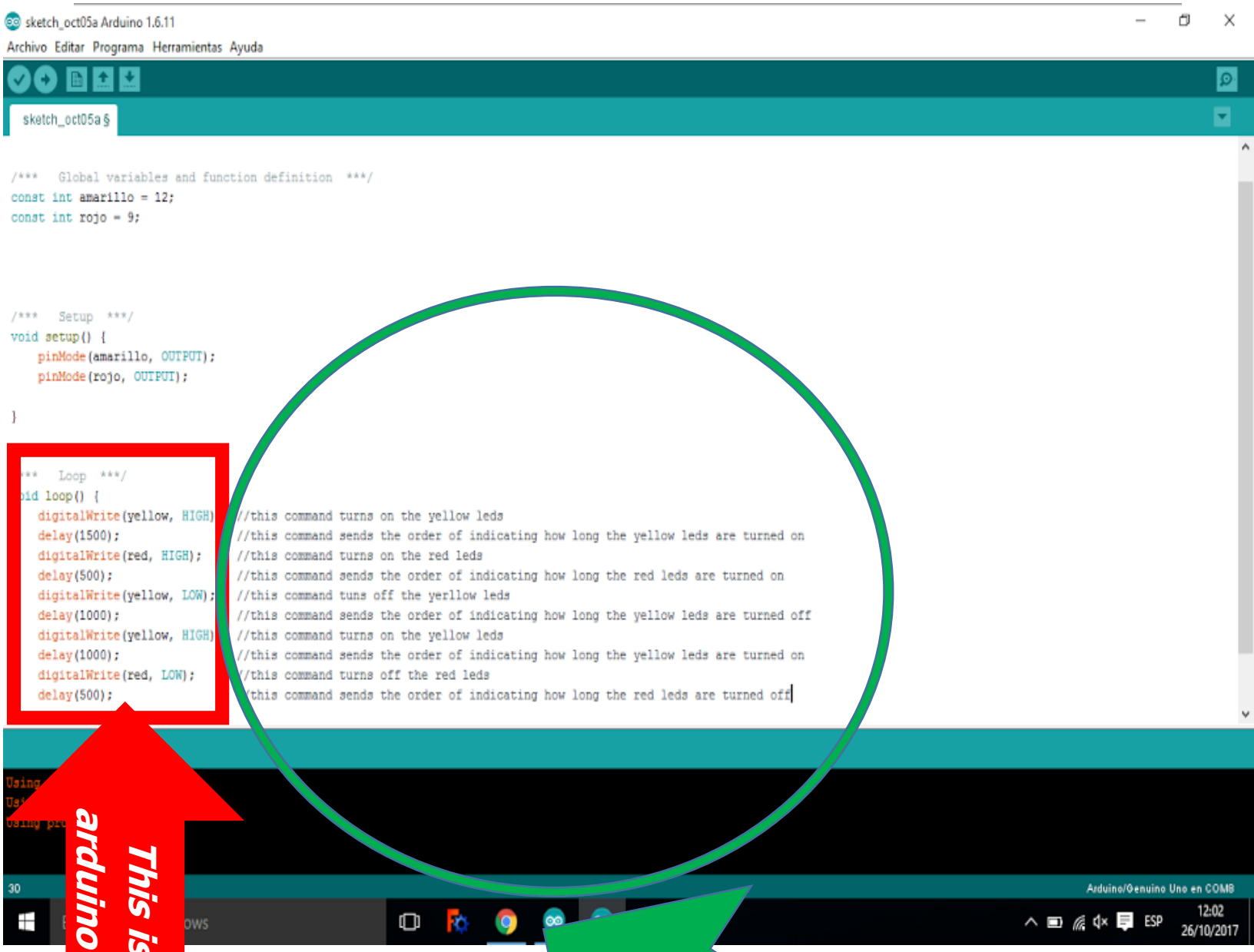
Otros puntos

- Punto 1
- Punto 2

First Activity (Introduction video)

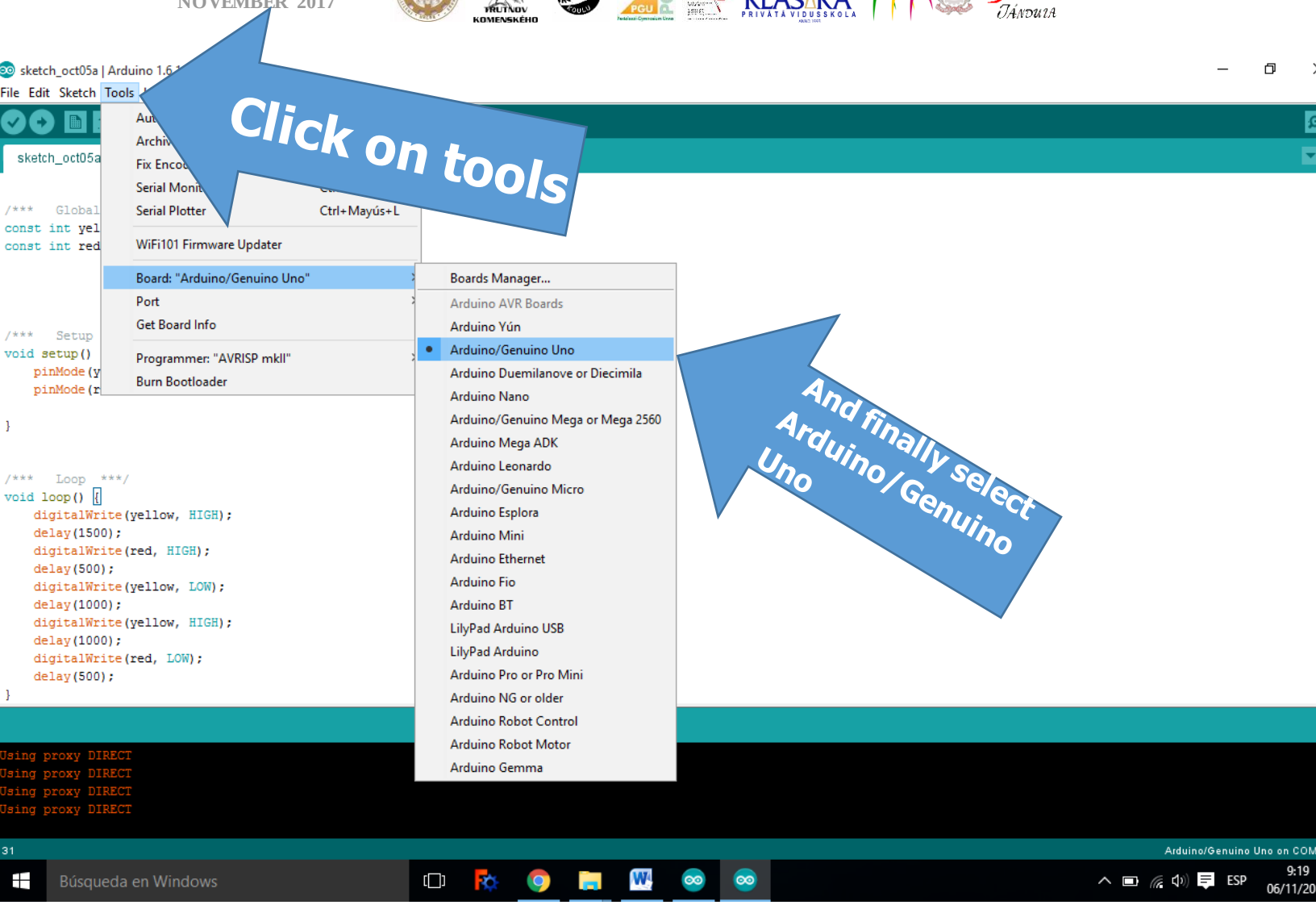
WEBMINAR: On Wednesday you will watch our video tutorial in the Technology classroom, therefore you will start to comprehend how Arduino works. In this video we are going to teach you the basic concepts of Arduino, as for instance coding Arduino for turning on and turning off the leds inside the ICT WORLD letters.

ID Arduino



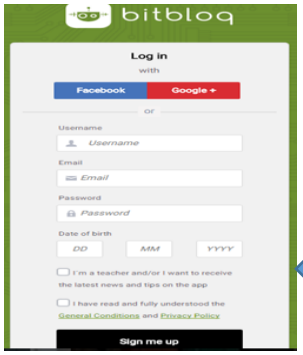
This is how we code arduino

And these are the functions which each command execute


Click on tools
And finally select Arduino/Genuino Uno
File Edit Sketch Tools
Serial Plotter Ctrl+Mayús+L
WiFi101 Firmware Updater
Board: "Arduino/Genuino Uno"
Port
Get Board Info
Programmer: "AVRISP mkII"
Burn Bootloader
Boards Manager...
Arduino AVR Boards
Arduino Yún
Arduino/Genuino Uno
Arduino Duemilanove or Diecimila
Arduino Nano
Arduino/Genuino Mega or Mega 2560
Arduino Mega ADK
Arduino Leonardo
Arduino/Genuino Micro
Arduino Esplora
Arduino Mini
Arduino Ethernet
Arduino Fio
Arduino BT
LilyPad Arduino USB
LilyPad Arduino
Arduino Pro or Pro Mini
Arduino NG or older
Arduino Robot Control
Arduino Robot Motor
Arduino Gemma
Using proxy DIRECT
Using proxy DIRECT
Using proxy DIRECT
Using proxy DIRECT
Arduino/Genuino Uno on COM
Búsqueda en Windows
ESP
9:19
06/11/20

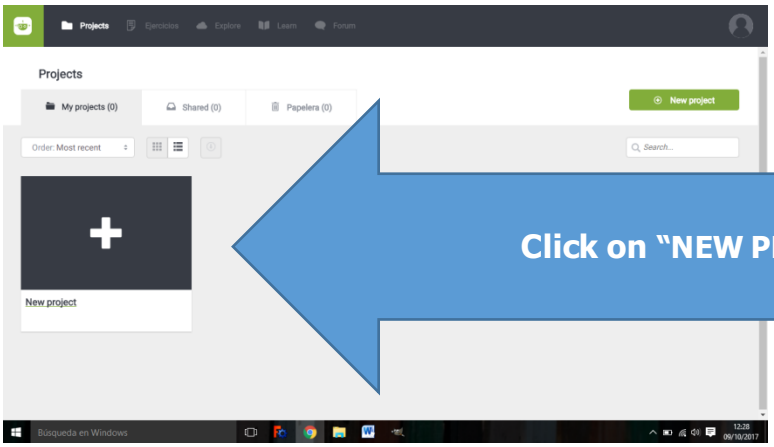
Second Activity (Project)

In this workshop we will be using bitbloq and arduino ID. Firstly you will be using your email accounts to log in bitbloq. Here you have got the link to register on Bitbloq: http://bitbloq.bq.com/#/register

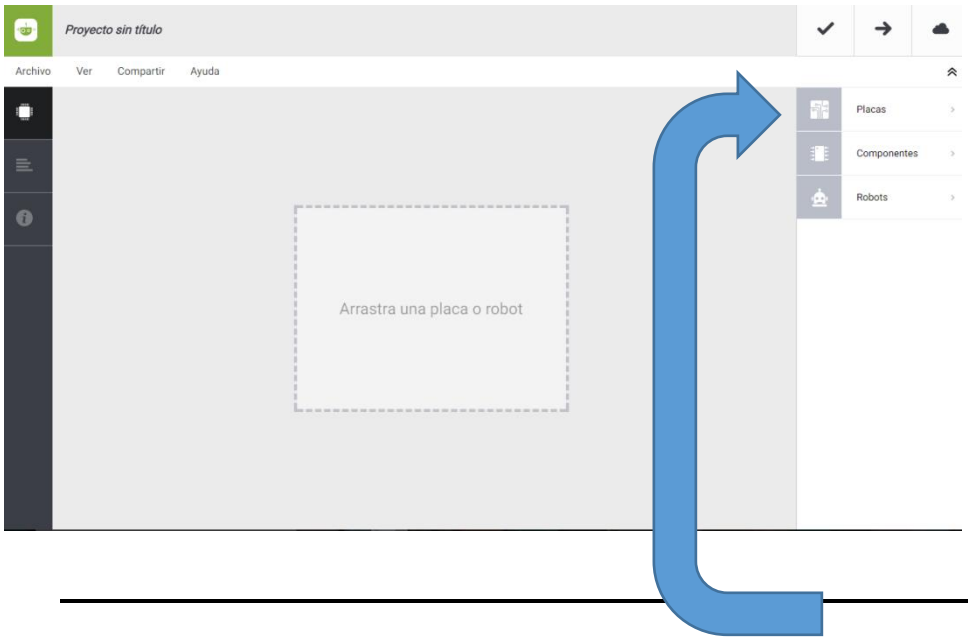


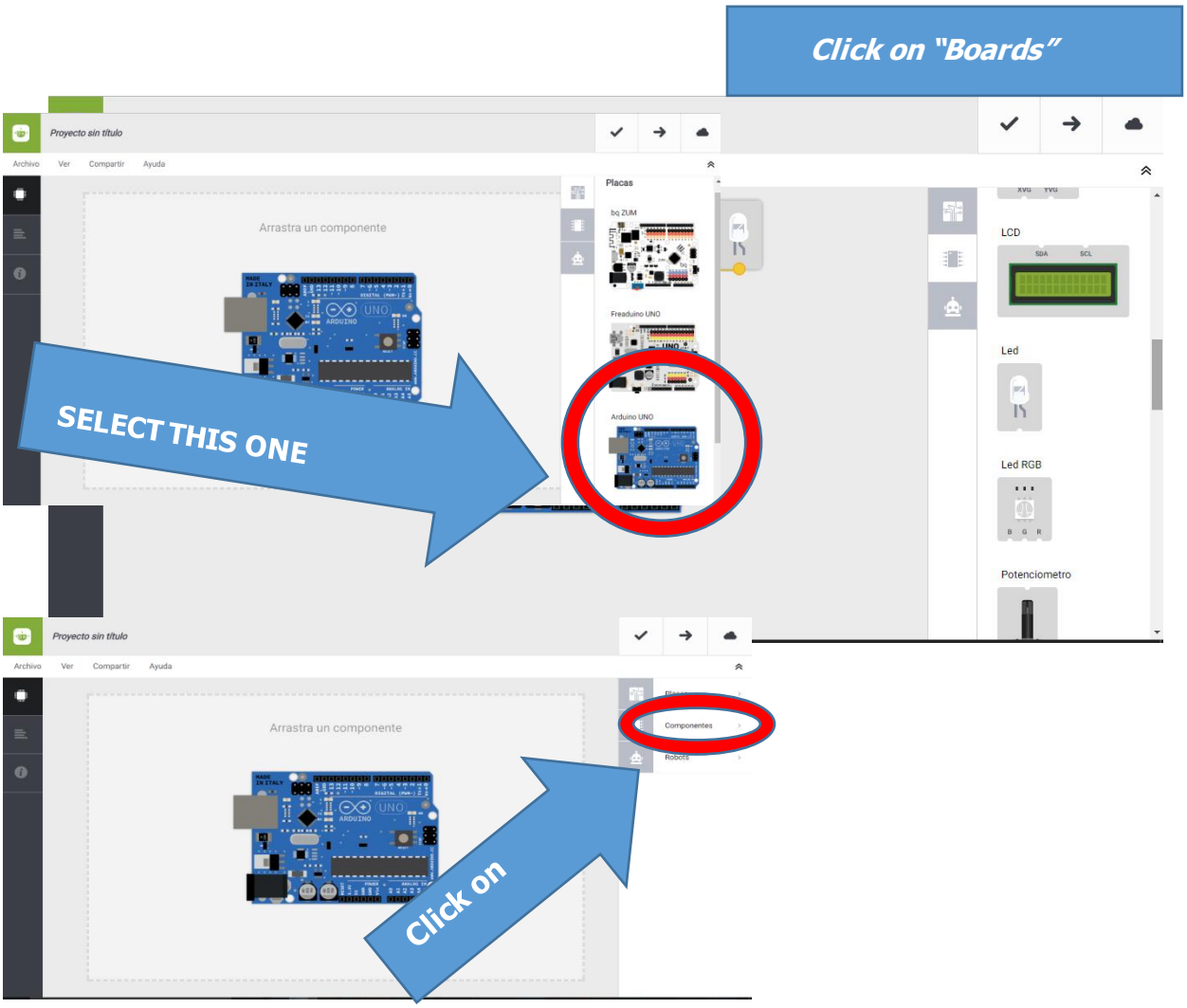
WRITE HERE YOUR EMAIL ACCOUNT GIVEN BY IES LOS CERROS

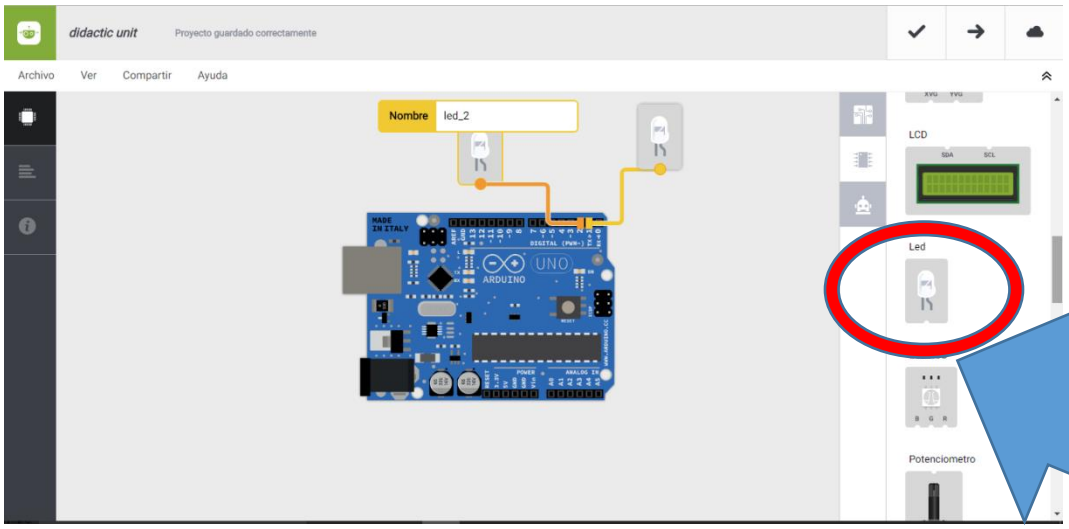
In addition there is an offline version which we will be using in our workshop.



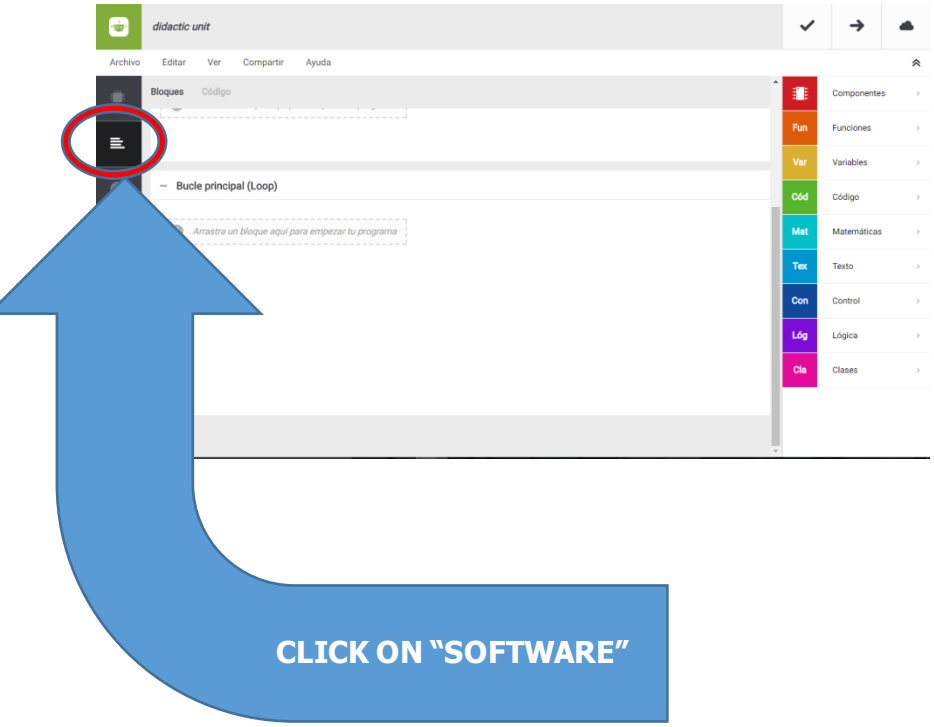
Click on "NEW PROJECT"

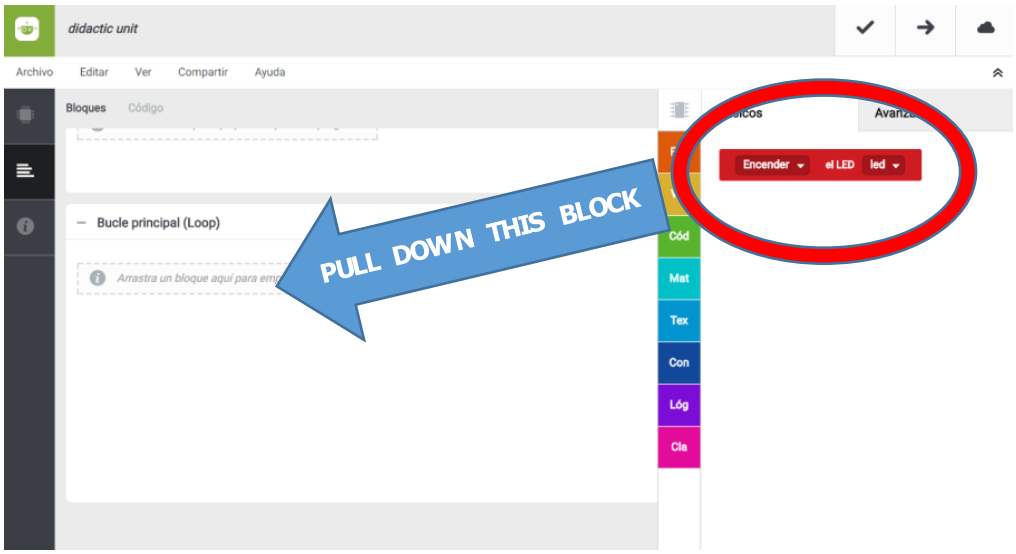


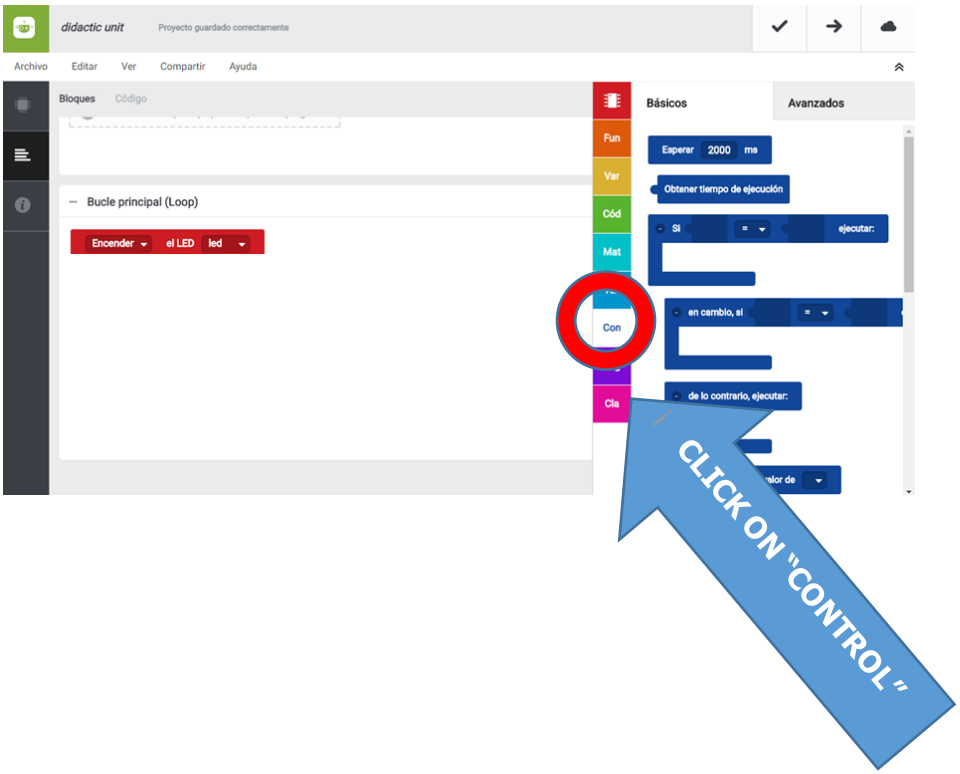


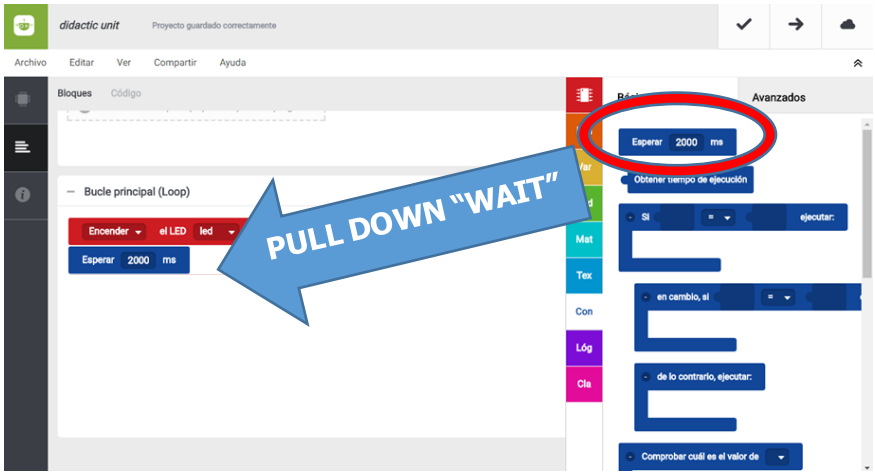


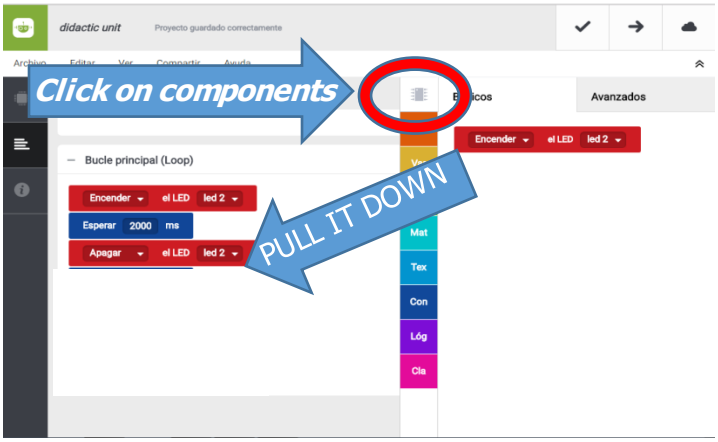
DON'T FORGET TO SELECT TWO LEDS!!!!!!!!!


didactic unit
Archivo
Editar
Ver
Compartir
Ayuda
Bloques
Código
Bucle principal (Loop)
Componentes
Funciones
Variables
Código
Matemáticas
Texto
Control
Lógica
Clases
CLICK ON "SOFTWARE"

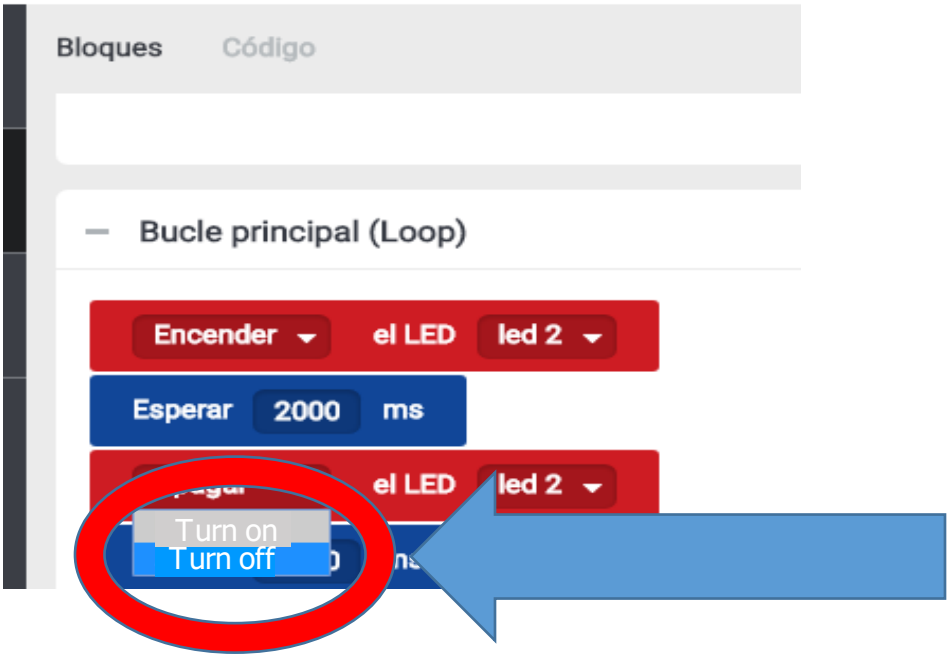

didactic unit
Archivo
Editar
Ver
Compartir
Ayuda
Bloques
Código
Bucle principal (Loop)
Encender
el LED
led
PULL DOWN THIS BLOCK


didactic unit
Proyecto guardado correctamente
Archivo
Editar
Ver
Compartir
Ayuda
Bloques
Código
Básicos
Avanzados
Bucle principal (Loop)
Encender
el LED
led
Esperar
2000
ms
Obtener tiempo de ejecución
Si
ejecutar:
en cambio, si
de lo contrario, ejecutar:
Fun
Var
Cód
Mat
Con
Cla
CLICK ON "CONTROL"


didactic unit
Proyecto guardado correctamente
Archivo
Editar
Ver
Compartir
Ayuda
Bloques
Código
Avanzados
Bucle principal (Loop)
Encender
el LED
led
Esperar
2000
ms
Obtener tiempo de ejecución
Si
ejecutar:
en cambio, si
de lo contrario, ejecutar:
Comprobar cuál es el valor de
Mat
Tex
Con
Lóg
Cla
PULL DOWN "WAIT"



Now you have to click on "components". Once you have pulled it down, then you have to select the first block, change it and select "turn off" the led.



And now you have to do repeat the same process but changing the "led 2" for "led"

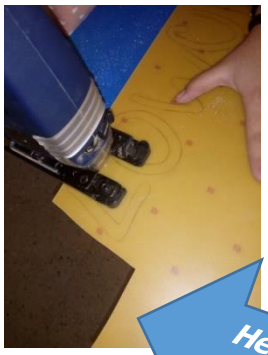
Manufacturing the amusing 3D printed letters

Once you have coded your Arduino board, you will have to put the leds in the letters, so they light and make amazing effects.

These letters have been modeled with FreeCad and printed with our own 3D prineters, then we have putted the leds inside and in addition you will have to install the different components on the Arduino board.

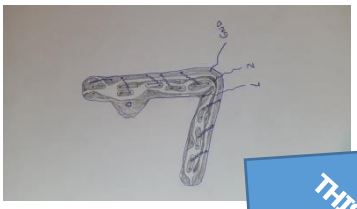
Here we are drilling the3D letters

Here we are putting the leds inside



Here we are cutting the papaerboard letters

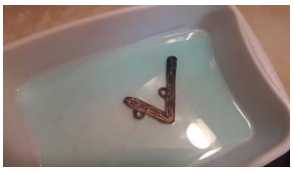
Here we are perforating the letters

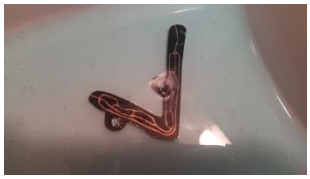


THIS IS THE DESIGN OF THE CIRCUIT FOR THE LETTERS

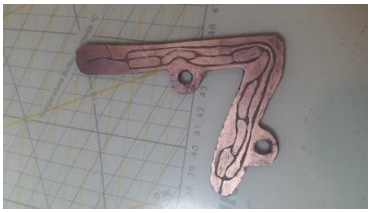
THIS IS THE LETTERS FROM ONE SIDE AND THE OTHER SIDE

HERE WE ARE DRAWING THE CIRCUIT

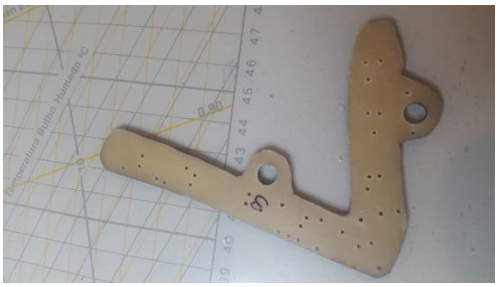




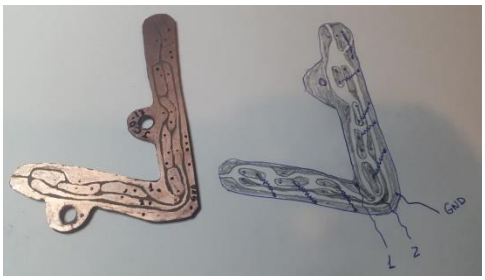
WE ARE APPLYING A CHEMICAL ATTACK



BEFORE **AFTER**



HERE WE ARE DRILLING



HERE WE ARE COMPARING THE REAL LETTER WITH THE DESIGN

HERE THE CIRCUIT IS INSTALLED IN THE LETTER

IN THIS PICTURE THE LEDS ARE PLACED IN THE LETTERS

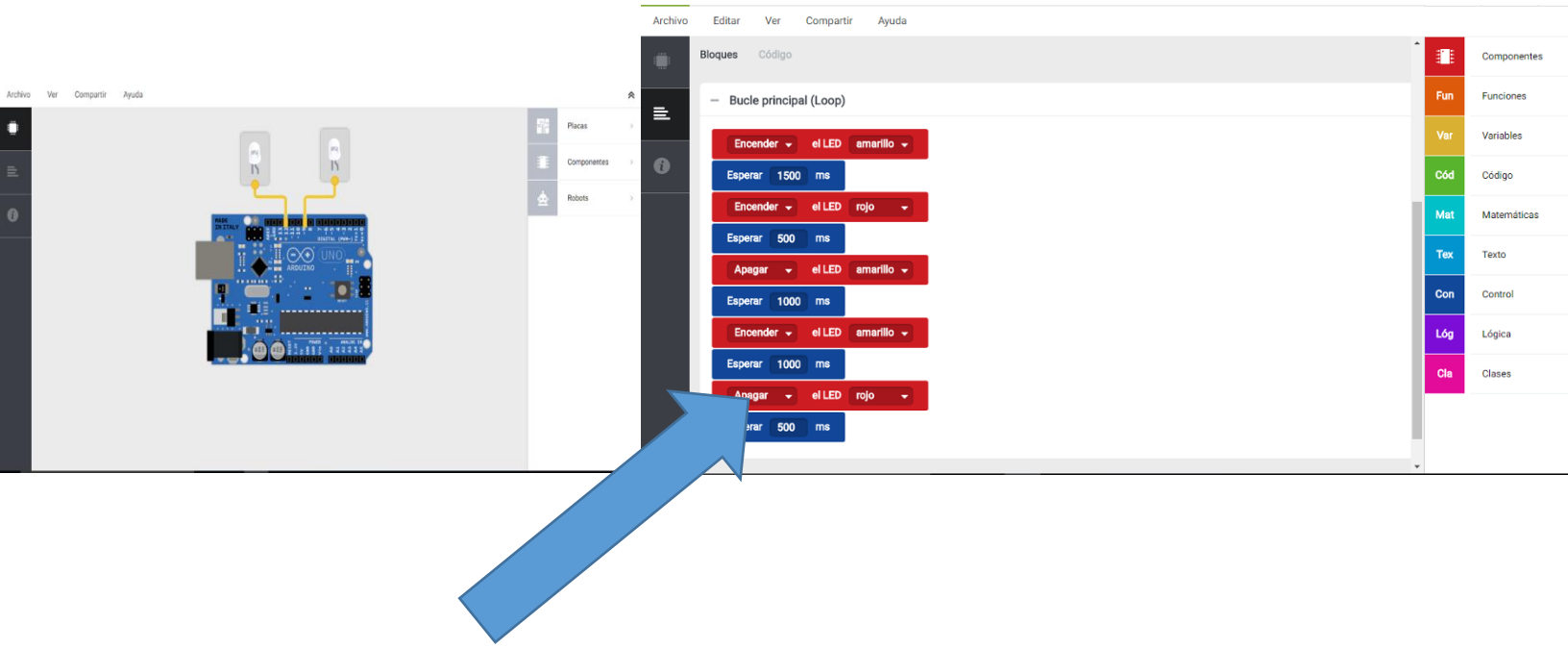
IN THIS PART OF THE PROCESS THE RESISTORS ARE PLACED IN THE CIRCUIT WITH THE LEDS

IN THIS PICTURE WE HAVE PLACED YHE PRINTED LETTERS JUST ABOVE THE CIRCUIT WITH THE LEDS

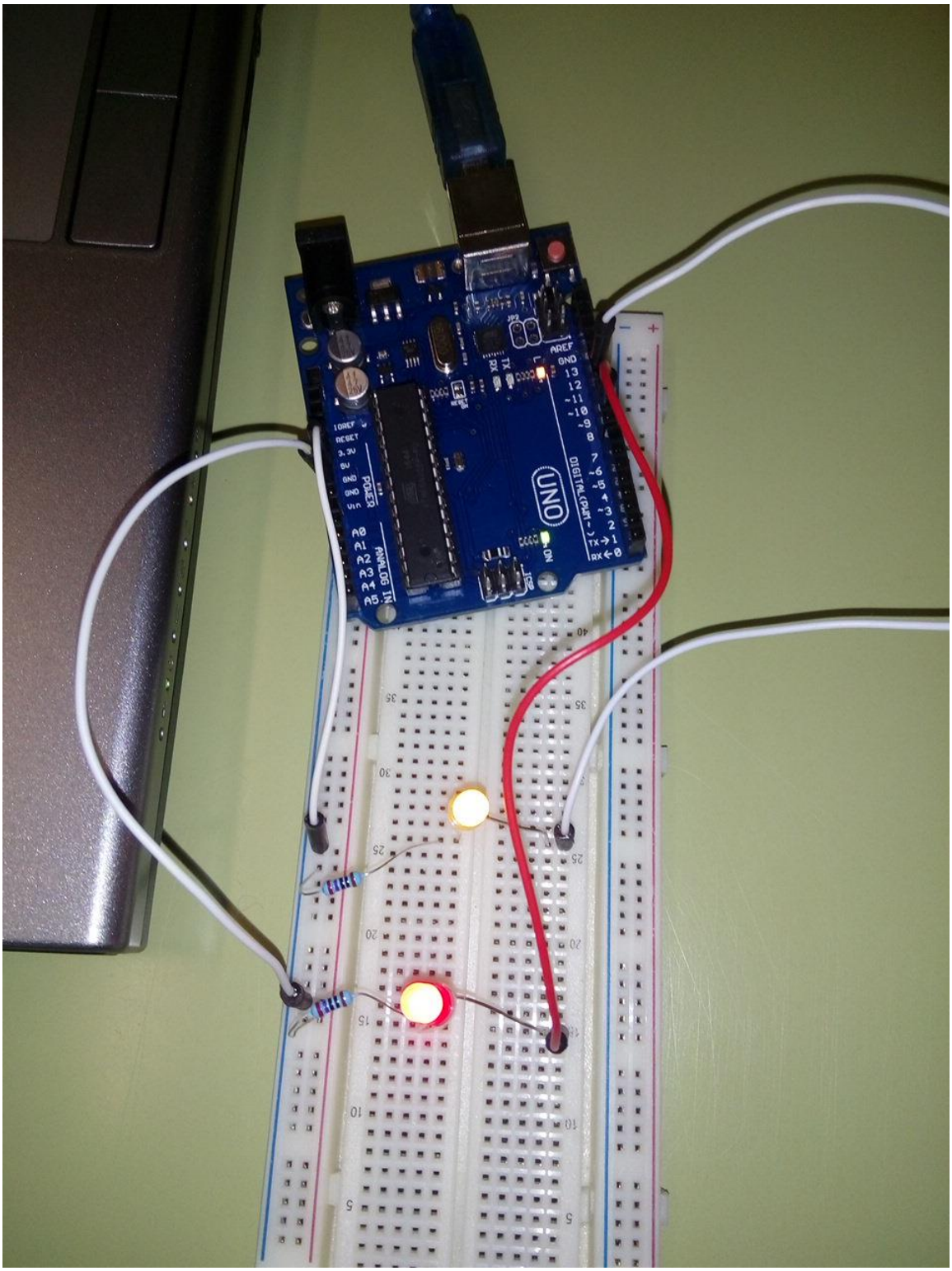
THIS ARE THE LEDS FINISHED


ICT
WORLD
And this is our work finished

Then you have to code your Arduino like that do not forget to put two leds.



"Encender" means turn on, "apagar" means turn off and "esperar" means wait.



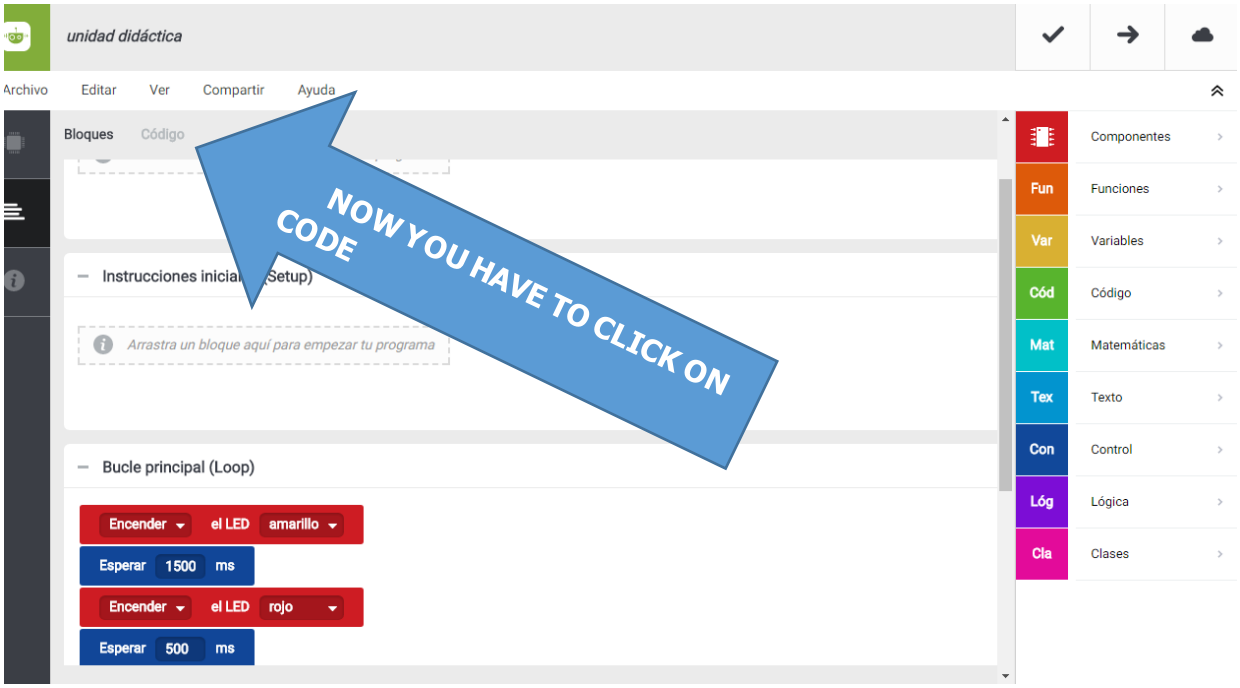
YOUR PROTOBOARD SHOULD BE INSTALLED LIKE THIS.

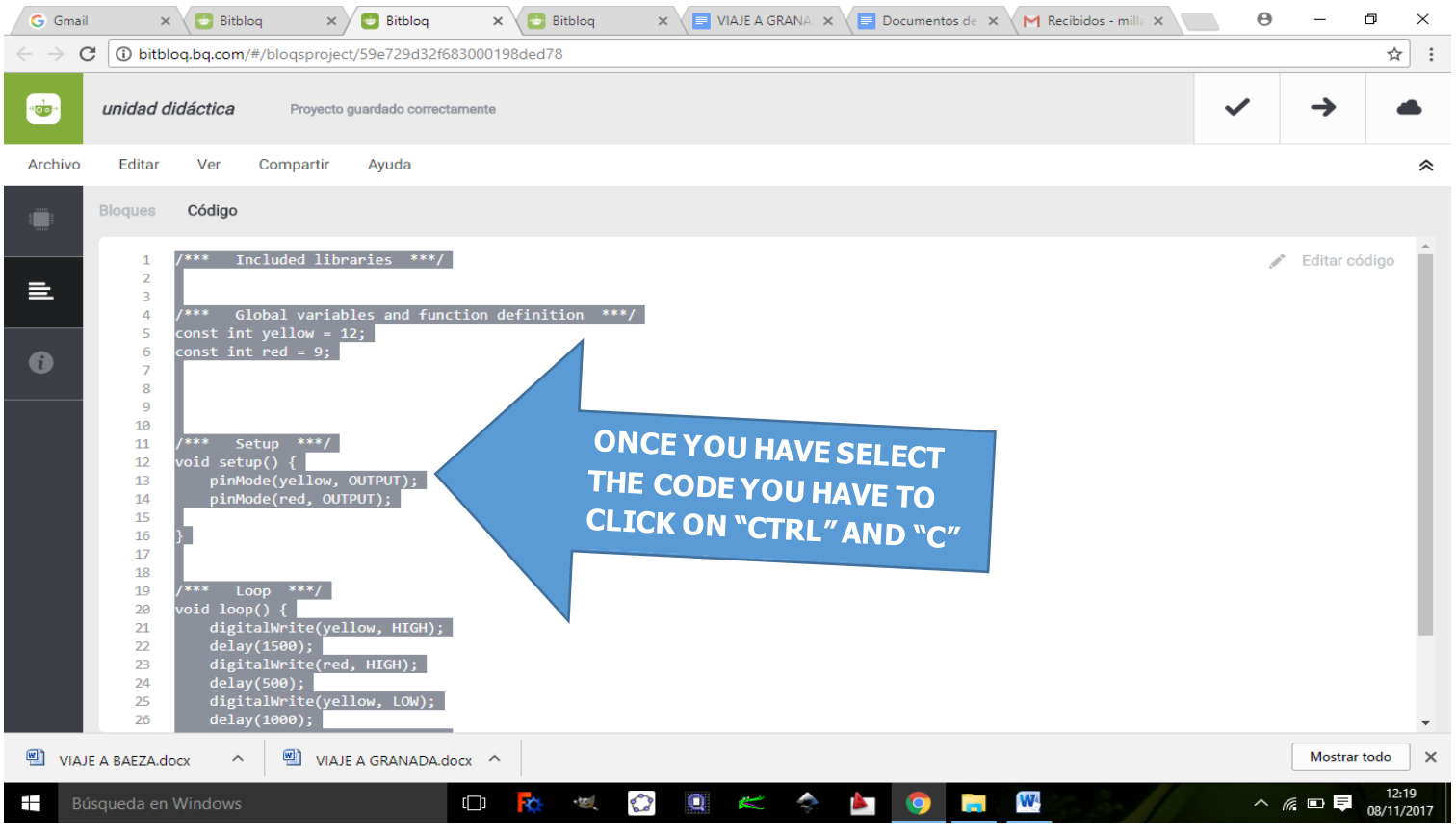
So now it is your turn!

You will have to code the Arduino board using the instructions we have given you. You are free to make whichever effect you want and later we will join the letters in order to do the sentence "ICT WORLD". So finally we will make an impressive total effect.

ID Arduino

In addition we can code Arduino using first Bitbloq.





NOW YOU HAVE TO OPEN THE ARDUINO APP.