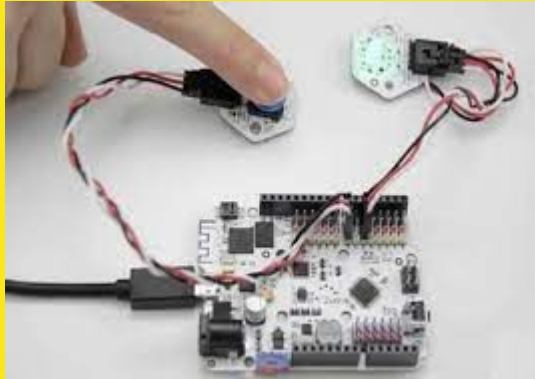


# Planifying arduino projects in an easy way with blocs



**JOSEP MARIA PERELLÓ GREGORI**

**INSTITUT TORRE VICENS. Lleida. Spain.**

# Index

What is Arduino?

Why would we introduce Arduino in our classroom?

Technologic project examples

Project Based Learning steps

Break

Share ideas



# Arduino

## Què és Arduino?

- Arduino és una plataforma electrònica *open-source* basada en maquinari i programari “fàcil de fer servir.”



**Arduino** is a single -board micro controller for building digital devices. Its hardware products are licensed under a CC-BY-SA license. Arduino board designs use a variety of microprocessors and controllers. The boards are equipped with sets of digital and analog input / output (I/O) pins that may be interconnected to various expansion boards ('shields') or breadboards (for prototyping) and other circuits. During this meeting, we will try to analyse its applications and the main phases to develop an STEM project with an Arduino control unit. We will show some examples fully designed and developed for our students.

# What is arduino?

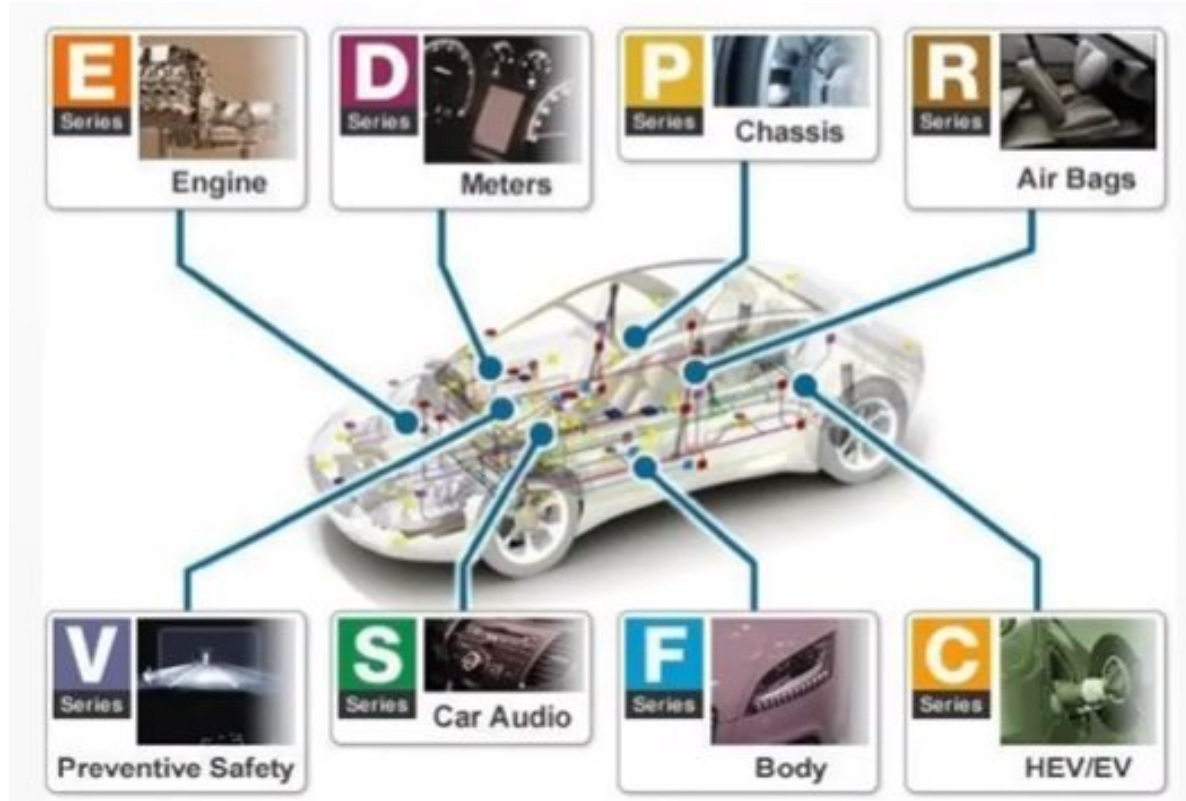
Arduino hardware provides a platform to facilitate the programming of a microcontroller.



# What is arduino?



# What is arduino?



## What is arduino?

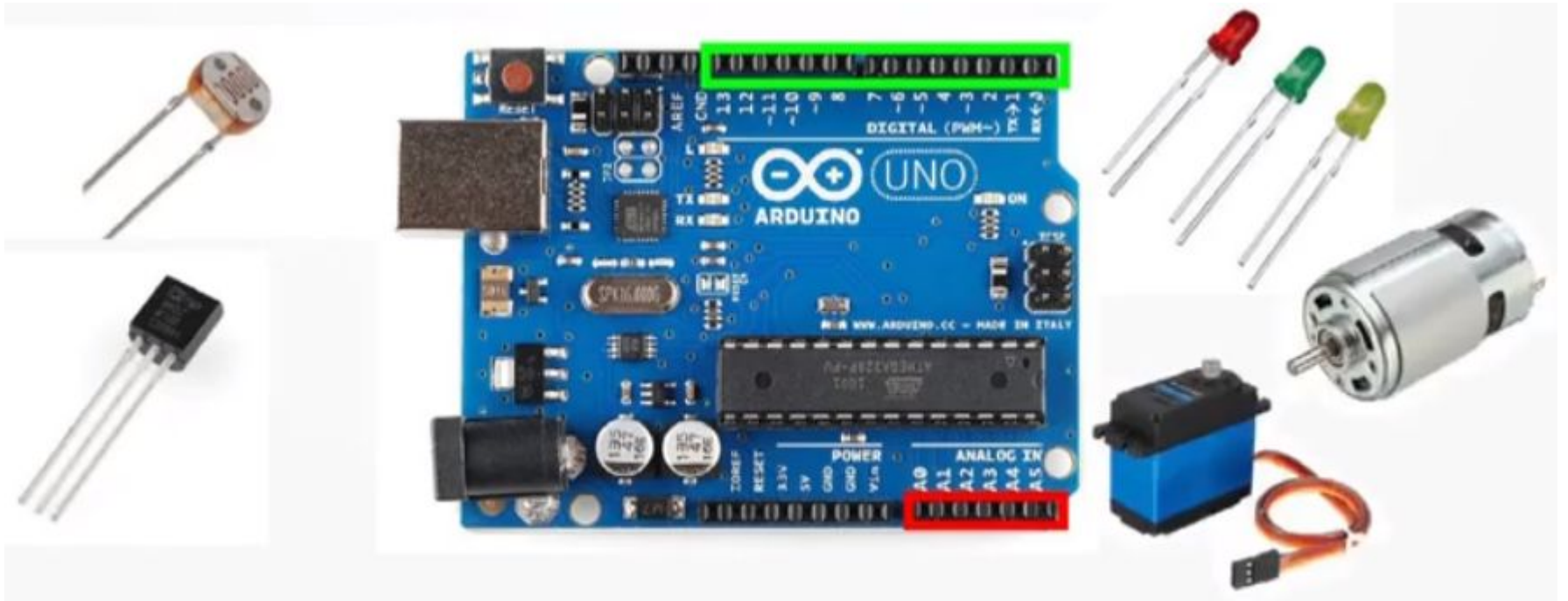
The boards are equipped with sets of 16 digital and analog input / output (I/O) pins that may be interconnected to various expansion boards ('shields') or breadboards (for prototyping) and other circuits.

## Why is arduino so popular?



# What is arduino?

We could connect the following input / output pins.





# What is arduino?

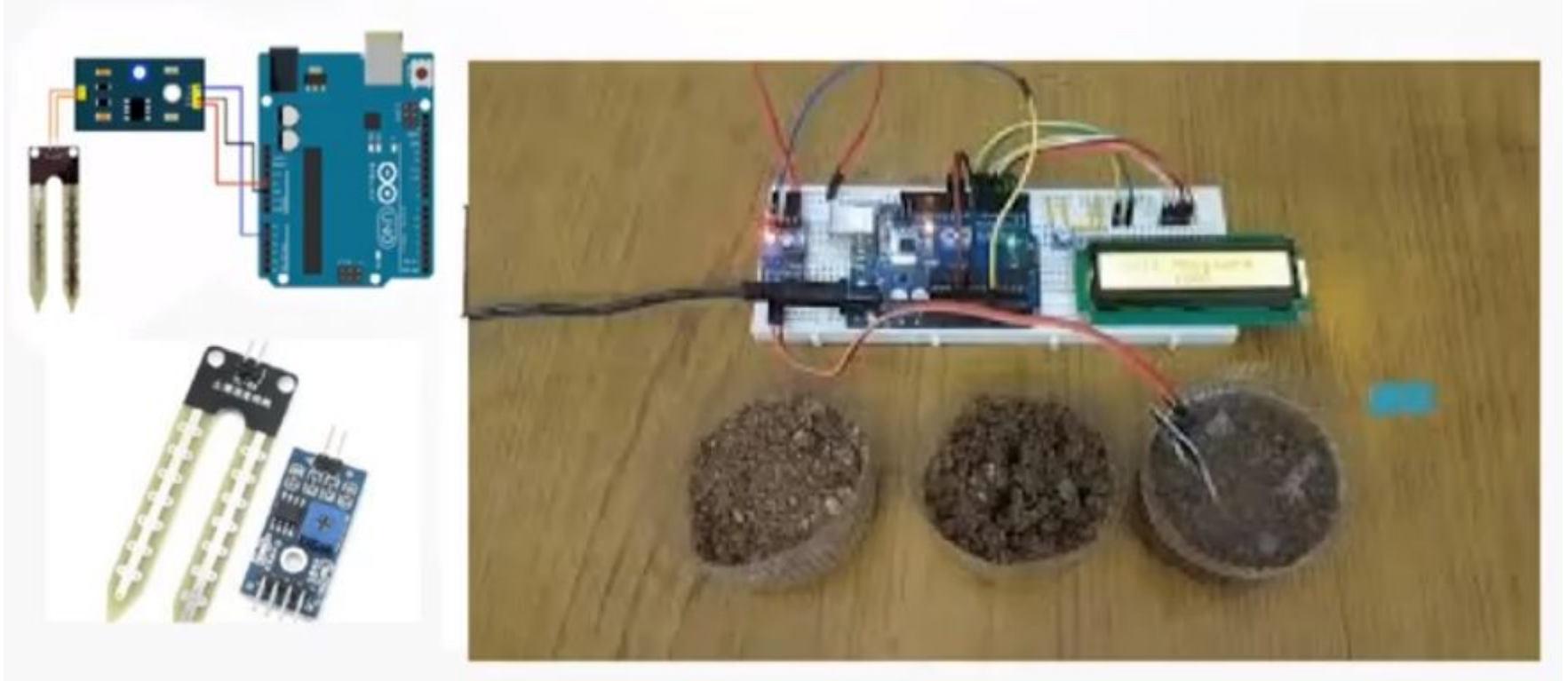
There are special sensors made it for arduino.



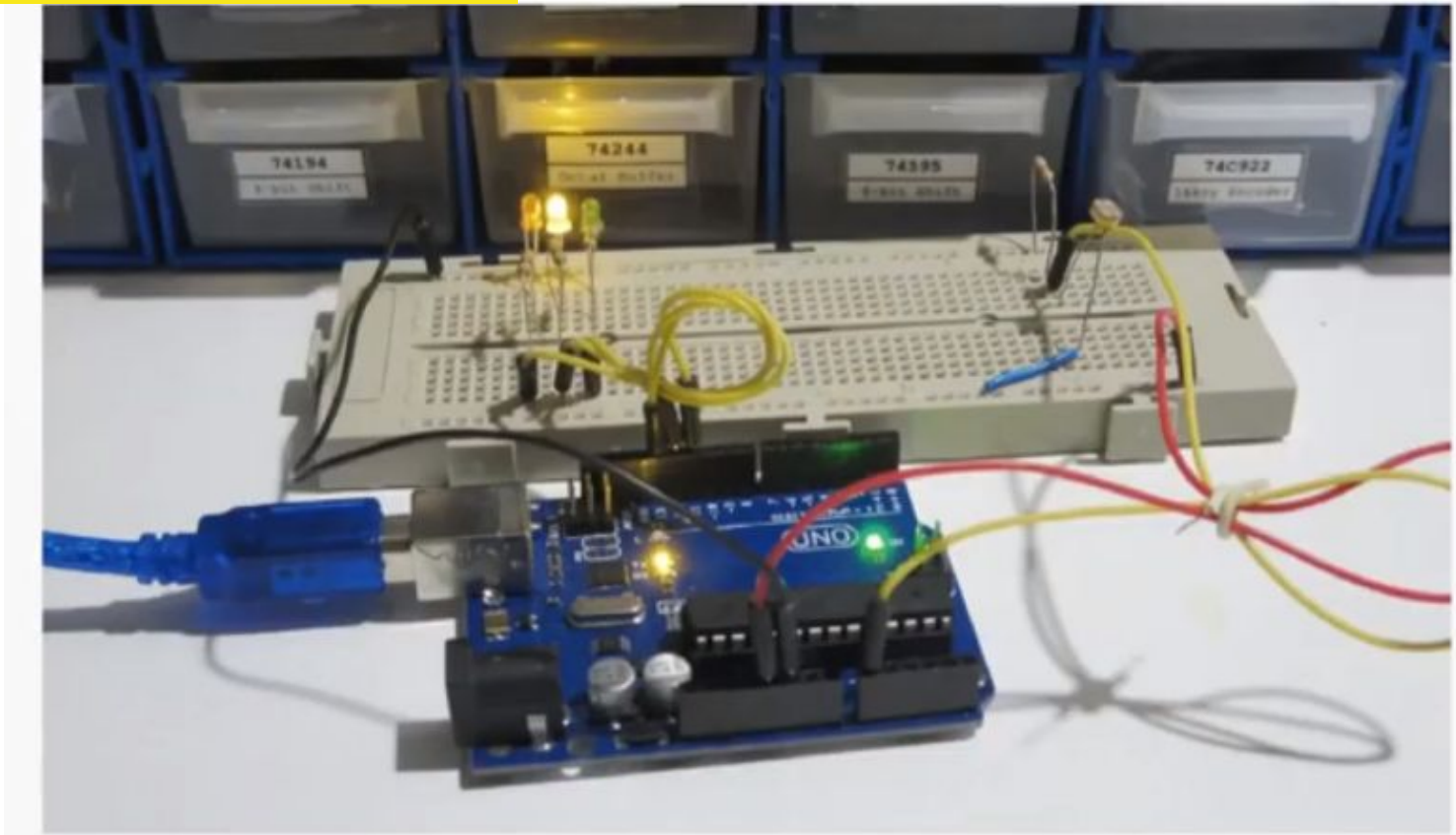
[WEBSITE](#)

What is arduino?

Humidity soil sensor

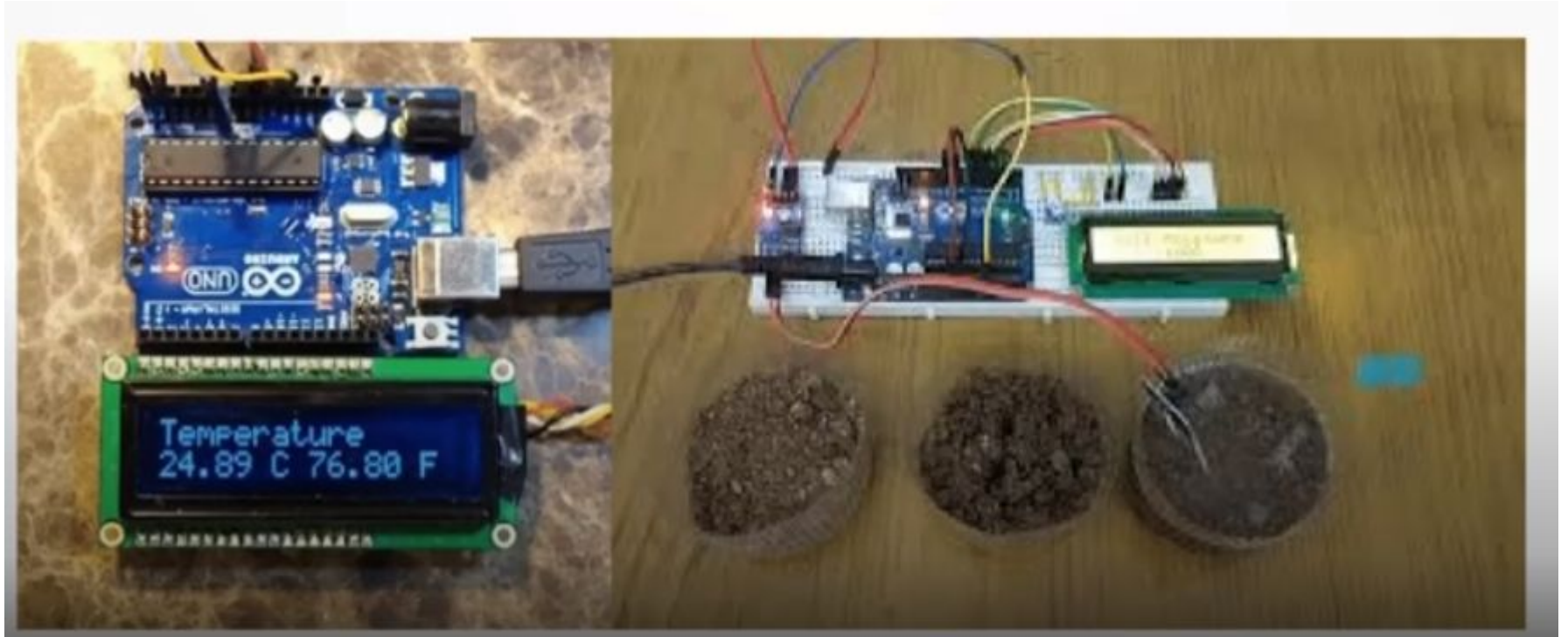


# SIMPLE PROJECT: LEDS



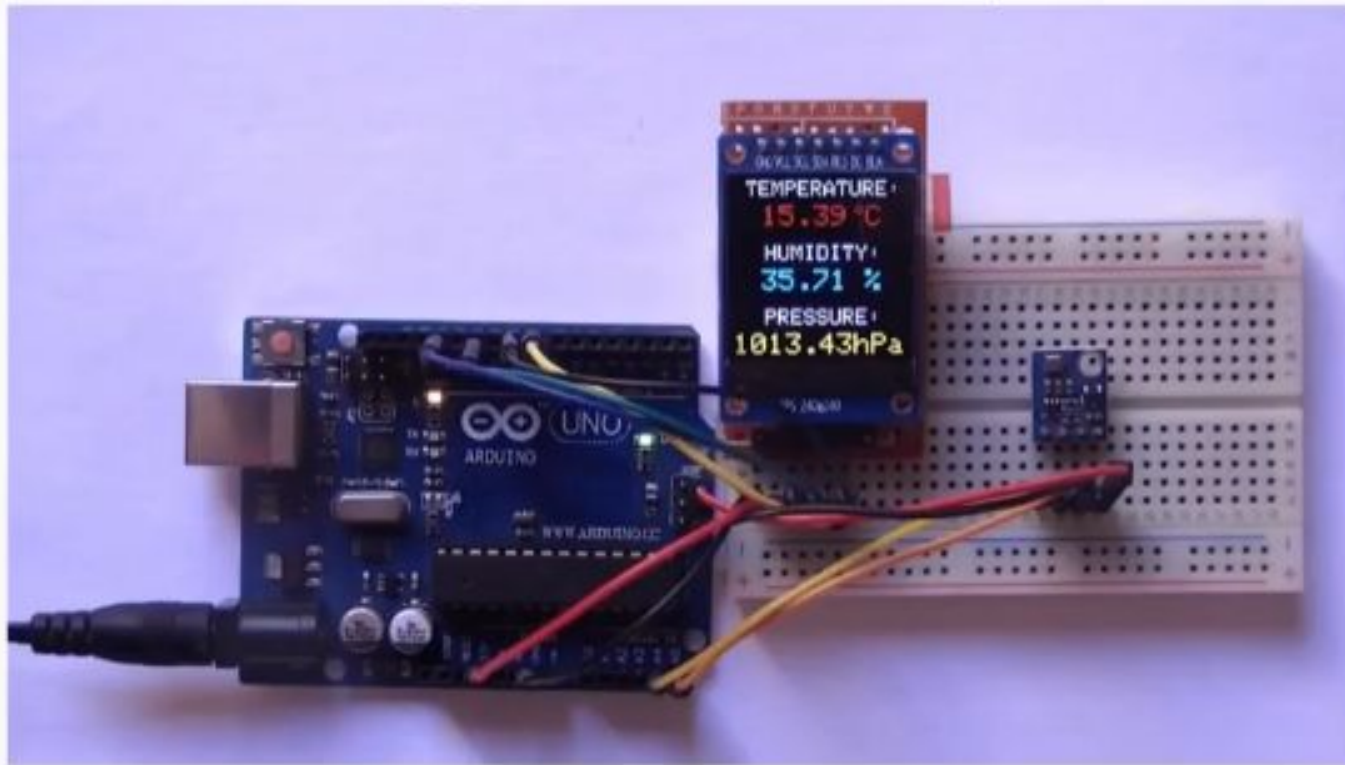
What is arduino?

Temperature sensor



What is arduino?

Weather station



[More ideas](#)

# WEATHER DATA COLLECTING STATION



## Channel Stats

Created: 3 months ago

Last entry: less than a minute ago

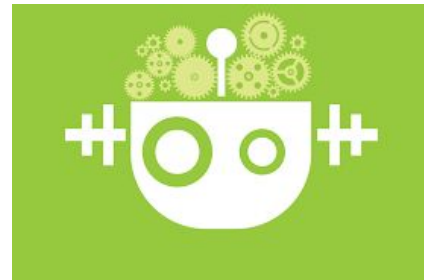
Entries: 65998

## ANALYSING THE RESULTS IN GRAPHS

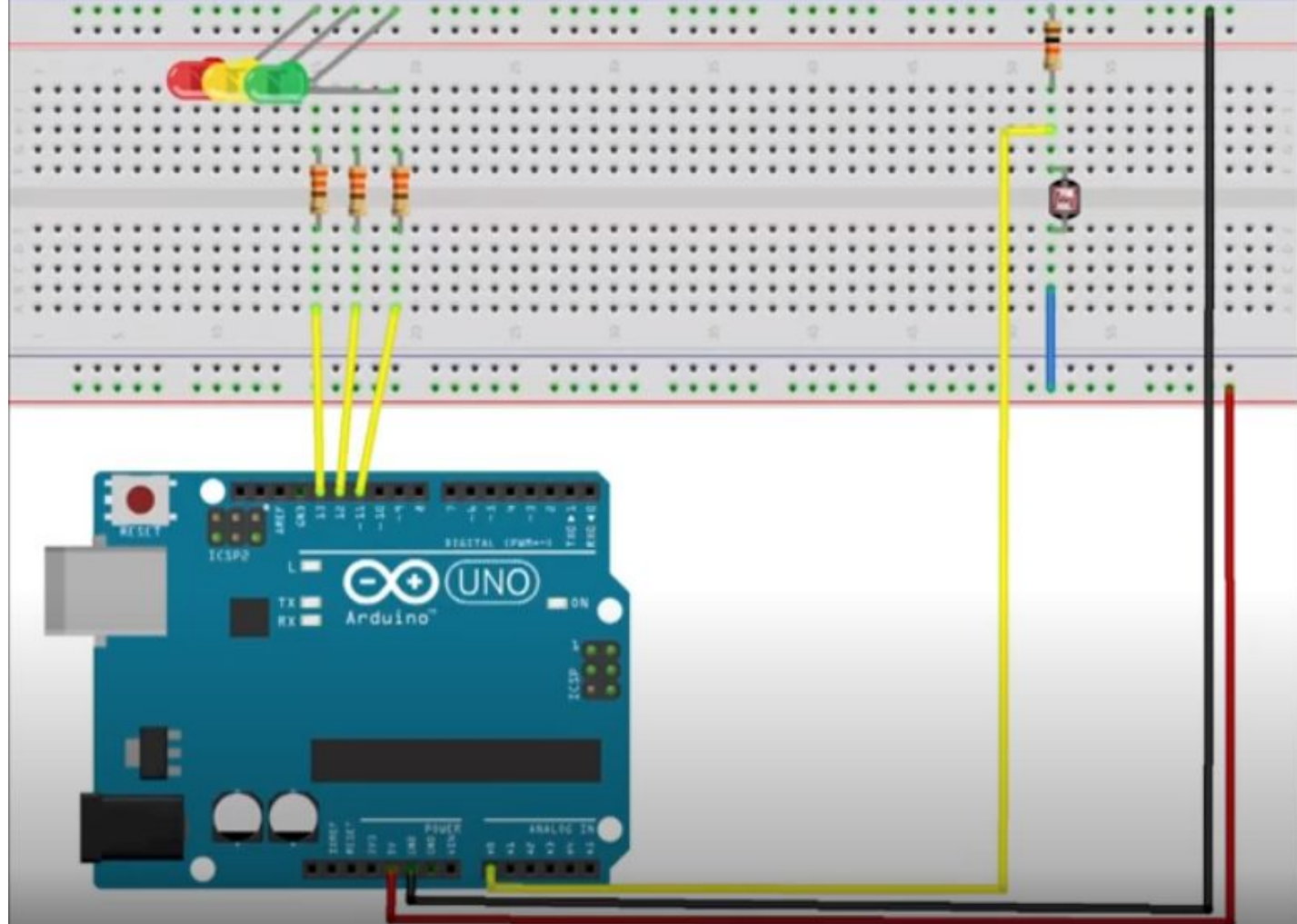


# WHAT'S IS THE FOCUS THAT WE IMPLEMENTED IN ROBOTIC TEACHING?

- Arduino allows us to develop robotic projects that would be easy to understand and implement by our students.
- Specially if they program it using the block programming technology.
- We do it using bitbloq







# **IMPLEMENTING ROBOTICS FROM ZERO TO 100% (1)**

**STEP BY STEP STRATEGY.**

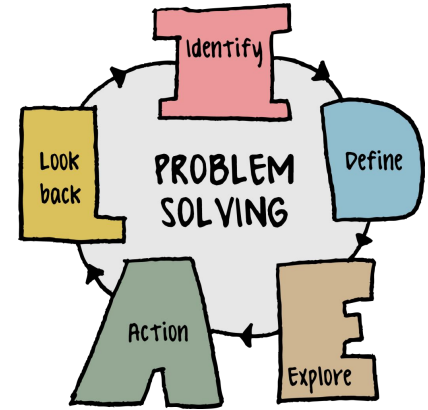
**4 GROUPS OF STUDENTS. 4-5 STUDENTS PER GROUP.**

**BRAINSTORMING ABOUT A NEED THAT WE WANT TO SOLVE WITH OUR PROJECTS.**

**DISTRIBUTING TASKS AMONG THE MEMBERS OF EACH GROUP.**

# IMPLEMENTING ROBOTICS FROM ZERO TO 100% (2)

- **SELECTION OF A LEADER IN EACH GROUP AND LET THESE LEADING PERSONS LEARN THE BASICS OF PROGRAMMING IN ORDER TO TRANSMIT IT TO THE OTHER MEMBERS (JIGSAW METHODOLOGY).**
- **THE START: WHICH NEED DO WE WANT TO SOLVE (PROBLEM SOLVING).**



# IMPLEMENTING ROBOTICS FROM ZERO TO 100% (3)

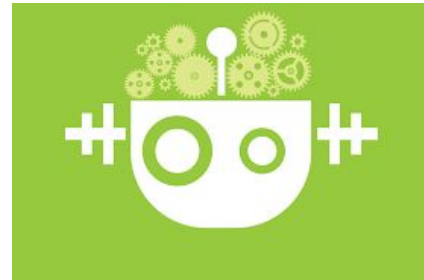
- **FIRST DESIGN OF THE PROTOTYPE THAT WE WANT TO IMPLEMENT IN EACH GROUP.**
- **LIST OF MATERIALS REQUIRED FOR EACH PROJECT (SPECIALLY REUSING RECYCLED MATERIALS).**

Journey through Prototypes



# IMPLEMENTING ROBOTICS FROM ZERO TO 100% (4)

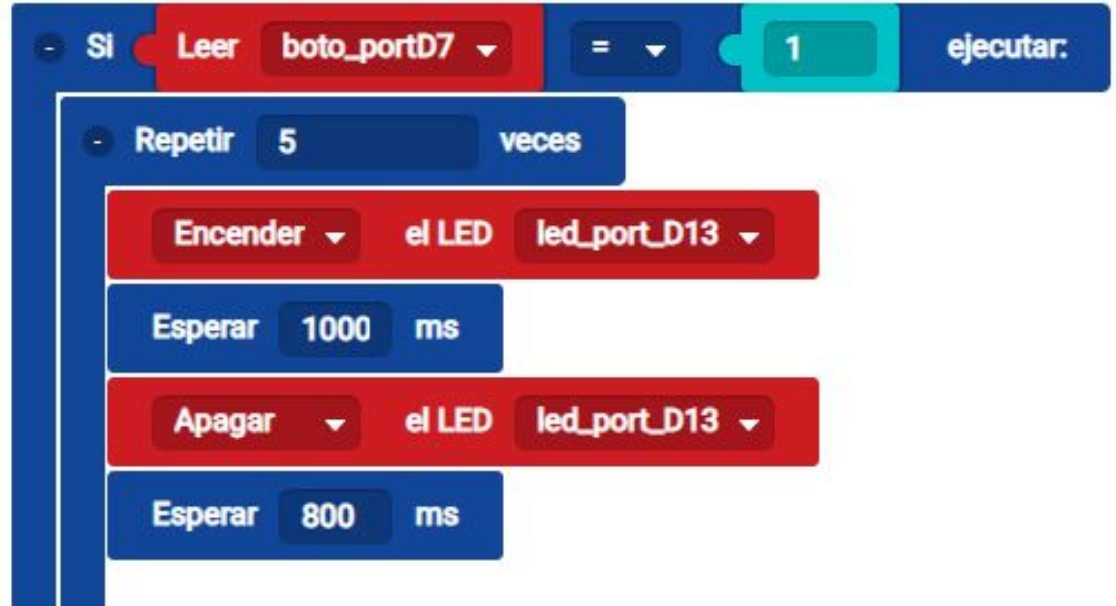
- **LEARNING THE BASIS OF BLOCKS PROGRAMMING WITH ARDUINO BITBLOG, USING THE BLOCKS TECHNOLOGY.**  
**FIRST DESIGN OF THE PROTOTYPE THAT WE WANT TO IMPLEMENT IN EACH GROUP.**
- **LIST OF MATERIALS REQUIRED FOR EACH PROJECT (SPECIALLY REUSING RECYCLED MATERIALS).**



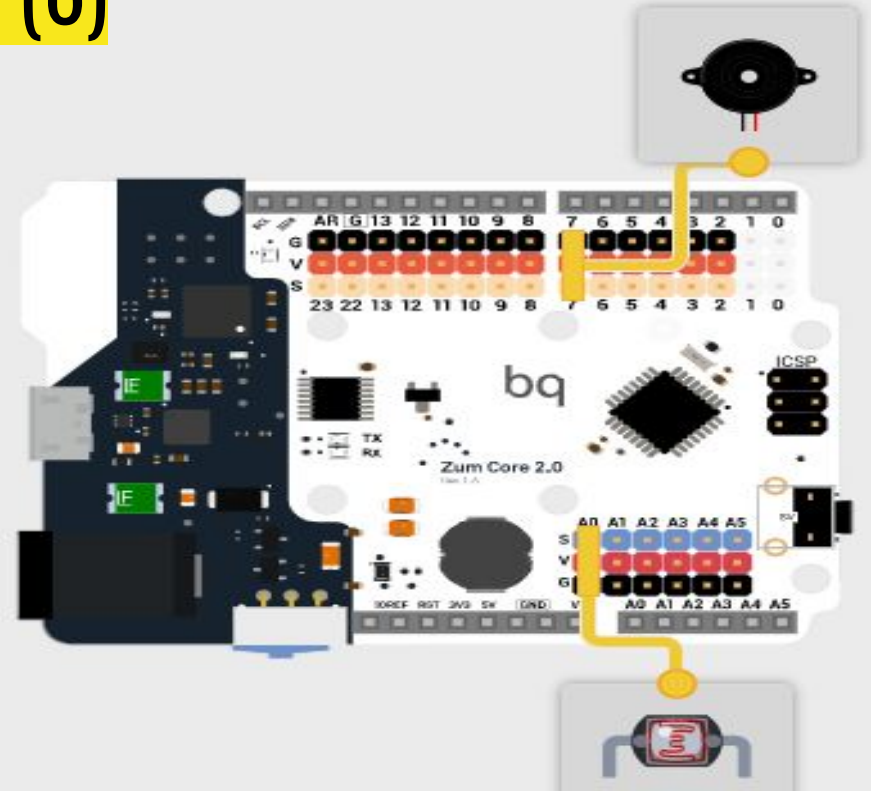
# IMPLEMENTING ROBOTICS FROM ZERO TO 100% (5)

- **LEARNING TO PROGRAM THE ARDUINO BOARD USING BLOCKS OF PREDEFINED ACTIONS.**

– Bucle principal (Loop)



# Diagram arduino plate (6)



# Football table project

