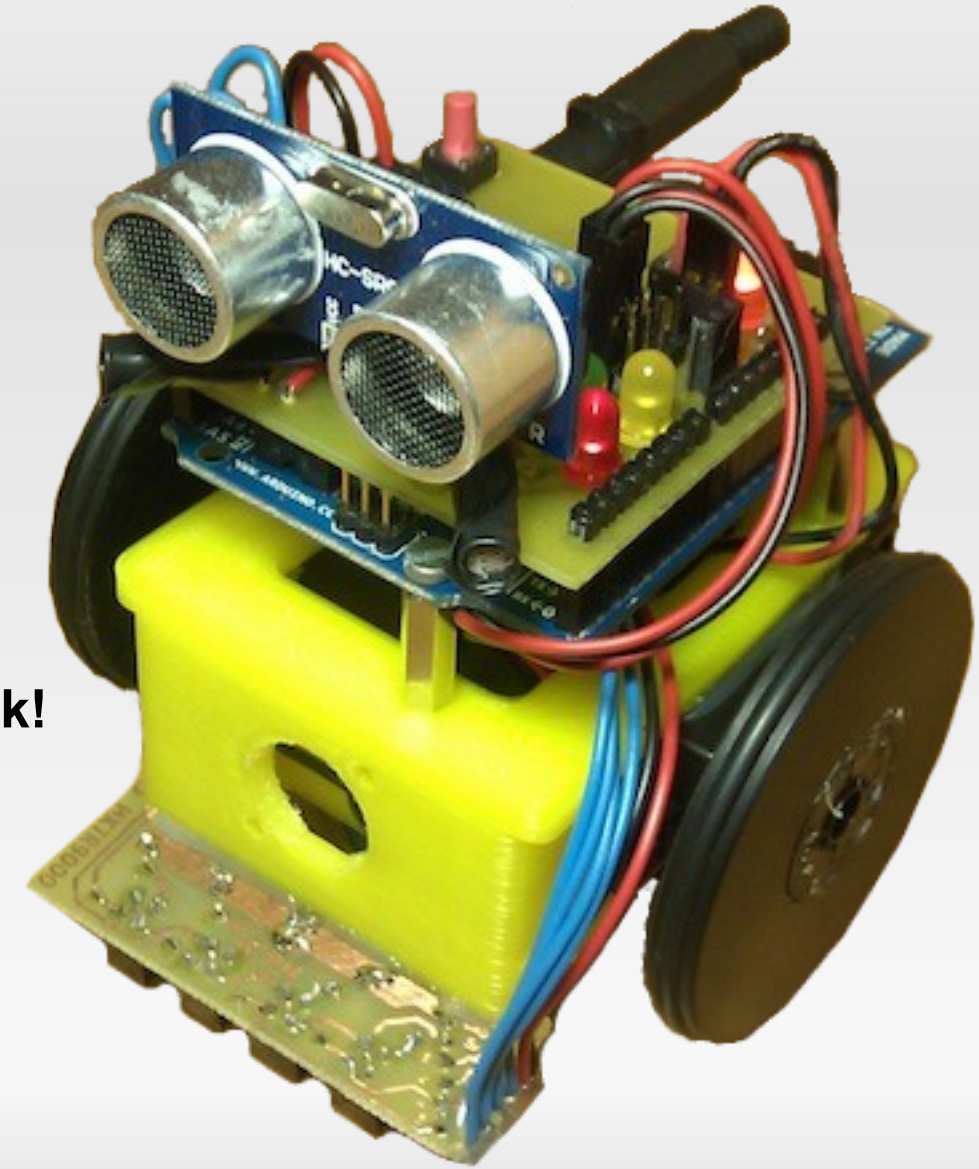
Lesson 1 - Introduction

ArduSkyBot 2012 Summer Workshop

Today you will learn:

- Basic **components of a robot.**
- What is **Arduino** and how to program it.
- Meet the **ArduSkyBot!**
- You will **play music and make LED's blink!**

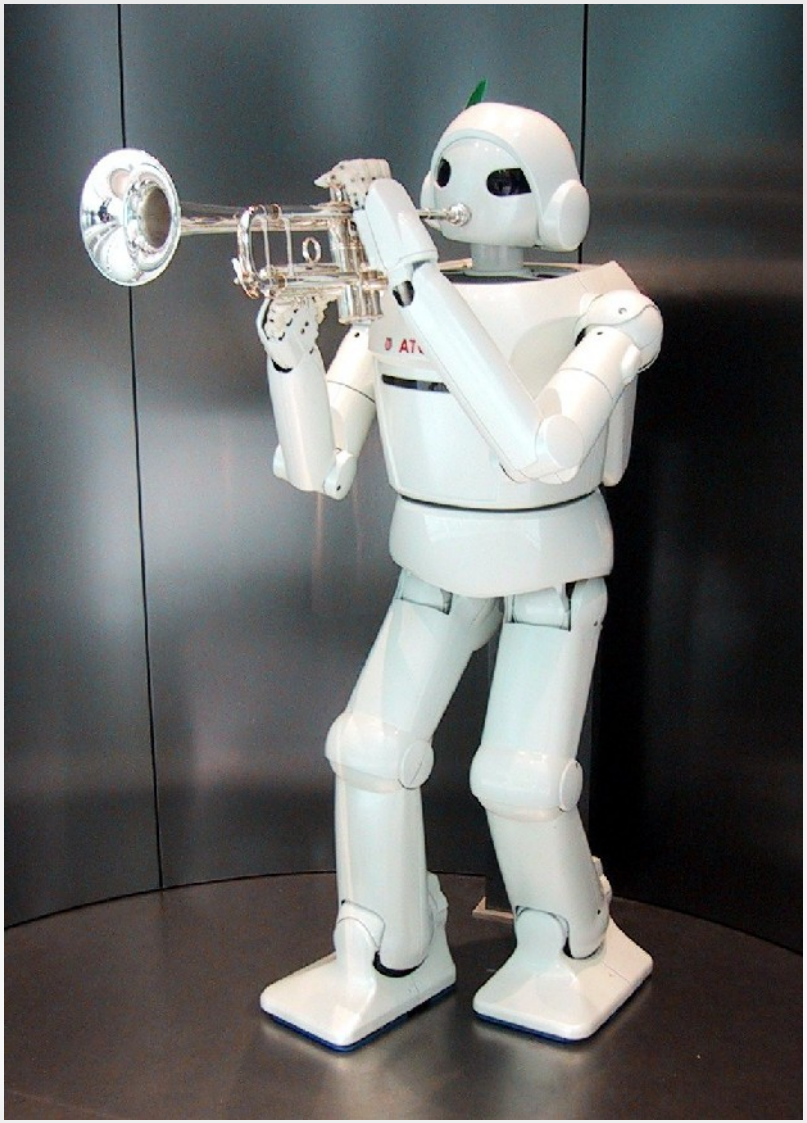


Organized by: Carlos García Saura

July-August 2012

What is a robot?

Autonomous device
that is able to make
pre-programmed tasks



Components of a robot

Sensors

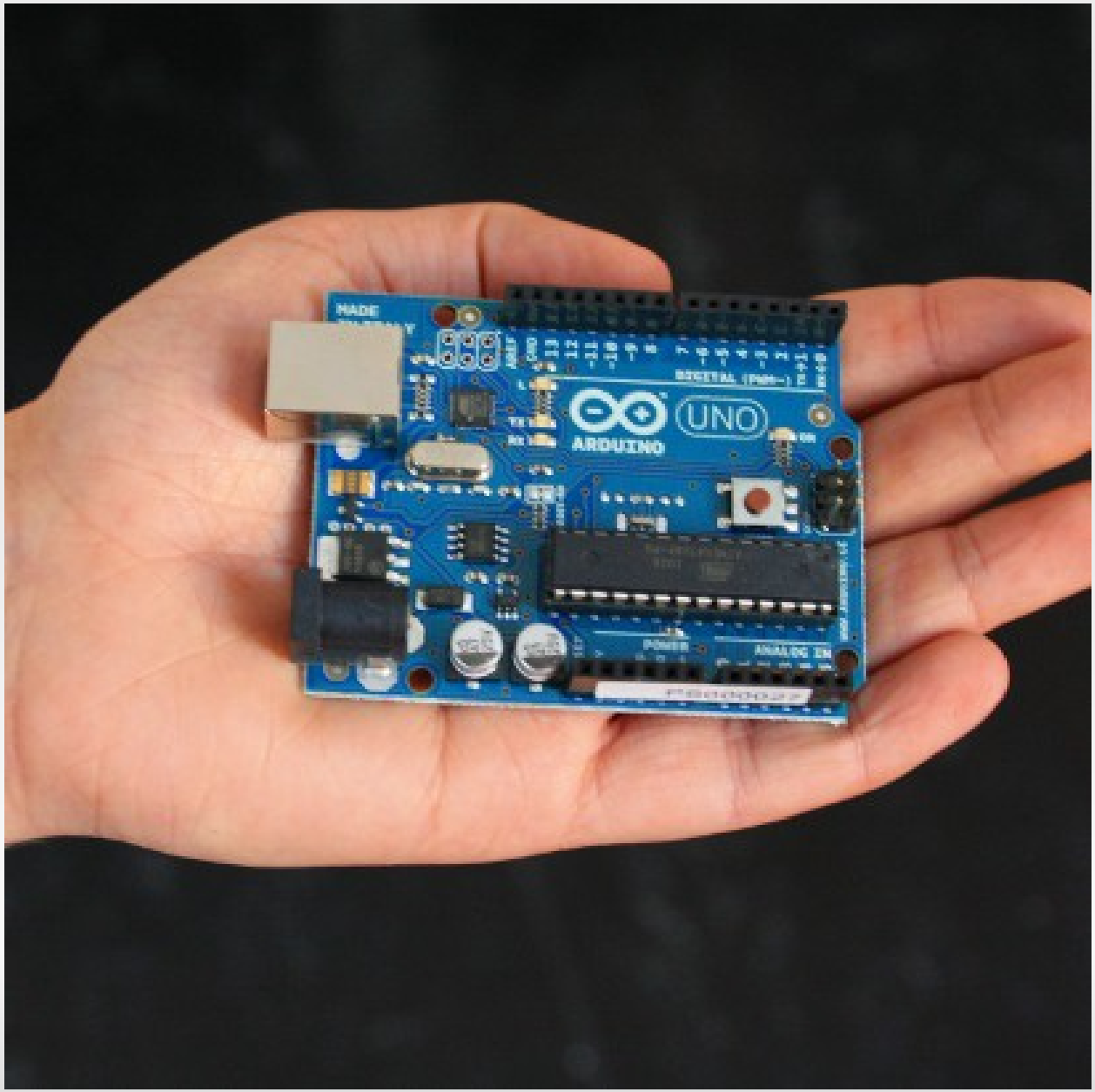
Actuators

Arduino

Open source electronics platform

It is the “brain” of our robot!

You can program it with a computer



Arduino (2)

People make crazy projects

Automatic feeder

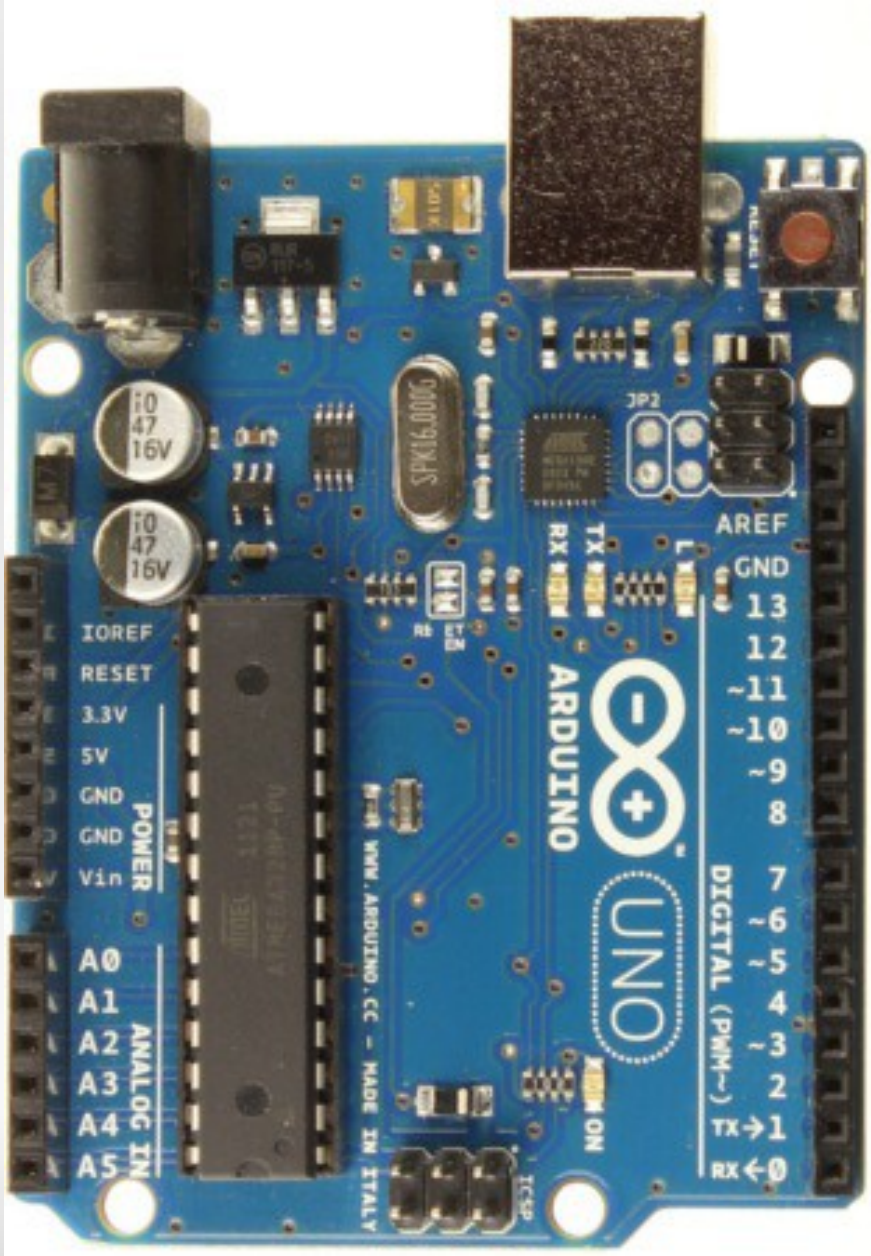
Automatic toilet flush:
http://www.youtube.com/watch?v=4k899QWsJwI

Arduino paper cat:
http://www.youtube.com/watch?v=ZzZ4_g4YzxY

Arduino (3)

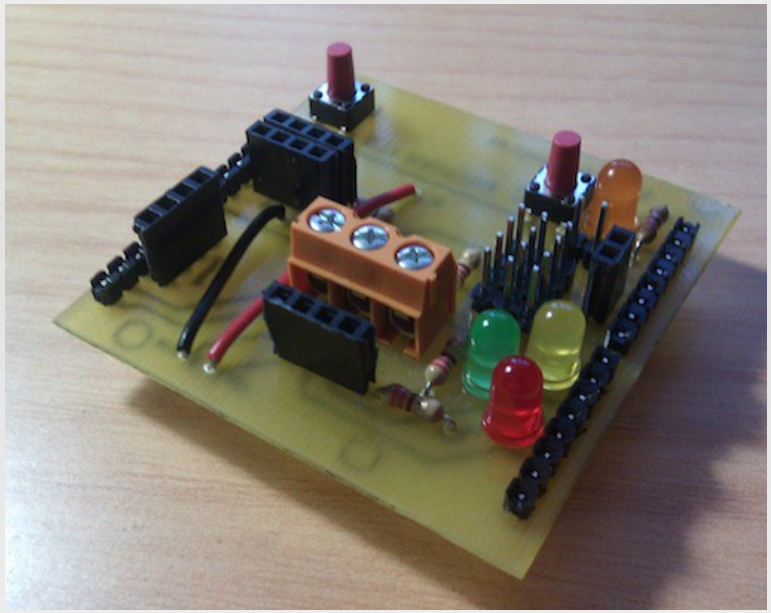
We are using Arduino UNO
It has lots of input/output pins

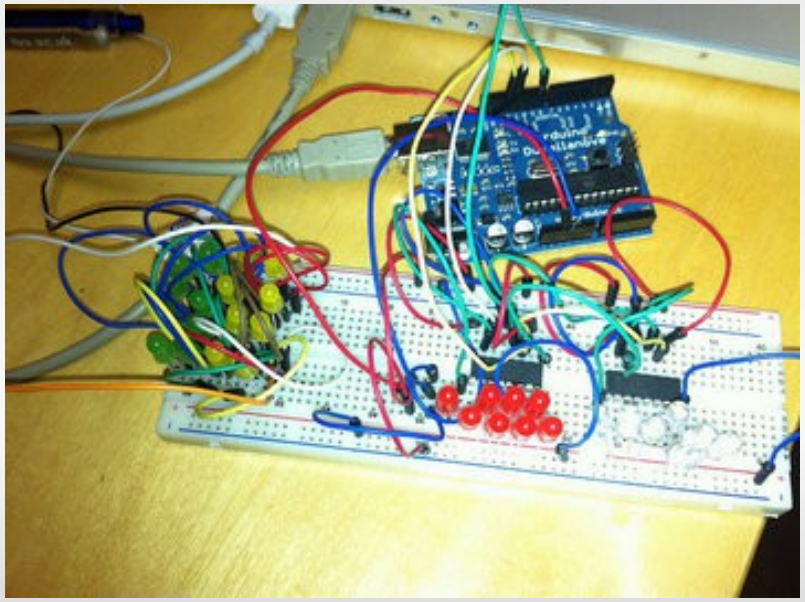
You can connect any kind of sensors and actuators

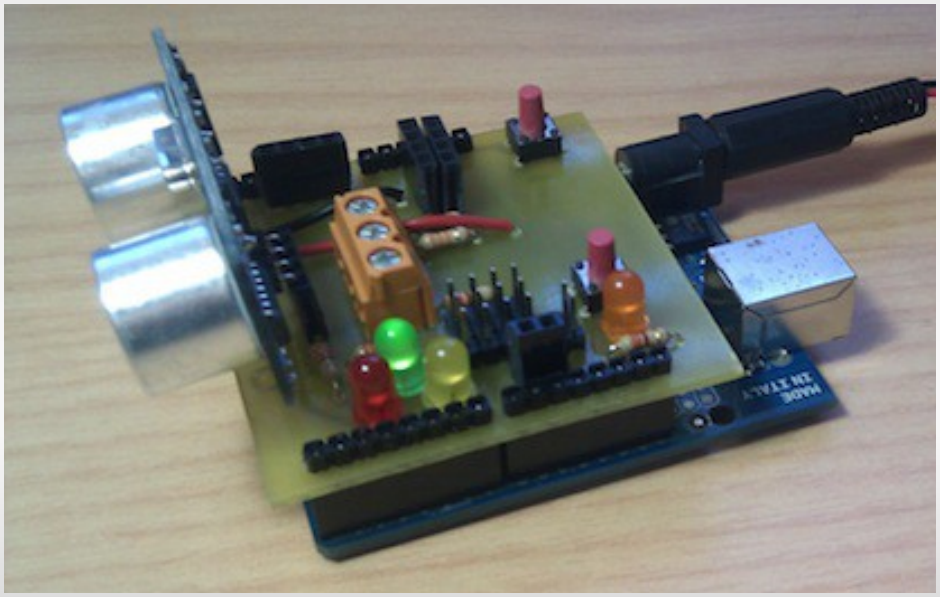


Arduino & Printshield

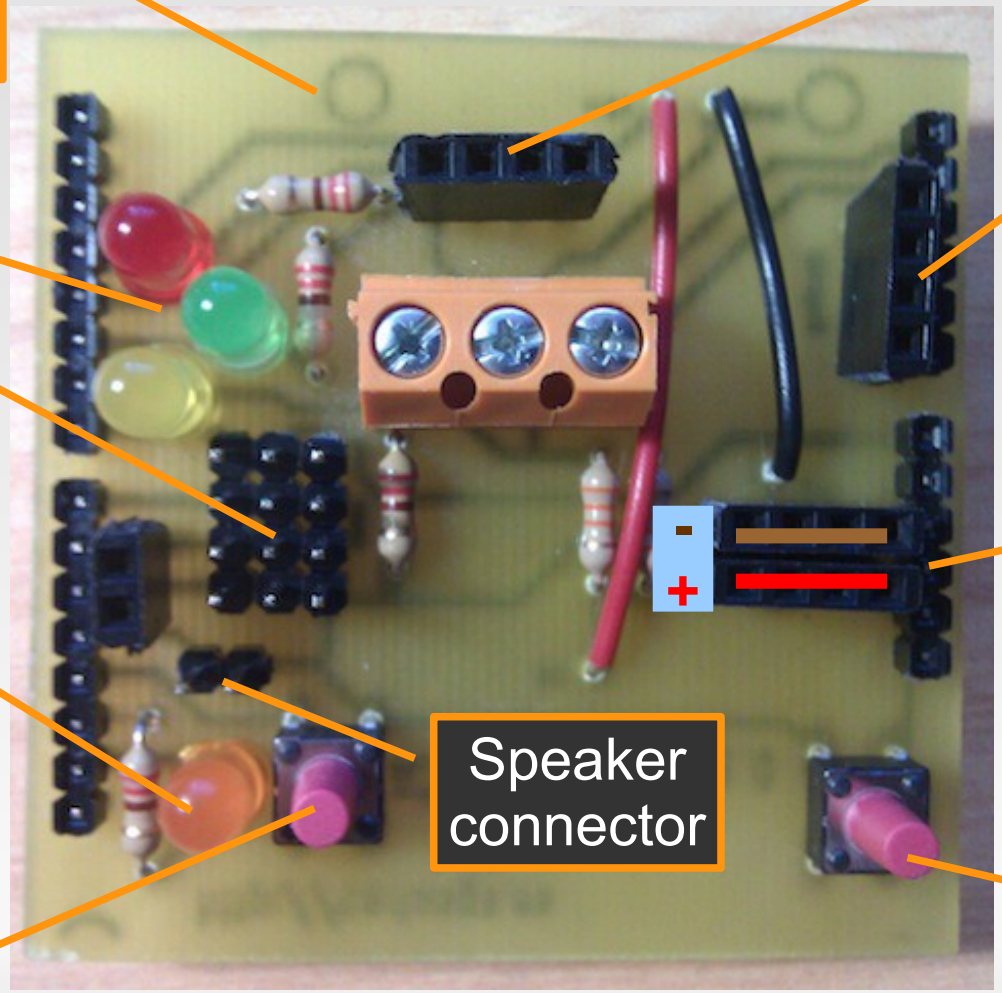
Compact electronics using an Arduino UNO with a Printshield







Printshield



Connector for light sensors

LED lights

Connectors for servo-motors

Another LED light

Push button

Connector for distance sensor

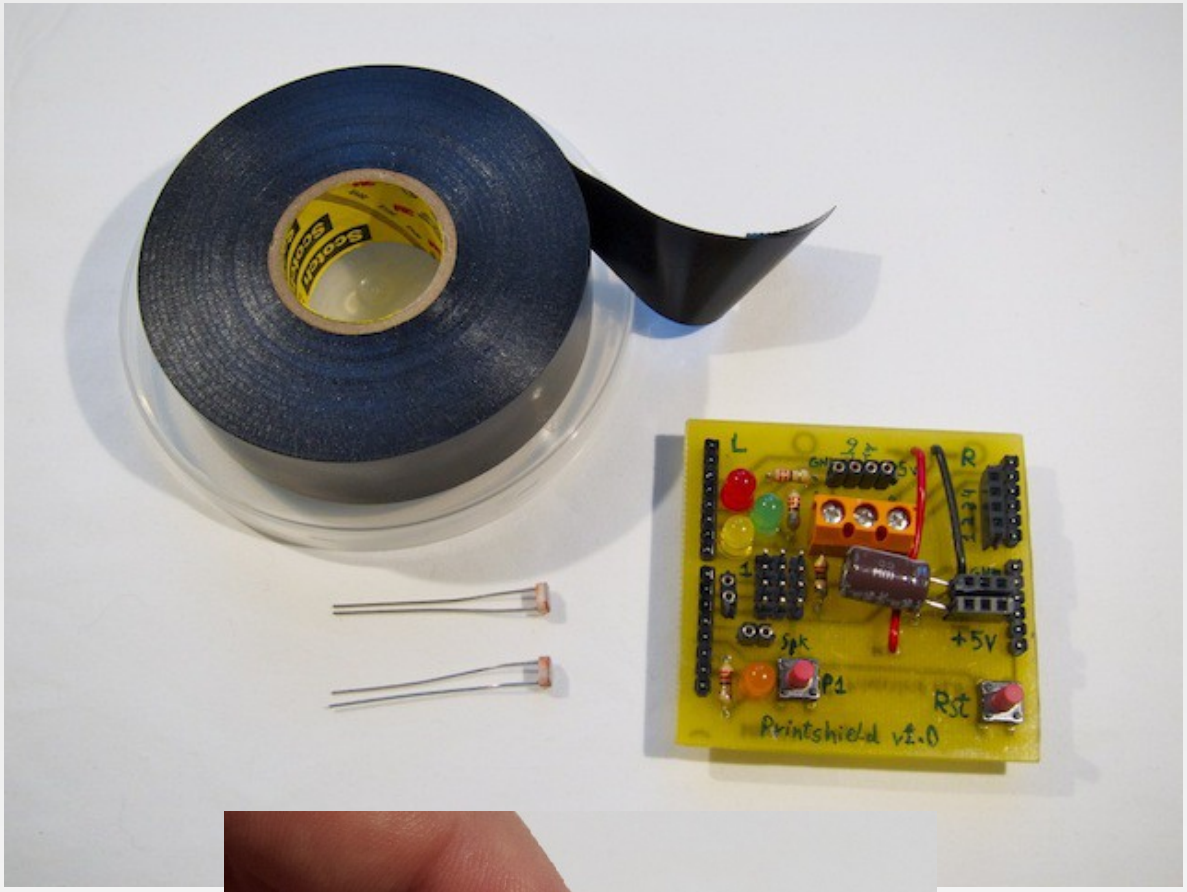
Connector for line sensor

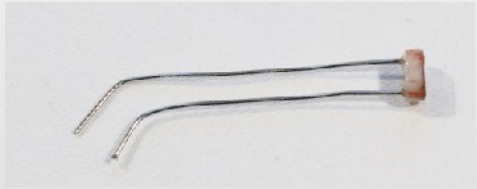
5V Power line

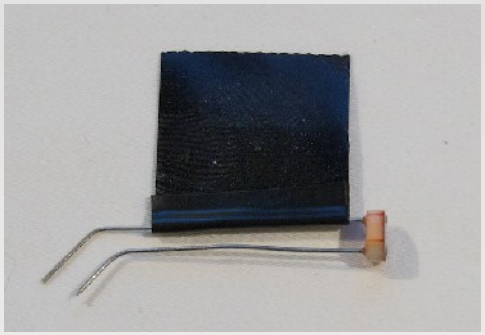
Speaker connector

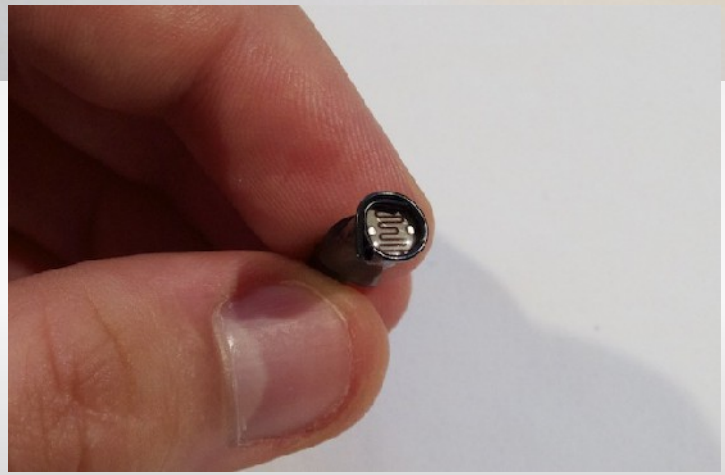
Restart/reset button

Assembling the Printshield (1)



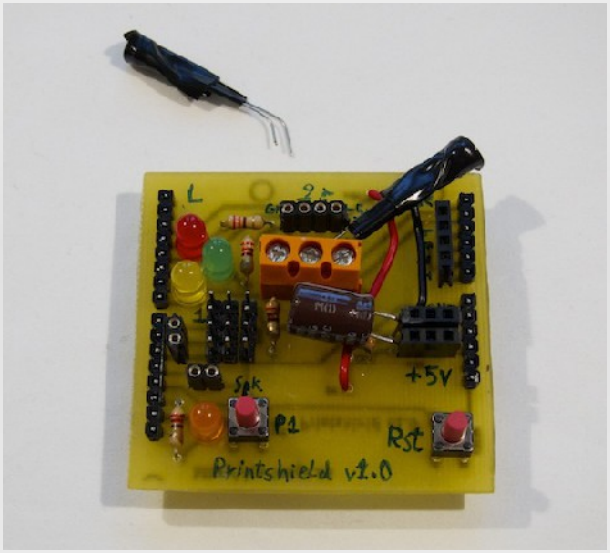


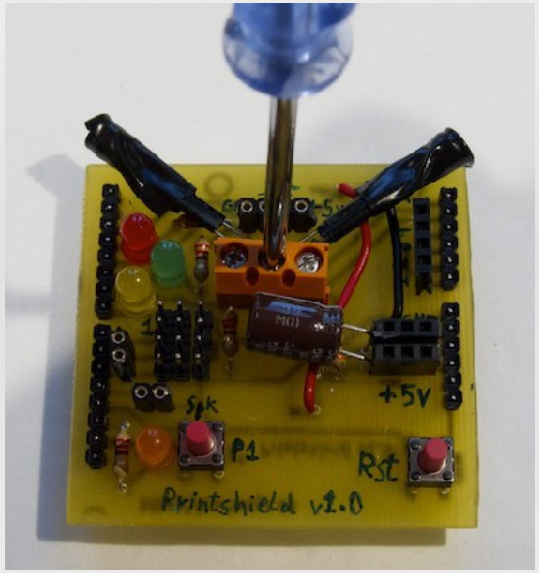




First we need to insulate the light sensors with black tape

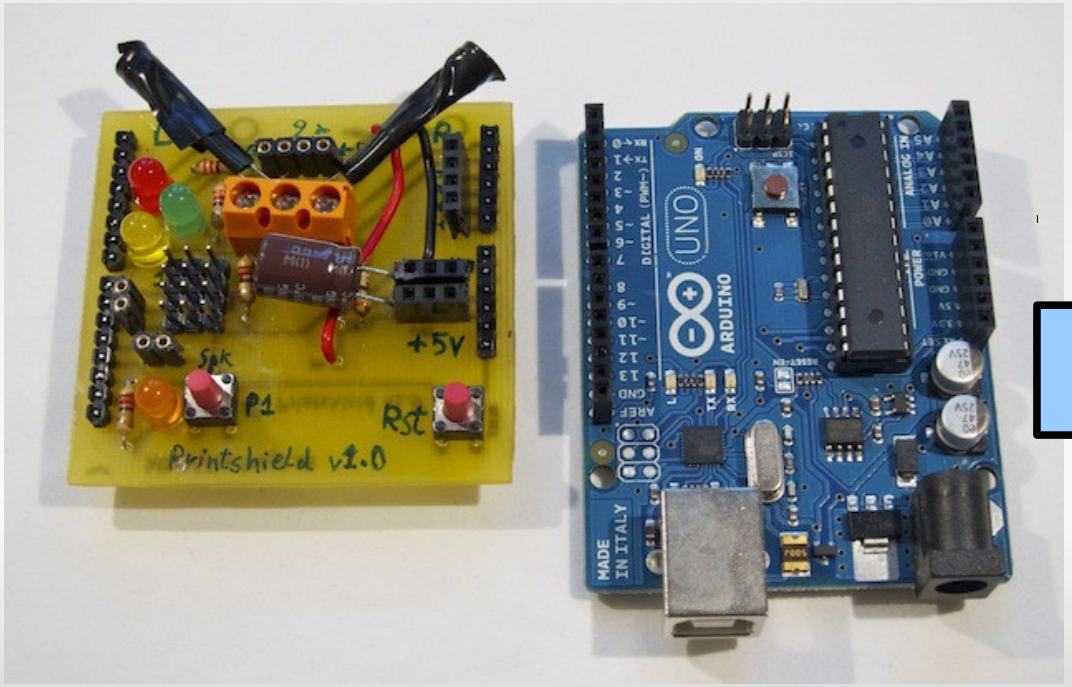
Assembling the Printshield (2)

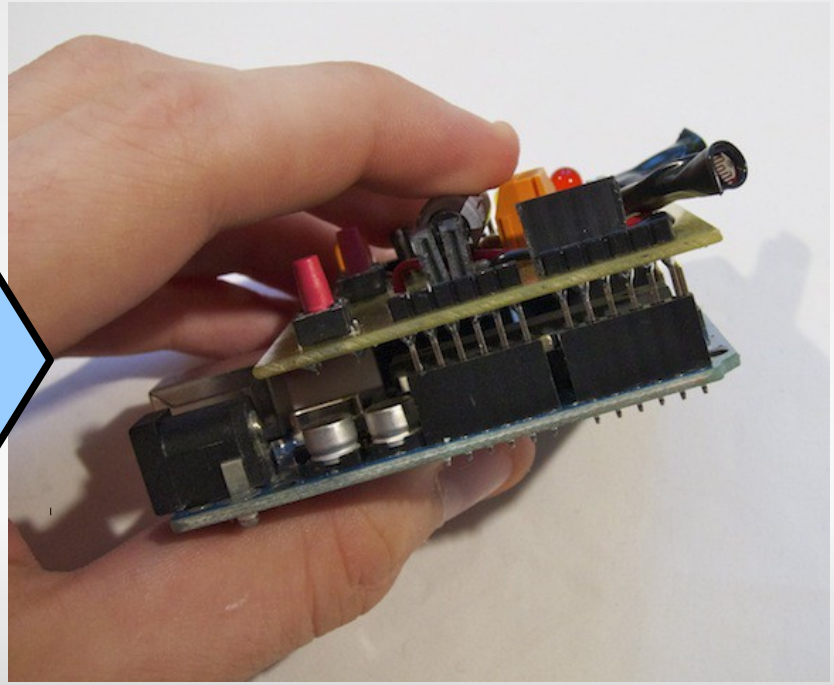




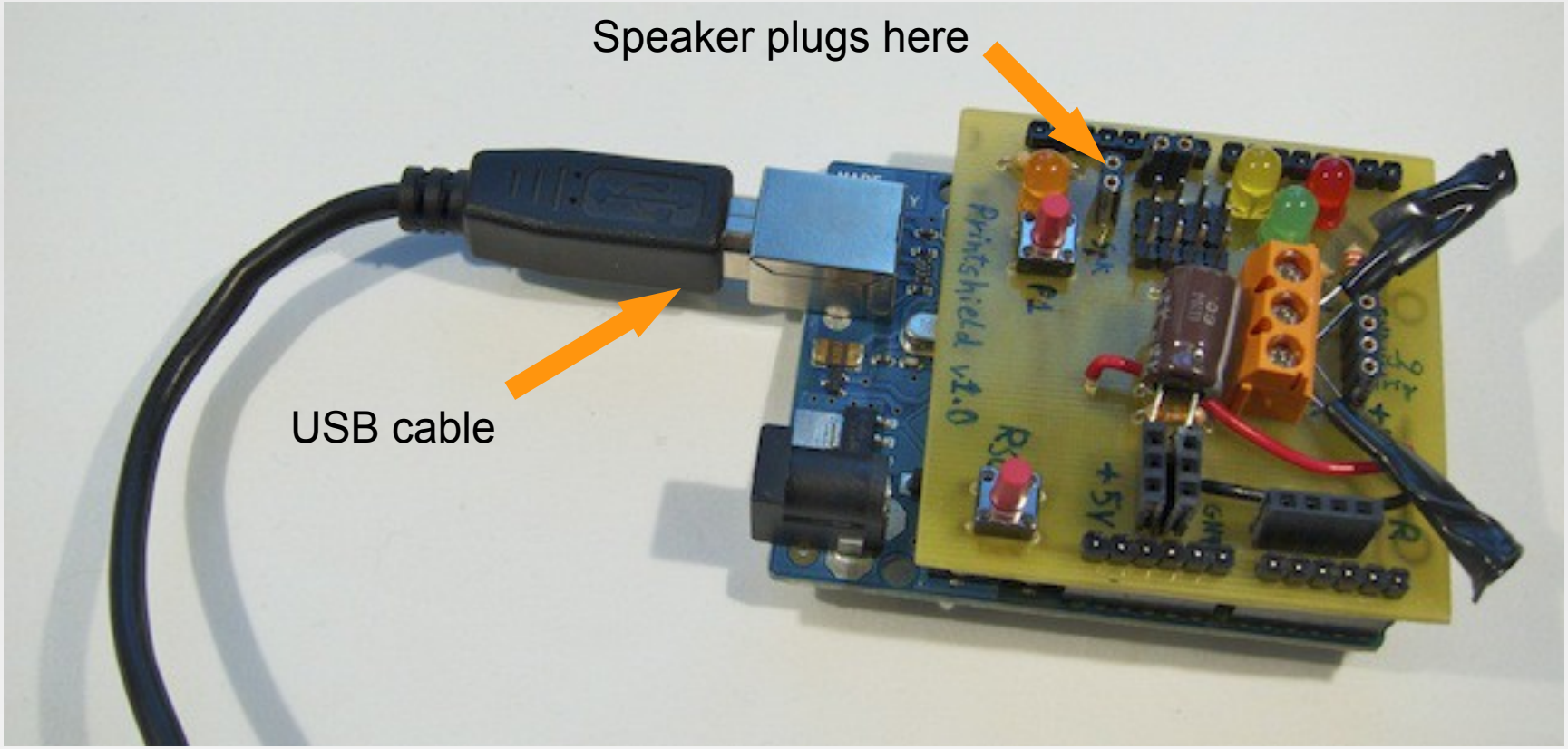
Light sensors need to be screwed into the orange connector

Then we must plug the Printshield on the Arduino UNO board





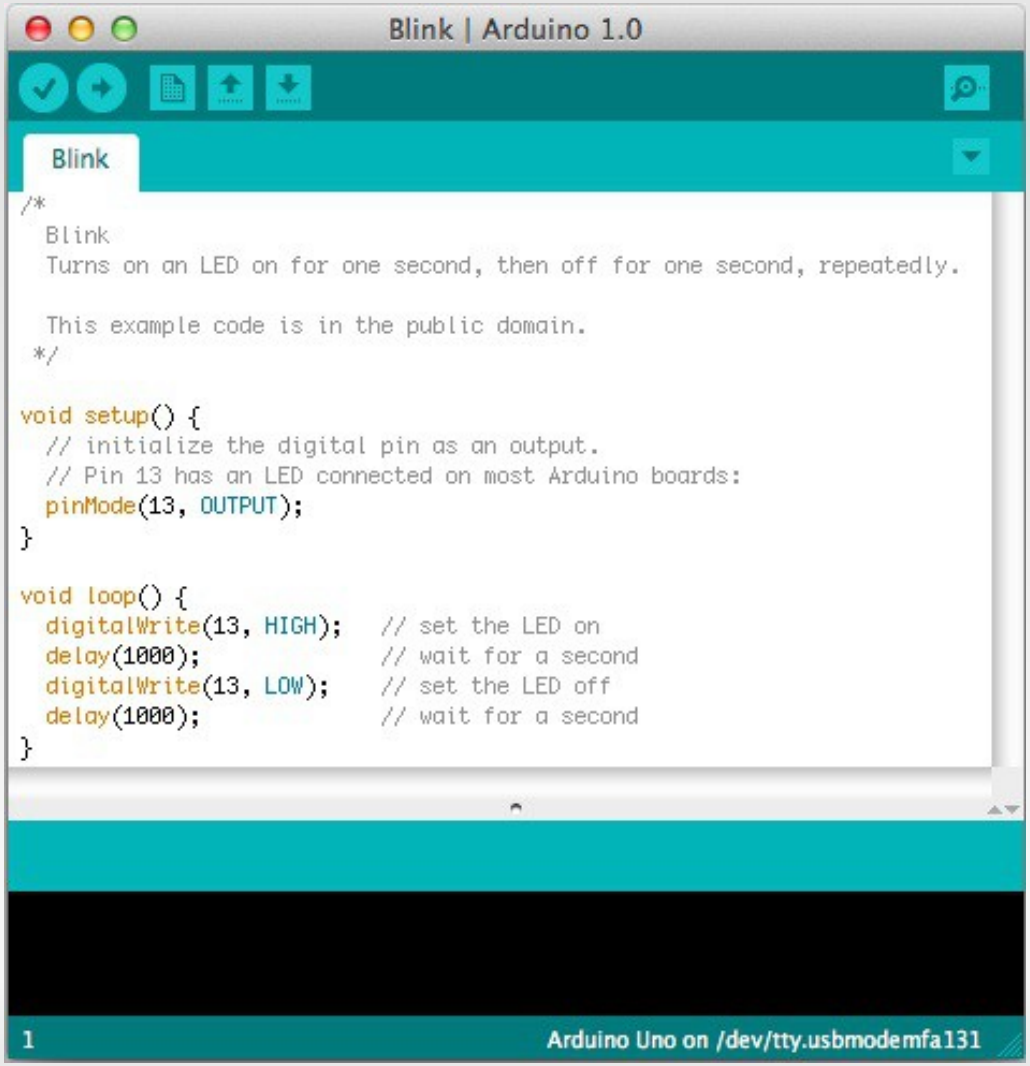
Plug it into the computer!



Now we just need to load our programs into the board.

Load the “Blink” example

Download more example code from
http://www.carlosgs.es/2012-summer-workshop



Say hello to the ArduSkyBot!

It features:

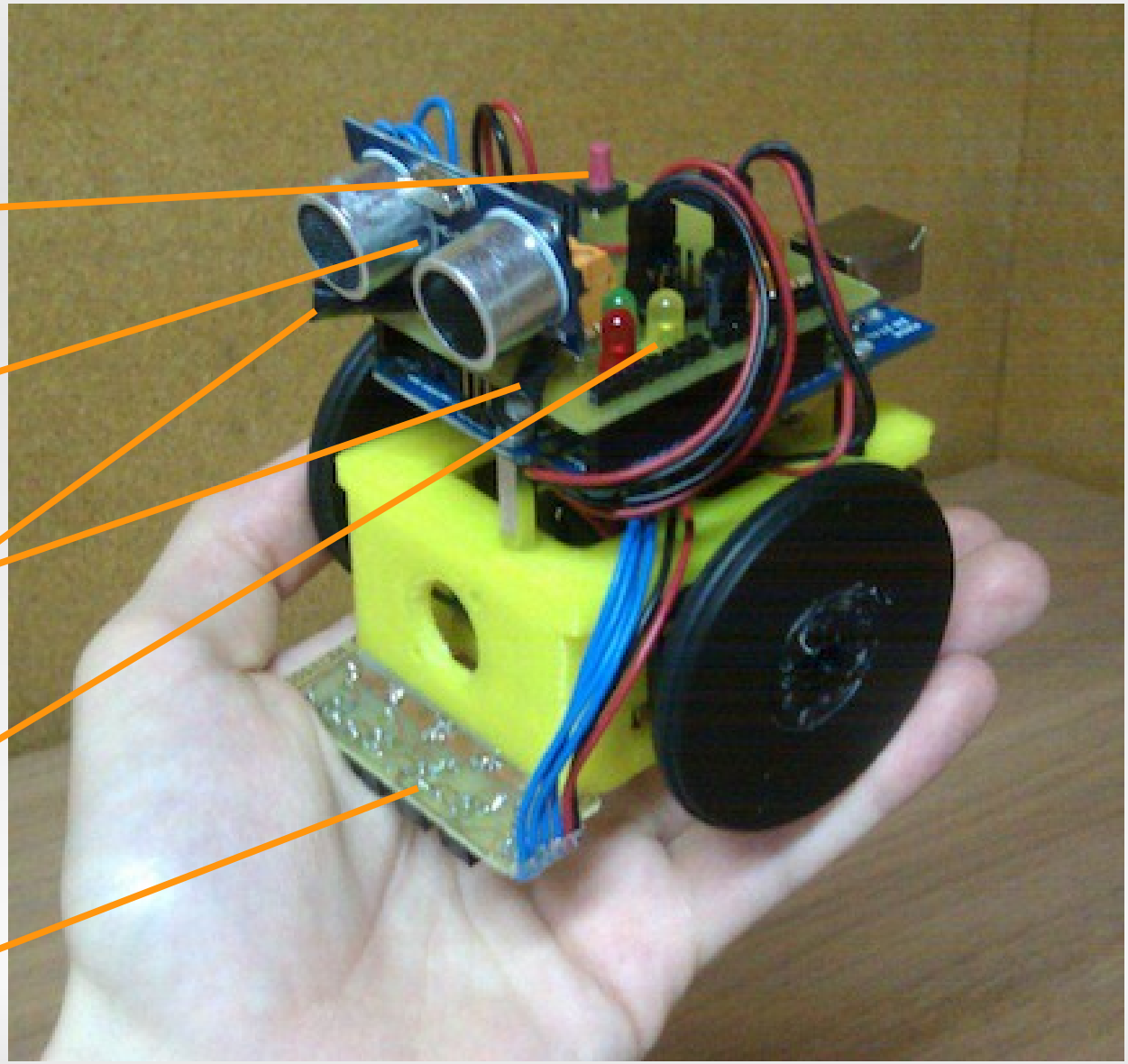
Push buttons

Frontal distance sensor

Two light sensors

Lots of LED lights

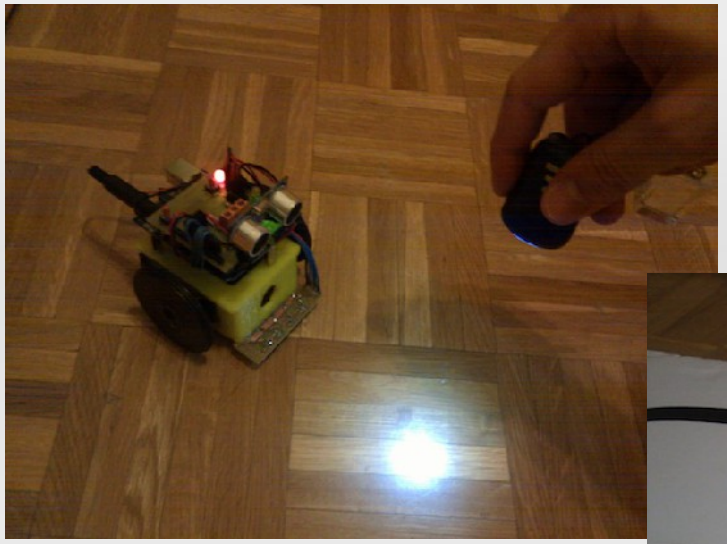
Line sensor

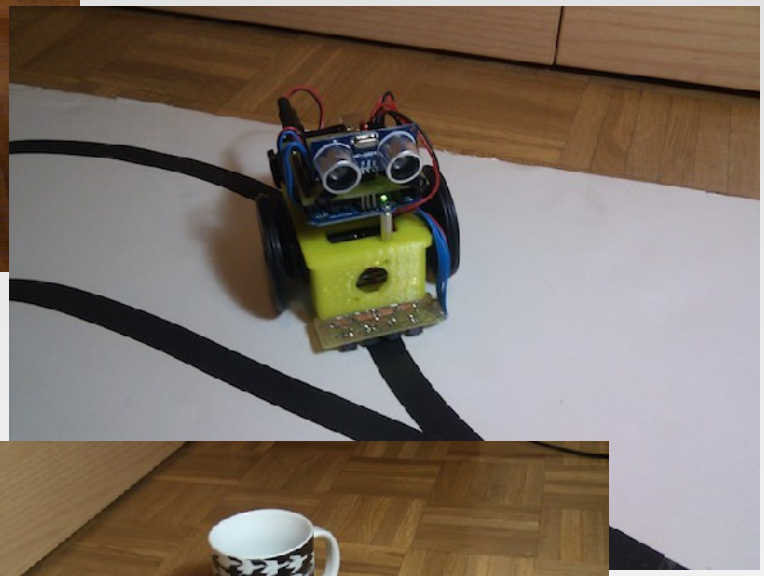


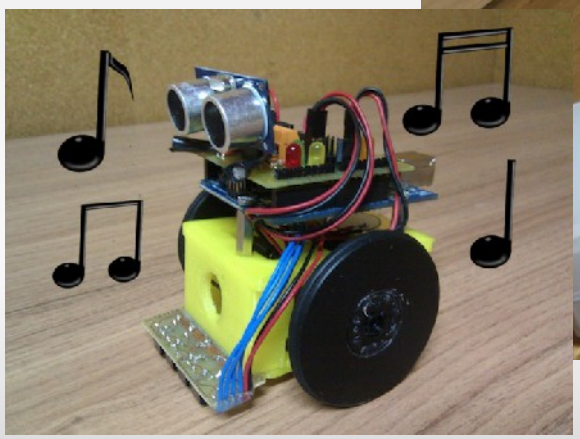
What can the ArduSkyBot do?

Some examples:

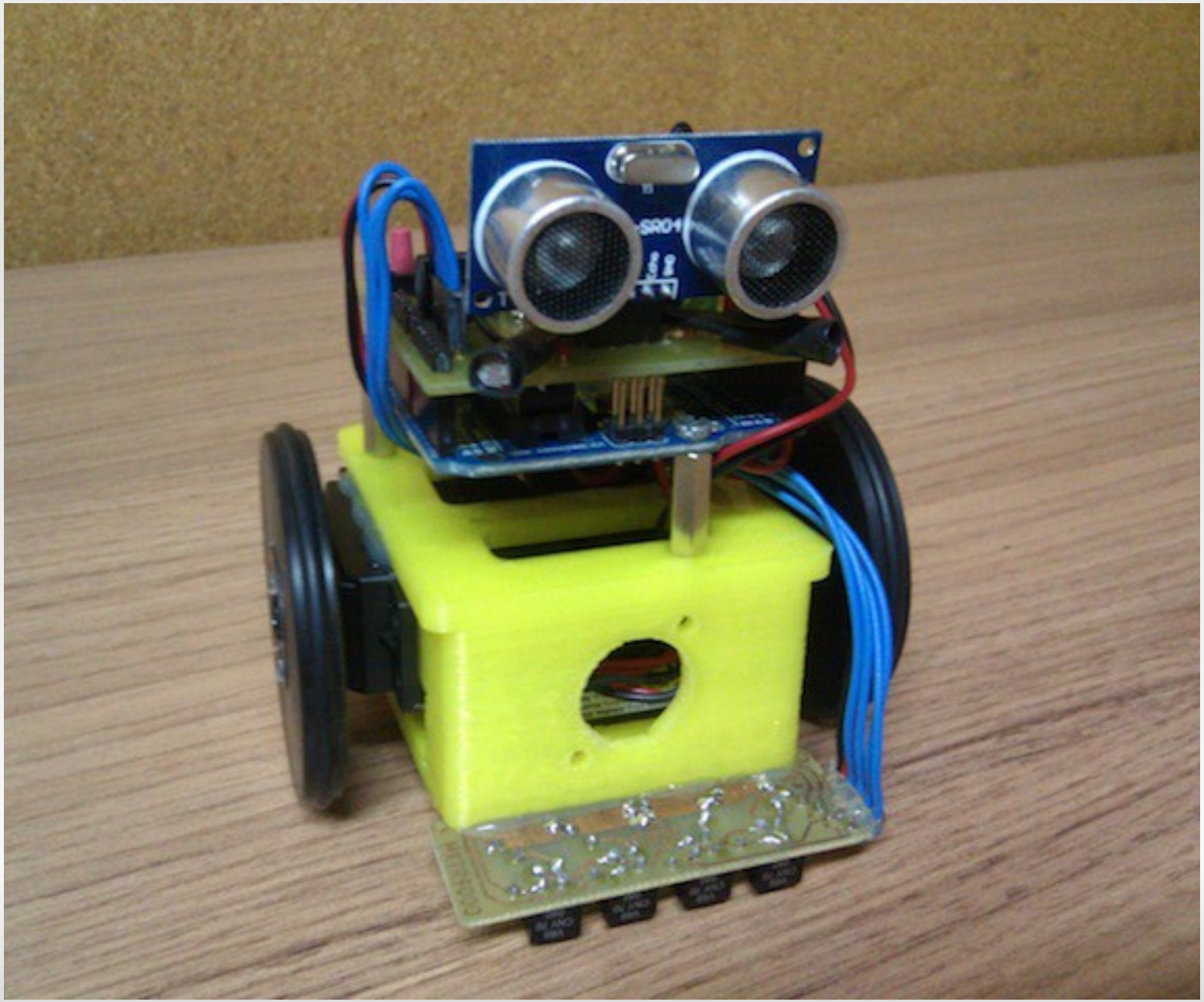
- Follow light
- Line follower
- Avoid obstacles
- Play music tones







Tomorrow more!



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