

TALLER DE ESCORNABOT

**Club de Robótica de
Granada**

<https://clubroboticagranada.github.io/>



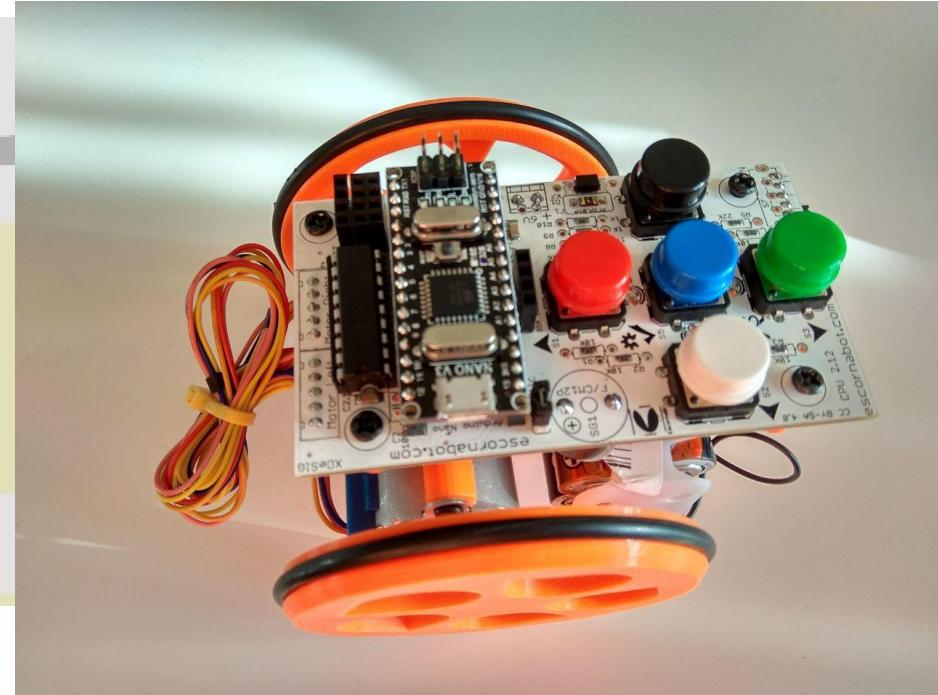
¿Escorna... qué?

ESCORNABOI:
escarabajo
lucanus cervus
en gallego

+

BOT:
robot

martes, 5 de noviembre de 2019

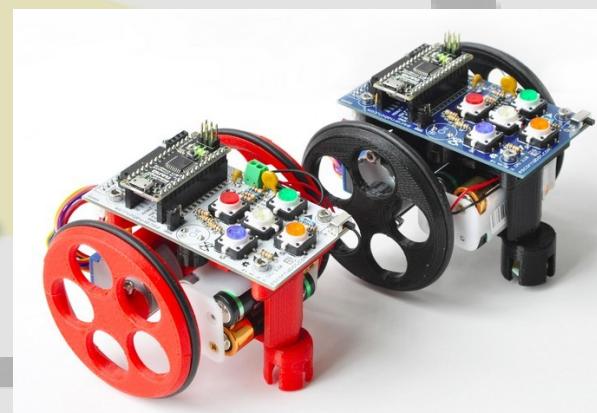


Objetivo

ROBÓTICA Y PROGRAMACIÓN



Sustituye a robots privativos



Características



- DIY: Lo haces tú
- Hardware abierto y software libre
- Asequible
- Bien documentado



¿Quién?

Proyecto liderado y soportado por la comunidad:
Profesores, diseñadores, desarrolladores,
traductores...

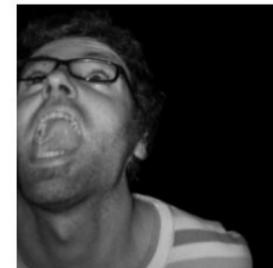


Los tres creadores

Tucho Méndez
[@procastino](#)



Xoán Sampaio
[@xoan](#)



Rafa Couto
[@caligari_pub](#)



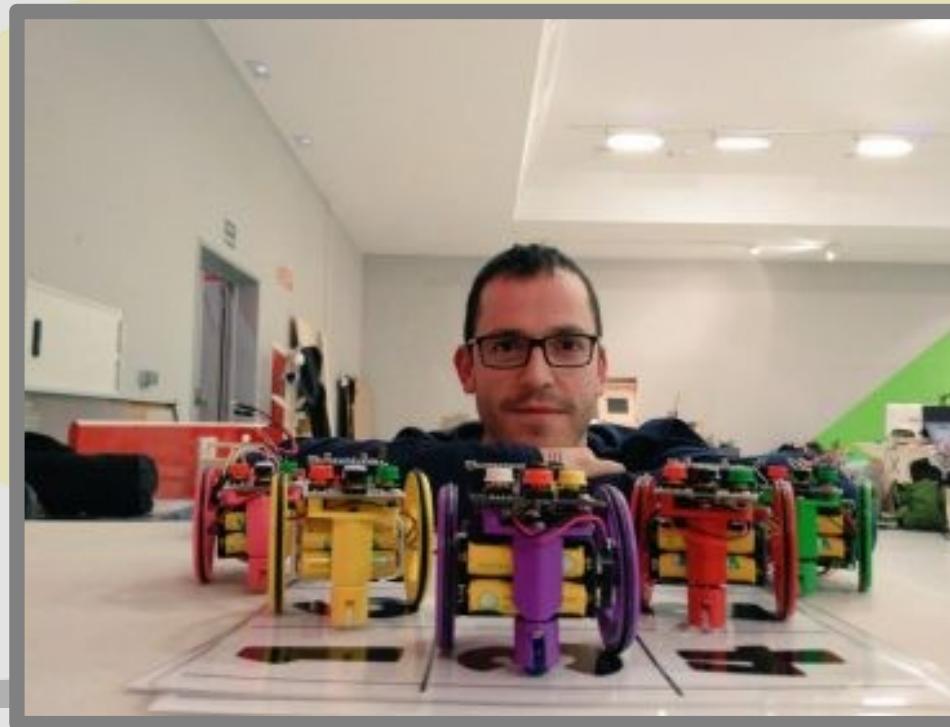
Comunidad: Grupo de Google / Telegram

Github <https://github.com/orgs/escornabot/people/>

iii Escornafan !!!

Pablo Rubio

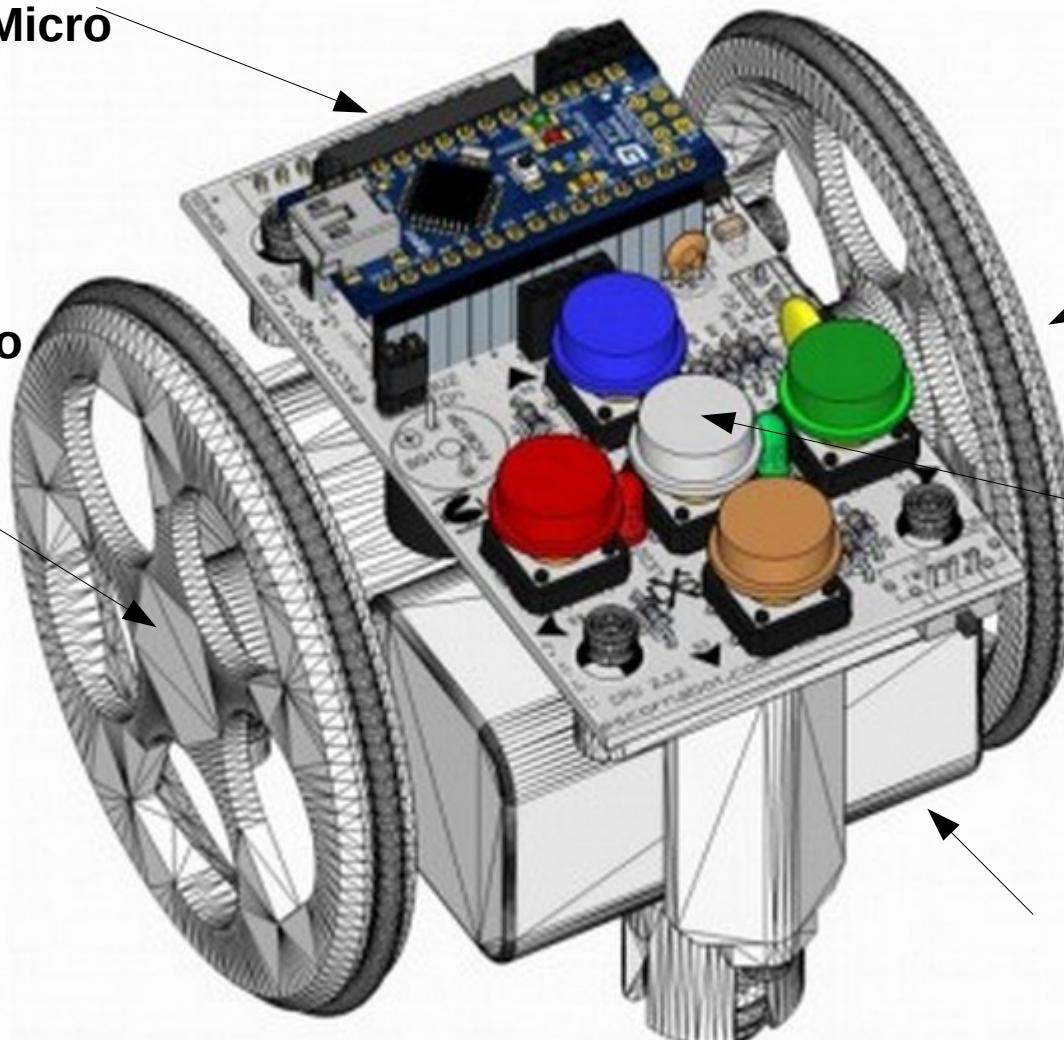
<https://pablorubma.cc/>



Escornabot

Sistema de Control
(Programación)
Arduino Nano o Micro

Actuador 2
Motor Paso a Paso



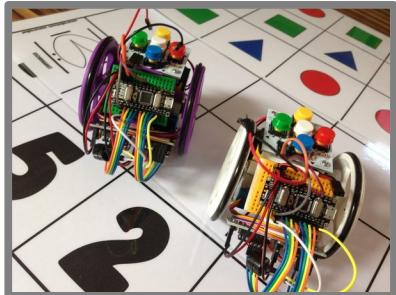
Actuador 1
Motor Paso a Paso

Sensores
5 botones

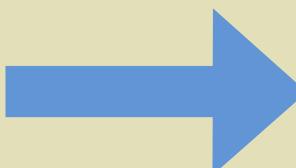
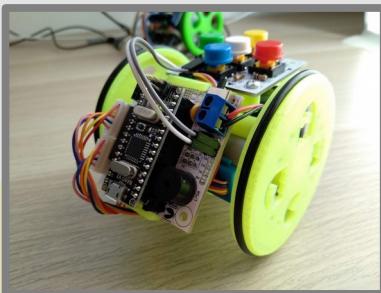
Alimentación
4 pilas



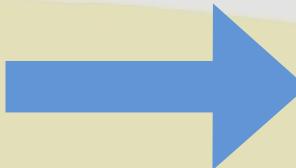
Versiones



DO IT YOURSELF



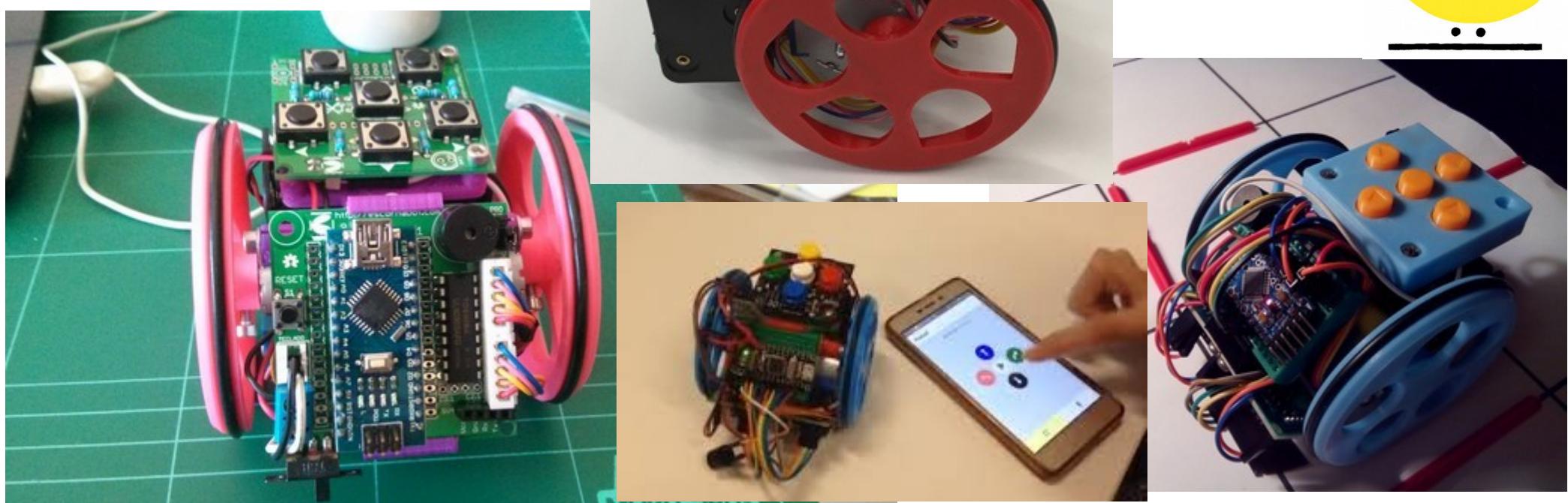
COMPACTUS



PLACA 2.12

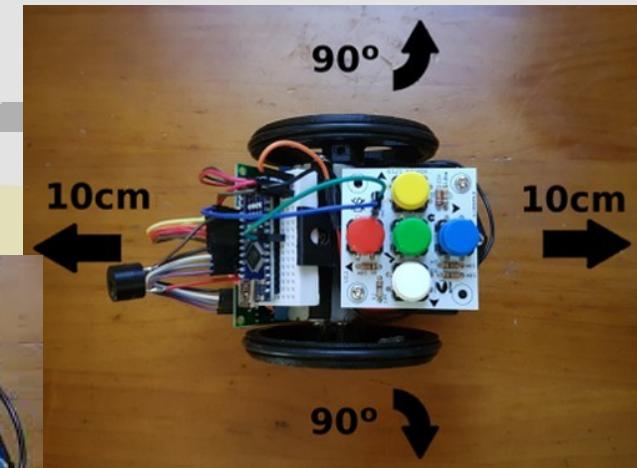
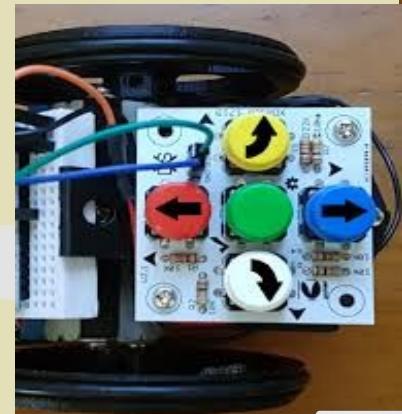


OKAGI

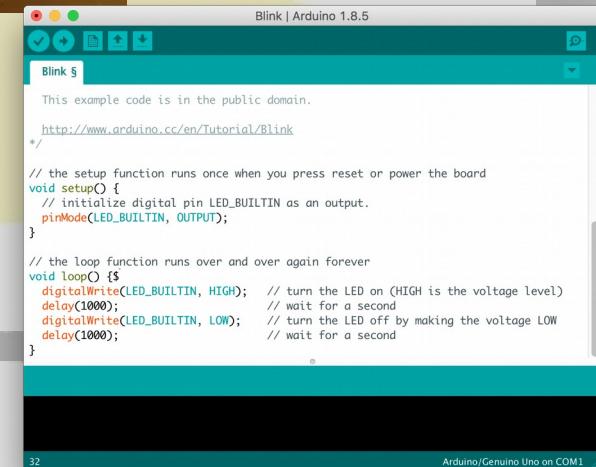


Funcionamiento y programación

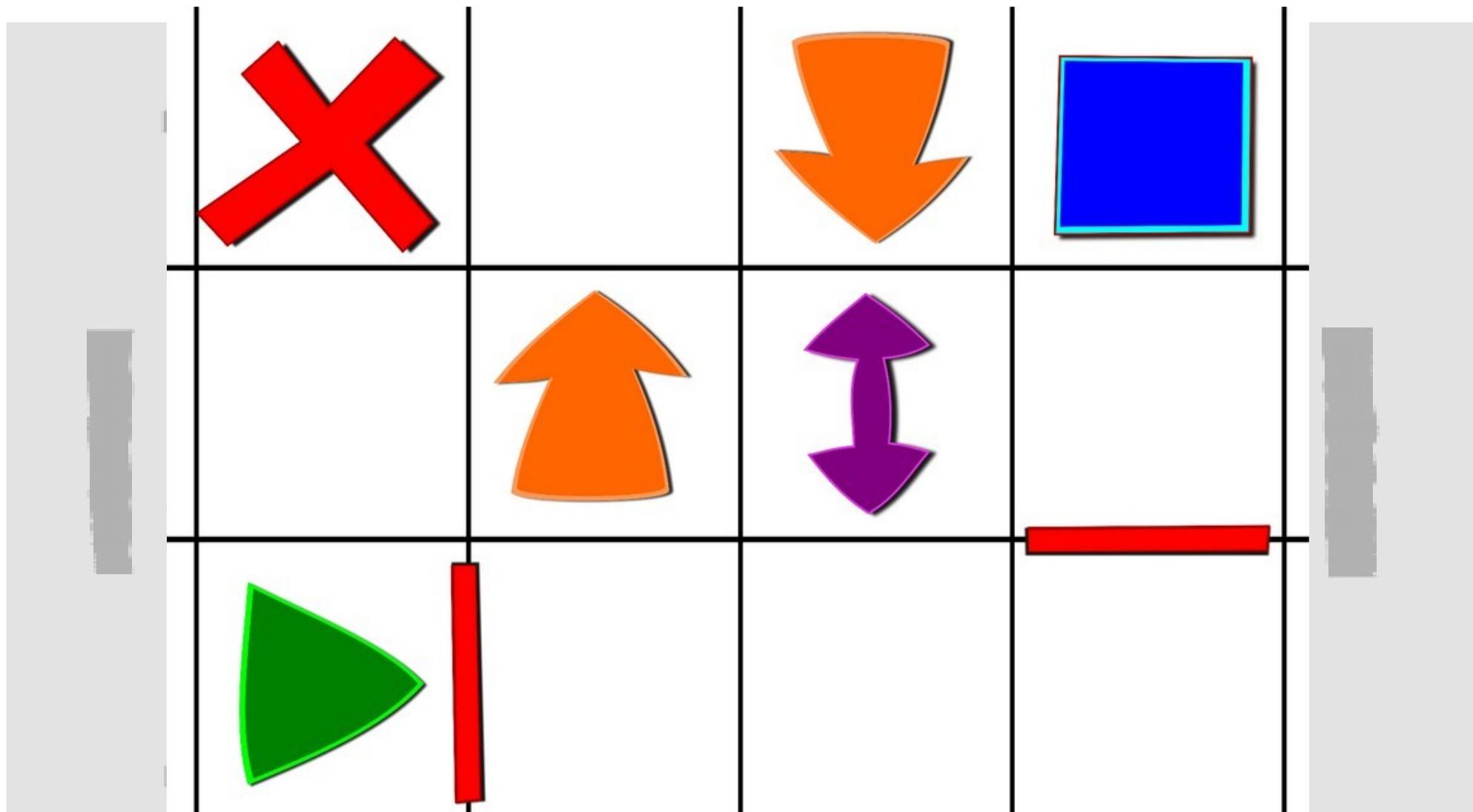
- Introduce firmware preparado y se maneja con botonera (modo clásico)



- También se puede programar con librería para Arduino e incluso poner sensores extras

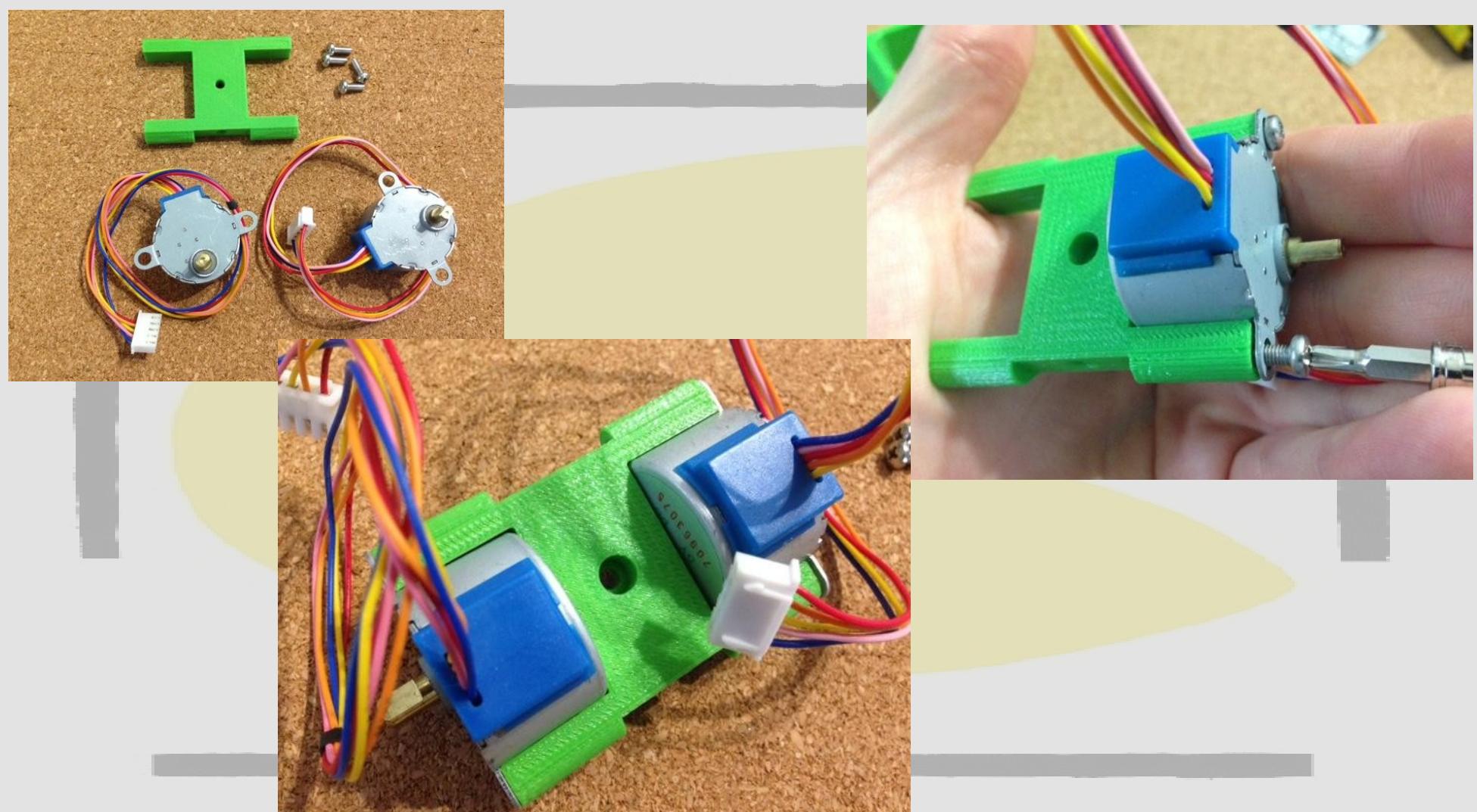


Juegos con Escornabot

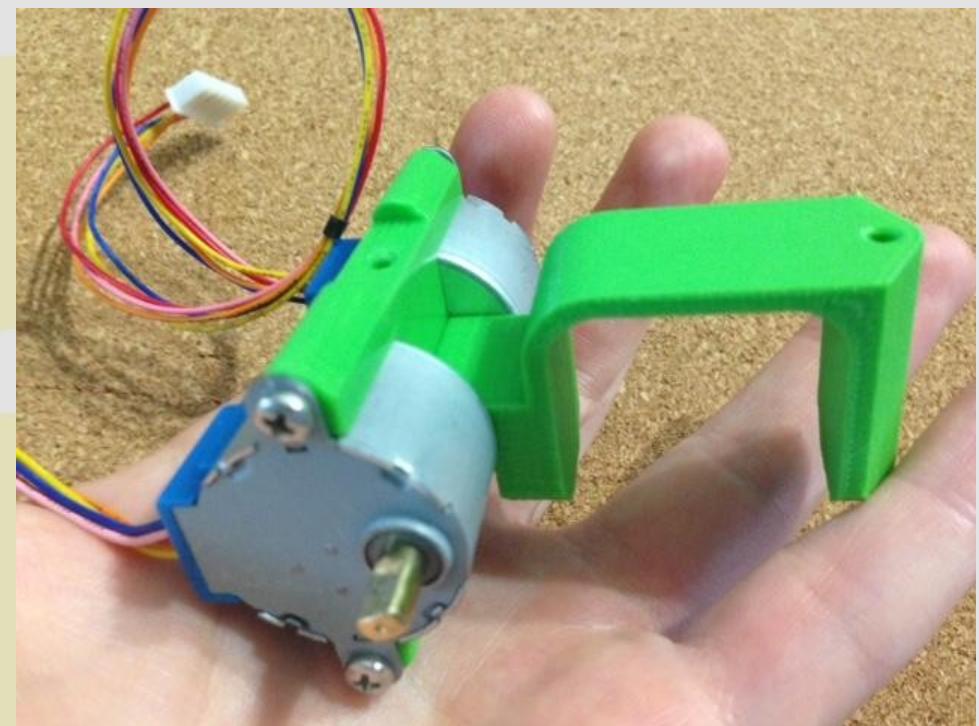




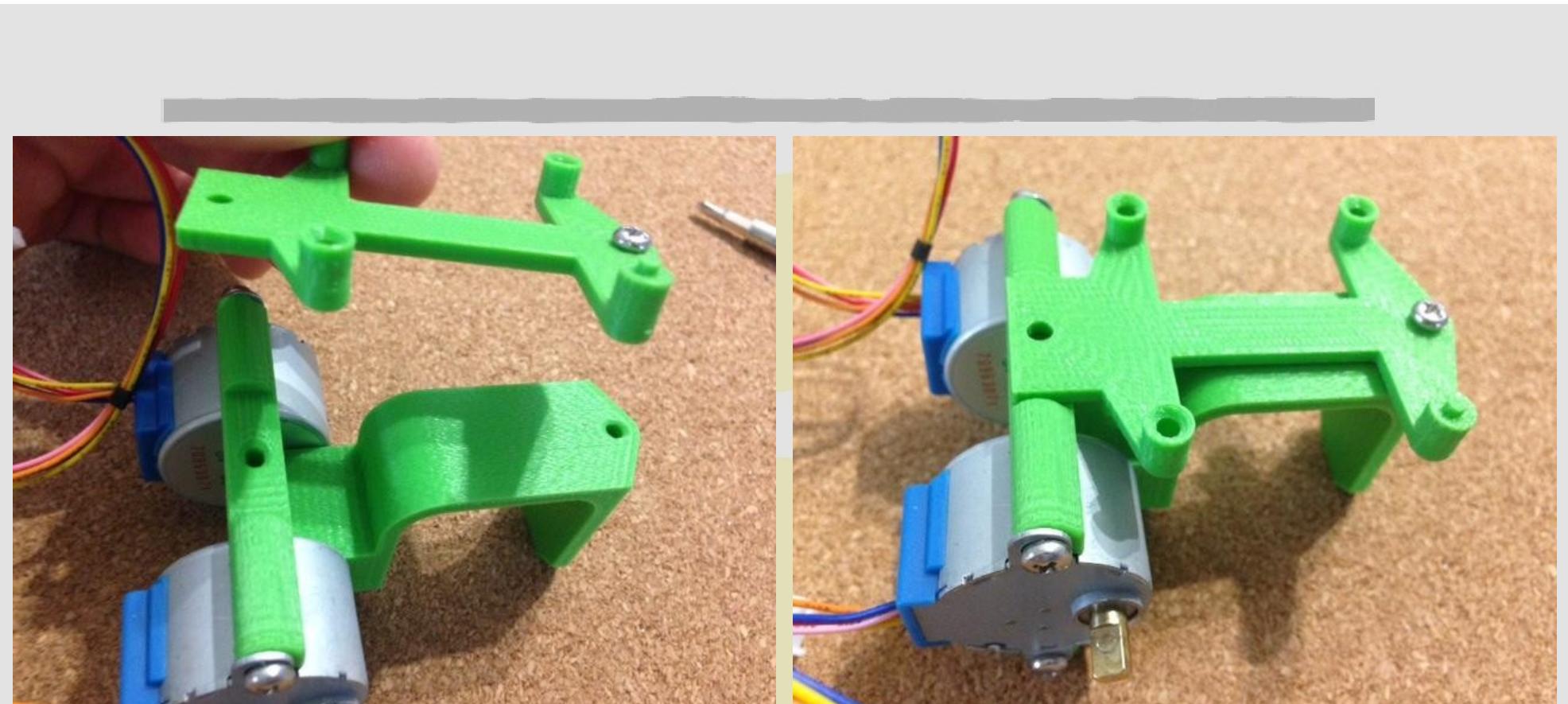
Motores



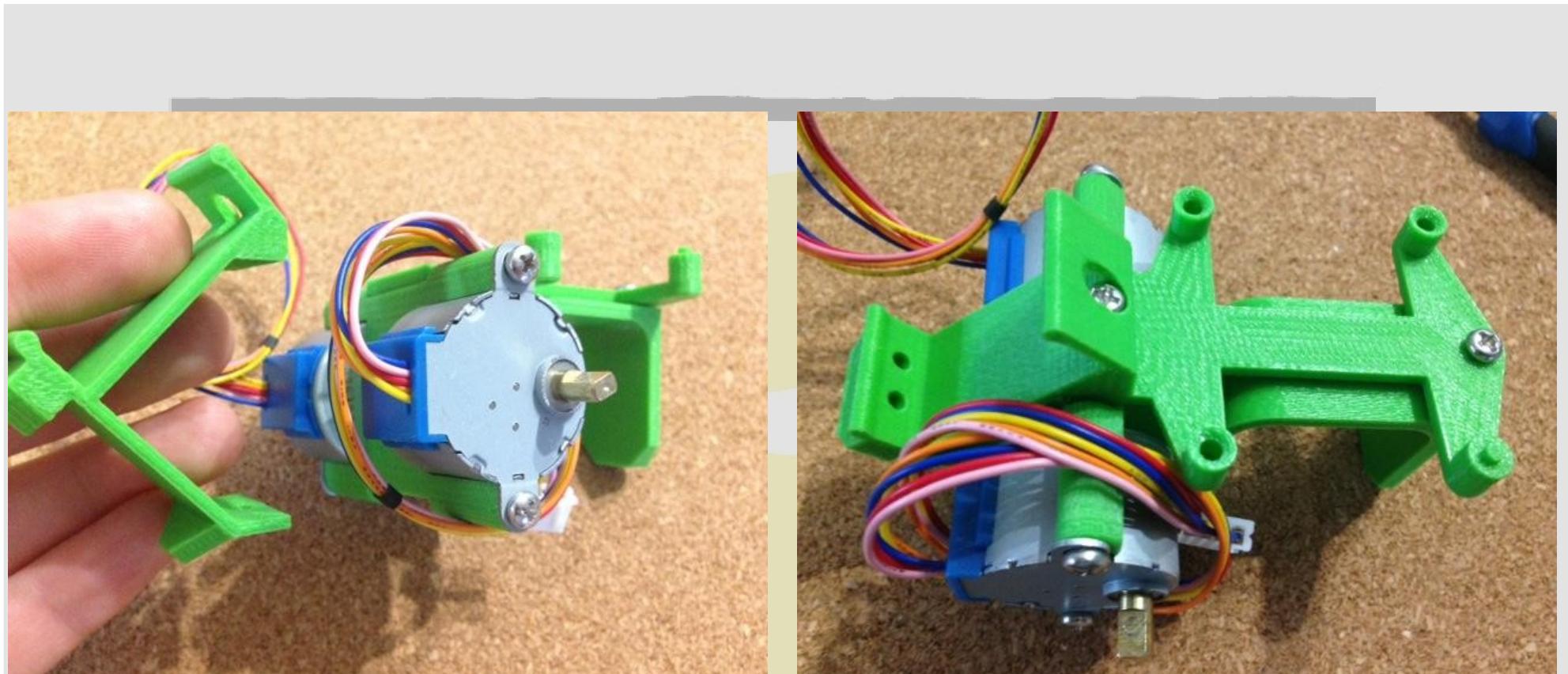
Soporte portapilas



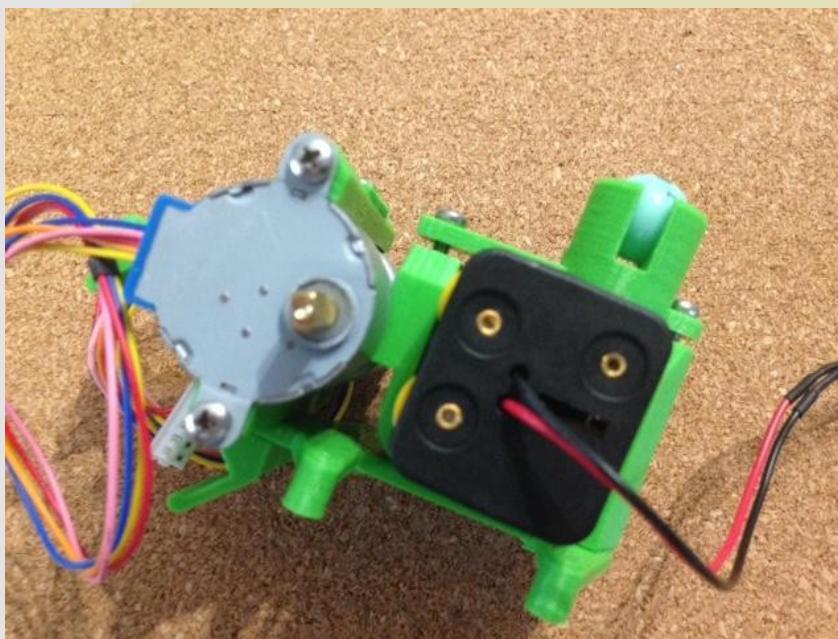
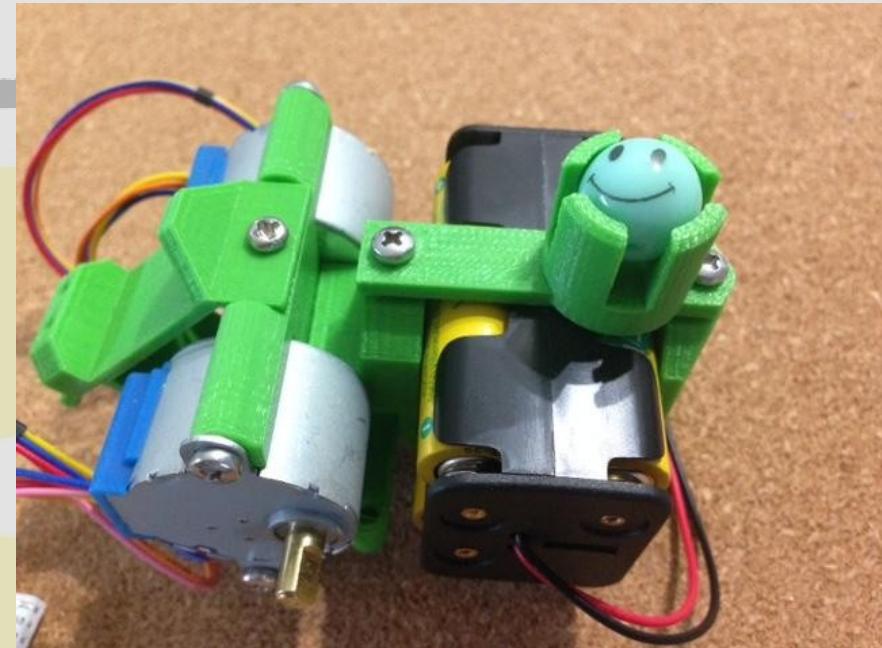
Soporte botonera



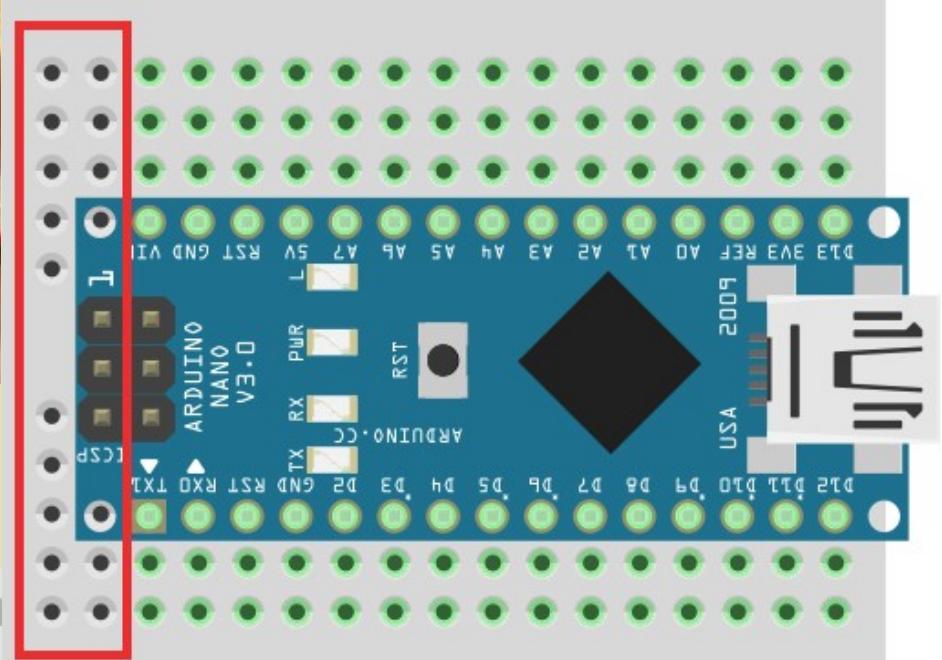
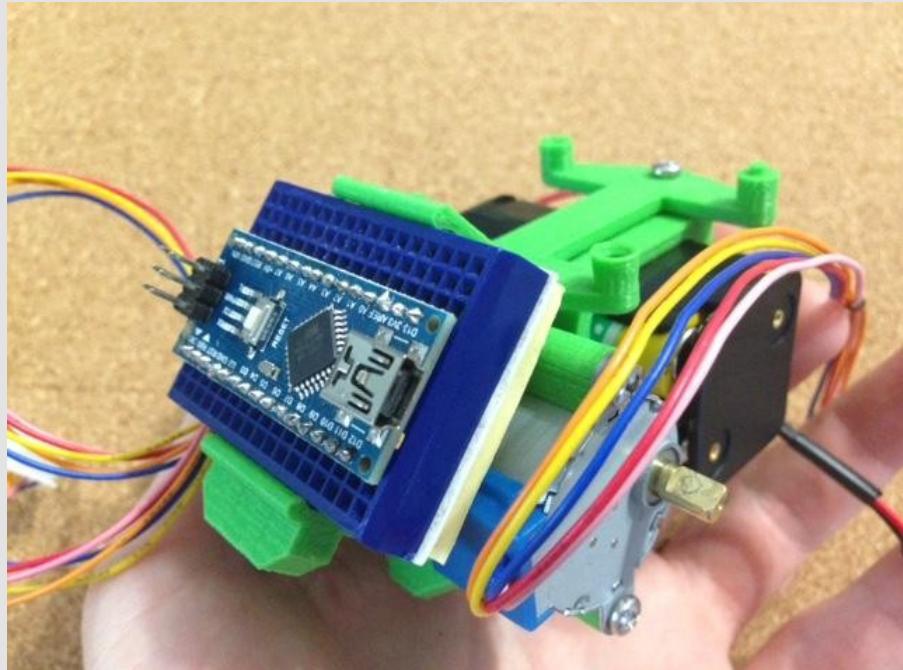
Soporte board



Portapilas y bola



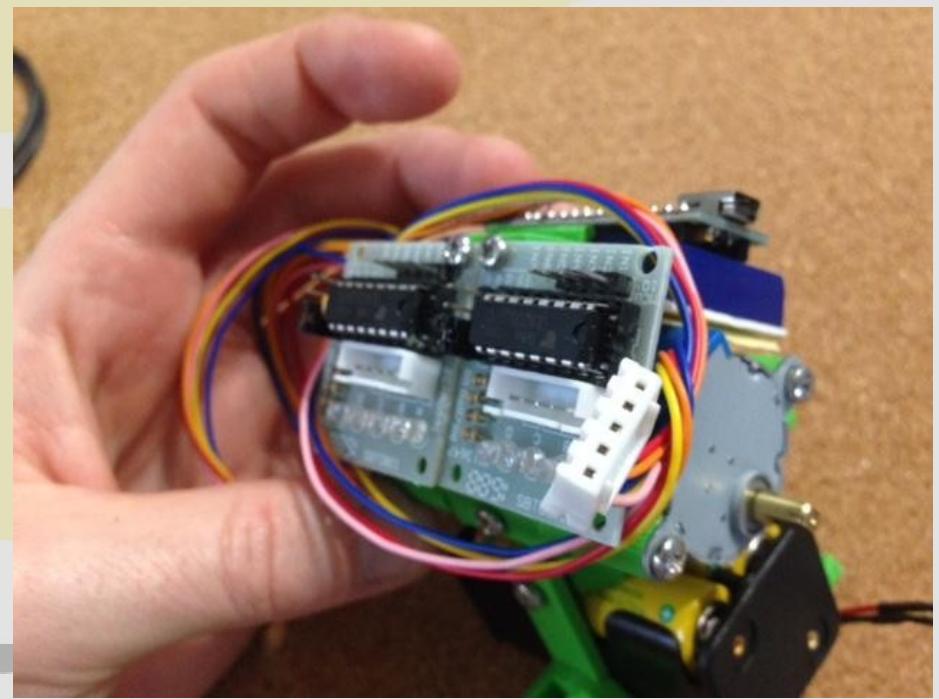
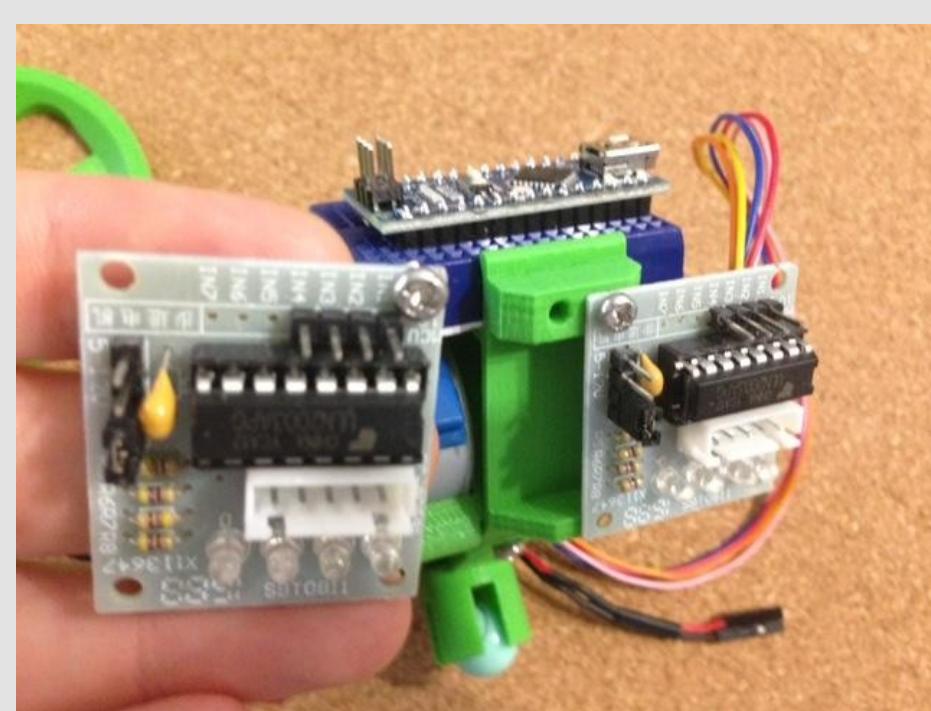
Board



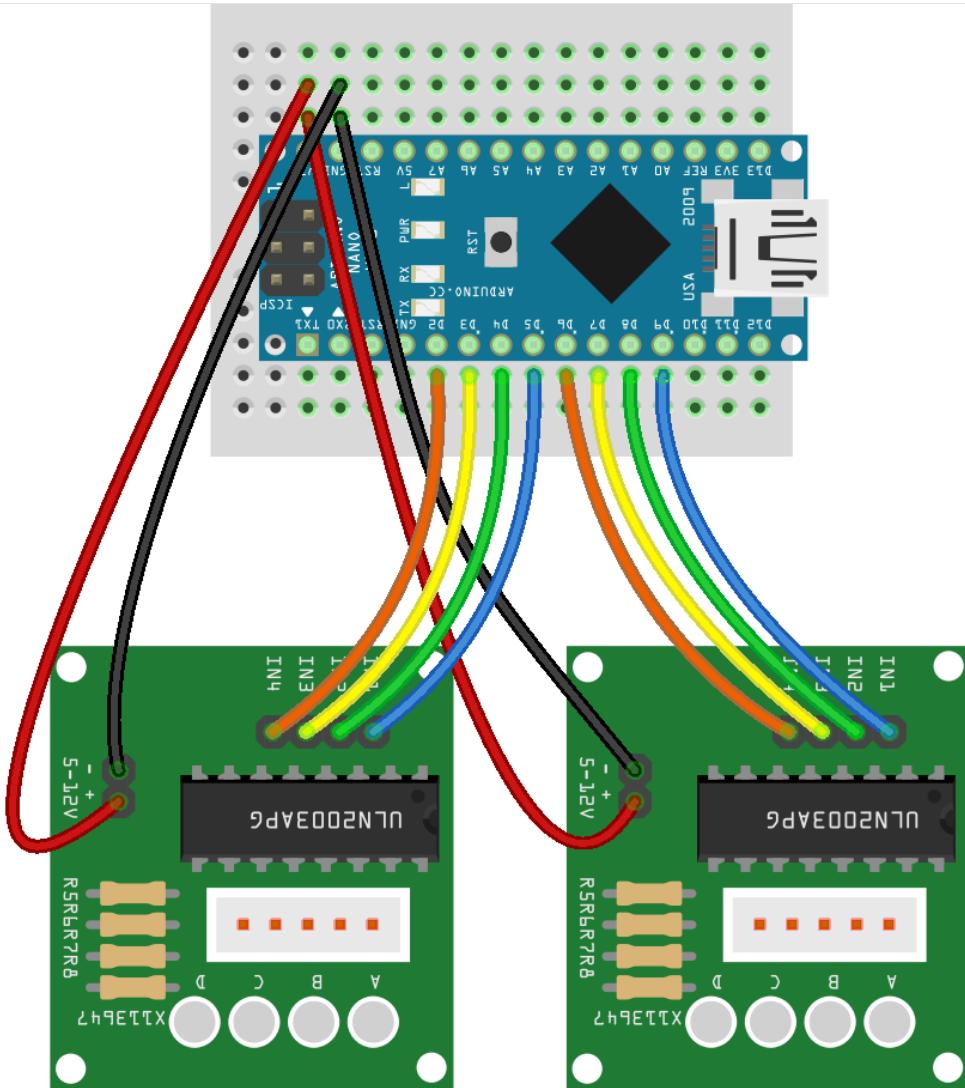
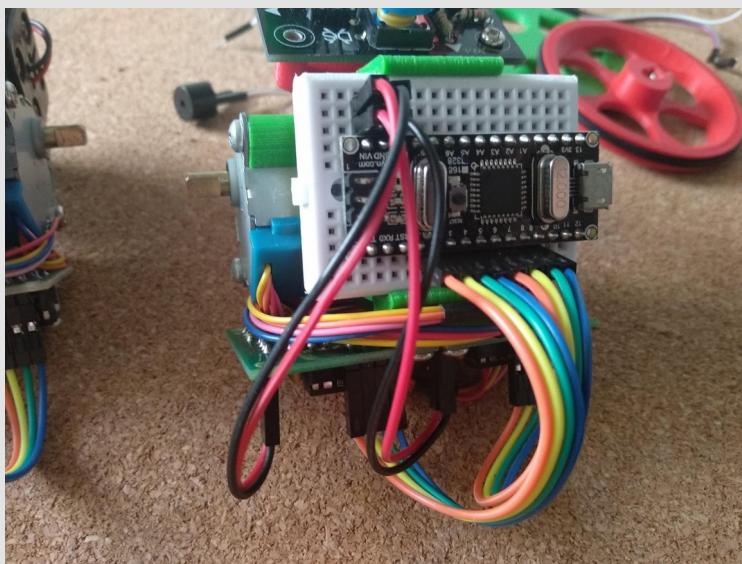
martes, 5 de noviembre de 2019

fritzing 18

Drivers de motores

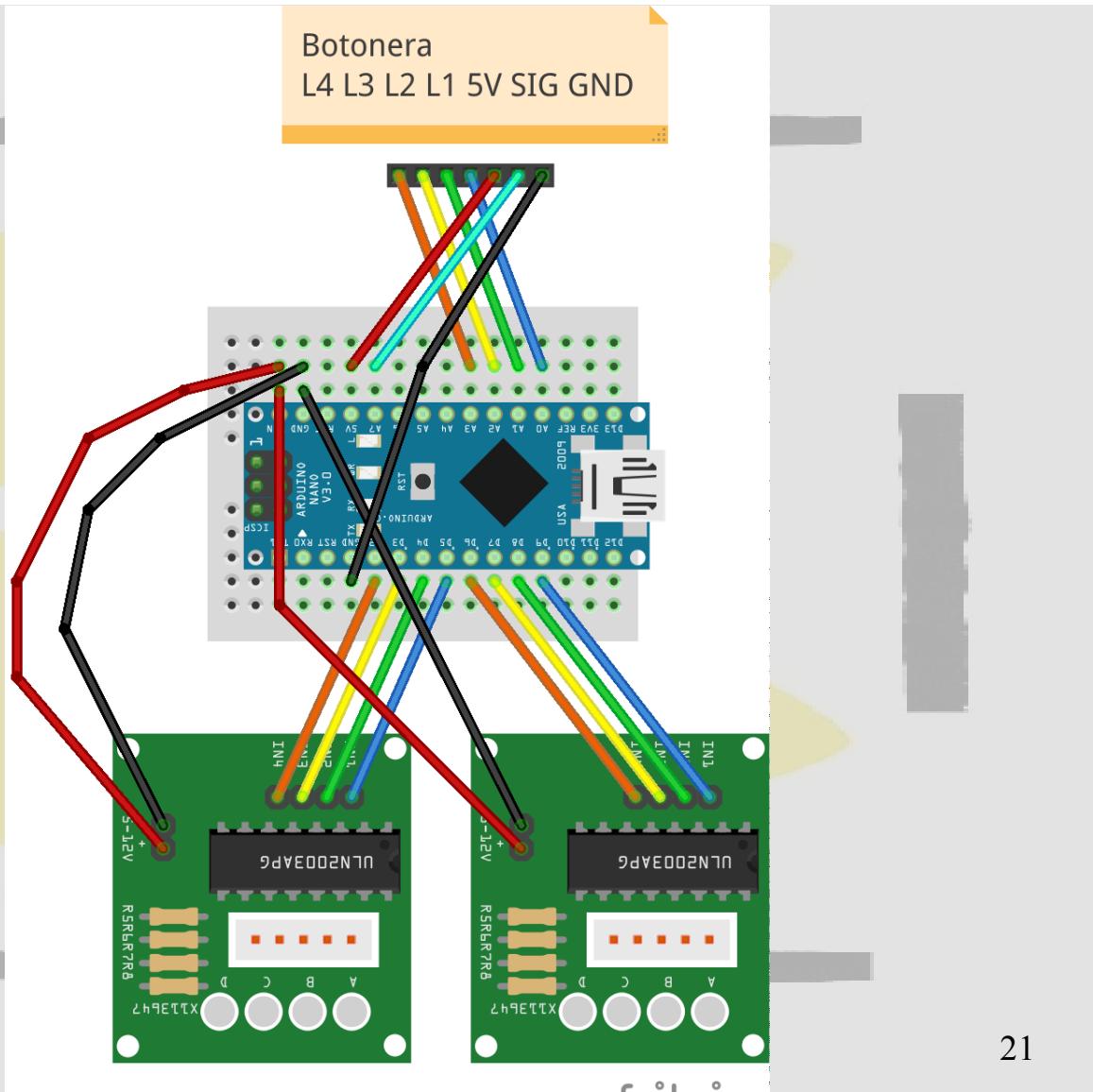
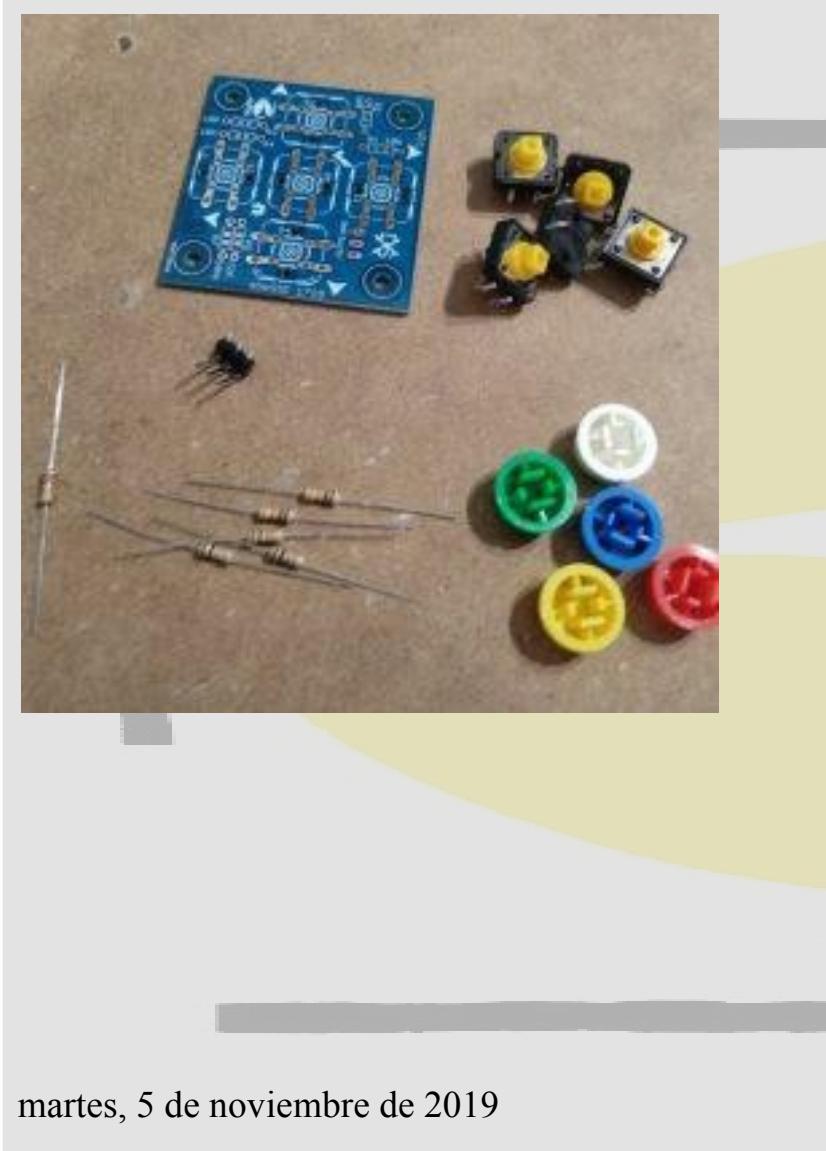


Conexionado drivers



martes, 5 de noviembre de 2019

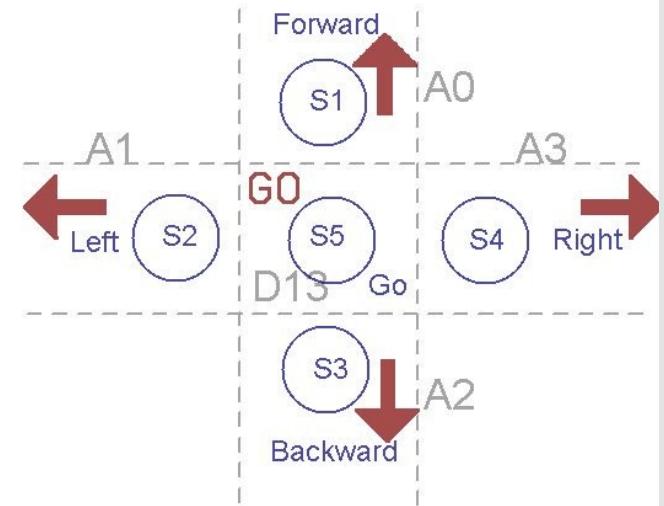
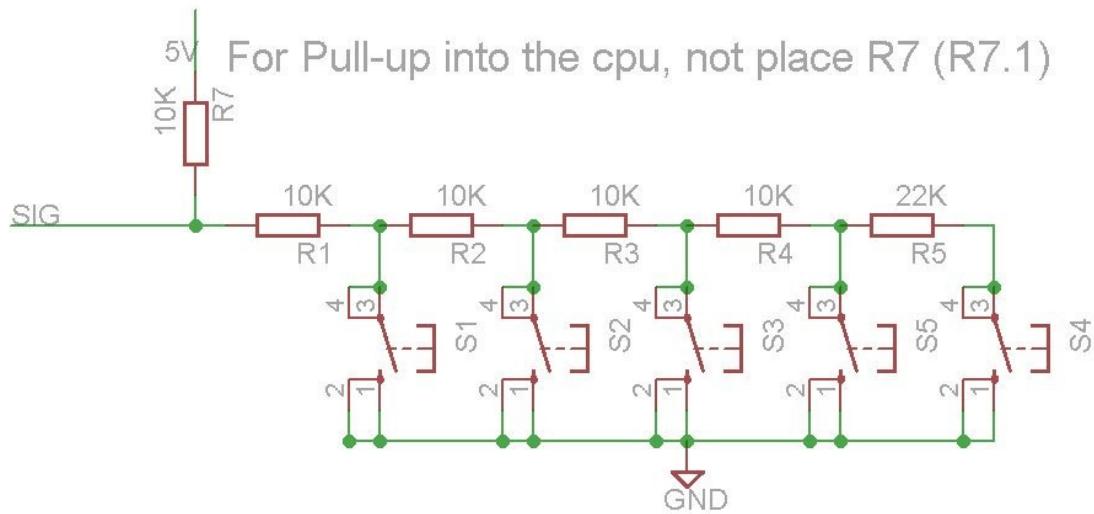
Conexionado Botonera



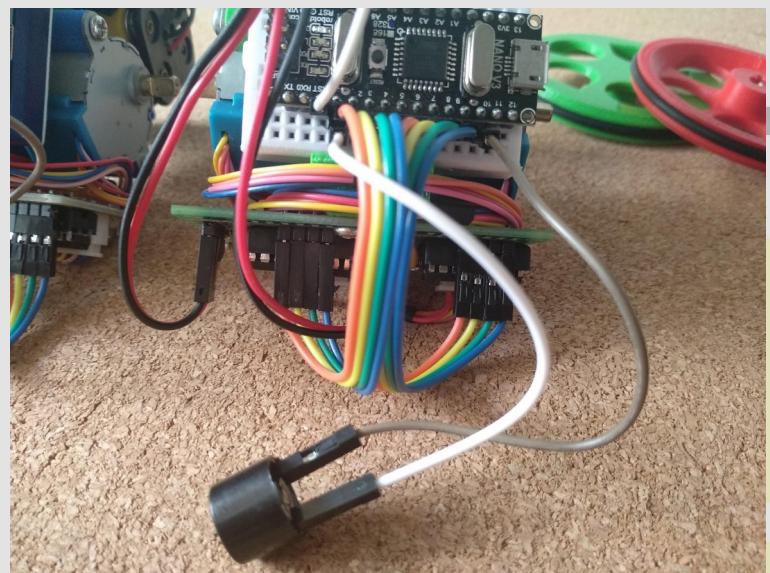
Conexionado botonera

- Pin gnd: gnd de abajo (al lado D2)
- Pin 5V: 5V de arriba
- Pin Signal: A7 (arriba)
- Pin L1: A0
- Pin L2: A1
- Pin L3: A2
- Pin L4: A3

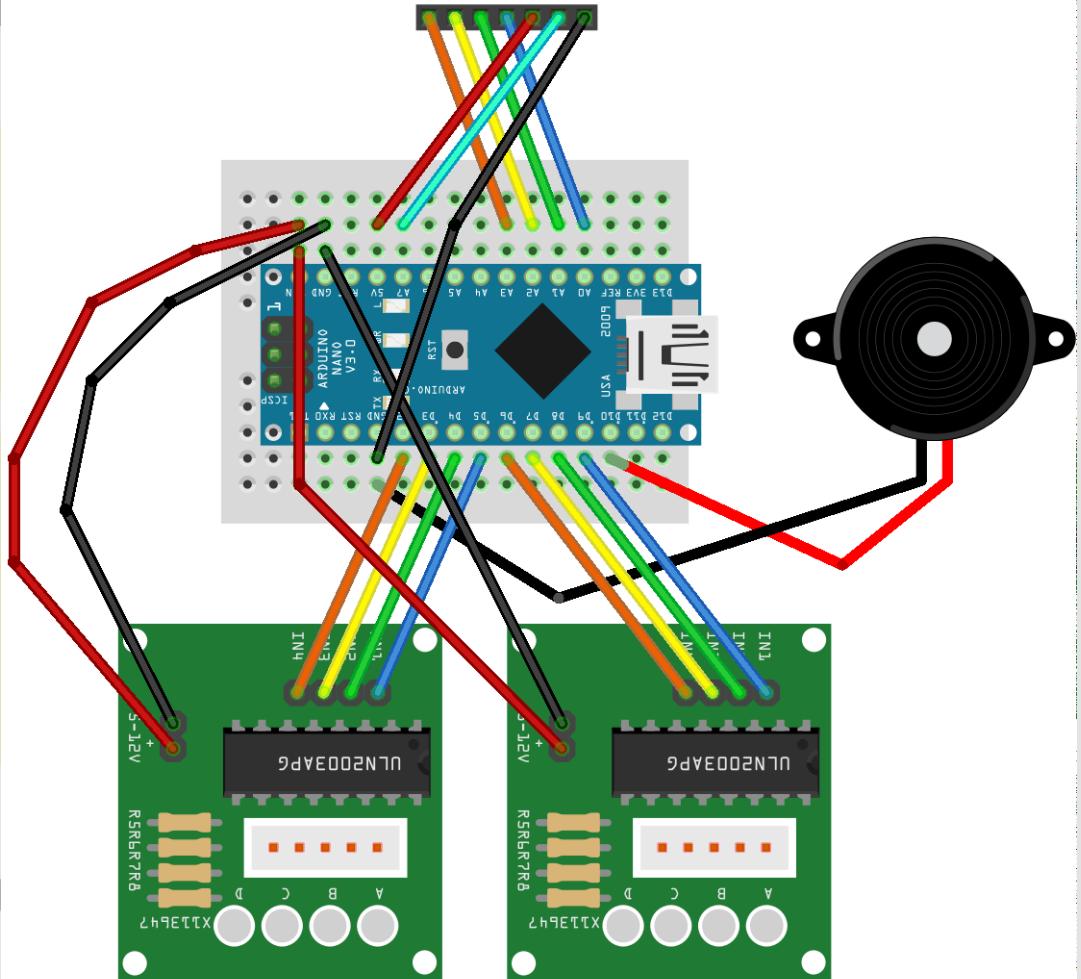
Botonera



Zumbador y conjunto



Botonera
L4 L3 L2 L1 5V SIG GND



martes, 5 de noviembre de 2019

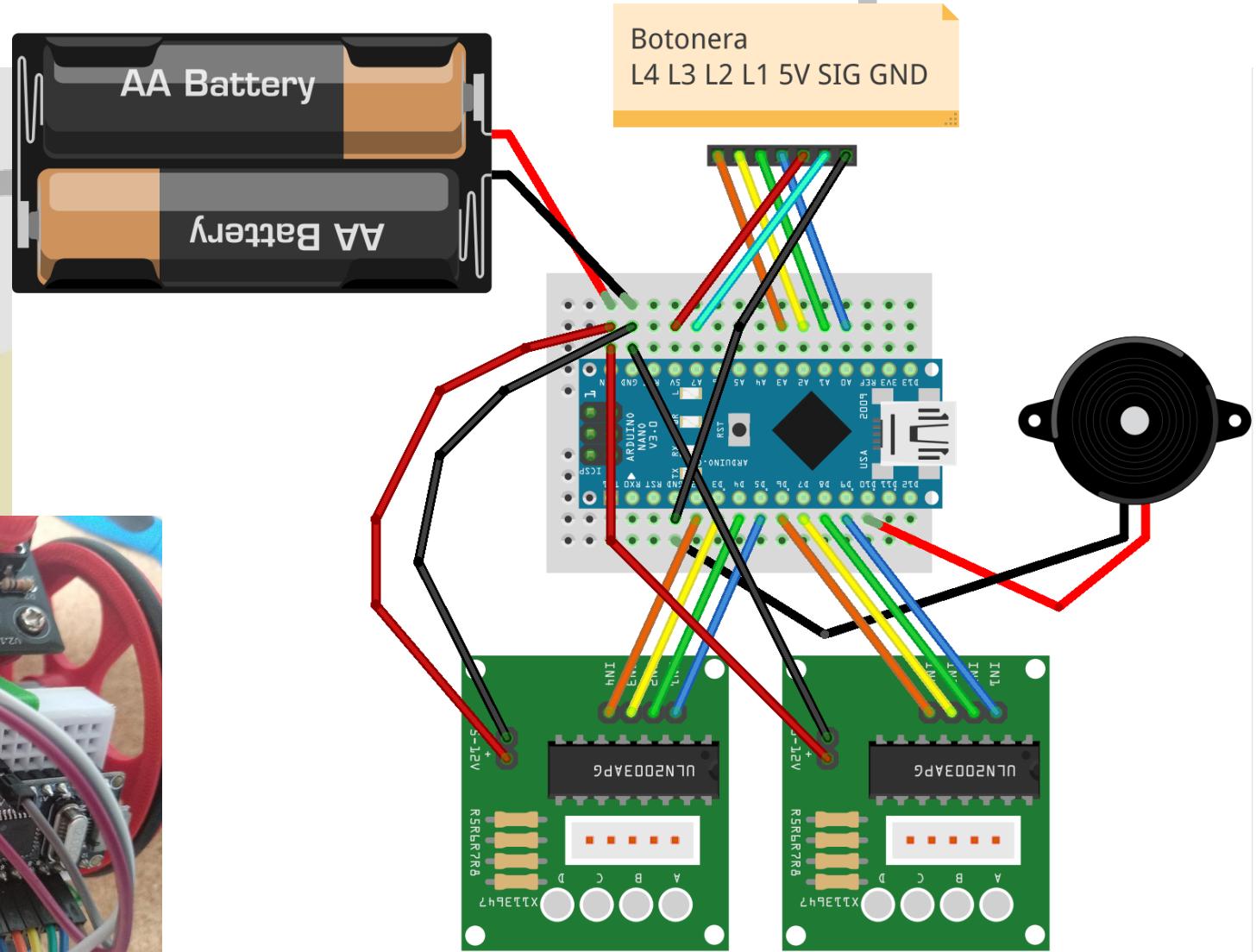
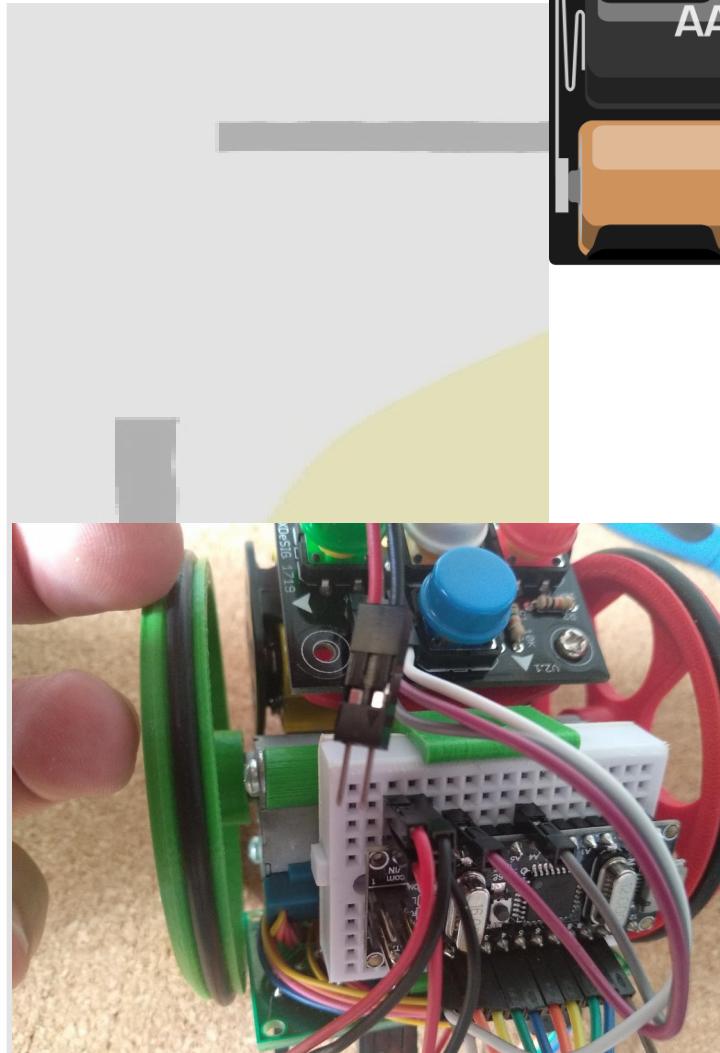
24

fritzing

Ruedas



Conexionado Portapilas



martes, 5 de noviembre de 2019

Modos firmware 1.6.2

- **Modo normal**
 - Pulsación corta: giros 90°
 - Pulsación larga: giros 45°
- **Modo 60° (tecla GO pulsación larga)**
 - Pulsación corta: giros 60°
 - Pulsación larga: giros 120°
- **Pausa:** pulsación larga tecla atrás.

Cambios en firmware

- Abrimos **Escornabot.ino**, pestaña **Configuration.h**
 - **#define STEPPERS_STEPS_PER_SECOND 1000**
Número de pasos por segundo, el tope anda sobre 2300
 - **#define STEPPERS_LINE_STEPS 1738**
Da un avance de 10cm
 - **#define STEPPERS_TURN_STEPS 1024**
Establece un giro de 90º,
Una vuelta completa 4096 pasos

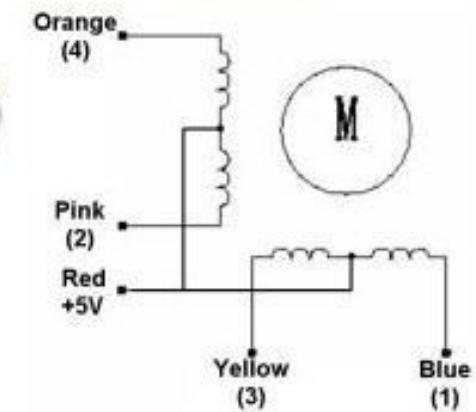
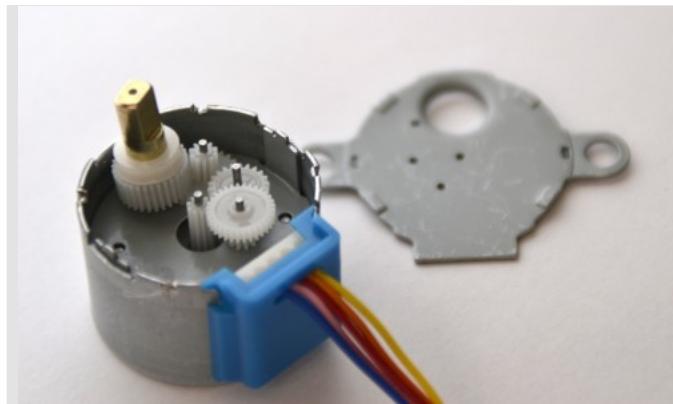
```
#ifdef ENGINE_TYPE_STEPPERS

    // stepper pin setup (digital outputs)
#define STEPPERS_MOTOR_RIGHT_IN1 5
#define STEPPERS_MOTOR_RIGHT_IN2 4
#define STEPPERS_MOTOR_RIGHT_IN3 3
#define STEPPERS_MOTOR_RIGHT_IN4 2
#define STEPPERS_MOTOR_LEFT_IN1 9
#define STEPPERS_MOTOR_LEFT_IN2 8
#define STEPPERS_MOTOR_LEFT_IN3 7
#define STEPPERS_MOTOR_LEFT_IN4 6

    // step calibration
#define STEPPERS_STEPS_PER_SECOND 1000
#define STEPPERS_LINE_STEPS 1738
#define STEPPERS_TURN_STEPS 1024

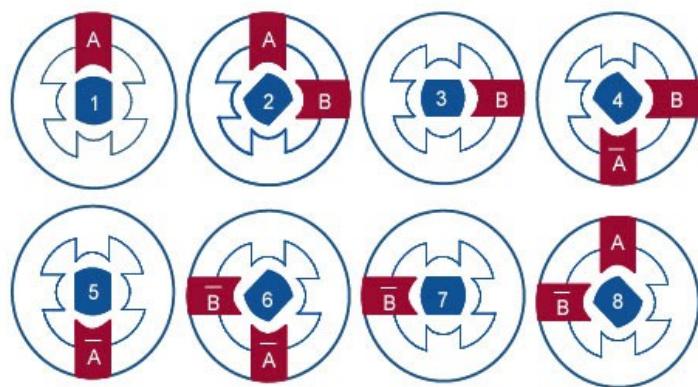
#endif
```

Motor paso a paso



Half-Step Switching Sequence

Lead Wire Color	---> CW Direction (1-2 Phase)							
	1	2	3	4	5	6	7	8
4 Orange	-	-						-
3 Yellow		-	-	-				
2 Pink				-	-	-		
1 Blue						-	-	-



64 pasos/vuelta x 64 reductora
=
4096 pasos para una vuelta