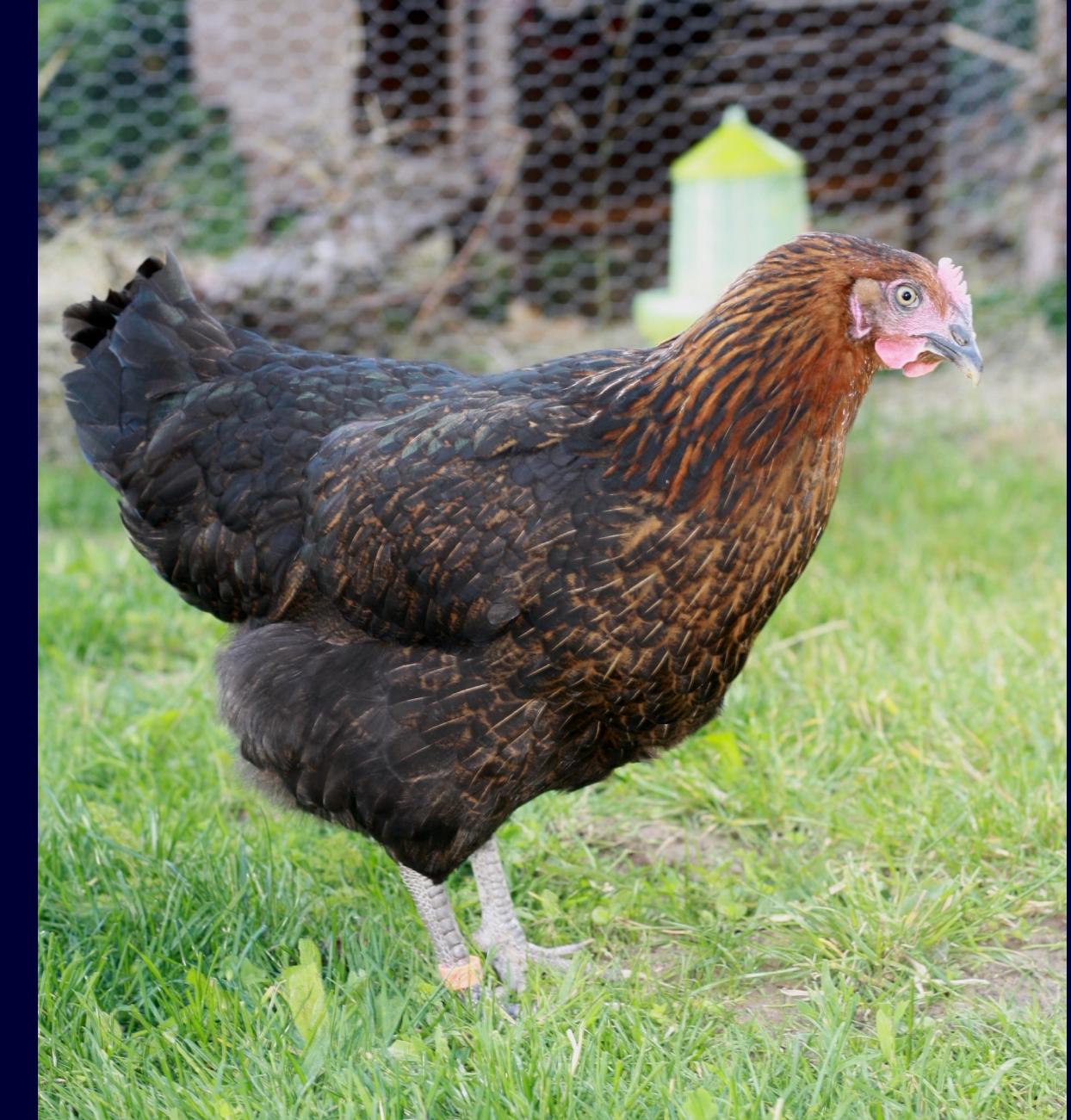


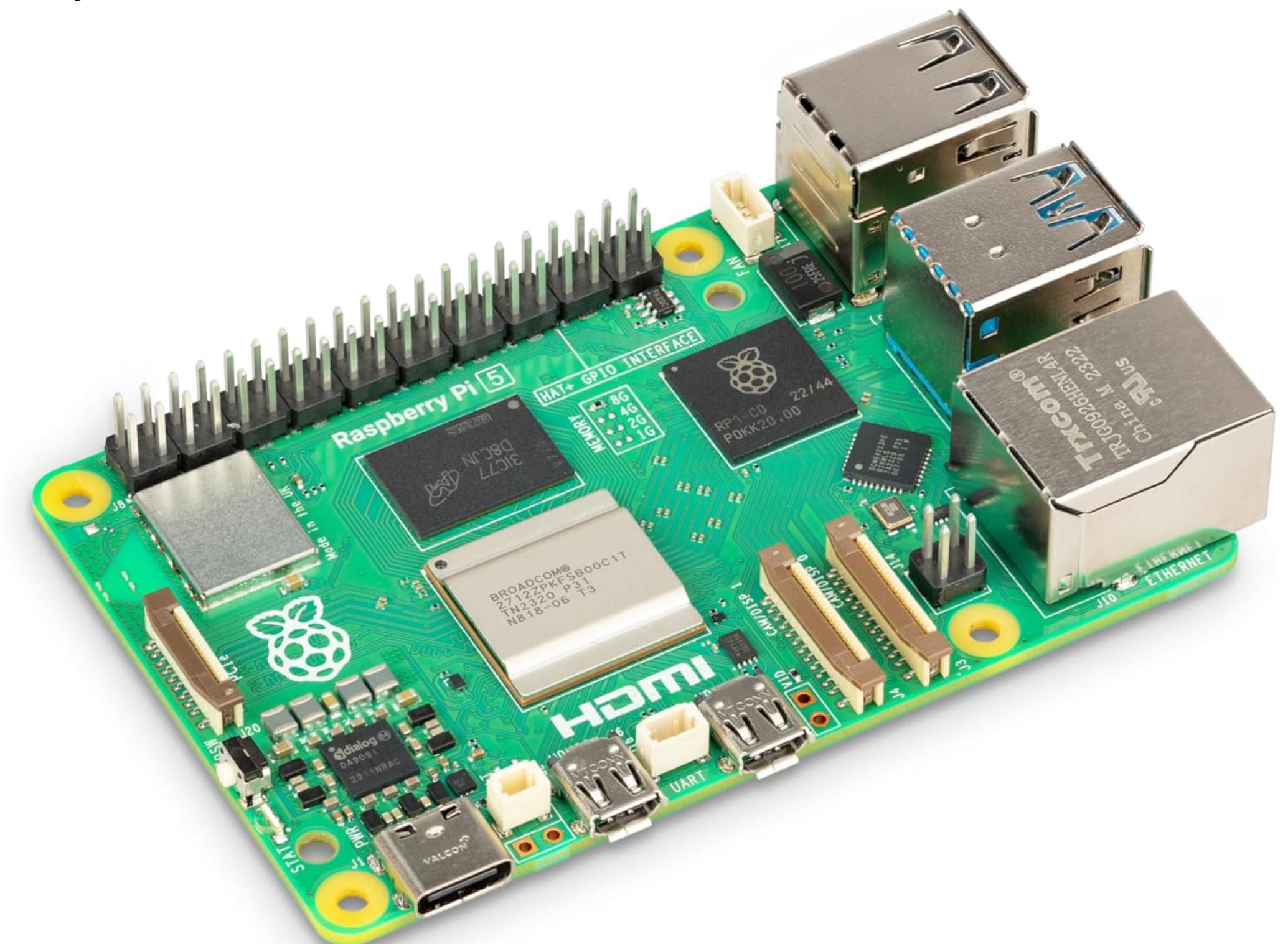
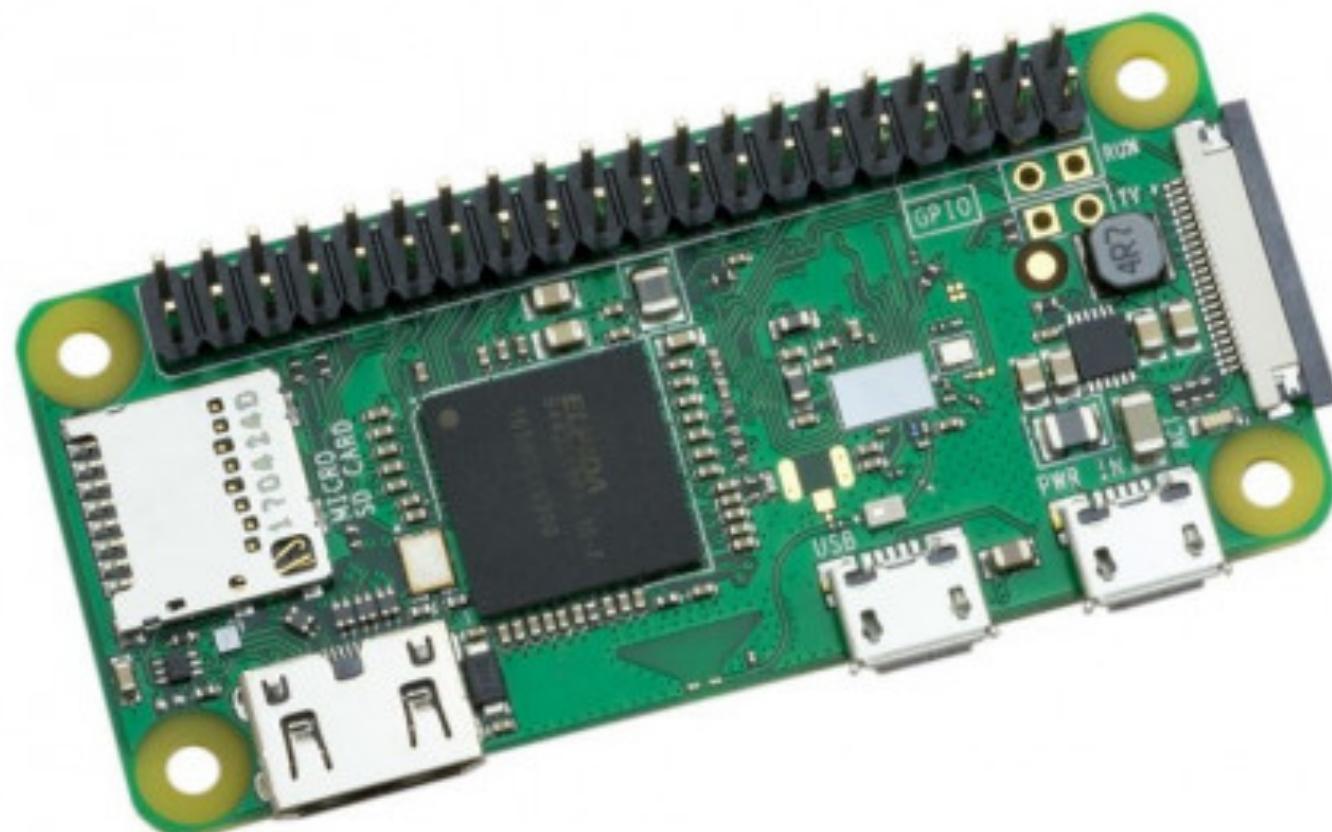
Programmation domotique sur RaspberryPi



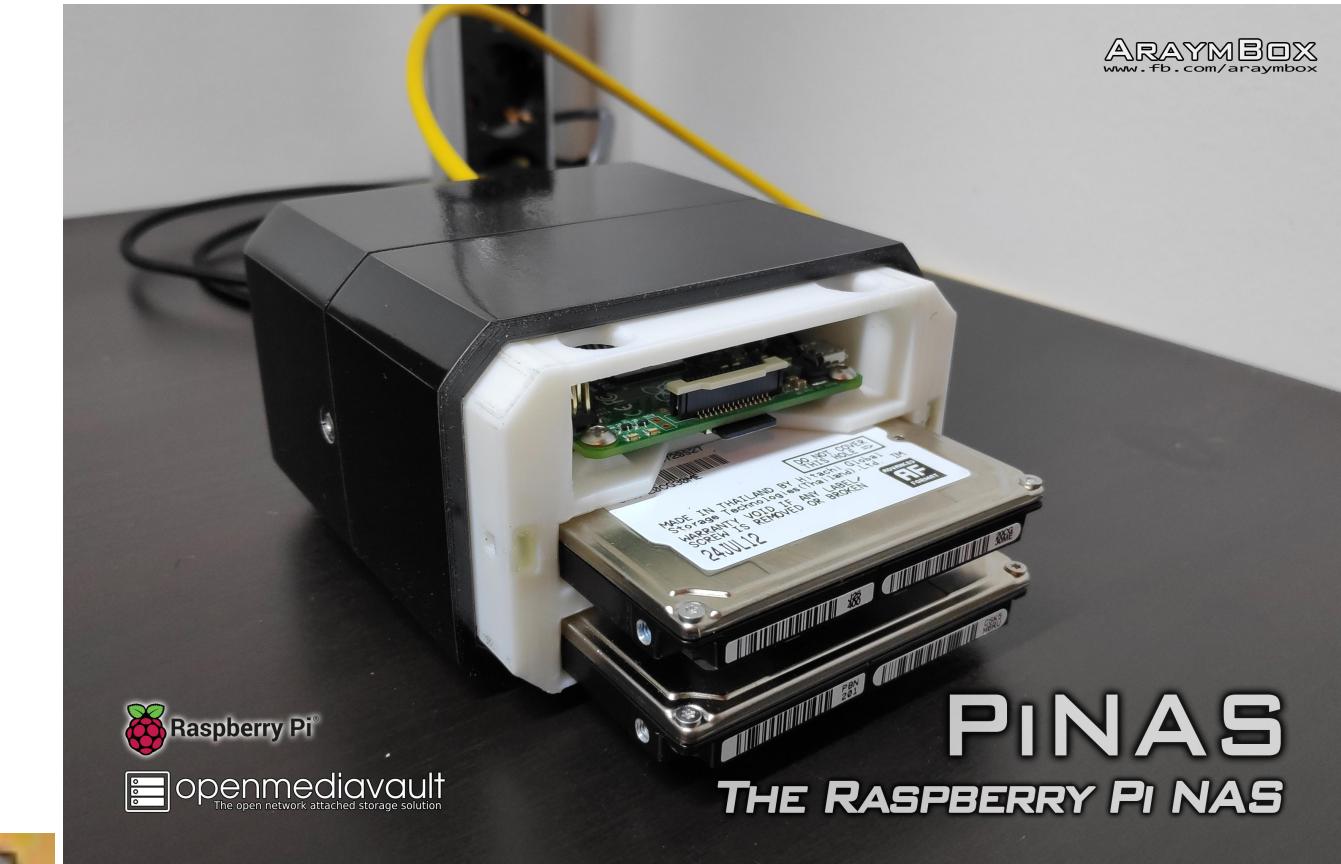
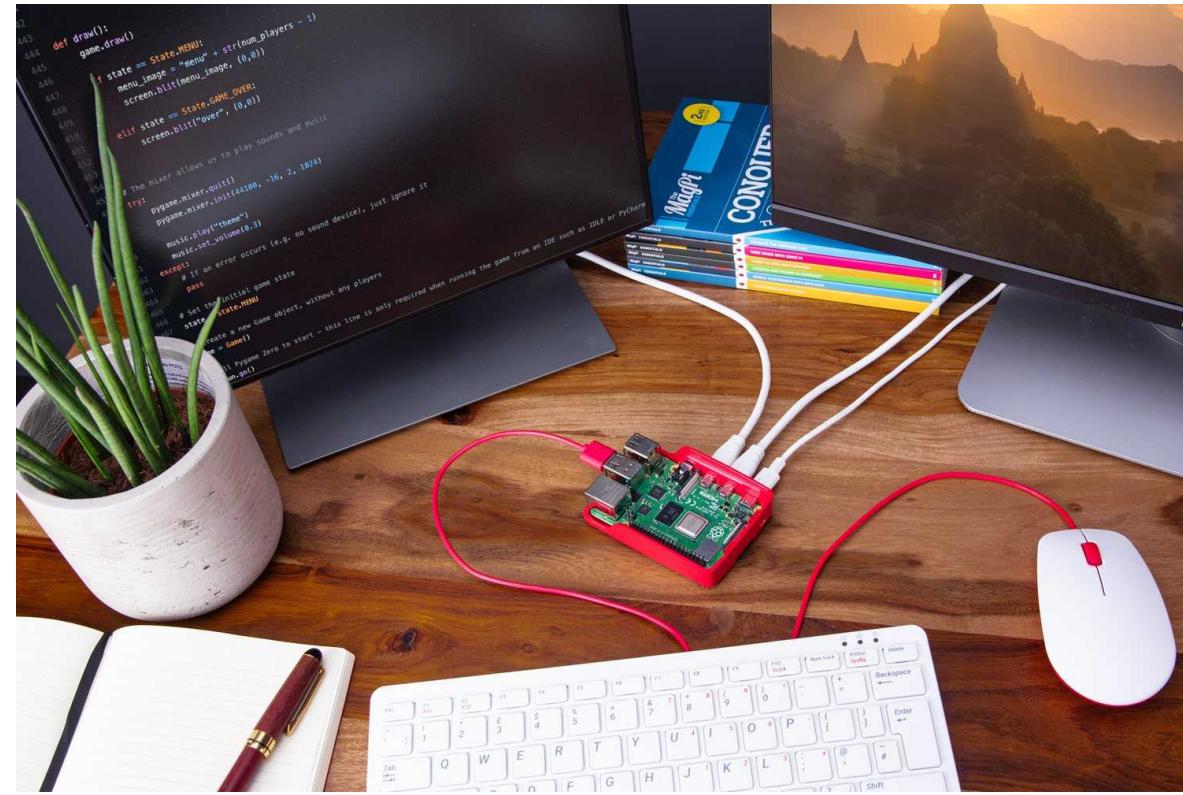
Mon poulailler connecté !

Présentation des RaspberryPi

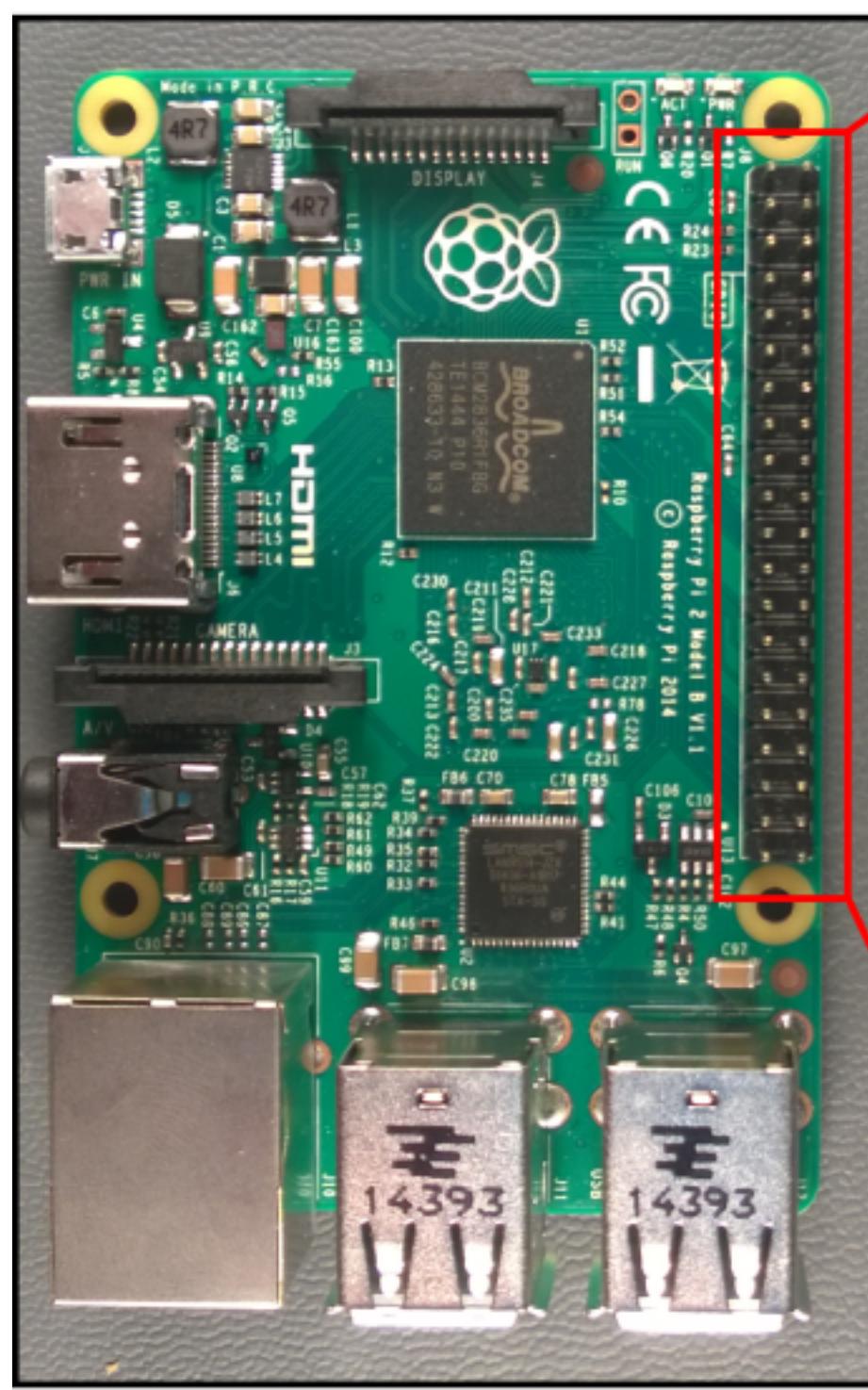
- Ordinateur de la taille d'une carte bancaire pour le Rpi 5, autour de 100€
- Le Rpi Zero : encore plus petit, autour de 20€
 - Moins puissant mais plus pratique à embarquer
- Architecture ARM



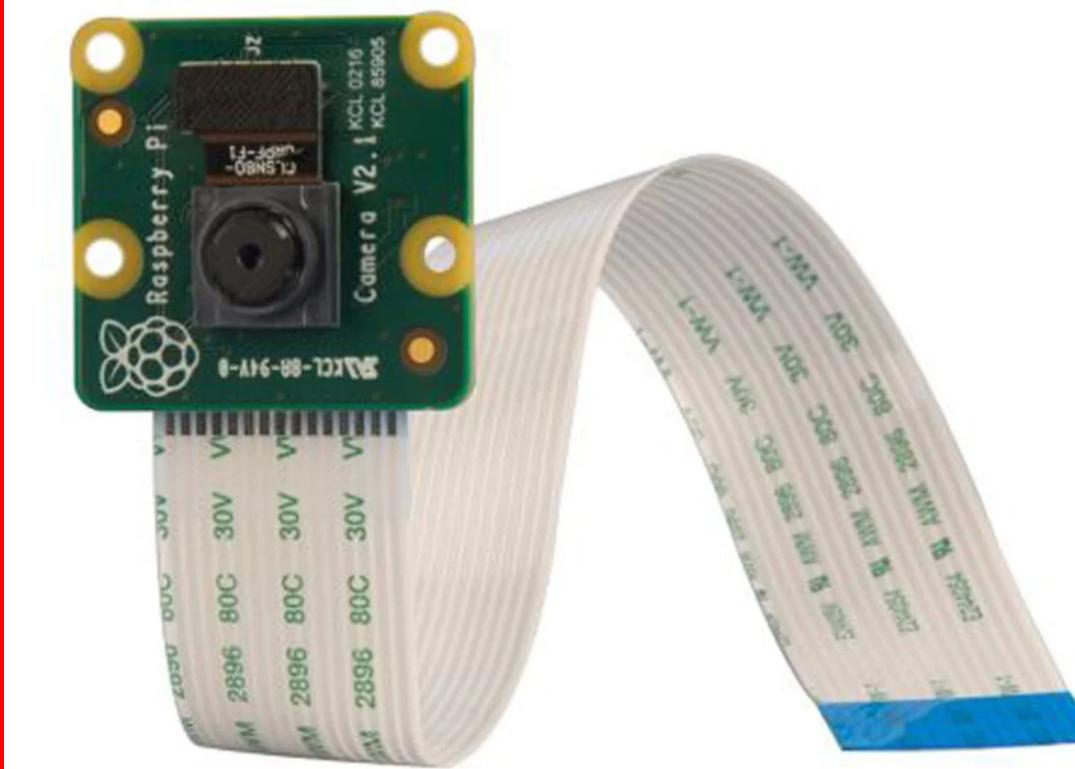
Utilisation d'un RaspberryPi



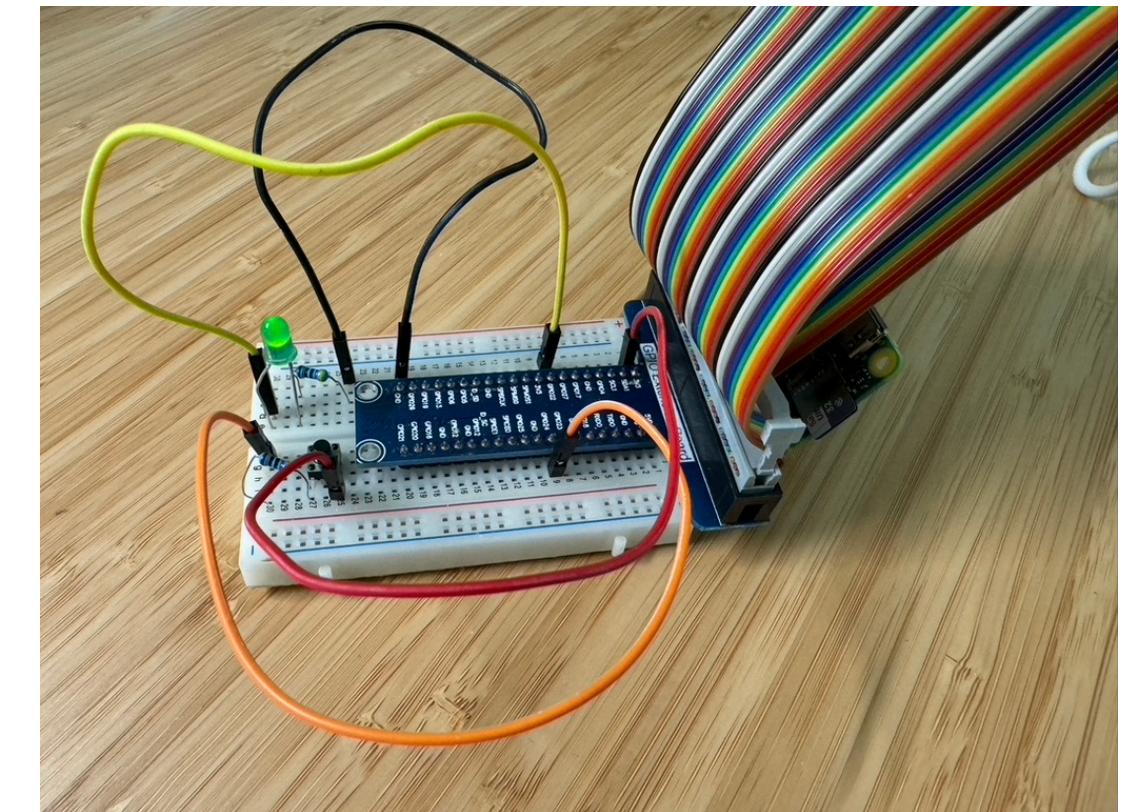
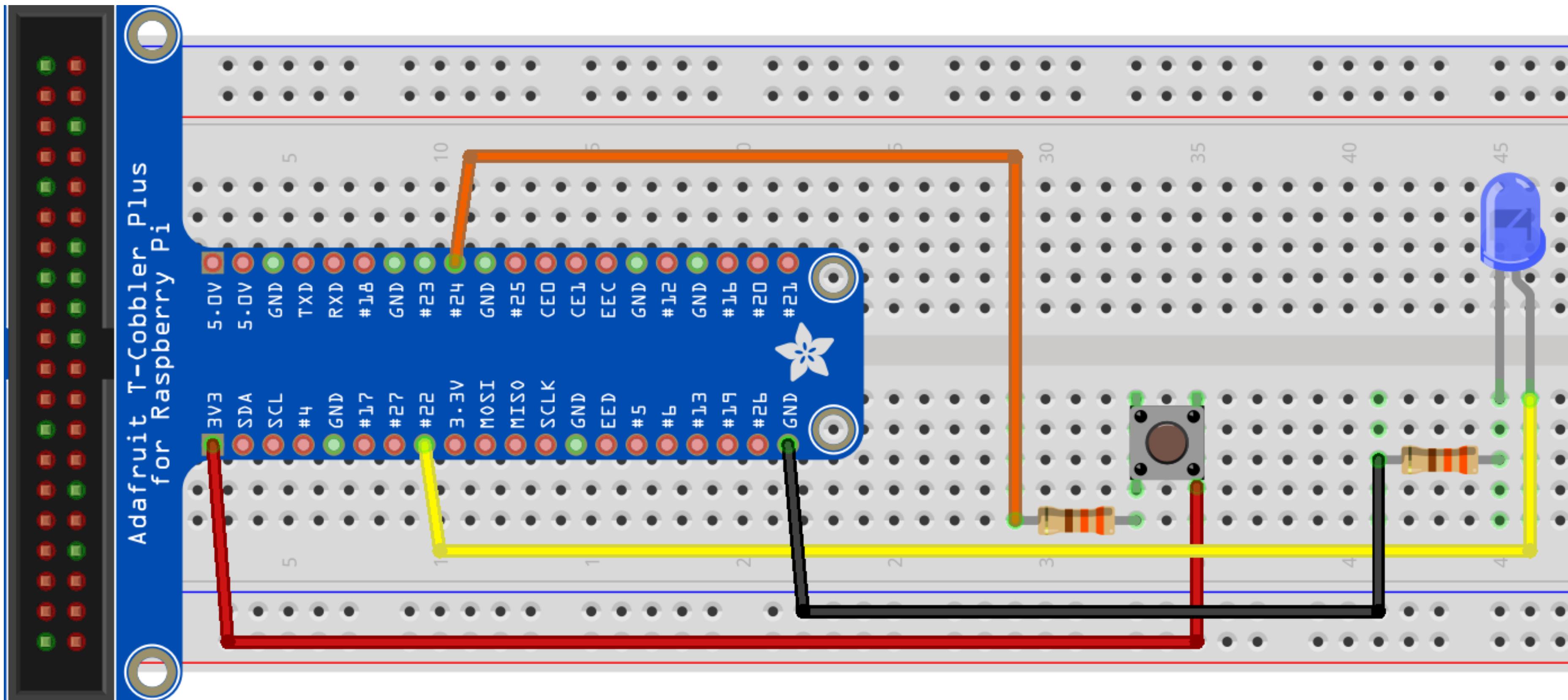
GPIO et électronique



Alternate Function	
I2C1 SDA	3.3V PWR
I2C1 SCL	GPIO 2
	GPIO 3
	GPIO 4
GND	5V PWR
GPIO 17	5V PWR
GPIO 27	GND
GPIO 22	UARTO TX
3.3V PWR	UARTO RX
SPI0 MOSI	GPIO 18
SPI0 MISO	GPIO 10
SPI0 SCLK	GPIO 9
GND	GPIO 11
Reserved	GPIO 23
GPIO 5	GPIO 24
GPIO 6	GPIO 20
GPIO 13	GPIO 25
SPI1 MISO	GPIO 19
	GPIO 16
	GPIO 26
GND	GPIO 21
	SPI1 CS0
	SPI1 MOSI
	SPI1 SCLK



Pi4J -> Press Button



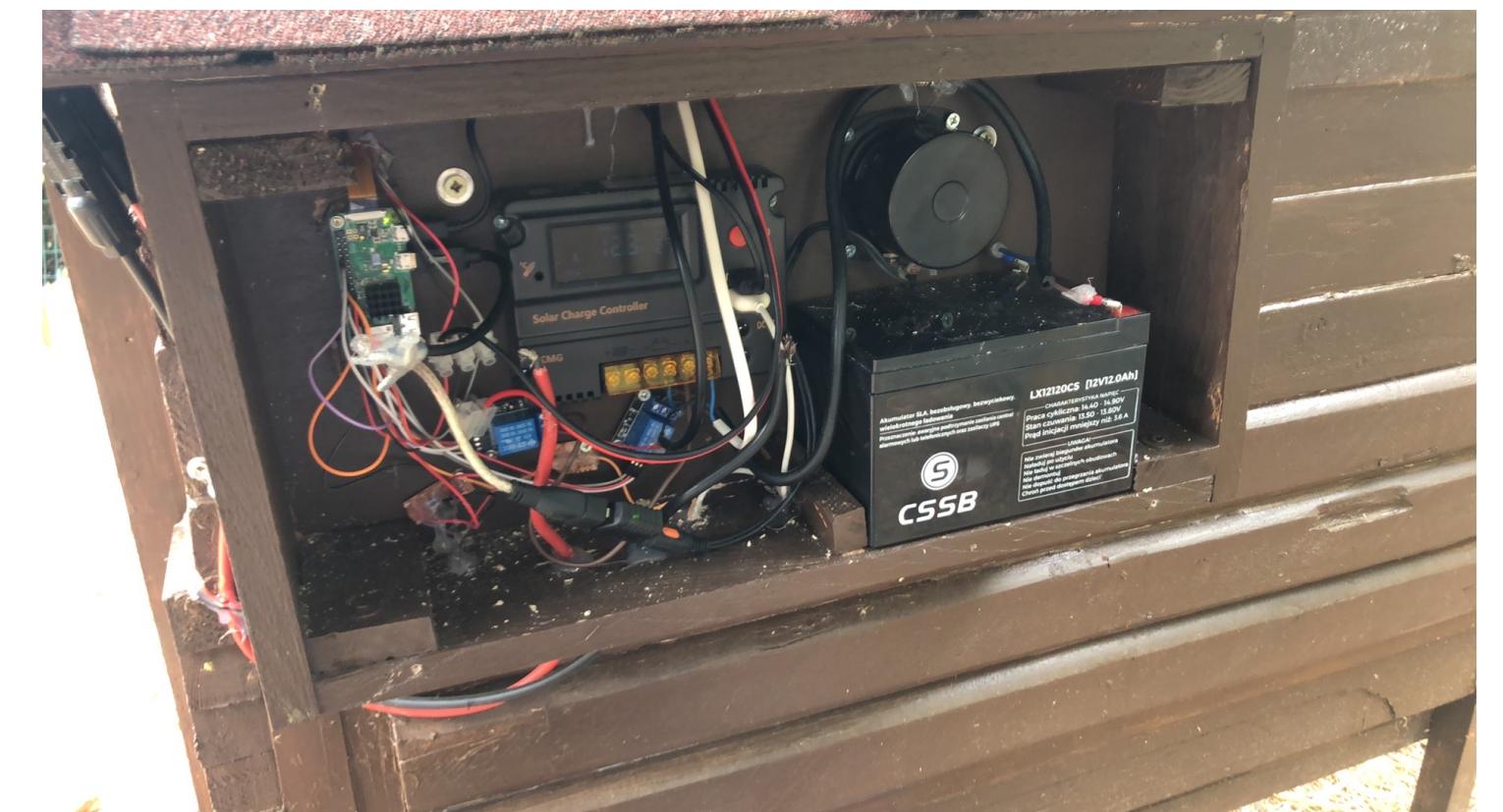
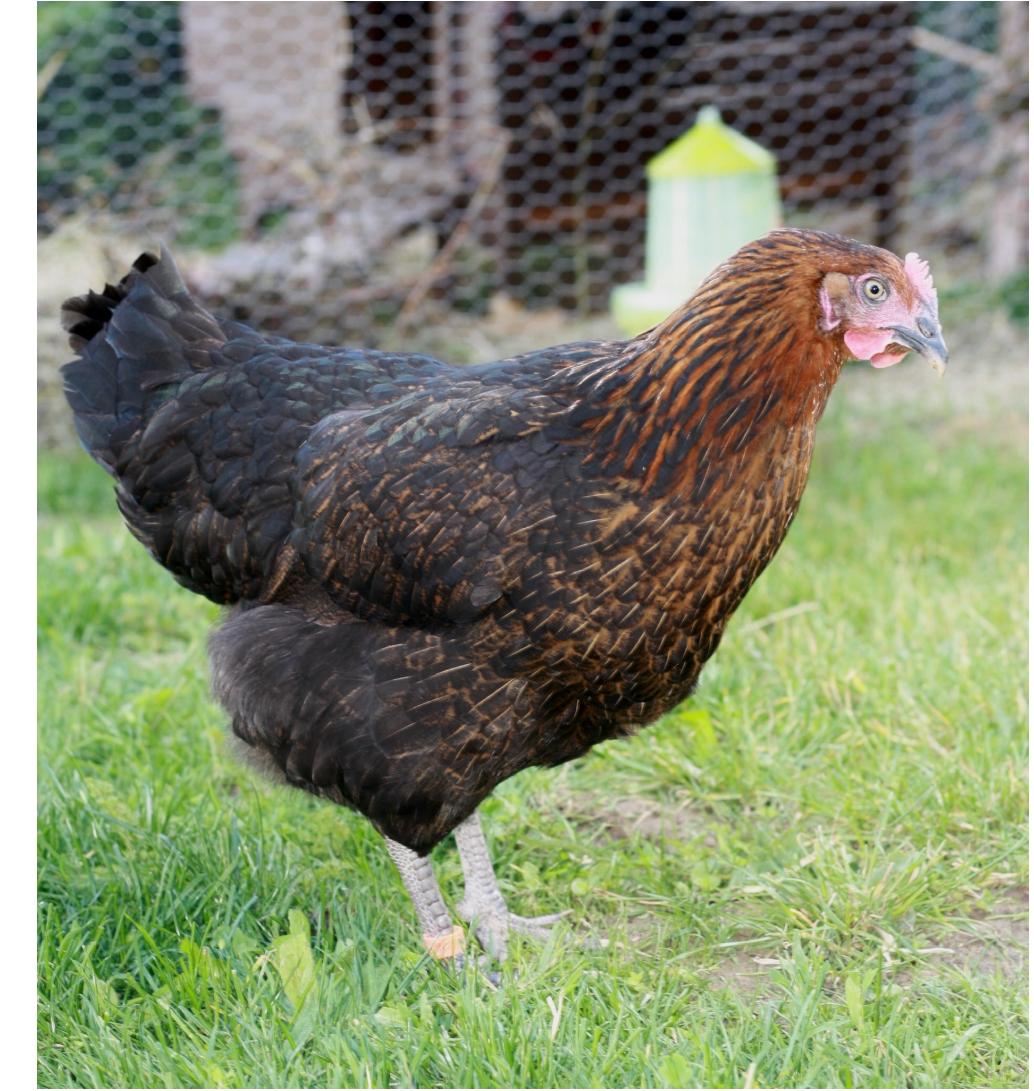
```
INFO - LED low
nsole - LED high
nsole - LED low
nsole - LED high
nsole - LED low
4j.util.Console - Button was pressed for the 1th time
nsole - LED high
4j.util.Console - Button was pressed for the 2th time
nsole - LED low
nsole - LED high
4j.util.Console - Button was pressed for the 3th time
nsole - LED low
nsole - LED high
nsole - LED low
nsole - LED high
nsole - LED low
nsole - LED high
nsole - LED low
```

```
private static final int PIN_LED = 22; // PIN 15 = BCM 22

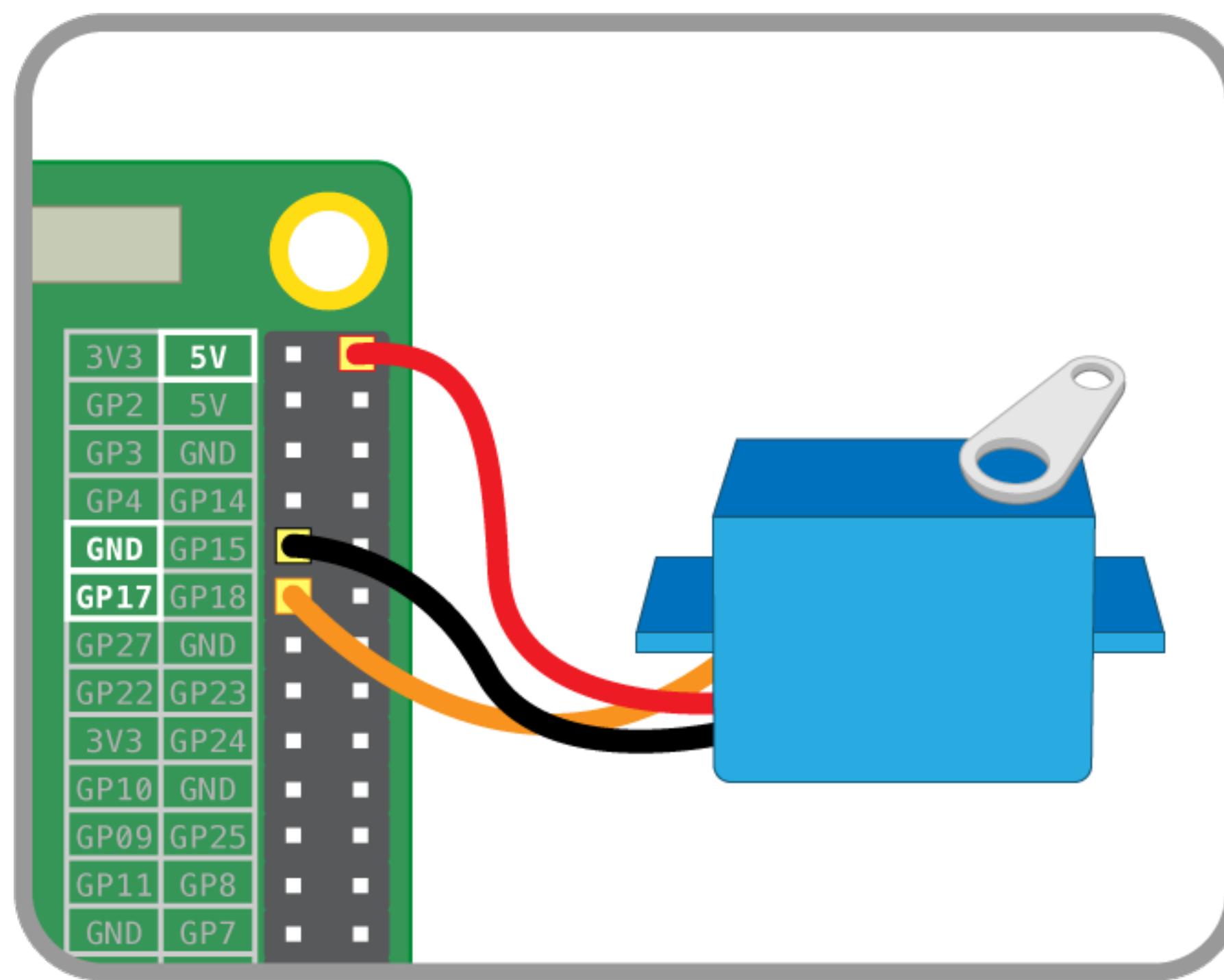
var led = pi4j.digitalOutput().create(PIN_LED);

while (pressCount < 5) {
    if (led.state() == DigitalState.HIGH) {
        led.low();
    } else {
        led.high();
    }
    Thread.sleep(500 / (pressCount + 1));
}
```

Mon projet



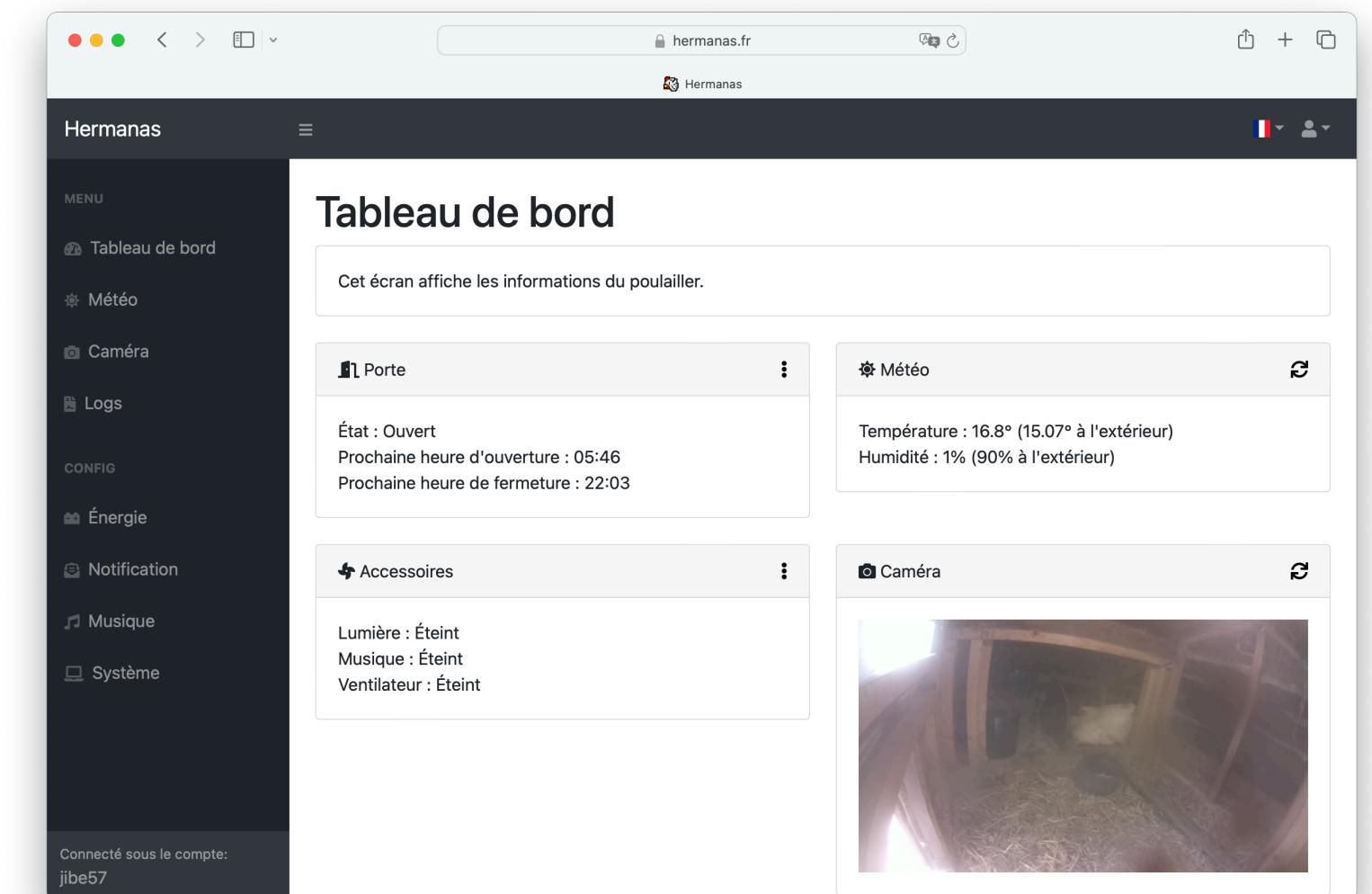
Pi4J -> Servomotor



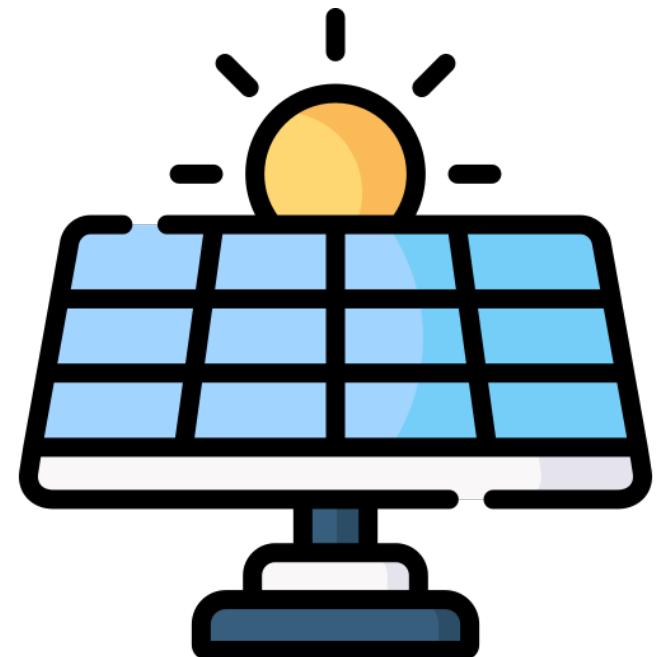


Accès à distance

- Raspbian
- Java 11
- Spring Boot
 - API REST : <https://poulailler57.ddns.net:5780/swagger-ui/>
- Code disponible sur :
 - <https://github.com/jibe77/hermanas>



Problématique de l'autonomie

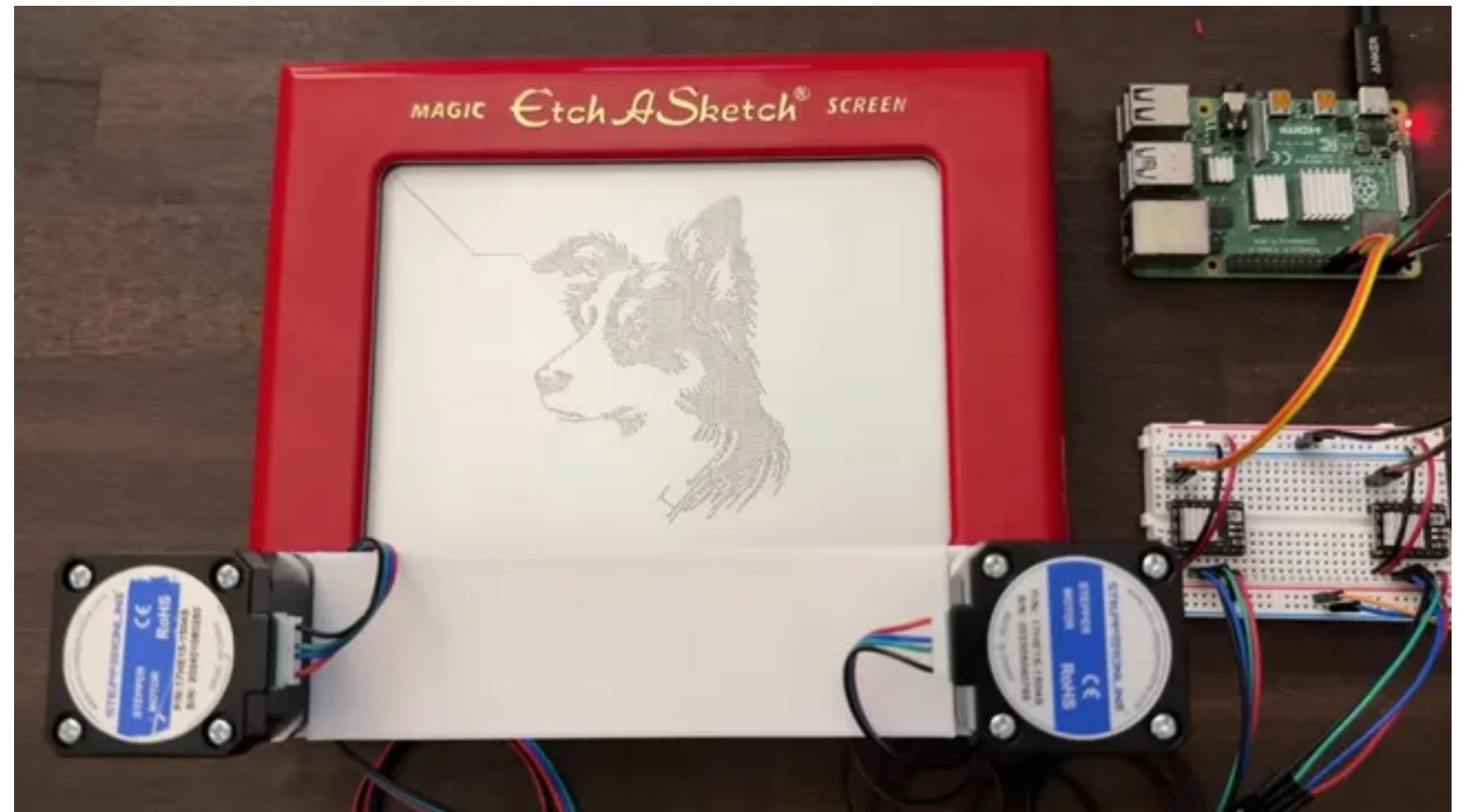


- Consommation contenue (environ 100mAh) en optimisant la configuration
 - Mode headless, pas d'interface graphique
 - Désactivation du port HDMI
- Compliqué en hiver
 - Panneau solaire ne produit rien en hiver
 - La batterie ne tient pas la charge avec le froid
 - Nécessite de tirer une rallonge électrique
 - Le restant de l'année, de février à octobre, la production est largement autosuffisante (ratio 1/5)

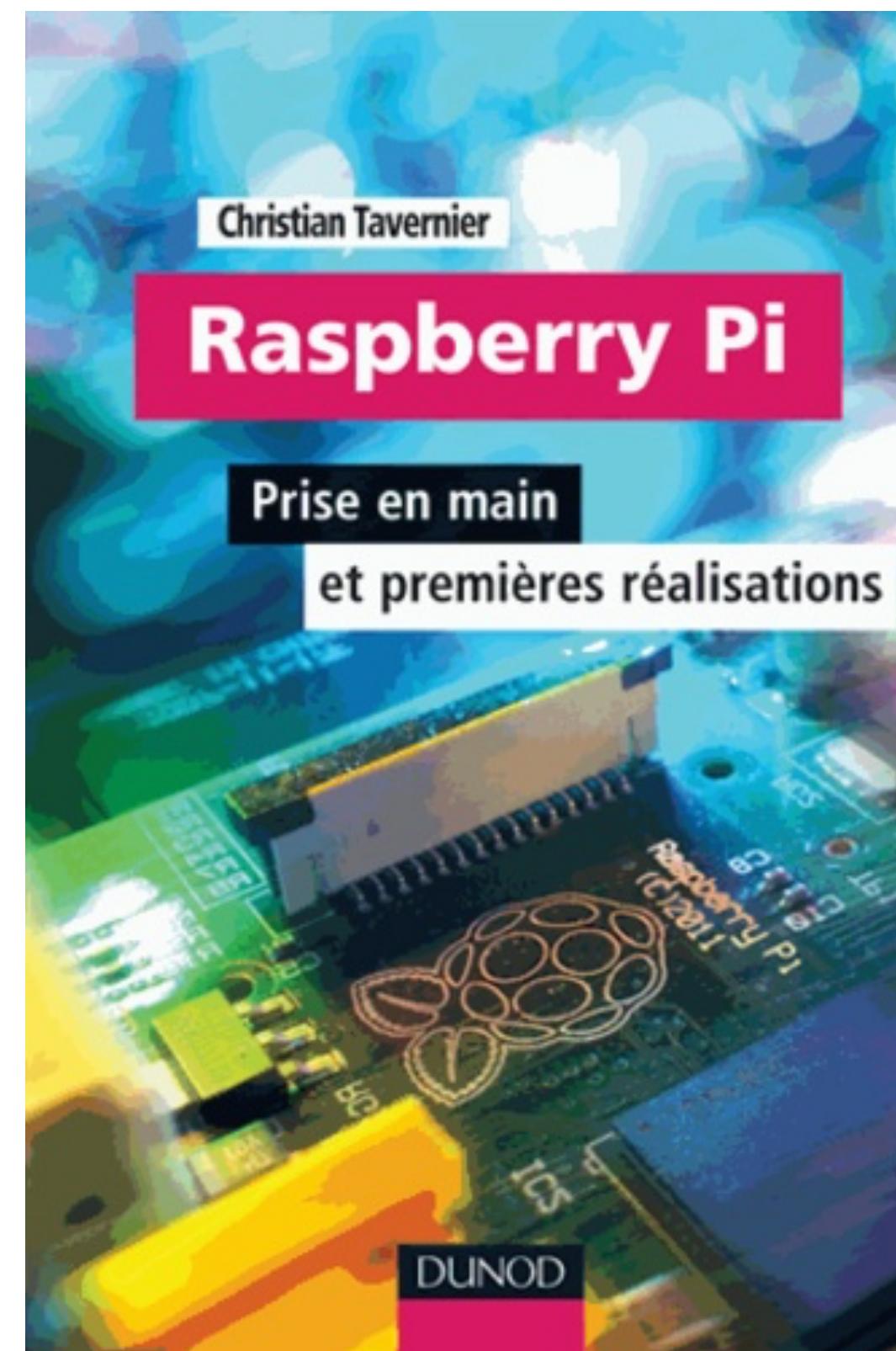


Projets DIY

- Cadre photo numérique
- Station météo
- Robot autonome
- Automatisation d'un machine à café
- Irrigation dans le potager
- Thermostat intelligent



Pour aller plus loin



The Pi4J Project
Java I/O library for Raspberry Pi



<https://www.plan-de-poulailler.fr/>