Experimento com I2C Scan

[Objetivo:](#_v79rp7wvoc0q)

[Sensores I2C comerciais:](#_lro4tnw4p5sy)

[Programa funcionando.](#_9bwyfvn6en3s)

# **Objetivo:**

Criar um protocolo para que assim que um sensor for conectado aos slots I2C0 ou I2C1, o reconhecimento seja automático, indicando o tipo de sensor e seu endereço Hexa.

Para isto, já teremos alguns sensores cabeados. O usuário conecta nos slots I2C e a BitDogLab reconhece automaticamente.

# Sensores I2C comerciais:

| Tipo | Código | Endereço Hexa |
| --- | --- | --- |
| [Sensor de Luz](https://www.makerhero.com/produto/sensor-de-luz-bh1750fvi-lux/?utm_source=google&utm_medium=organic&utm_campaign=shopping&utm_content=surfaces_across_google&gad_source=1&gclid=CjwKCAiApaarBhB7EiwAYiMwqhG_V9alp9x_FcEL9nSzPh1DEZMj7QA2MoqCuy0mlay4zu3dOaTxXhoCaOYQAvD_BwE) | [BH1750FVI](https://www.makerhero.com/img/files/download/BH1750fvi-Datasheet.pdf)  GY-302 | 0x23 com ADDR Low or open  0x5C com ADDR Hgh |
| [Sensor De Pressão e Temperatura](https://www.makerhero.com/produto/sensor-de-pressao-e-temperatura-bmp280/) | [bmp280](https://makerhero.com/img/files/download/BMP280-Datasheet.pdf?_gl=1*b0clwc*_ga*MjExOTE3ODUzMC4xNzAxNDYyNzIw*_ga_025J7BMBEC*MTcwMTQ2MjcyMC4xLjEuMTcwMTQ2MzM1OC41Ny4wLjA.) | 0x76 |
| [Acelerômetro e Giroscópio 3 Eixos 6 DOF](https://www.makerhero.com/produto/acelerometro-e-giroscopio-3-eixos-6-dof-mpu-6050/) | MPU-6050  GY-521 | 0x68 |
| [Sensor de Temperatura e Umidade](https://www.usinainfo.com.br/sensor-de-temperatura/sensor-aht10-de-alta-precisao-para-medir-temperatura-e-umidade-5691.html) | [AHT10](https://server4.eca.ir/eshop/AHT10/Aosong_AHT10_en_draft_0c.pdf) | 0x38 |
|  |  |  |
| [Acelerômetro 3 Eixos](https://www.makerhero.com/produto/acelerometro-3-eixos-mma8452/) | [MMA8452](https://www.makerhero.com/img/files/download/MMA8452Q-Datasheet.pdf) | 0x1C (SA0 = 0), 0x1D (SA0 = 1) |
| [Sensor de Batimento Cardíaco e Oxímetro](https://www.makerhero.com/produto/sensor-de-batimento-cardiaco-e-oximetro-max30100/) | [MAX30100](https://www.makerhero.com/img/files/download/MAX30100-Datasheet.pdf) | 0xAF Endereço de leitura  0xAE Endereço de escrita |
| [Sensor de Corrente DC](https://www.makerhero.com/produto/sensor-de-corrente-dc-ina219-i2c/) | [INA219](https://www.makerhero.com/img/files/download/INA219-Datasheet.pdf) | 0x40 padrão com A0 e A1 no GND  porém permite config. ver [datasheet](https://www.makerhero.com/img/files/download/INA219-Datasheet.pdf) p.14. |
| [Sensor de Temperatura e Umidade](https://www.makerhero.com/produto/sensor-de-temperatura-e-umidade-hdc1080-alta-precisao/) precisão | [HDC1080](https://www.makerhero.com/img/files/download/HDC1080-Datasheet.pdf) | 0x40 padrão |
| [Bússola Eletrônica](https://www.makerhero.com/produto/modulo-bussola-eletronica-hmc5883l/) | [HMC5883L](https://www.makerhero.com/img/files/download/QMC5883L-Datasheet.pdf) | 0x0D padrão |
| [Sensor de Cor](https://www.makerhero.com/produto/sensor-de-cor-tcs34725/) | [TCS34725](https://makerhero.com/img/files/download/datasheet-modulo-sensor-de-cor-tcs34725.pdf?_gl=1*1bmdyym*_ga*MjExOTE3ODUzMC4xNzAxNDYyNzIw*_ga_025J7BMBEC*MTcwMTQ2MjcyMC4xLjEuMTcwMTQ2NjU3OC42MC4wLjA.) |  |
| [Sensor de Luz e Proximidade](https://www.makerhero.com/produto/sensor-de-gestos-e-proximidade/) | [APDS-9900](https://makerhero.com/img/files/download/APDS-9900-Datasheet.pdf?_gl=1*14suork*_ga*MjExOTE3ODUzMC4xNzAxNDYyNzIw*_ga_025J7BMBEC*MTcwMTQ2MjcyMC4xLjEuMTcwMTQ2NjM2NS43LjAuMA..) |  |
| [Sensor de Temperatura IR](https://www.makerhero.com/produto/sensor-de-temperatura-ir-mlx90614/) | [MLX90614](https://www.makerhero.com/img/files/download/MLX90614-Datasheet.pdf) |  |
| [Acelerômetro e Giroscópio 9 Eixos 10 DOF](https://www.makerhero.com/produto/acelerometro-e-giroscopio-9-eixos-10-dof-mpu-9250-com-bmp180/) | [MPU-9250](https://www.makerhero.com/img/files/download/Datasheet_MPU9250_REV1.0.pdf) com BMP280 |  |
| [Sensor de Distância a Laser](https://pt.aliexpress.com/item/1005006035148235.html?spm=a2g0o.productlist.main.17.439f1b5cnZXhhL&algo_pvid=85d675d7-6df3-444f-a839-a86376bb3100&aem_p4p_detail=202312011345192167204643521440002054762&algo_exp_id=85d675d7-6df3-444f-a839-a86376bb3100-8&pdp_npi=4%40dis%21BRL%2123.44%2116.41%21%21%2132.27%21%21%402101e5c517014671196572422e7e71%2112000035420718306%21sea%21BR%212407387297%21&curPageLogUid=NSeEdo0cJFgF&search_p4p_id=202312011345192167204643521440002054762_9) | [VL53L0X](https://www.st.com/en/imaging-and-photonics-solutions/vl53l0x.html) |  |
| [Sensor de Dióxido De Carbono, Sensor De Gás, TVOC Qualidade Do Ar](https://pt.aliexpress.com/item/1005003980133652.html?spm=a2g0o.productlist.main.37.439f1b5cnZXhhL&algo_pvid=85d675d7-6df3-444f-a839-a86376bb3100&aem_p4p_detail=202312011345192167204643521440002054762&algo_exp_id=85d675d7-6df3-444f-a839-a86376bb3100-18&pdp_npi=4%40dis%21BRL%2144.19%2135.82%21%21%218.55%21%21%402101e5c517014671196572422e7e71%2112000027627928948%21sea%21BR%212407387297%21&curPageLogUid=n5SNRIwBOBeX&search_p4p_id=202312011345192167204643521440002054762_19) | CJMCU-811, CCS811, CO2, eCO2 |  |
| ADC 4 Canais com Amplificador Pro Gain | ADS1115 |  |

# [Programa funcionando.](https://drive.google.com/open?id=189uN20G1-Iwpo2TuFN-r0aV5dVbA8M0q&usp=drive_fs)

Programa pata a BitDogLab fazer a varredura dos canais I2C:

from machine import Pin, I2C

i2c0 = I2C(0, scl=Pin(1), sda=Pin(0), freq=400000)

i2c1 = I2C(1, scl=Pin(3), sda=Pin(2), freq=400000)

devices0 = i2c0.scan()

devices1 = i2c1.scan()

print("Endereços dos dispositivos I2C conectados:")

print("I2C0:")

for device in devices0:

print(" ",hex(device))

print("I2C1:")

for device in devices1:

print(" ",hex(device))