

# Please install thonny from **thonny.org**

Simple IDE for Pico/Python development. Quirky & mildly frustrating.  
<https://thonny.org/>

## Workshop materials

<https://github.com/pimoroni/hackadaysupercon2024>



Hackaday Supercon 8  
2 NOV 2024:

**DigiKey**

Presents

**MINI  
ROBOT  
JAM**

# People



**Paul**

Workshop cat-herder  
and can google that for  
you.



**Niko**

Quiet, friendly  
Hardware/Firmware  
Engineer.



**Jason**

Organisational and  
Problem-solving.

# Schedule

<https://hackaday.io/superconference/schedule.html>

1300-1330	I talk for a bit about what's going on
1330-1400	Debugging. Bot building. Start with mAgICaL cODiNg
1400-1500	Enhance and experiment. Break Stuff.
1500 onwards	Hang around and go further until they kick us out.

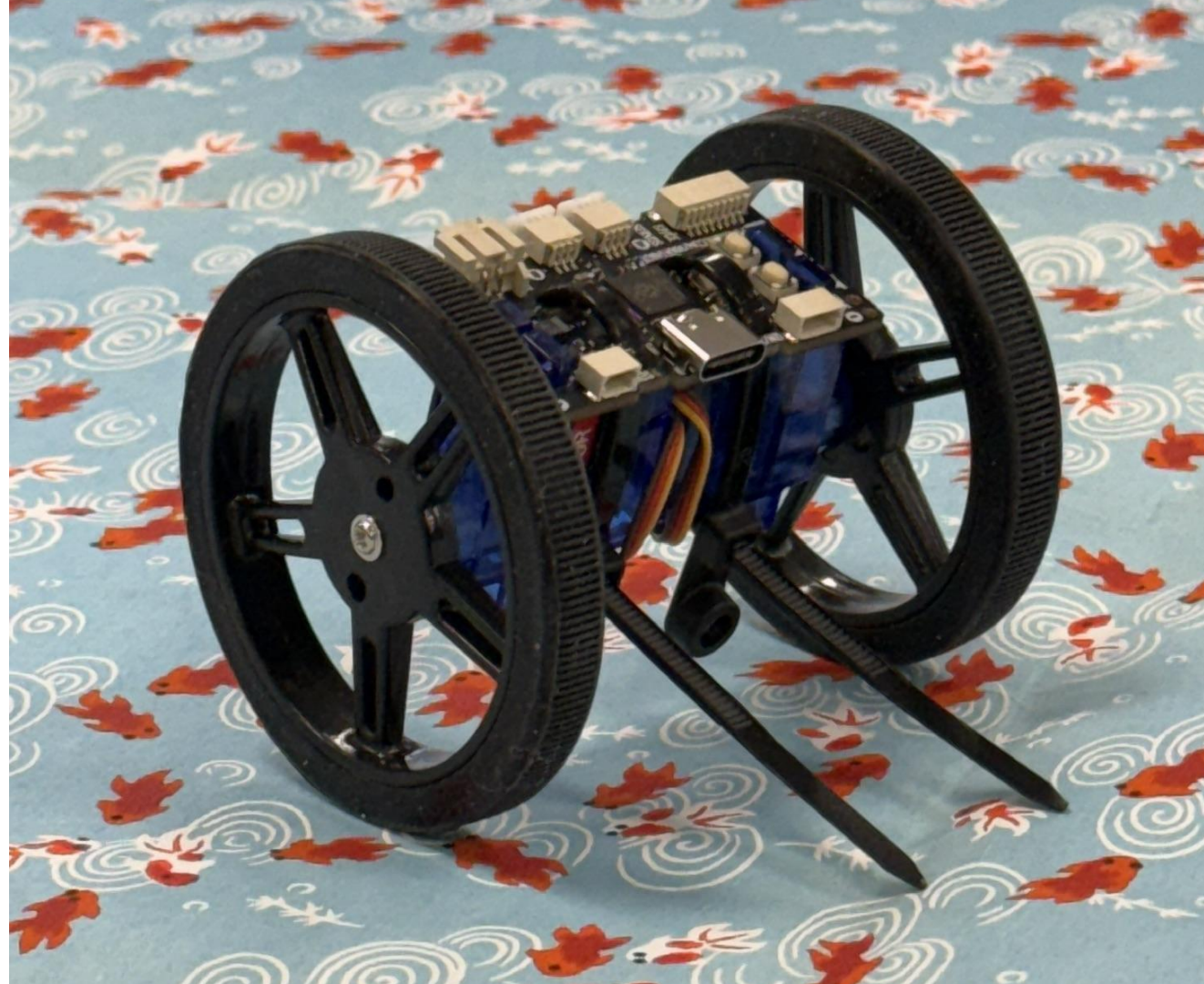
Feedback/questions   [paul@pimoroni.com](mailto:paul@pimoroni.com)



**WHAT  
ARE WE  
DOING  
HERE?**



# BUILDING A MINIMAL ROBOT



# **CODING IN MICRO PYTHON**





# MUTUALLY Y ASSURED CON STRUC TION





# ACHTUNG!

This is a  
low-risk  
workshop,  
however:



# SAFETY THIRST!

Be careful about short circuits.

Any power/output can short and release magical smoke.

We are working with low voltage, so consequences are mild.

Check connectors are the right way up.

They should only fit one way.

Q-tip rules apply. Stop if you feel excess resistance.

**OPEN  
YOUR  
KIT!**

**LOOK  
AT  
YOUR  
STUFF!**





# What hardware are we using?

Experimental MANTABOT Board (RP2350 Microcontroller)

Continuous Rotation Servos

Cable Ties

USB-Cable

## **BONUS CONTENT FOR THE BORED AND BRAVE**

Random sensors and peripherals

Various craft things

**4-Pin I2C**

Qw/ST, QWIIC, Stemma QT

**USB-C**

Power/Data

**3-Pin Dumb Sensors**

PIR/IR

**8-Pin SP/CE**

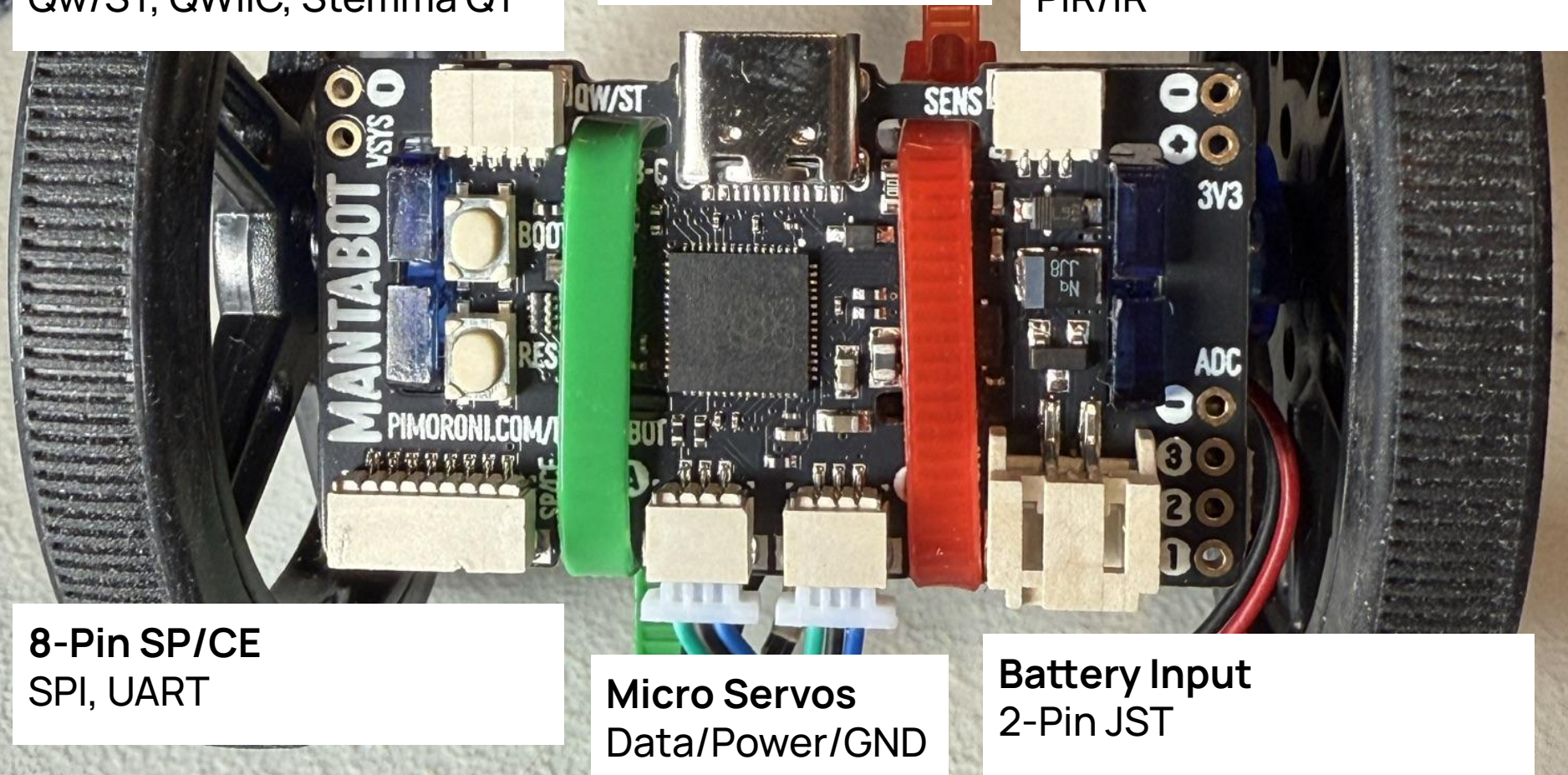
SPI, UART

**Micro Servos**

Data/Power/GND

**Battery Input**

2-Pin JST



# RP2350 Basic Survival Skills

+BOOTSEL +RESET -RESET - BOOTSEL

Fake Flashdrive

Adding MP/CP in DFU Mode

flashnuke.uf2

Thonny is a 'good enough' IDE and cross-platform



# BAT COUNTRY!

Now we go freeform!

Materials used in the workshop:

<https://github.com/pimoroni/hackadaysupercon2024>

Code READMEs for sensor/servo modules:

<https://github.com/pimoroni/pimoroni-pico/tree/main/micropython/modules>

Code examples to crib from:

<https://github.com/pimoroni/pimoroni-pico/tree/main/micropython/examples>