

Hackaday Berlin 2023:
Digikey Presents

HUG O RAMA



Basics

Paul - Workshop cat-herder and can google that for you.

James - Raspberry Jam Berlin meetup and general hardware enabler.

Schedule: <https://hackaday.io/berlin2023/>

10:30AM- 12PM: Learning about Pico-W, servos and sensors.

DURING THE DAY: Tinker at leisure on your creation, or don't.

3:30-4:30PM: Back here for debugging and sharing your creations.

<https://github.com/pimoroni/hackadayberlin2023>

This presentation and all the code/guides used.



WHAT ARE WE DOING HERE?



MAKING

MICROPYTHON

A close-up photograph of a human finger, likely the index finger, with a small, slender snake coiled around it. The snake has a dark blue body with yellow and blue markings along its sides. The background is a blurred green, suggesting an outdoor setting.

Learning some basics of 'e-z-mode' microcontroller programming

MIMICRY

Generating
ideas for our
own personal
companion




MODULES

Drive some
servos and
sensors and
make them
interact

A close-up photograph showing a person's hand holding a small black digital sensor. The sensor's LCD screen displays '26' and '25.2°C' in the top row, and '26' and '%' in the bottom row. A black cable extends from the sensor. In the background, a green plant with white variegation is in a yellow pot. The scene is set on a light-colored surface.

26	25.2°C
26	%



Share knowledge and encouragement to ensure everyone in the group is equally confused.

MUTUALISM

ACHTUNG!

A photograph of a young child in a blue puffer jacket and a white knit hat with a pom-pom, bending over to feed several coypus (nutria) on a paved path. The coypus are dark brown with long white whiskers and are eating pieces of food. In the background, there is a body of water and some foliage. A red banner with the word 'ACHTUNG!' is in the top left, and another red banner with text is in the bottom right.

This is a low risk workshop, however:

SAFETY THIRST!

Be careful about short circuits.

Any output can become a short and release magical smoke.

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

Double check power connections.

Beware loose wires

SAFETY THIRST!

When cutting wire, hold both pieces of wire.

The loose end can fly and you'll take your eye out.

SAFETY THIRST!

Scissors.

Be careful to not cut yourself.

Don't run with them.

SAFETY THIRST!

Glue.

Do not huff.

Do not stick non-workshop things together.

Be nice to the Motion.Lab

WE CAN REBUILD YOU



**What does a
companion look
like?**

https://www.instagram.com/odd_jayy/



<https://www.hackster.io/glowascii>





<https://www.gellacraft.com/>



https://www.instagram.com/helenleigh_makes



<https://sophywong.com/>

LET'S TALK ABOUT YOUR STUFF!



What hardware are we using?

Raspberry Pi Pico W

Servos

I2C breakouts (Qwiic, Stemma QT, Breakout Garden)

Arts & Crafts Materials

Which firmware/software?

Pimoroni 'batteries included' MicroPython for Pico W

Thonny - cross-platform Python/Micropython IDE

Breadcrumbs for later

CircuitPython would also work (and supports a wider range of hardware)

Arduino works (official and community)

C(++) (Hard mode, most performance)

Pico (W) Basic Survival Skills

Already done: Adding MP/CP/Arduino to a Pico/Pico W

BOOTSEL

flashnuke.uf2

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

Breadcrumbs for further study:

CircuitPython does the sensible 'flash drive' way

mpremote.py lets you control a MicroPython board from your computer/Python

Free Tinker

Start thinking of ideas or what you want to achieve, especially if I'm covering stuff you already know.

What animal represents me?

Do I have a personal trait I would like to externalise and parody for self-improvement?

The Disney sidekick they should have made.

Social commentary personified.

BAT COUNTRY!

Now we go freeform!

Materials used in the workshop:

<https://github.com/pimoroni/hackadayberlin2023>

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>