thonny.org

Useful for dev on Pico MicroPython

Hackaday Europe 2024:
Digikey Presents

ROBOT CARNAGE

Basics

Paul - Workshop cat-herder and can google that for you.
James - Raspberry Jam Berlin meetup and general hardware enabler.

Schedule: https://hackaday.io/europe2024#schedule

10:30AM- 12.30PM:	Learning about Pico-W, servos and sensors. Early testing.
DURING THE DAY:	Tinker at leisure on your creation, or don’t.
17:00-18:30PM:	Back here for debugging and final tests/battles.

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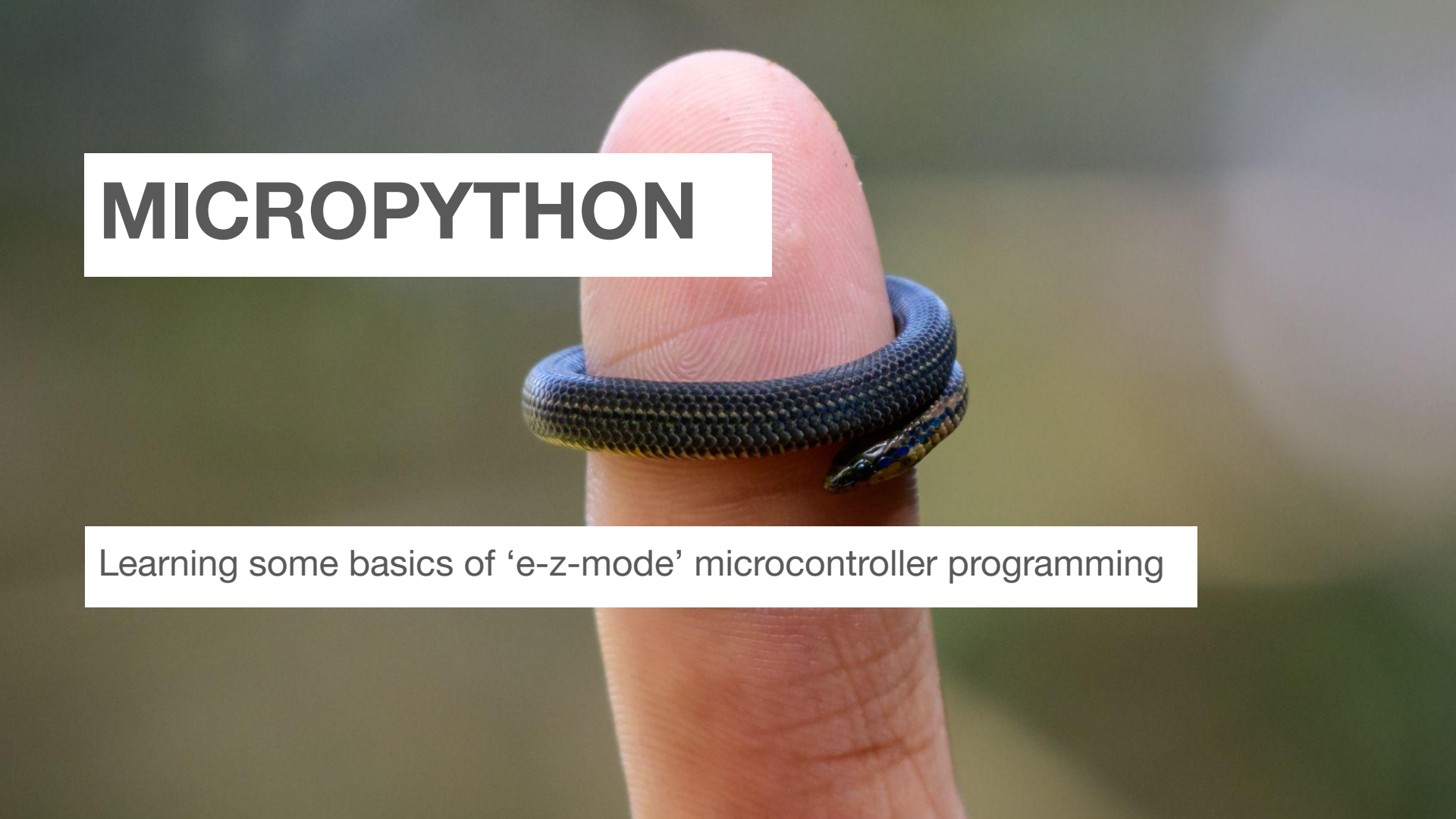
https://github.com/pimoroni/hackadayeurope2024

This presentation and all the code/guides used.


WHAT ARE WE DOING HERE?

MAKING



MICROPYTHON

Learning some basics of ‘e-z-mode’ microcontroller programming

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

MUTUALISM


ACHTUNG!
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.

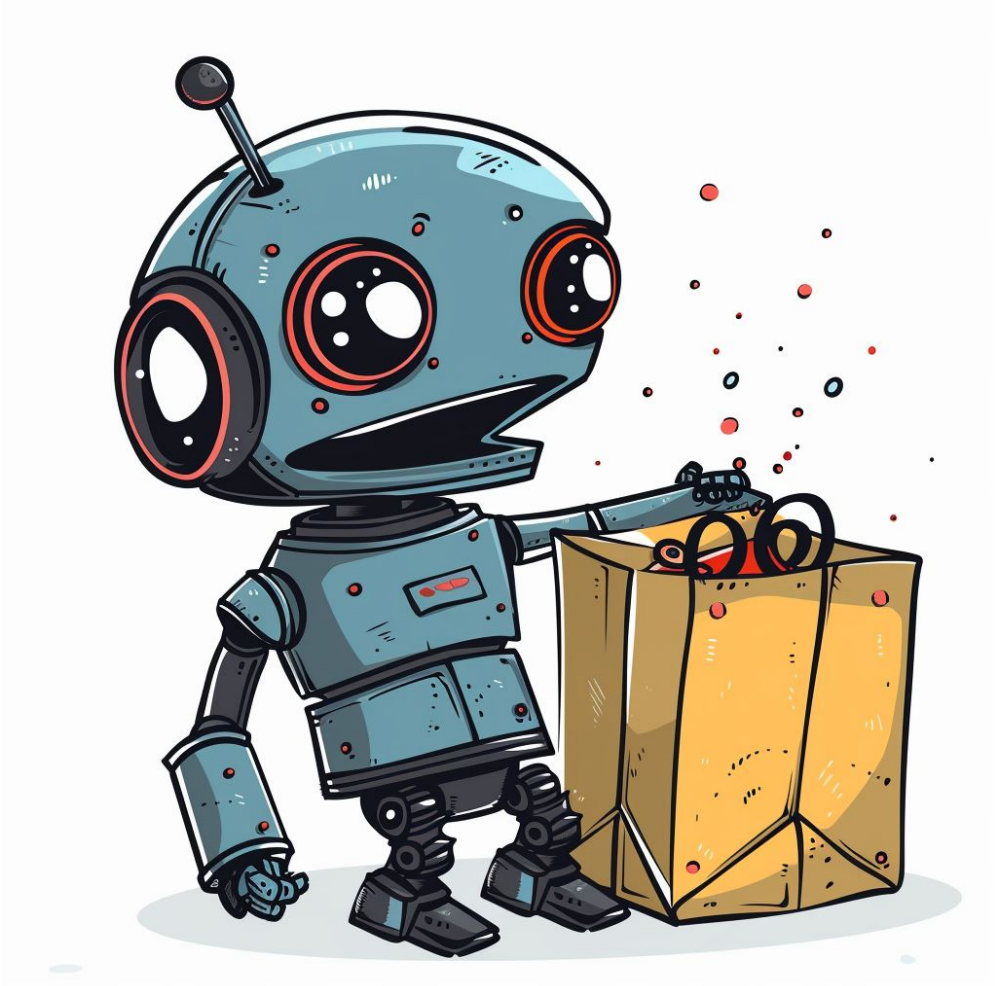
SAFETY THIRST!

Glue.

Do not huff.

Do not stick non-workshop things together.

Be nice to the Motion.Lab



OPEN YOUR BAGS.

LET'S LOOK AT YOUR STUFF!

What hardware are we using?

Raspberry Pi Pico

Continuous Rotation Servos

Time-of-Flight TOF sensor (Qwiic, Stemma QT)

Cable Ties

Laser-cut chassis

3D Printed wheels

Various craft things

Which firmware/software?

Pimoroni ‘batteries included’ MicroPython for Pico

Thonny - cross-platform Python/Micropython IDE

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

THE TRIALS

BEAUTY PAGENT - James or Paul will Judge your bot whenever you are ready.

ART SCHOOL - Draw a simple image with your bot.

ROUGH TERRAIN - Navigate an obstacle course.

SODA DELIVERY - Deliver a 330ml soda can through a maze.

PICO NOON - Robots go head-to-head to pop each others balloons.

NOT SO MUCH RULES AS GUIDELINES

You can team up in duos.

No robot size restrictions, but it has to fit in the start area.

You can retool/recode your robot between challenges.

If time allows, a second attempt at challenges is allowed to improve score.

Scoring is pretty random, but mostly fair.

Robots can be manually controlled. Extra points for automatons.

Have fun. Be kind. Be chill. Low drama.

BAT COUNTRY!

Now we go freeform!

Materials used in the workshop:

https://github.com/pimoroni/hackadayeurope2024

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