

Micro Python

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Introduction

Please check the bottom of this page for code examples.

MicroPython is a tiny, efficient version of Python designed to run on microcontrollers like the Raspberry Pi Pico. If regular Python is a full toolbox, MicroPython is the compact, ultra-portable version that still lets you build amazing things.

Here's the essence of it:

What MicroPython actually is

MicroPython is:

- A lightweight Python interpreter
- Designed for small, low-power devices
- Fast to start (boots in milliseconds)
- Able to control hardware directly (GPIO, I2C, SPI, PWM)

It gives you the power of Python, but trimmed down so it fits into devices with **tiny memory and low CPU power**.

Why MicroPython exists

Traditional Python needs:

- An operating system
- Lots of RAM
- A full CPU

Microcontrollers like the Pico have:

- No OS
- Kilobytes of RAM
- Very small processors

MicroPython bridges that gap by giving you a Python-like experience on hardware that normally only runs C or assembly.

What you can do with MicroPython

This is where it gets fun. You can:

- Blink LEDs

- Read sesors
- Drive motors
- Control displays
- Build IoT devices
- Make robots
- Read buttons and switches
- Communicate over Wi-Fi (Pico W)

Micro Python Examples

Here are some Micro Python programs for you to try:

Raspberry Pi Pico **Simulator** - Only use this to start if you don't have a Raspberry Pi Pico board.

- [Button Controlled LED](#)

These first three examples all use the [onboard LED](#) on the Raspberry Pi Pico.

- [LED On and Off](#)
- [Flash the LED Ex1](#)
- [Blink the LED](#)

From here we are using the [GPIO pins](#) on the Raspberry Pi Pico.

- [GPIO Controlled LEDs](#)
- [Traffic Light LEDs using Array](#)
- [Control an LED Using a Button](#)
- [Control an LED using a Webpage](#)
- [Using the Pico RUN Button](#)

Making your Raspberry Pi Pico code run on boot.

- [Using Breakout Time Delay](#)
- [Using a Breakout Button](#)
- [Using a Breakout Button - Better code but slightly more complex](#)

Full Projects. [Full Projects](#) are where we have built some circuitry, written some Micro Python Code and 3D Modelled an enclosure/stand etc. Sections in here might exist in other areas of the wiki, but to tie them together, we will create a project and put all relevant information in there.

- [Project 1 - Coming Soon](#)

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