

Stillness Detector Workshop

Create Installations That Reward Serenity

A Quick Look Back: Wabi-Sabi Electronics

Wabi-sabi finds beauty in imperfection, impermanence, and quiet. Our devices aim to nourish the soul rather than demand attention.

- Technology should feel calm, natural, and humane — not noisy or demanding
- We design for humane intent rather than clicks, likes and alerts
- Experiences we create are meant to be imperfect and impermanent, but also calming and welcoming

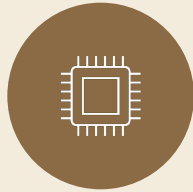
- Today: a device that senses stillness and rewards it with something expressive

What Is Stillness Detection?

Stillness detection senses when a person, typically a viewer of an interactive installation, is present and not moving, reporting their state so your project can react.

- A starting point, not a finished product — this is a prototype
- Recommend using it as-is to get going, then modify or replace it as your project grows
- It distinguishes three states: presence, absence, and stillness
- Output is simple enough to drive almost anything: lights, sound, motors, bubble machines, projection mapping, etc.

Your Kit



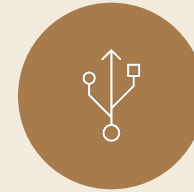
Stillness Detector

The prototype device — senses presence with stillness and reports the current state.



USB Micro-B Cable

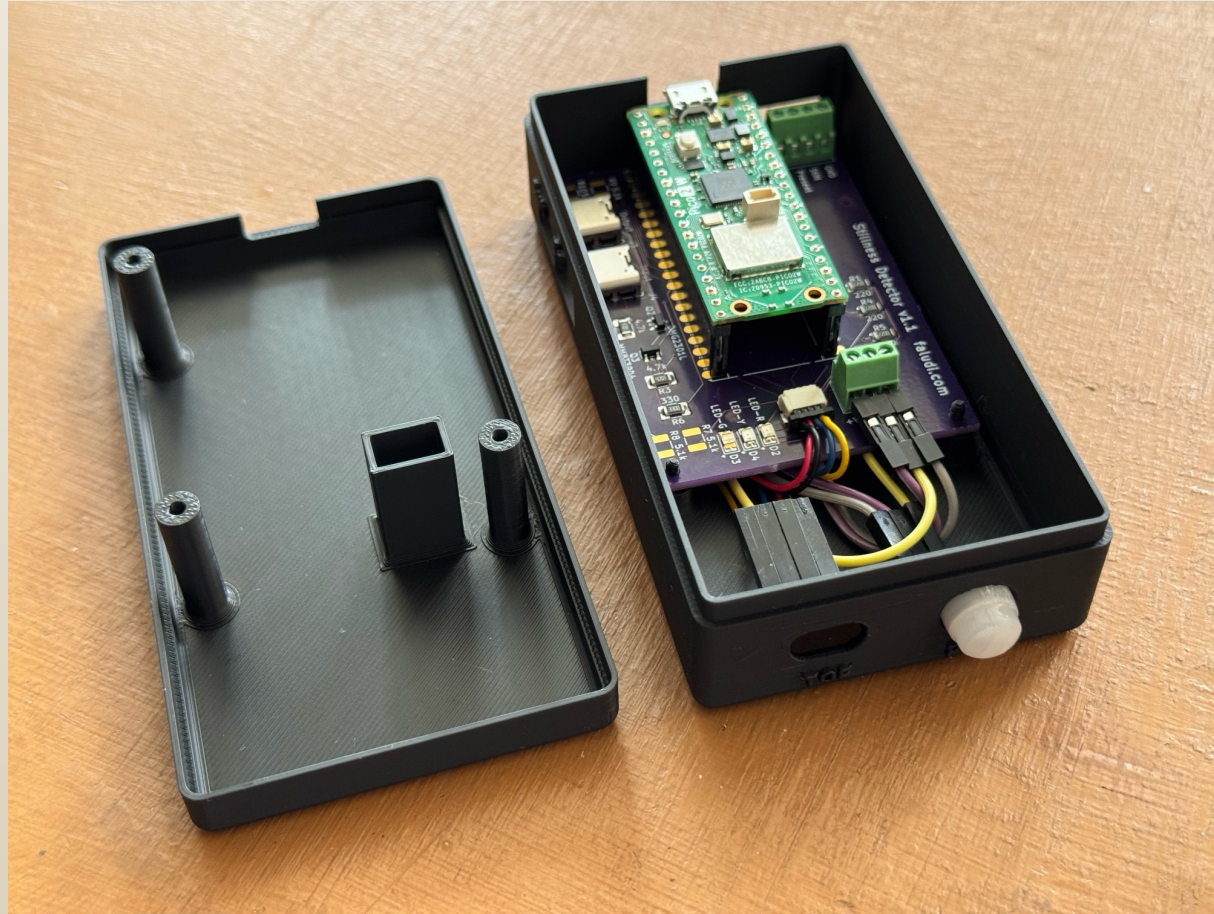
Power and serial data over a single connection.



USB Power Supply

Run the device standalone, no computer required.

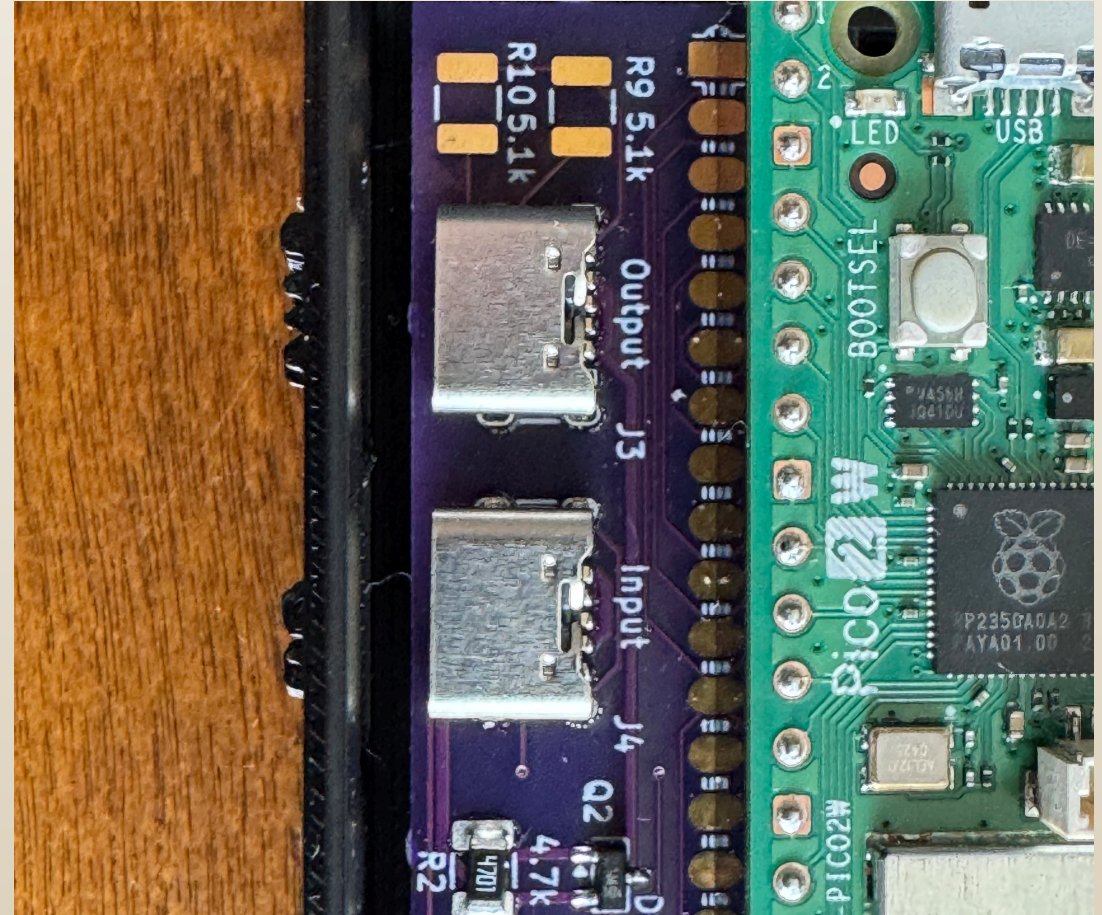
Stillness Detector



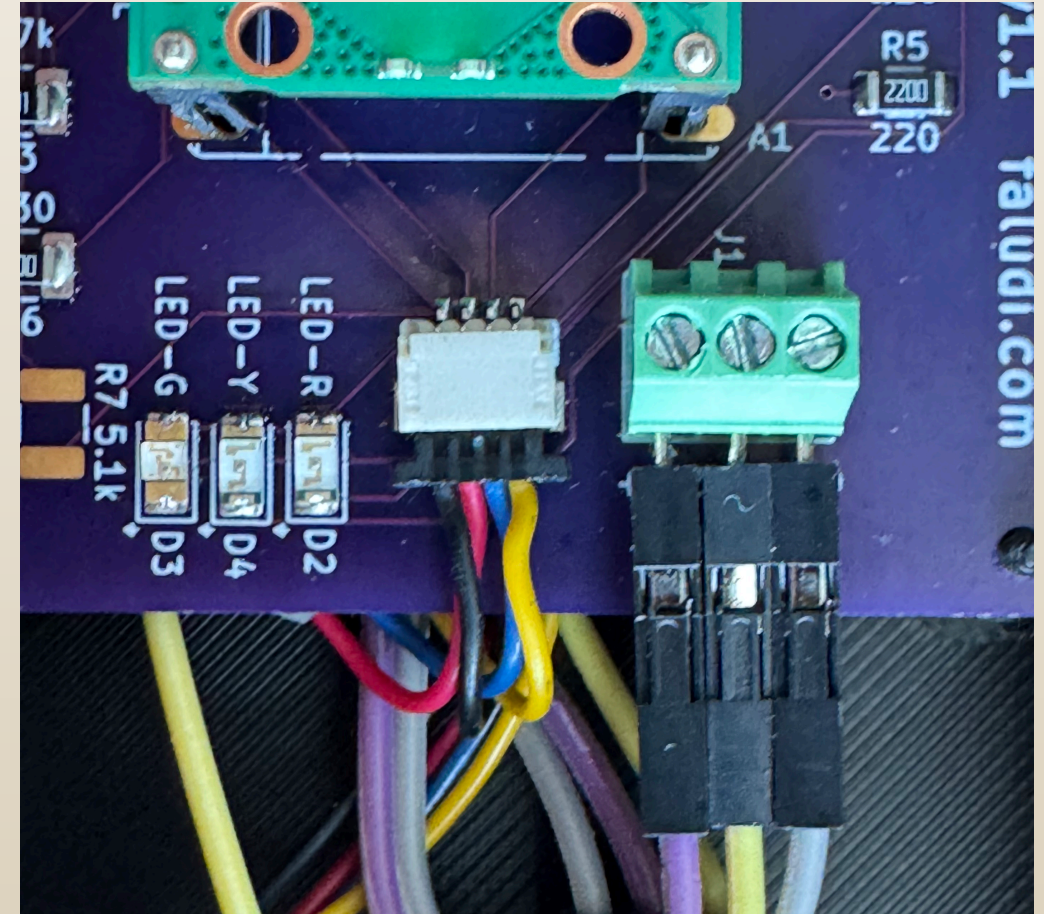
Stillness Detector – Power & Data



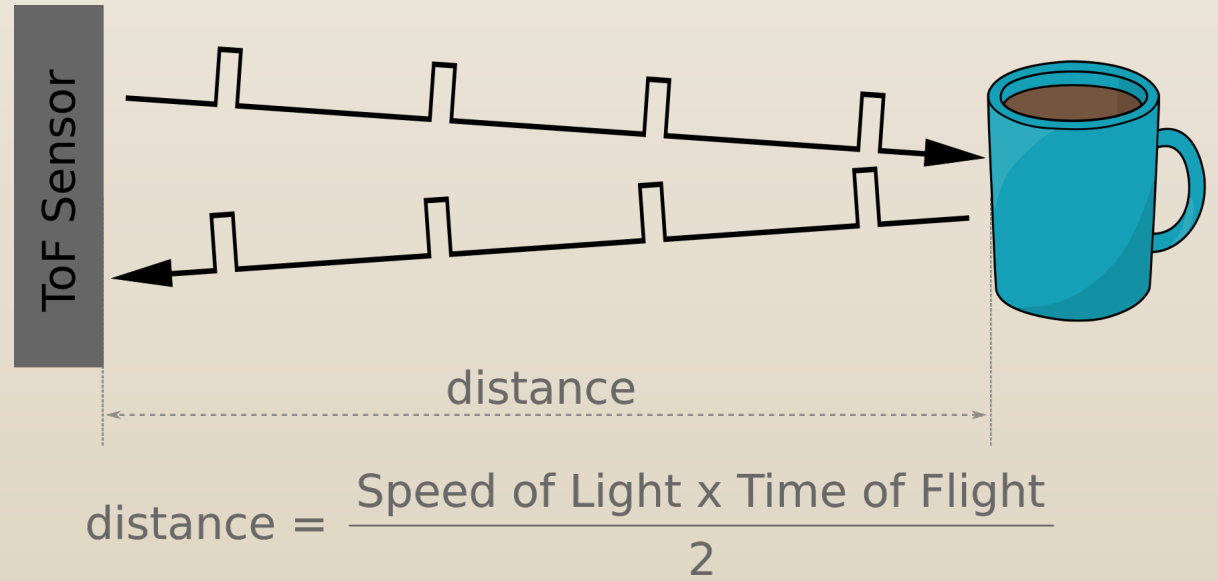
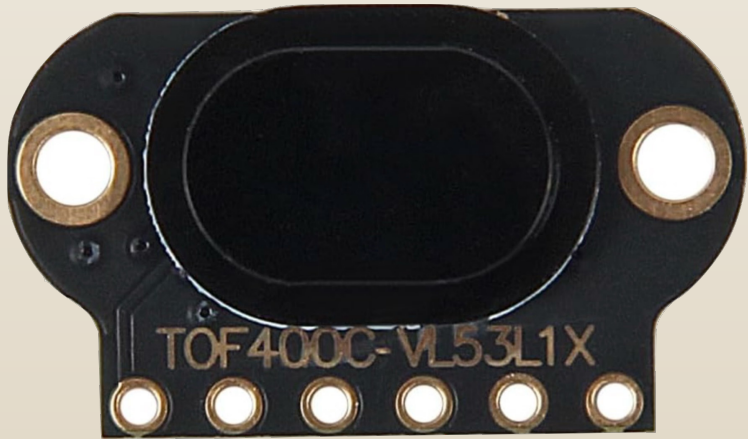
Stillness Detector – USB-C Power Switching



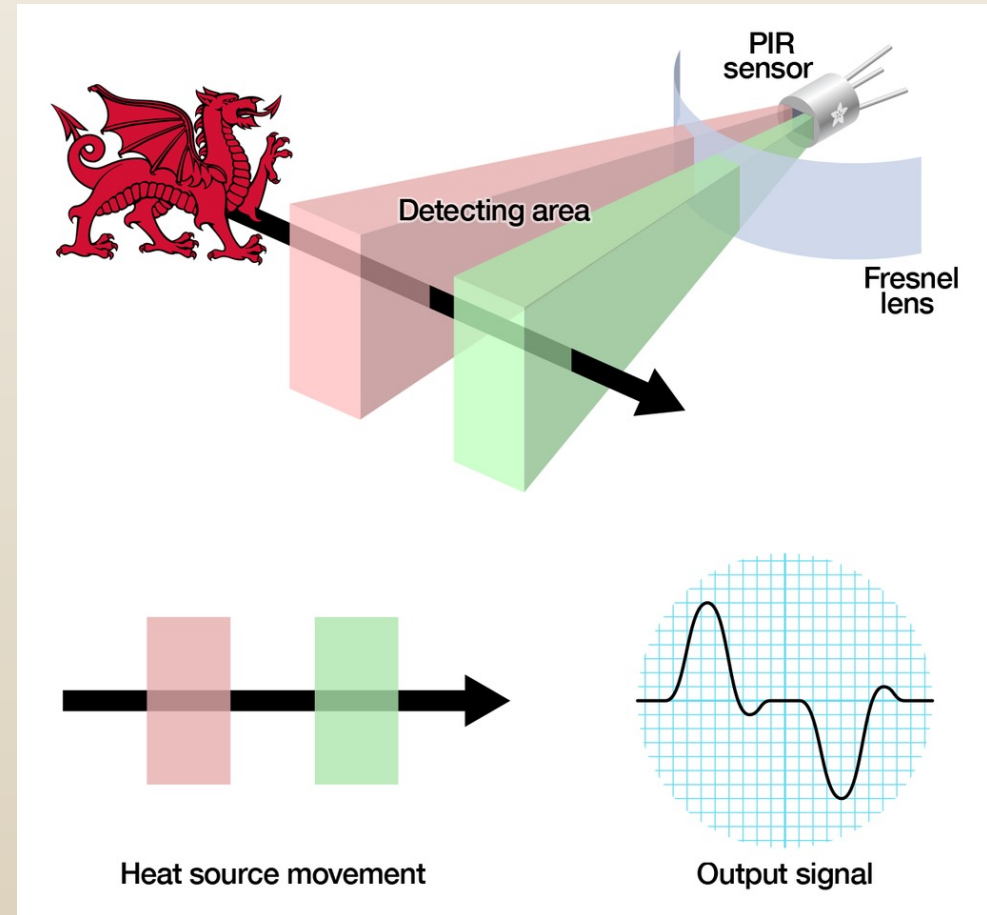
Stillness Detector – Sensors & LEDs



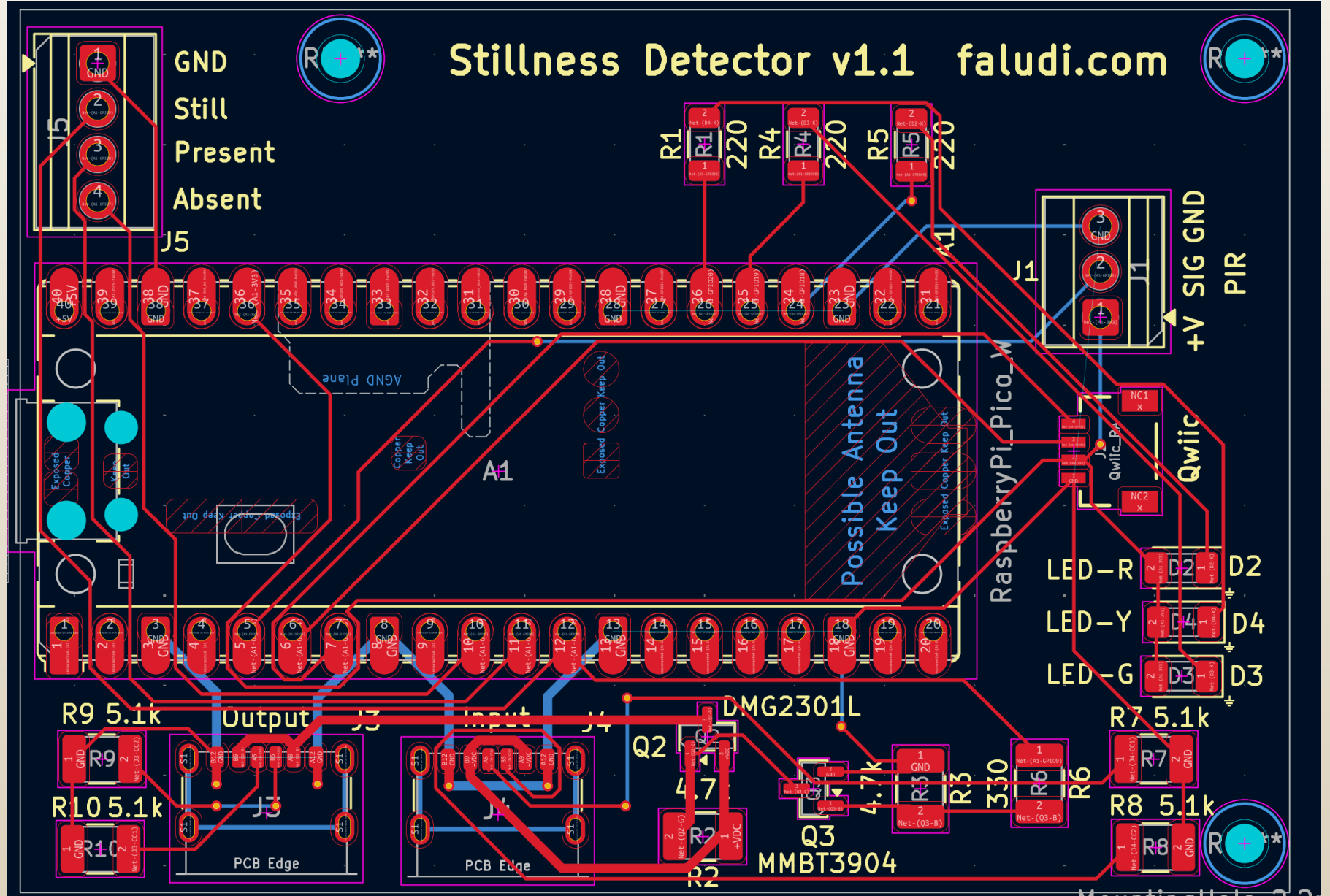
Time-of-flight Sensor - TOF



Passive Infrared Sensor - PIR



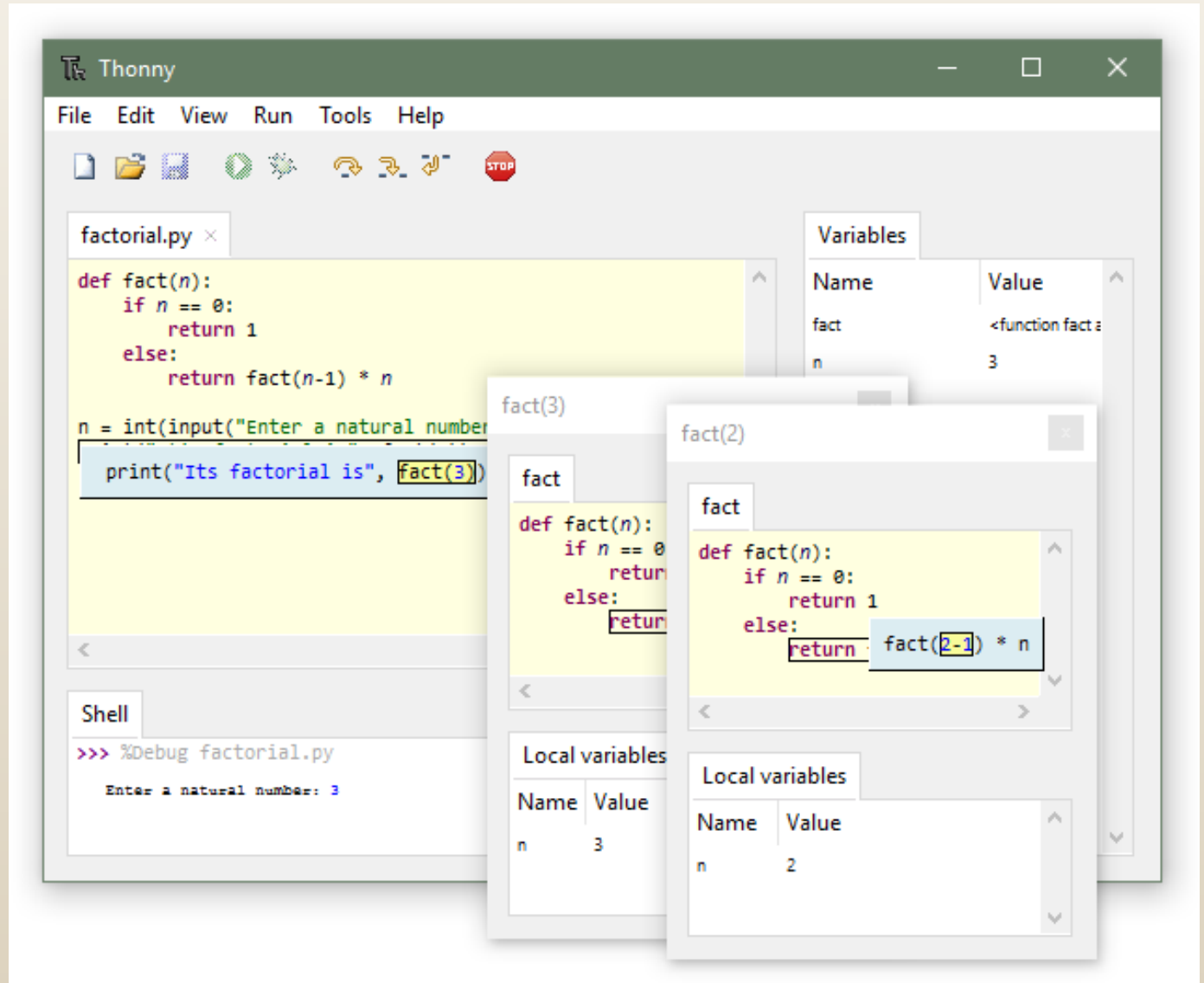
PCB



Thonny

Python IDE for
beginners

<http://thonny.org>



Settings & What They Do

Parameter	Effect	Unit	Typical Range
SETTLING_DELAY	Time before stillness is triggered after presence detected	seconds	2–10
DAMPING_INTERVAL	Minimum gap between motion events to filter noise	seconds	3–20
ALLOWABLE_DISTANCE_CHANGE	Max forward/backward sway before stillness lost	mm	100–1000
MIN_DISTANCE	Nearest detection range (person too close = not detected)	mm	200–500
MAX_DISTANCE	Farthest detection range (person too far = not detected)	mm	1000–3000
PIR_RESET_TIME	Duration of a PIR trigger (from data sheet or testing)	seconds	1-4

Mode Presets

Mode	Settling Delay (s)	Damping Interval (s)	Allowable Distance Change (mm)
relaxed	3	3	1000
normal	5	7	300
strict	10	20	200
custom	custom	custom	custom

Other Methods

Husky Lens

AI vision camera — recognize faces, objects, and motion on-device. More expensive and finicky. Can follow multiple people and their attention.

Human Presence Detector

Millimeter wave detection radar sensing for people in a space, including when they are moving or motionless. Inexpensive but very finicky. Has the potential to see through walls.

Video Processing

Analyze a camera feed for movement and change over time. Higher learning curve as you need to build your own AI-enabled video detection. Completely customizable.

Floor Mat & Other Triggers

Pressure mats, switches, and custom inputs to suit your piece. Wise makers know that often a simple switch is the best solution.

Live Demonstration

Let's see the stillness detector in action.

Demo 1: Lights & USB

Watch the Lights

- On-board LEDs show the live state at a glance
- Presence, absence, and stillness each have a signal
- The fastest way to confirm the device is working

Plug In Over USB

- One cable for power and data
- Appears as a serial device on your computer
- Stillness events stream out as you sit quietly

Demo 2: USB-C Power Control

Wire Up

- Power supply or USB battery plugged into “In” port
- Device itself plugged into “Out” port
- Make sure battery isn't the type that falls asleep!

Run

- During absence and presence power is switched off
- When stillness is detected, your project receives power
- No coding or electronics development required

Demo 3: Data Pins & Microcontroller

Wire to the Data Pins

- Presence, absence, and stillness each have a pin
- The stillness pin is just data and ground — easy to read
- Connect the pins you want to read straight into an Arduino or any microcontroller's GPIO (digital) inputs.
- Hook this into project by reading the input pins to determine the stillness state. HIGH is active.

Watch the Device

- Lucky Cat moves randomly during absence
- Cat lowers paw during presence
- Cat raises paw (and brings) luck for stillness

Demo 4: Editing the Settings File

Tune the device's behavior by editing a plain settings file — no recompiling needed.

- Open the settings file from the device
- Adjust thresholds, timeouts, and sensitivity
- Save, then watch the new behavior take effect
- Try making it trigger faster — or hold out for deeper stillness

Ideas for Use

As a USB Power Controller

- Turn on behaviors when viewer is still
- Trigger simulated weather events
- Play nature sounds that reward the stillness
- The simplest path — no extra wiring needed

Via the Data Pins

- React to presence — someone arrives
- React to absence — the space empties
- React to stillness — support the calm
- Or wire *directly* into motors, lights, or a microcontroller

Creative Time

Quickly design an artwork that reacts to stillness. Pick the path that fits your idea.

1

EASIEST

Use USB-C Power

Power your project when stillness is detected.

2

NEXT

Use just the Stillness Pin

Just data and ground — wire it straight into your circuit.

3

ADVANCED

I2C, SPI, Serial, or WiFi

More power and flexibility — needs to be added to the code.

Bring serenity to your guests

Build with humane intent. Reward for stillness. Welcome and caretake.