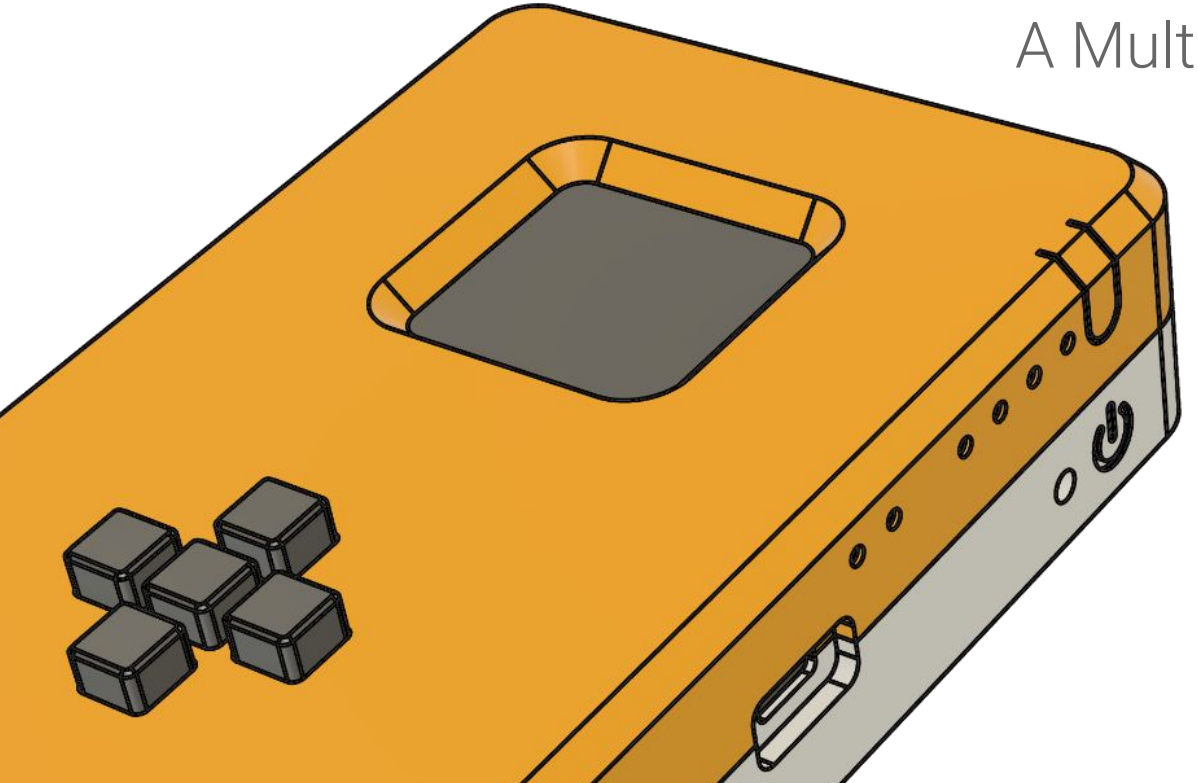
WLAN Pi Pro

A Multi-Tool For WLAN Pros

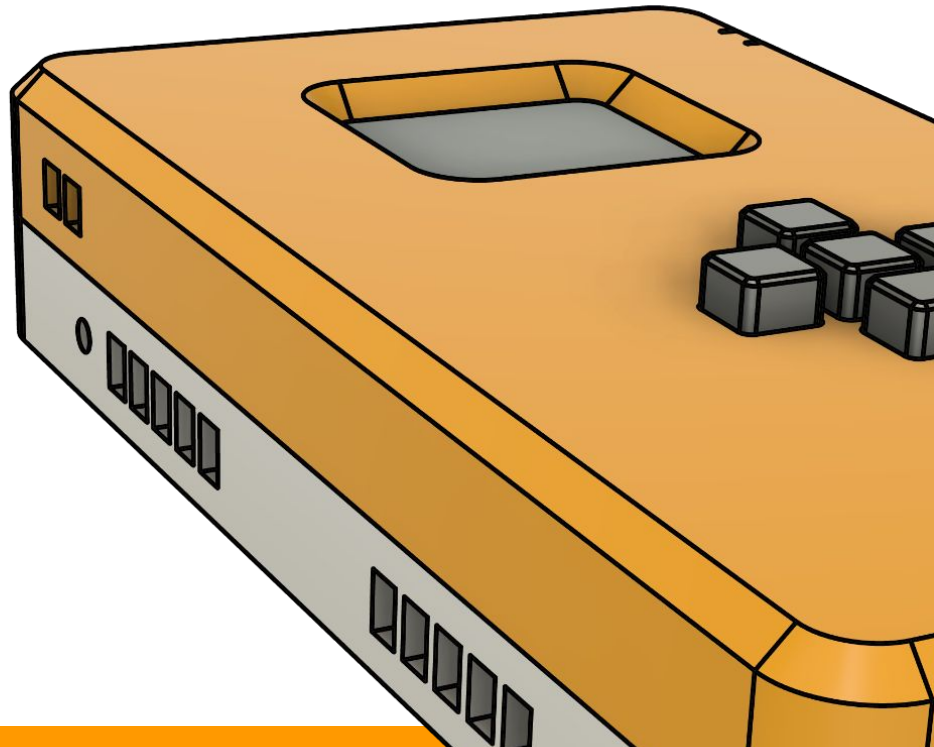


WLAN Pi Project

- Community driven, open source
- Started in 2016 at WLPC
- Focused on tools for WLAN professionals
- More info: wlanpi.com

Project Update Summary

- New Hardware
- New Platform
- New Tools
- New Website
- New Contributors



Core Contributors

Jerry Olla
Wi-Fi Engineer

Nigel Bowden
Wi-Fi Engineer

Jiri Brejcha
Wi-Fi Engineer

Daniel Finimundi
Wi-Fi Engineer & Linux Guru

Ben Toner
Actual Developer & Hardware Aficionado

Josh Schmelzle
Wi-Fi Engineer + WebUI and Python Master

Colin Vallance
Wi-Fi Engineer + Python Dude

Adrian Granados
Actual Developer & Wi-Fi guru

Joel Crane
Wi-Fi Engineer + Prints things, in 3D

Nick Turner
Wi-Fi Engineer + Prints things, in 3D

Evolution of WLAN Pi Project

2016

Odroid-C2

Wi-Fi 4 - 2.4/5 GHz

Gigabit Ethernet

“Headless”

2017

Odroid-C2

Color LCD screen

4 Programmable buttons

Wi-Fi 4 - 2.4/5 GHz

2018

NanoPi NEO2

OLED screen

802.11ac 2.4/5 GHz

Gigabit Ethernet

2019

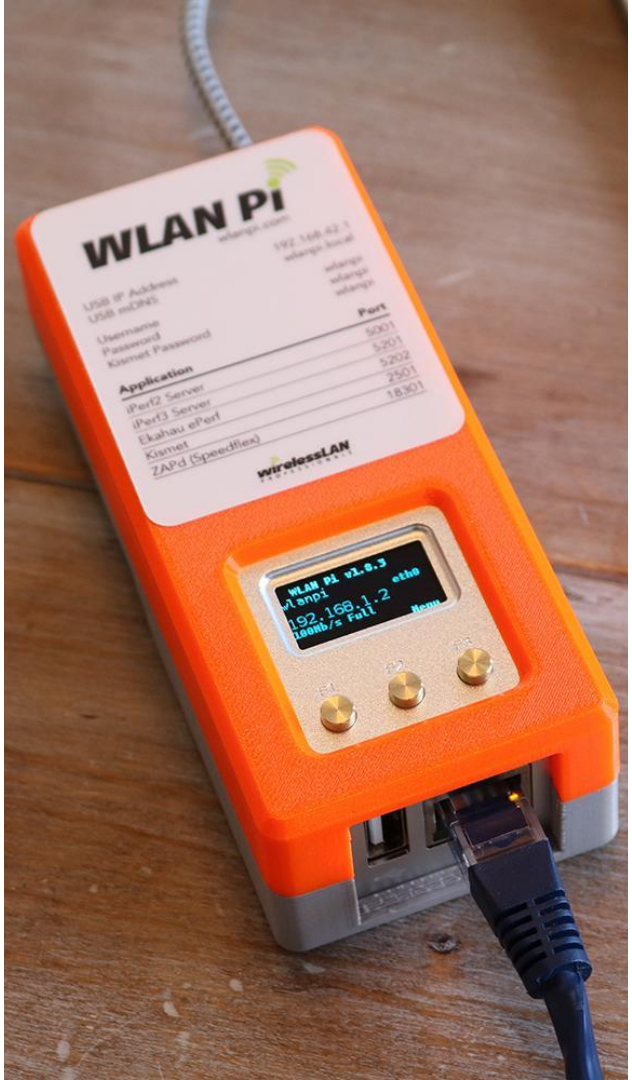
NanoPi NEO2

OLED screen

3 Programmable buttons

Gigabit Ethernet

Custom Case



2020

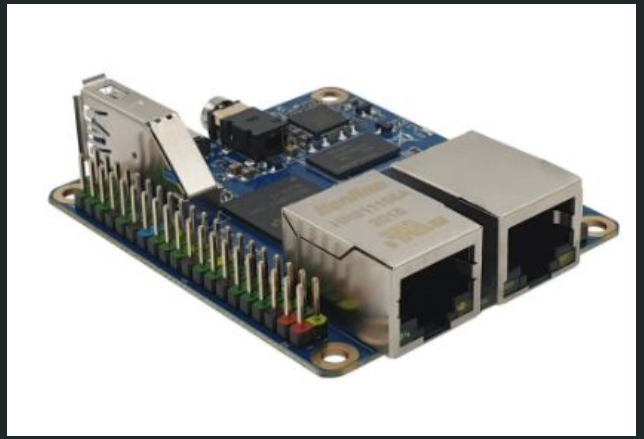
NEO2 unexpectedly stopped being produced

Decision Time...

End of WLAN Pi?

Use a Different SBC

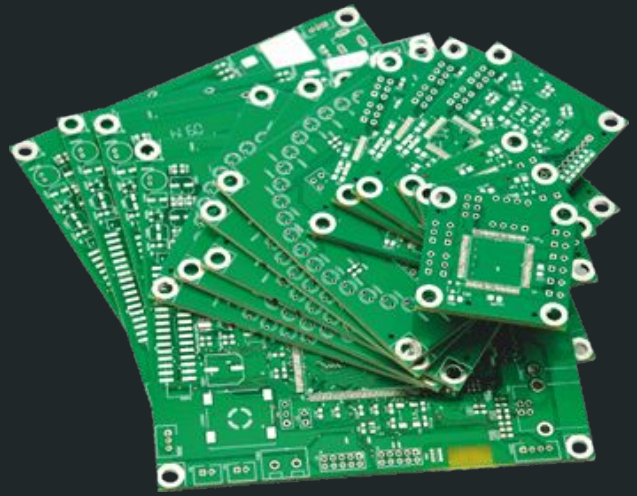
- Time to market: Fast
- Build cost: $
- Knowledge needed: Minimal
- Availability concerns
- Feature set lacking
- Form factor not ideal
- Power requirement concerns
- Heat concerns



(Rock Pi E SBC Board)

Full Custom Hardware

- Time to market = Slow
- Build cost = $$$
- Knowledge needed = Lots
- More things to go wrong
- Proprietary, not community friendly

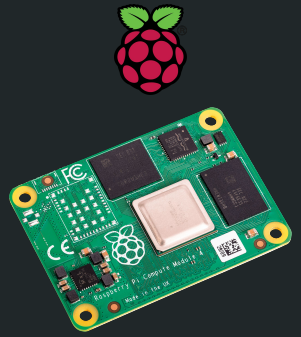


Hybrid Solution

WLAN Pi

Custom Carrier Board

+

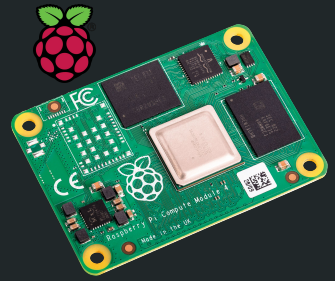


Raspberry Pi
Compute Module 4

CM4 Carrier Board

- Time to market: Medium
- Build cost: $$
- Knowledge need: Medium
- Customizable I/O
- Community support
- Greater control and visibility
- CM4 in production until at least 2028

(WLAN Pi Pro CM4 Carrier Board)

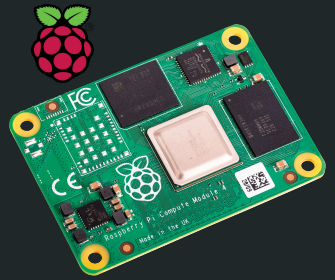


(Raspberry Pi CM4)

Requirements

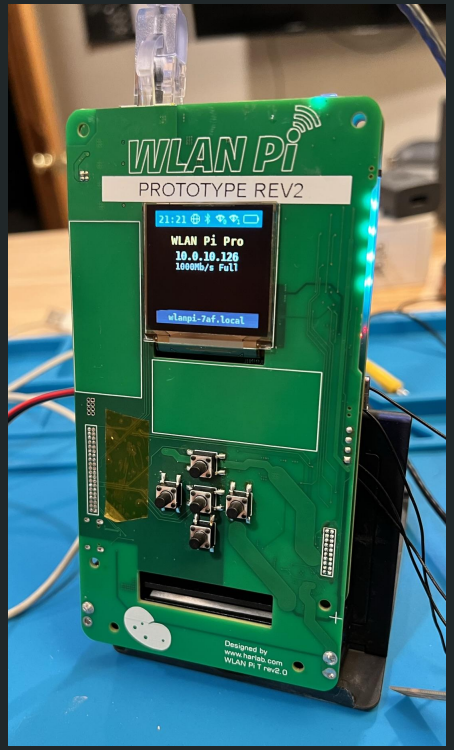
- Battery powered
- Wi-Fi 6E
- User interface
- Navigation buttons
- Type-C charging
- USB 3.0
- PoE charging
- Portable form factor
- Gigabit ethernet
- Real-time clock

(WLAN Pi Pro CM4 Carrier Board)

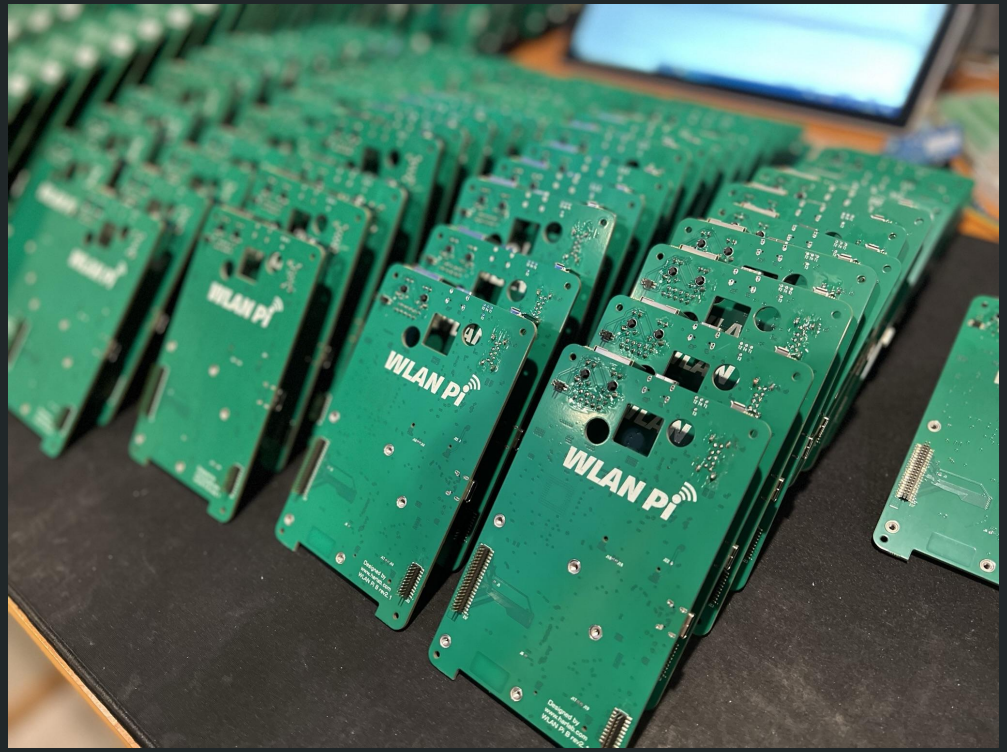


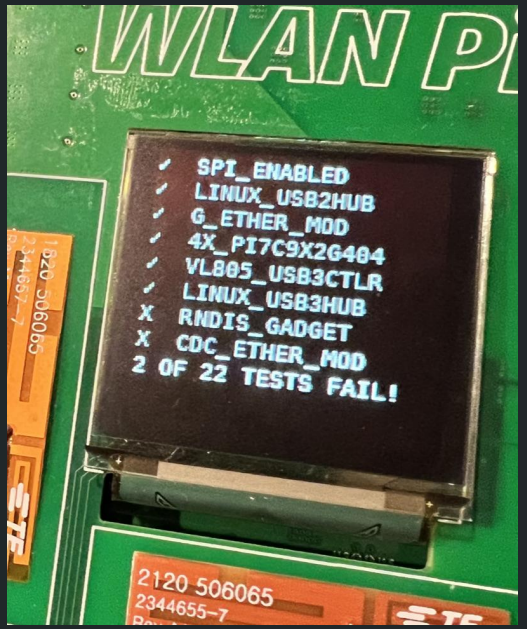
(Raspberry Pi CM4)

Prototyping

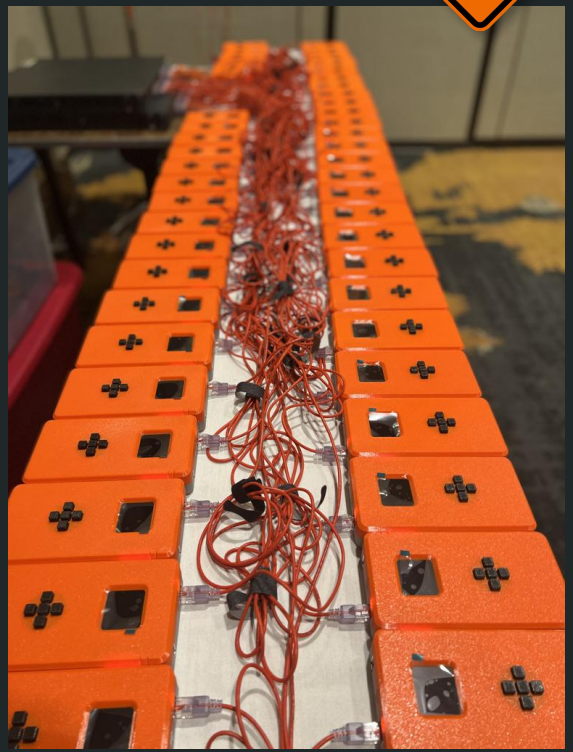


Production


WLAN Pi
WLAN Pi
WLAN Pi

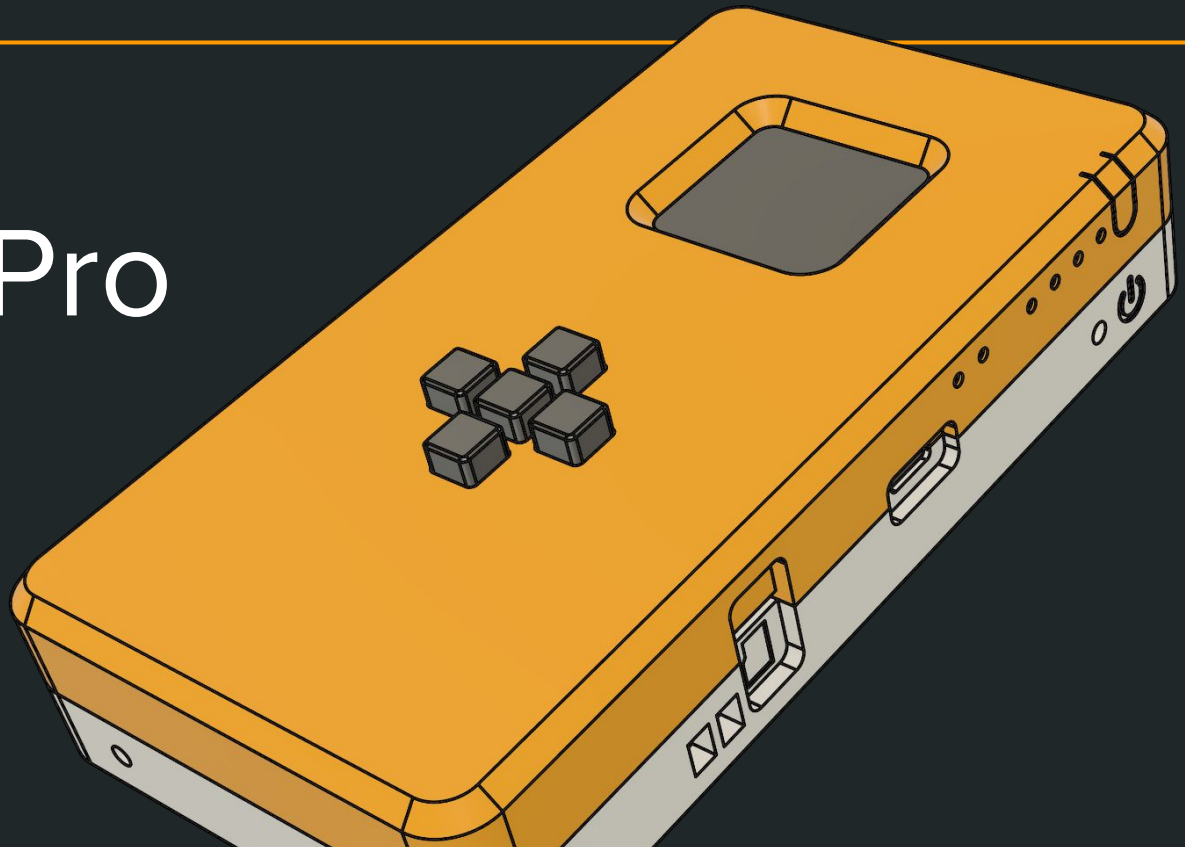

WLAN P
✓ SPI_ENABLED
✓ LINUX_USB2HUB
✓ G_ETHER_MOD
✓ 4X_PI7C9X2G404
✓ VL805_USB3CTLR
✓ LINUX_USB3HUB
X RNDIS_GADGET
X CDC_ETHER_MOD
2 OF 22 TESTS FAIL!
2120 506065
2344655-7

Assembly



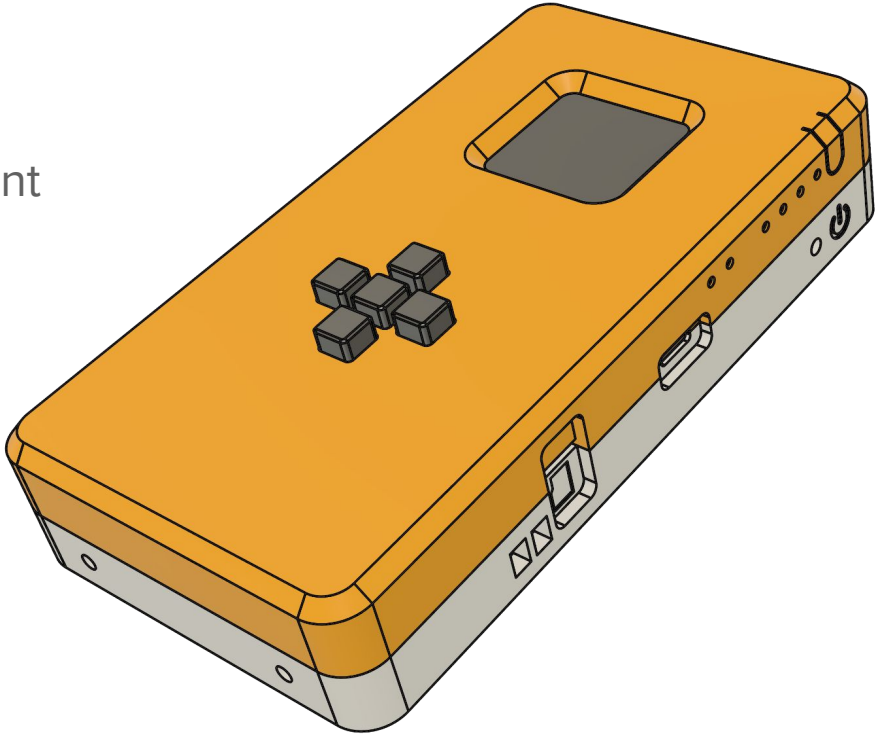
1 Year later...

WLAN Pi Pro

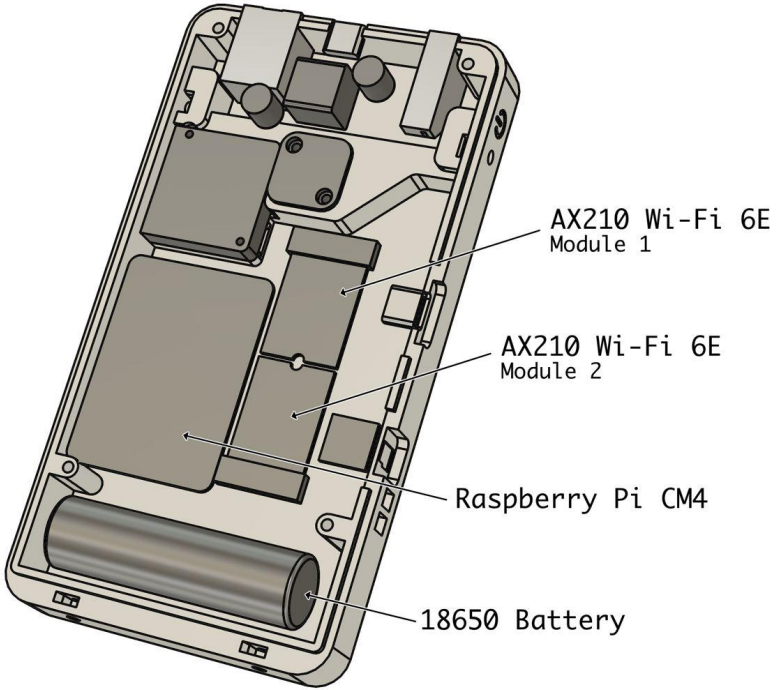


WLAN Pi Pro - Features

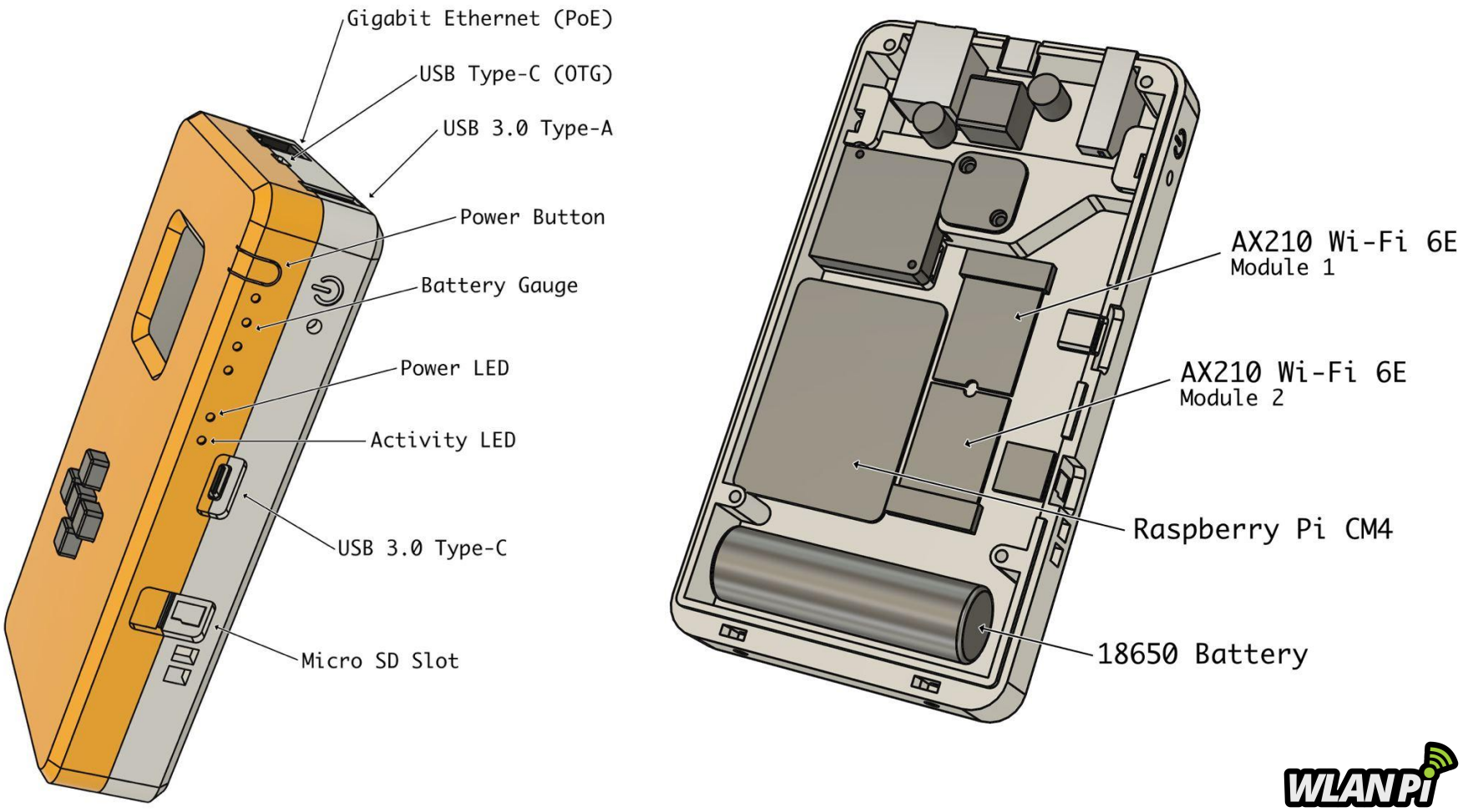
- Packet Capture Device
- Network Performance Testing End-Point
- Portable DHCP, TFTP, SFTP Server
- Wi-Fi Scanner Sensor
- Portable AP / Router
- Network Info Probe
- PoE Indicator
- Wireless Console Server
- Wireless Ethernet Bridge
- Mobile Friendly (iOS and Android)
- Open/Non-Proprietary Platform



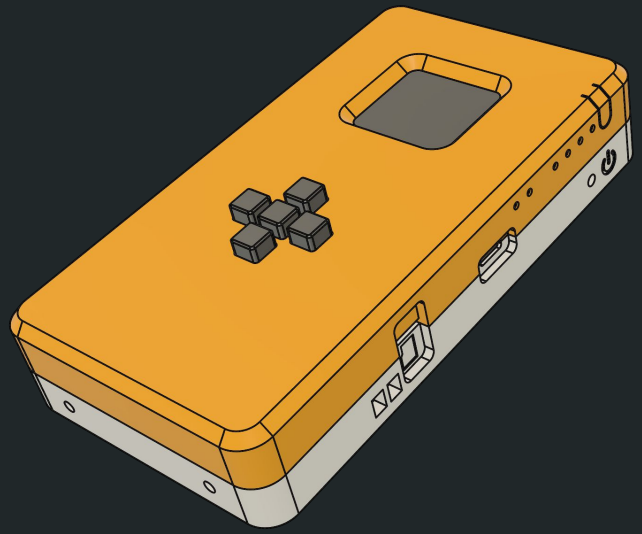
WLAN Pi Pro - Tech Specs



- Two (2) Wi-Fi 6E Modules 2:2x2
- Bluetooth 5.2
- PoE (802.3af)
- Built-in Battery
- USB Type-C Charging
- USB 3.0
- Gigabit Ethernet
- 8 GB Memory
- Color OLED Display 1.5”
- 5 Button Navigation System


Gigabit Ethernet (PoE)
USB Type-C (OTG)
USB 3.0 Type-A
Power Button
Battery Gauge
Power LED
Activity LED
USB 3.0 Type-C
Micro SD Slot
AX210 Wi-Fi 6E
Module 1
AX210 Wi-Fi 6E
Module 2
Raspberry Pi CM4
18650 Battery

WLAN Pi Pro



Hardware

WLAN Pi OS

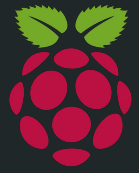
Software

Built-on Raspberry Pi OS

WLAN Pi OS 3.0

- Built-on Raspberry Pi OS, a debian based distro
- Open source, community supported
- Compatible with RPi hardware (Ex. RPi4, RPi3)
- Customized with built-in tools for WLAN Professionals
- Optimized for WLAN Pi Pro hardware
- Easily install/update software using APT
- Official Debian repository
- WLAN Pi repository

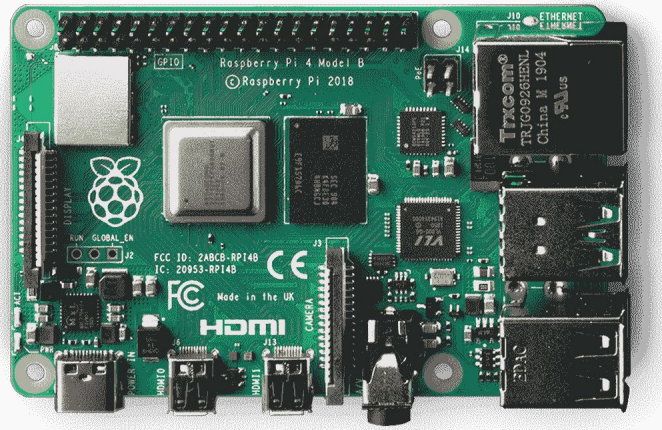
Community Edition



WLAN Pi Community Edition

DIY is still an option!

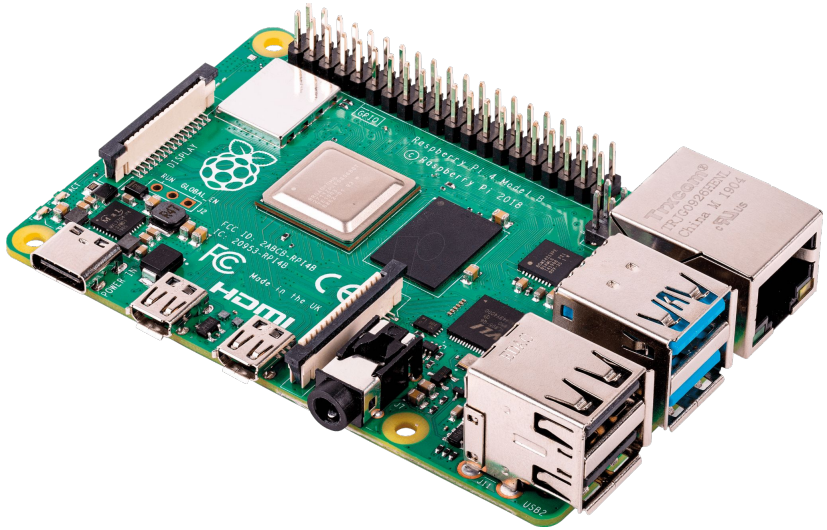
WLAN Pi OS 3 works on Raspberry Pi hardware that supports 64-bit



- ~~Packet Capture Device~~
- Network Performance Testing End-Point
- Portable DHCP, TFTP, SFTP Server
- ~~Wi-Fi Scanner Sensor~~
- Portable AP / Router
- Network Info Probe
- ~~PoE Indicator~~
- Wireless Console Server
- Wireless Ethernet Bridge
- ~~Mobile Friendly (iOS and Android)~~
- Open/Non-Proprietary Platform

WLAN Pi Pro vs RPi4 - Comparison

- ~~Two (2) Wi-Fi 6E Modules 2:2x2~~
- Bluetooth 5.2
- ~~PoE (802.3af)~~ *requires PoE hat
- ~~Built-in Battery~~
- USB Type-C ~~Charging and~~ Connectivity
- USB 3.0
- Gigabit Ethernet
- 8 GB Memory
- ~~OLED Display 1.5”~~
- ~~5 Button Navigation~~



New Tools!

Open/Non-Proprietary

metageek

WIFISCANNER
An ACCESSAGILITY Product

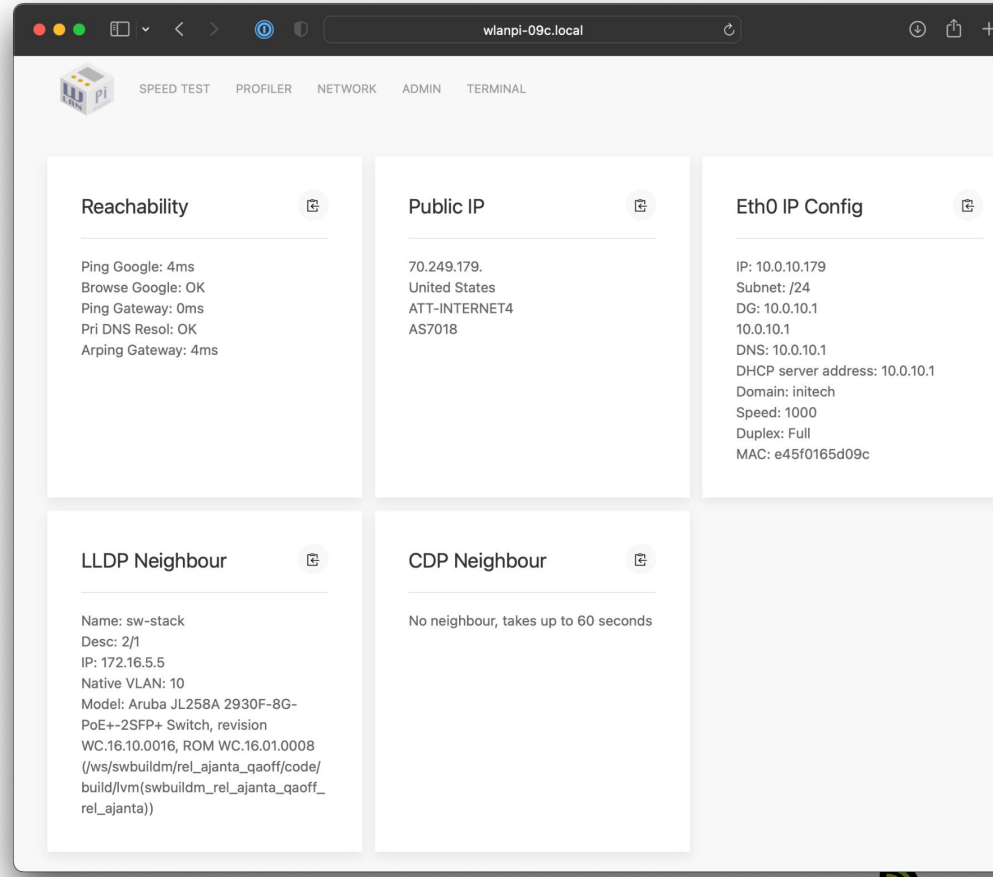
PS

intuitibits

Hamina

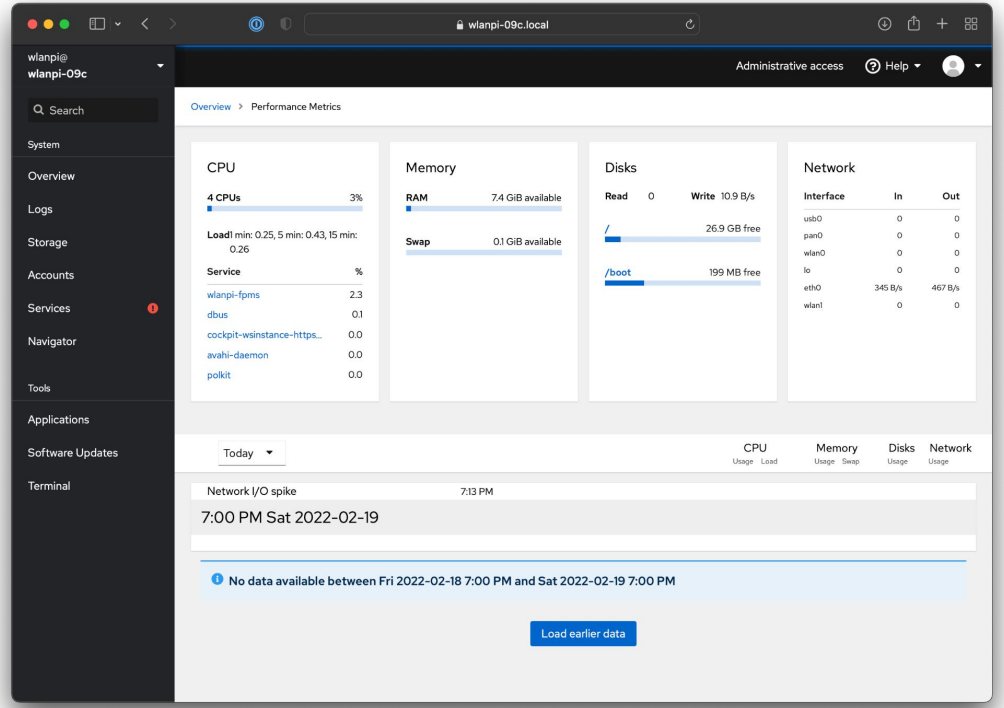
New Dashboard

- Network Probe
  - CDP/LLDP Neighbor
  - Public IP
  - LAN IP, Default Gateway
  - Subnet
  - DHCP Server
  - And more...
- Internet Connectivity Check
- Network Speed Test
- Profiler Reports - View and Download
- Extensible framework built on Flask



Admin Interface

- Cockpit Project
- Configure System Settings
- File Manager
- Embedded Terminal
- Mobile Friendly



WLAN Pi Profiler2

- Profiler got a MAJOR upgrade:
  - Complete rewrite of the codebase
  - WebUI integration
  - QR Code generation

Live Demo?

Nigel Bowden
Wi-Fi Engineer & Programmer

Josh Schmelzle
Wi-Fi Engineer + WebUI & Python Master

Profiler

Two functions

- Advertises a "fake" Access Point
- "Profiles" client association requests

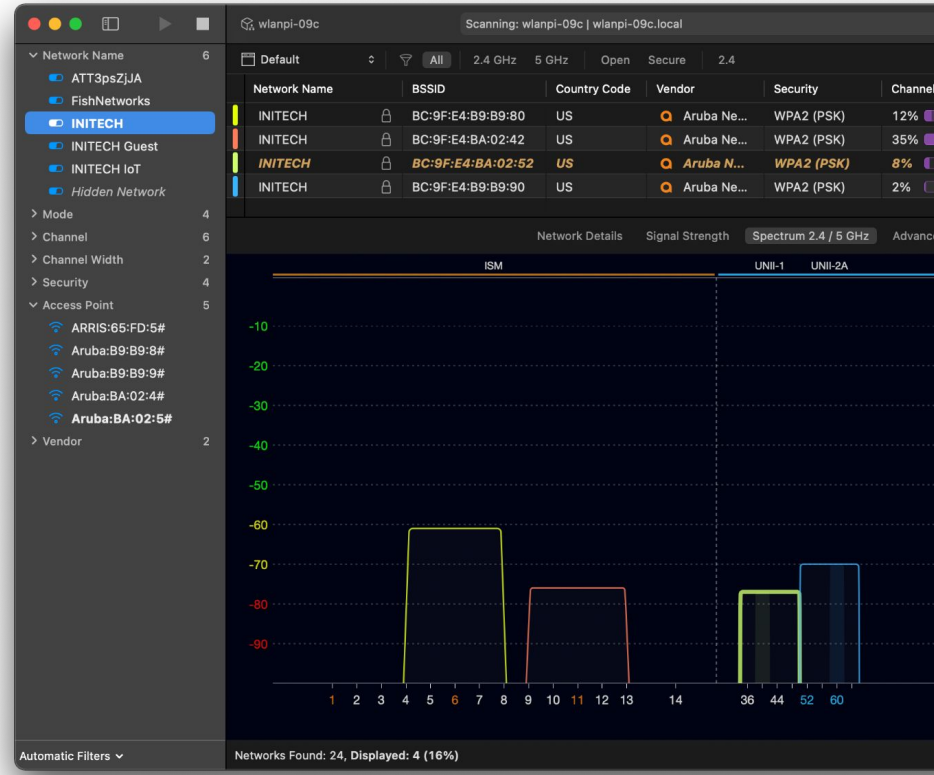
1. Scan QR code with your smart device
2. Attempt to join the Wi-Fi network
3. It will fail to join, that is expected

WLANPi

Wi-Fi Scanner Sensor

Works with

- Wi-Fi Explorer Pro (macOS)
- Wi-Fi Scanner (Windows)
- WinFi (Windows)

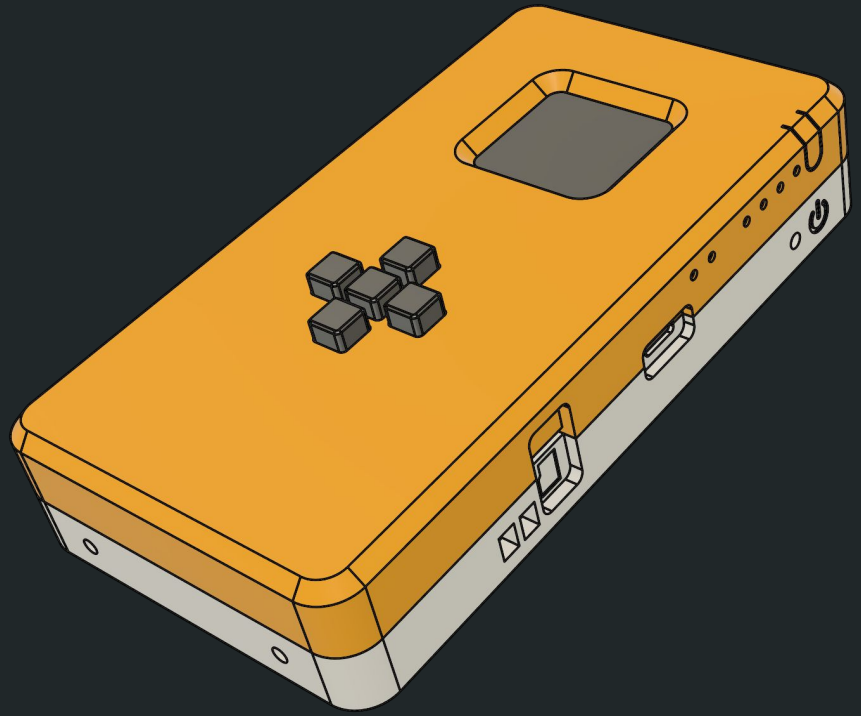


How Do I Get One?

WLAN Pi Pro Deep Dive

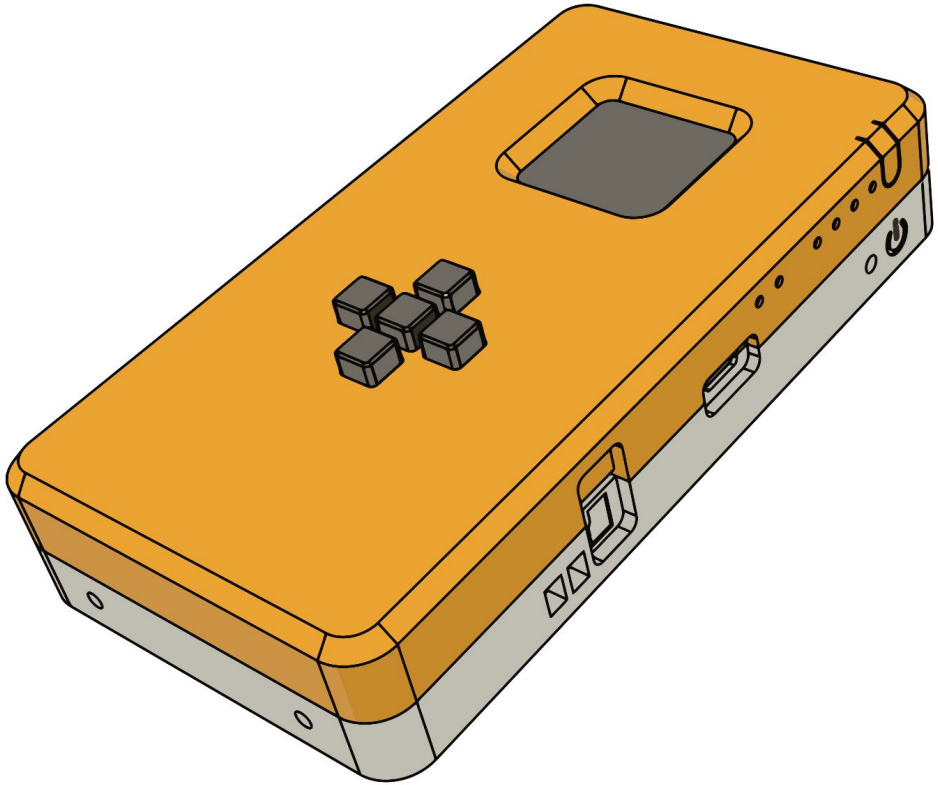
Currently Available In WLPC Store

Supply Is Limited



Retail Price $995

WLPC Attendee Price $750



Get Involved

www.wlanpi.com

Twitter: @WLANPi

Feedback: feedback.wlanpi.com