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Open Source Hardware as a business model

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What is OSH?

Open Source Hardware

Part of open-movement, to be applied on hardware, make it accessible to everyone

Although most often, it's not necessarily only electronics; it can be mechatronics or any other physical aspect of project

Goes well with OSS

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How is OSH applied in practice?

If you were an OSH company, for your OSH product you would make publicly available:

01 Schematics
Source CAD files and .pdf of the schematics.

02 Board
Source CAD files and gerber files (used for PCB production).

03 Bill of Materials
Full list of components used, including part number for each.

04 Documentation
Various useful documents, such as pinout or assembly instructions

05 Mechanical
Source CAD files and 3D-printable files, usually for enclosures.
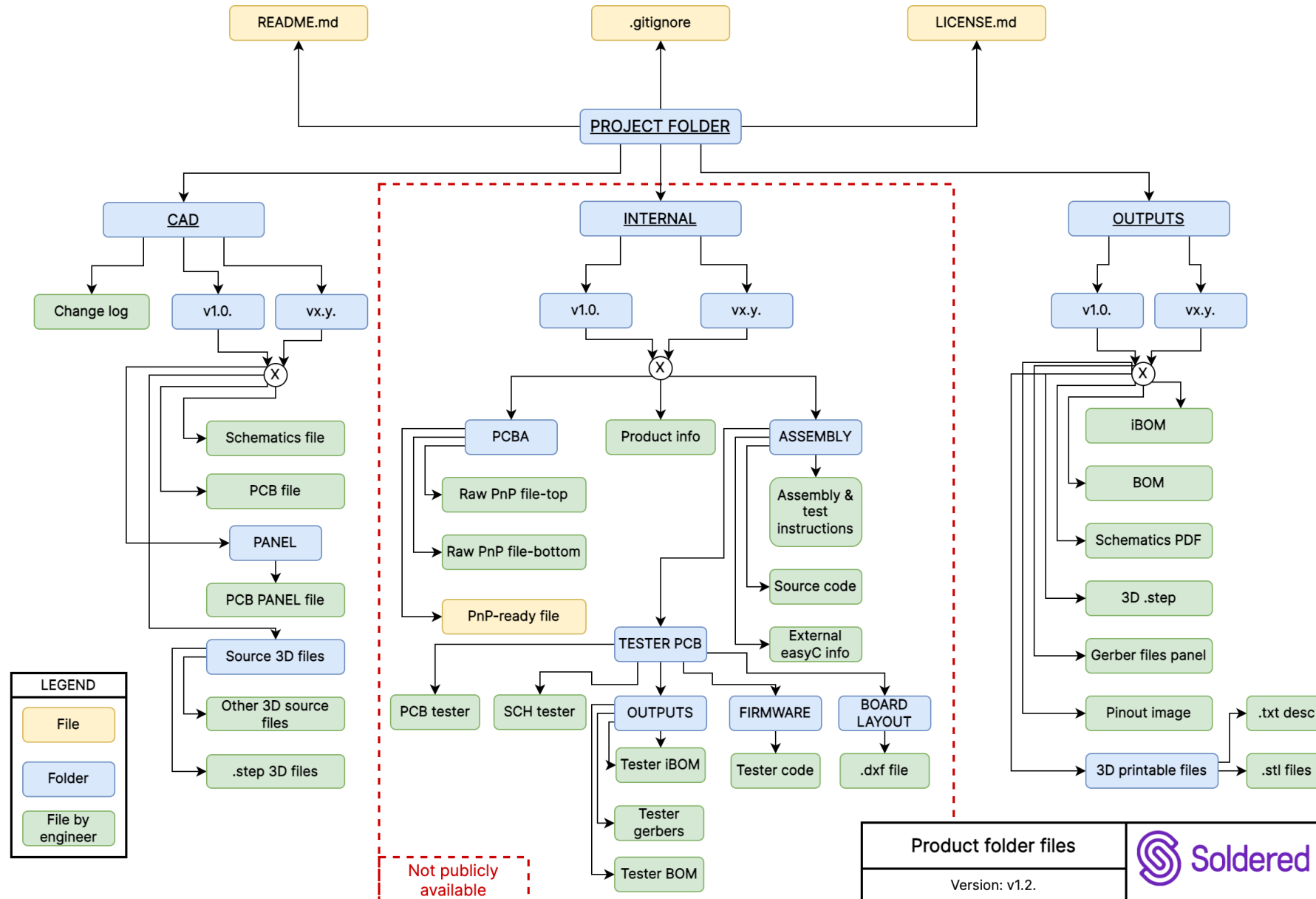
06 Other
Panel CAD files, board 3D model, and everything else.

+ OSS

+ LICENSE *

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Example – Soldered product folder

README.md · .gitignore · LICENSE.md

PROJECT FOLDER

CAD
- Change log
- v1.0.
- vx.y.

X
- Schematics file
- PCB file
- PANEL
  - PCB PANEL file
- Source 3D files
  - Other 3D source files
  - .step 3D files

INTERNAL
- v1.0.
- vx.y.

X
- PCBA
  - Raw PnP file-top
  - Raw PnP file-bottom
  - PnP-ready file
- Product info
- ASSEMBLY
  - Assembly & test instructions
  - Source code
  - External easyC info
- TESTER PCB
  - PCB tester
  - SCH tester
  - OUTPUTS
    - Tester iBOM
    - Tester gerbers
    - Tester BOM
  - FIRMWARE
    - Tester code
  - BOARD LAYOUT
    - .dxf file

OUTPUTS
- v1.0.
- vx.y.

X
- iBOM
- BOM
- Schematics PDF
- 3D .step
- Gerber files panel
- Pinout image
- 3D printable files
  - .txt desc
  - .stl files

Not publicly available

LEGEND
- File
- Folder
- File by engineer
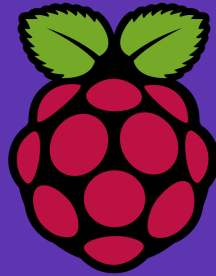
Product folder files
Version: v1.2.

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OSH projects that are popular because of OSH

OSH gave boost in popularity to many OSH projects, especially electronics ones

Arduino

Made microcontrollers easy & available to everyone.

Raspberry Pi

Super-popular & affordable single board computer. Charity.

adafruit

Maker electronics bits & piece

Reprap, Makerbot

Gave boost to 3D printers popularity.

Anyone can make a product, but can't call it "Arduino"

Example – OSHWA certificate

INKPLATE 6

TAVU D.O.O. ✉

OSHWA UID

HR000003

PROJECT WEBSITE

CERTIFICATION DATE
April 17, 2020

COUNTRY
Croatia

A powerful, Wi-Fi enabled ESP32 microcontroller makes this six-inch e-paper display – recycled from a Kindle e-reader – incredibly easy to control. Just plug in a USB cable, open Arduino IDE or start micropython, and change the contents of the screen with few lines of code. Its ultra-low-power sleep mode enables it to be run for ages on a battery.

VERSION

v1.0

Licenses

HARDWARE
TAPR

SOFTWARE
GPL

DOCUMENTATION
CC BY-SA

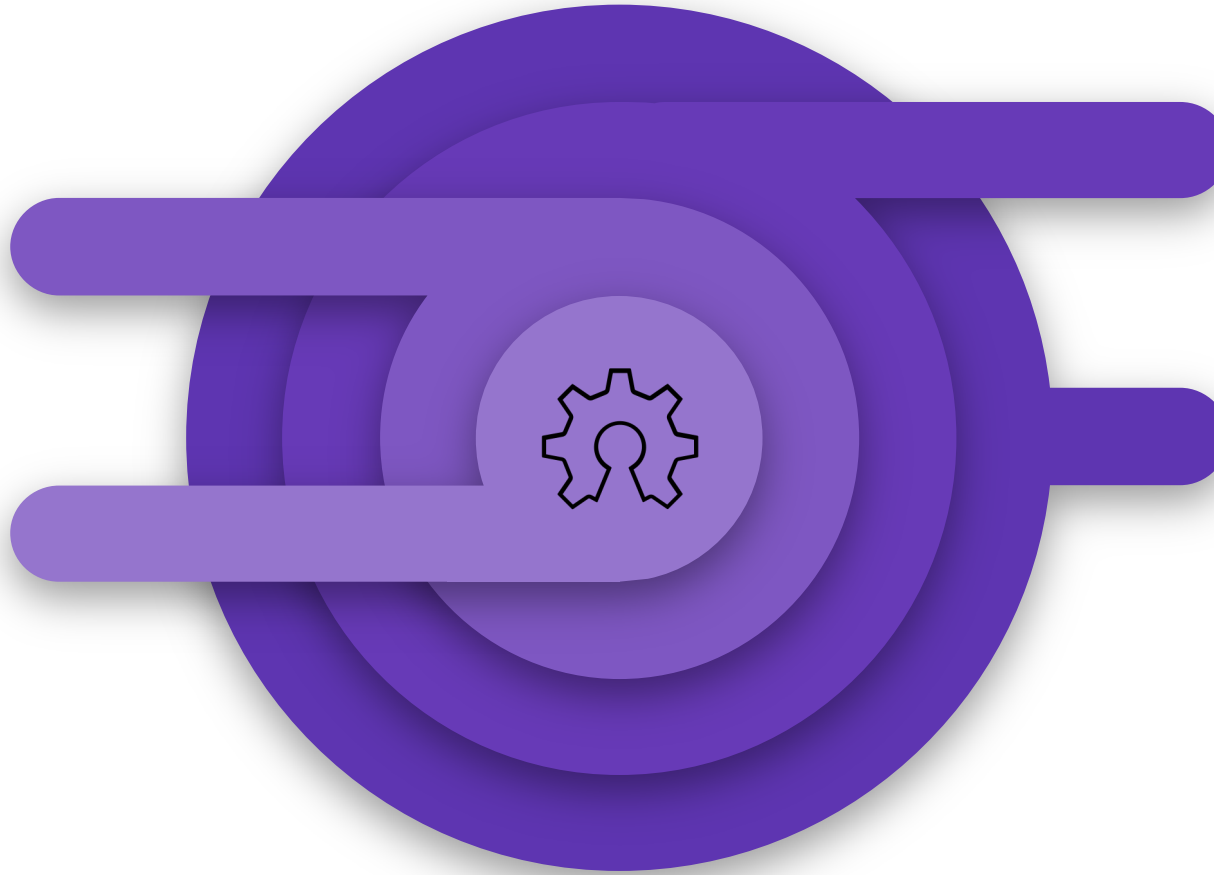**VIEW DOCUMENTATION**

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Why use OSH for commercial products?

Self-advertising

Open-sourcing gets the word out about your product and/or brand.

Customers love it

Some people simply appreciate the openness and buy the product because of it.

Free improvements

Since they love it, they tend to use as their own, therefore improve it.

Return the favor

You have used and profited from others open-source, why not give back? It's just feels good.

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So, how's this OSH working for us?

So far, pretty well!

9k	Customers
60	Countries on our customer list
40k	Products delivered in 2021.
$ 350k	Successfully crowdfunded

4.7	Average review score
85%	Average YoY growth since founding
100k	Total delivered products so far
< 0.05%	Return rate

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Q&A

Get in touch

Any questions?
Want to make OSH product together?
Have an advice for me, or need advice?
...and anything else, contact me!

And, of course, this presentation is open-source. Find it in my GitHub repo:
https://github.com/davidzovko/Presentations

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