KiCad FabLib

Fab Academy KiCad Library
Updates by Kris

2027-07-30 Bottrop

Disclaimer

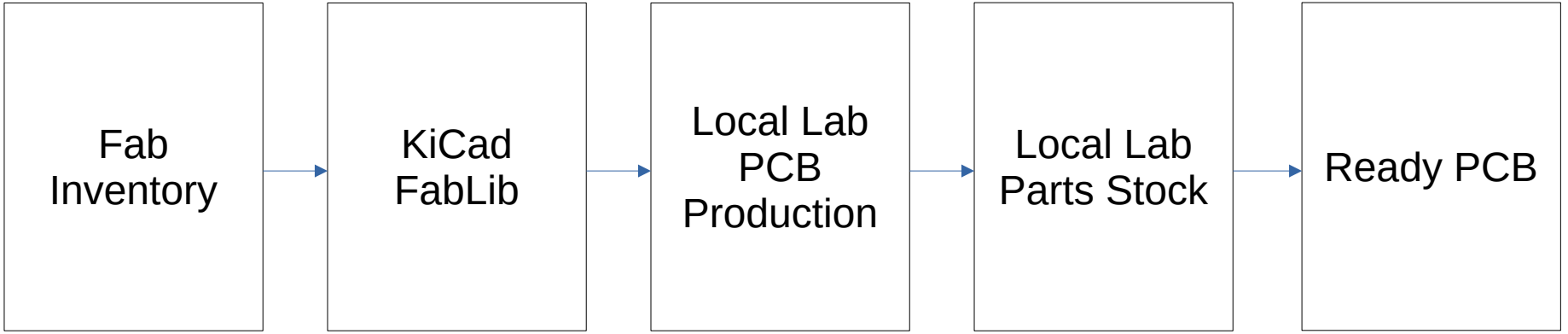
- Around 100 components
  instead of thousands

- Performant
  simplified 3D models

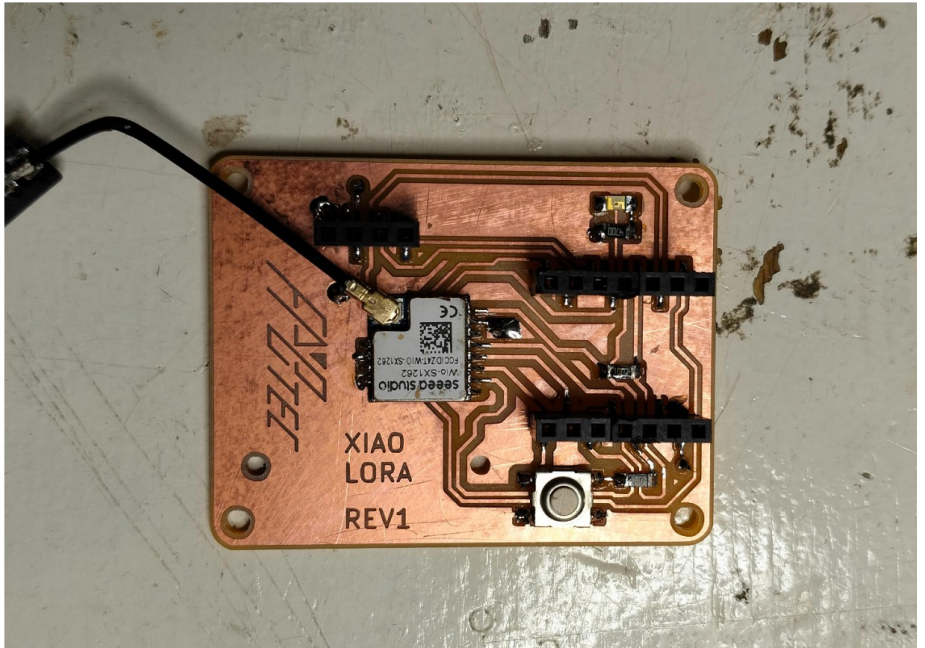
- Easy to navigate by beginners
  compatible with professional prototyping work

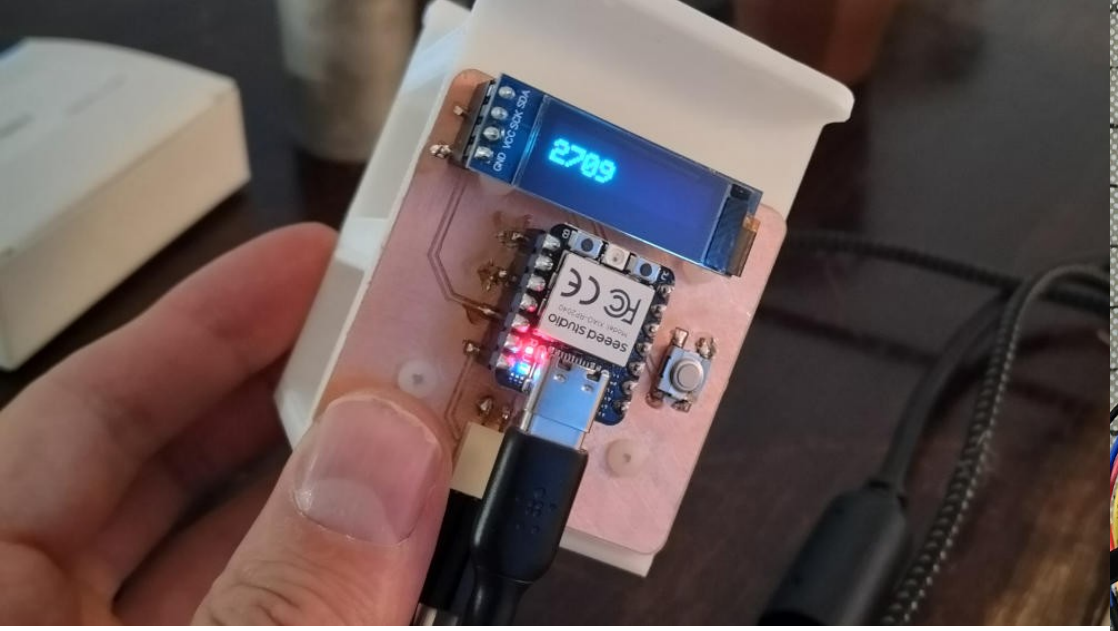
- Maps to official Fab Inventory components
  makes rapid prototyping at Fab Lab actually rapid

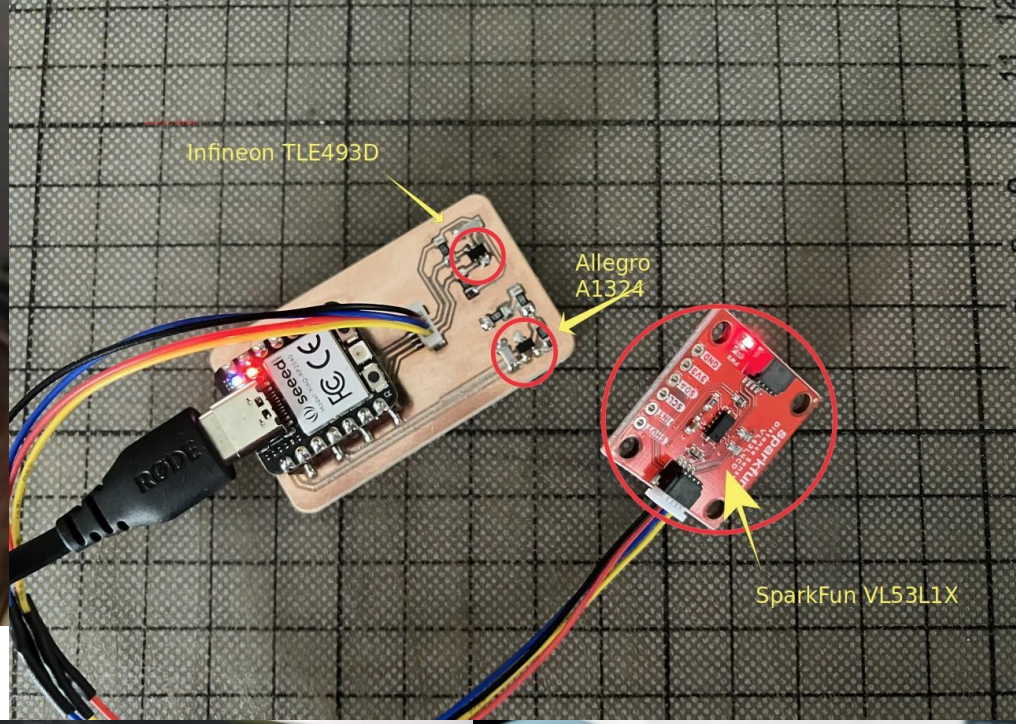
- Installable as a KiCad plugin
  huge update from previous clone and suffer approach



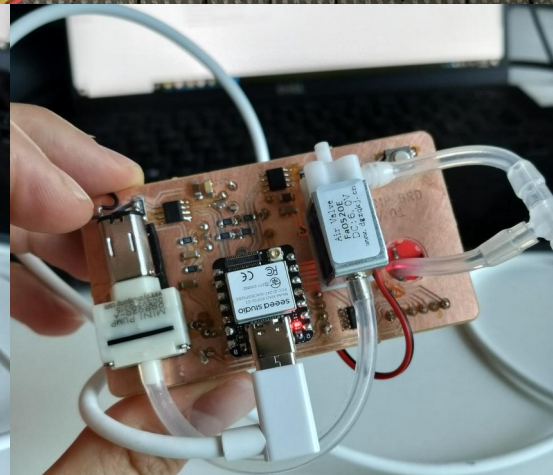
Aalto Fablab visiting
Waag Futurelab
Prototyping Fabtec LoRa







Using real projects
To identify what is essential



Motivation

The Fab Lab as a standard sets us apart.

KiCad skills that can be used in any Fab Lab,
parts from the Fab Inventory are likely to be there.

At the moment these are labs that run Fab Academy.
In the future this could be a standard.

It is not just about the machines,
It is about the parts as well (not just electronics).

Measure time diff from opening KiCad and Fab Lab PCB ready
- with KiCad classic libraries
- with KiCad FabLib

Problems

- 3D model coverage
  many models are still missing

- Catching up with the official Fab Inventory updates
  it is partly automated, but ...

- Community KiCad and Git mastery
  adding new symbols and footprints is not that easy
  pull requests is a mystery for most (even with AI)

- We cannot add everybody’s favorite part
  1:1 mapping with official inventory
  to keep it manageable and beautiful

- Time

Solutions

- Common understanding about the idea of the library
  the 1:1 mapping with Fab Inventory
  to aid rapid learning and rapid prototyping at a Fab Lab

- Exposing and filling gaps in the library
  starting with 3D models, then adding parts like encoders

- Catching up with advanced Git knowledge
  git add / commit / push is OK for Fab Academy
  knowledge about forks and pull requests makes the difference

- Catching up with advanced KiCad knowledge
  drawing your own symbol will make you understand the part

- Catching up with 3D modelling in FreeCAD

KiCad FabLib current state

- Automated tests on GitLab repository
  Checking symbols, footprints, 3D models against inventory

- Symbols
  129 Fab Inventory parts
  2 new parts that are missing

- Footprints
  Should be the same count (KiCad atomic parts)
  Currently there is a footprint mapped for each symbol

- 3D Models
  95 models missing

- Currently v0.0.3

Ideas

- Splitting library in categories
  as recommended by KiCad Library Conventions
  as is done in a KiCad plugin Simple Libraries

Simple Libraries

KiCad FabLib

```
> Resistors_1206
    0ohm
    10ohm
    100ohm
    1.0k
    4.99k
    …
> Resistors_0806
    …
> Microcontrollers
    ATtiny412_SOIC-8
    D11C_SOIC-8
    …
> Input
    ToF VL53…
    …
> Modules
    XIAO….
```

Invitation

- Even a small fix matters
  Take a look at the coverage and update something

- Stick to the pull request protocol
  Successful open source projects have contrib protocols

- Make protocols increasingly clear
  That one is on me and includes improving coverage scripts

- Contribute 3D models
  These you can also submit as an issue
  Should be made in FreeCAD accompanied with project file

- Contribute missing symbols from Fab Inventory

KiCat

Fab Academy KiCAD Library
New icon by Miriam Choi

For upcoming v0.1.0

Thanks you!

Kris
https://rijnieks.com

KiCad FabLib
https://gitlab.fabcloud.org/pub/libraries/electronics/kicad/

KiCad Package Metadata
https://gitlab.com/kicad/addons/metadata