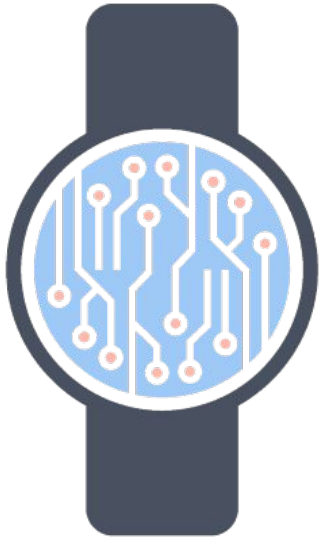
ZSWATCH
Open Source Smartwatch

ZSWatch

The Open-Source Zephyr™-based Smartwatch

FOSDEM - Brussels 2025



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Agenda

ZSWatch Open Source Smartwatch

1. Who am I?
2. What is “ZSWatch”?
3. Let's talk about the hardware
4. The software in a nutshell
5. How to write a simple app
6. Many ideas for the future
7. Support us!
8. (Optional) Short Demo
9. QA

Who am I?

- ➔ Daniel Kampert - You can call me Kampi
- ➔ 35 years old
- ➔ From Hagenbüchach (near Nuremberg)
- ➔ Passionate electronic engineer
- ➔ Currently working as an Electronics Engineer at ETO Sensoric
- ➔ Joined the project in August 2023
- ➔ Never worked with Zephyr before

What is “ZSWatch”?

Open Source Smartwatch

- ➔ Zephyr based Smartwatch
- ➔ Started by Jakob Krantz
- ➔ All parts are Open-Source
- ➔ Everything belongs to you
- ➔ You can modify and repair every part
- ➔ Everything needed is on-board
- ➔ State-of-the-art smartwatch
- ➔ Nice looking design

What is “ZSWatch”?

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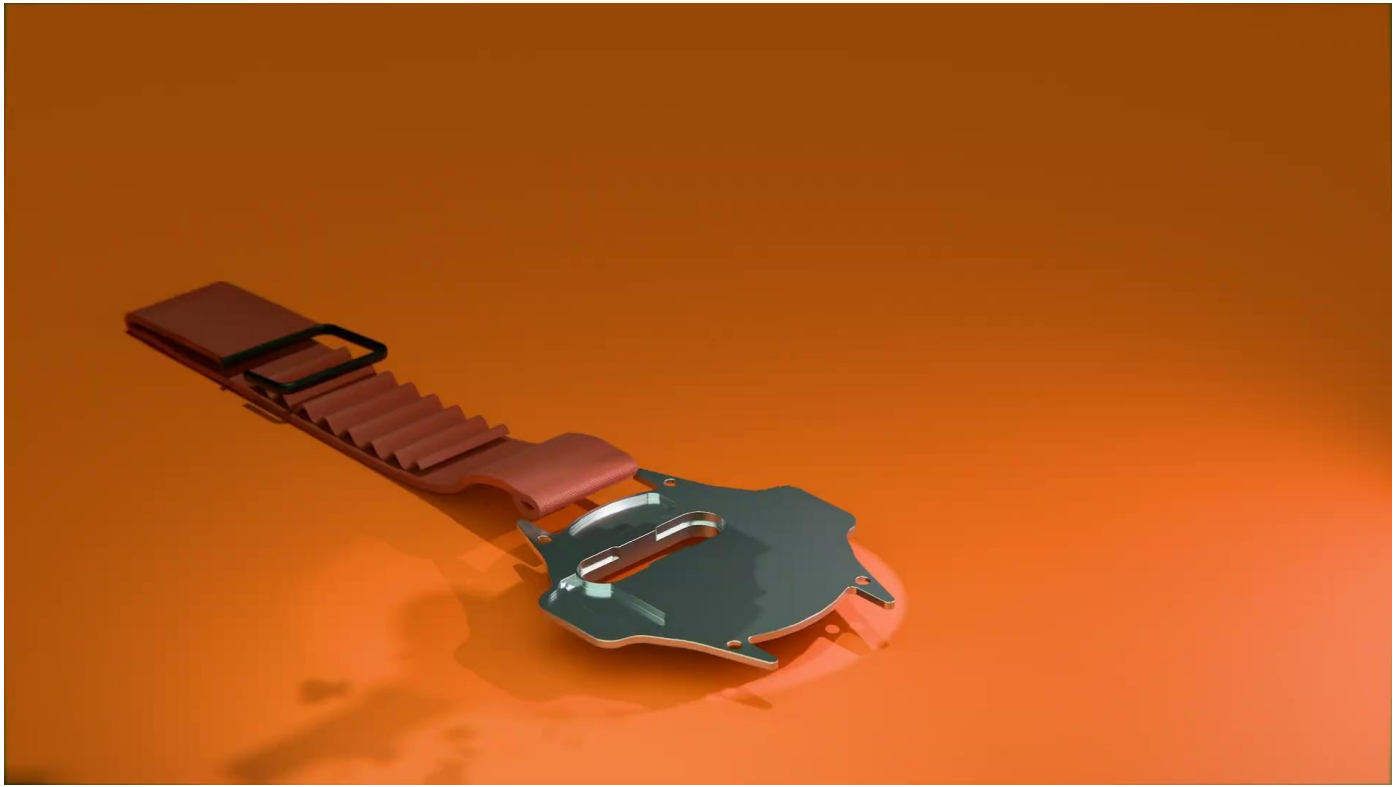

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Let's talk about the hardware

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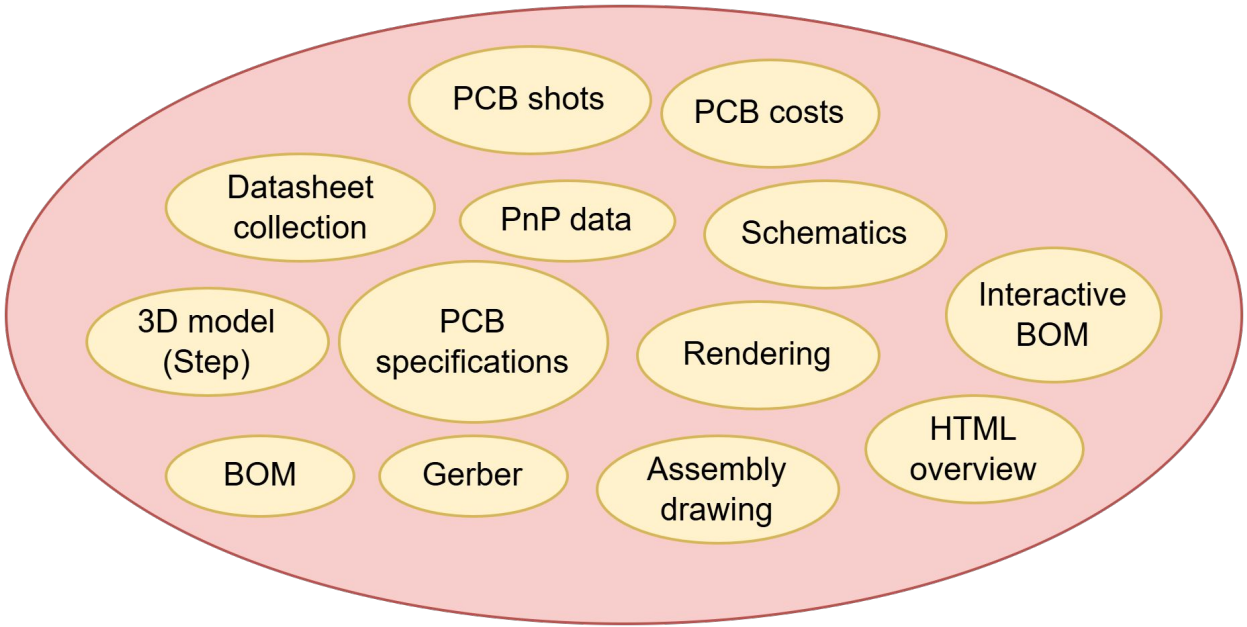
- ➔ Electronics Design is done with KiCad
- ➔ KiBot is used for CI/CD based production data generation
- ➔ Reduced PCB can be used as ZigBee End Device for Home Automation
- ➔ Mostly single sided assembly



Let's talk about the hardware

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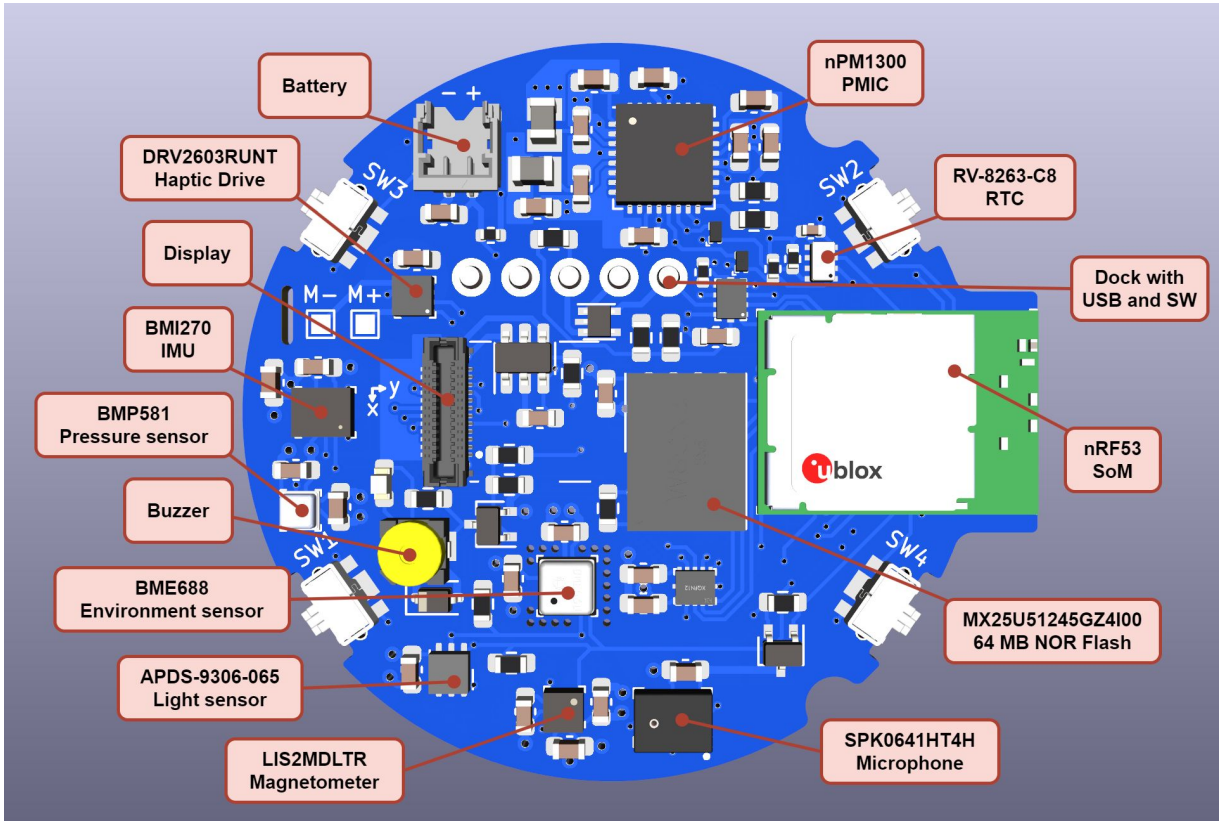

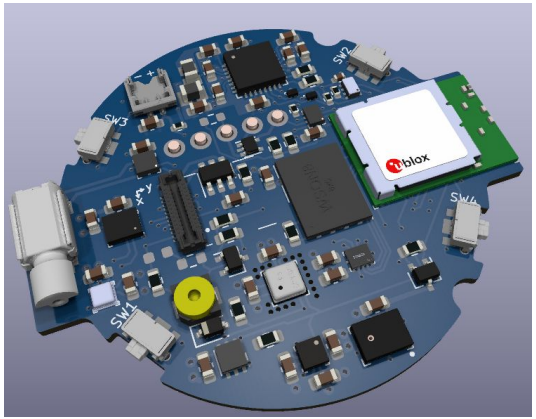

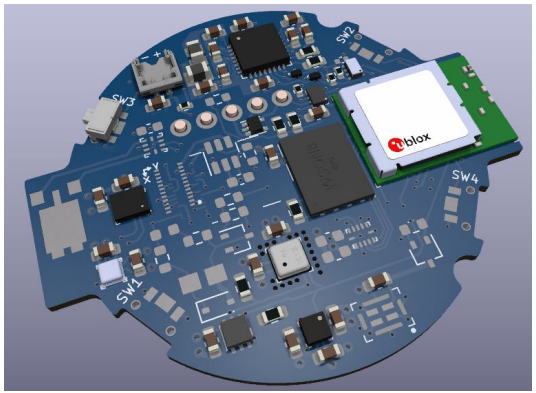

Let's talk about the hardware

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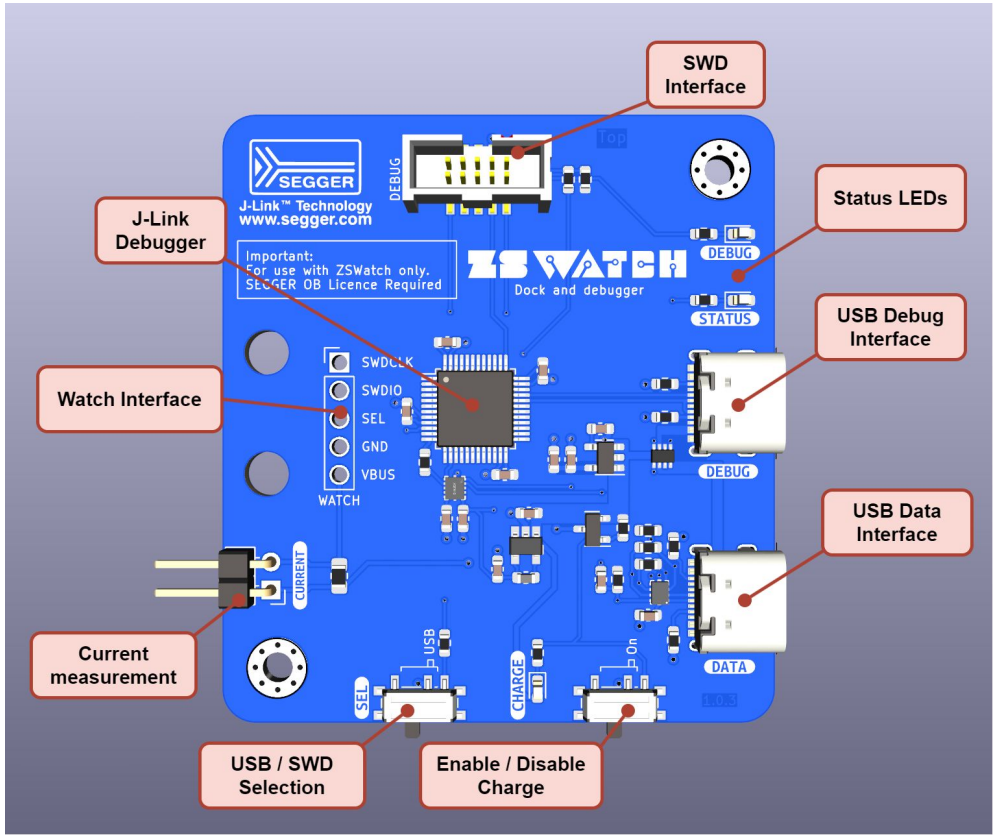

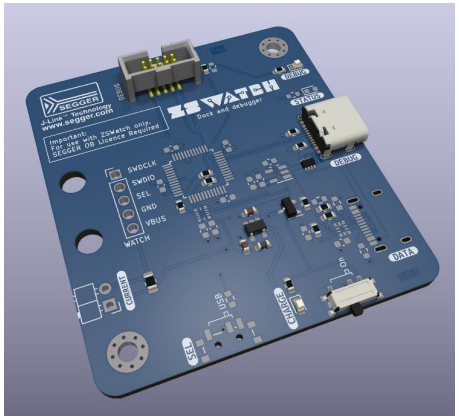

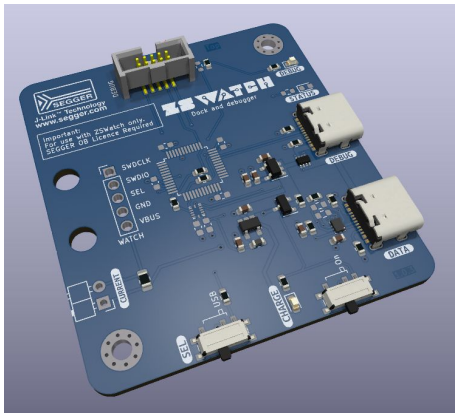

The software in a nutshell

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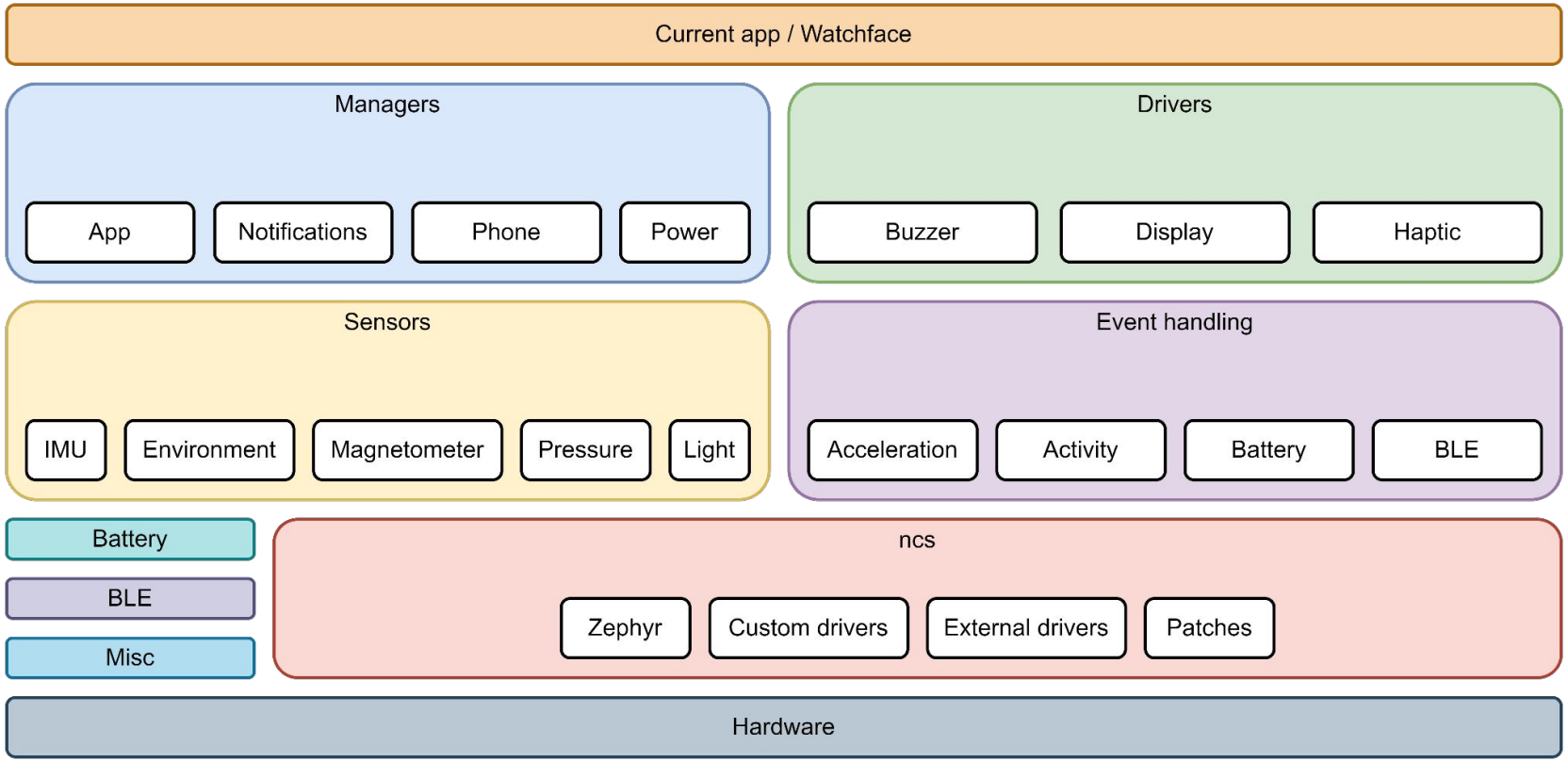

The software in a nutshell

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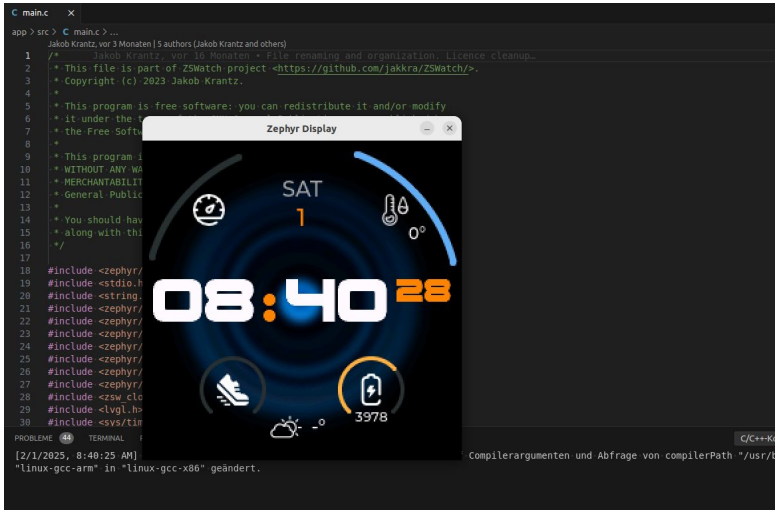
- ➔ One software for all hardware revisions thanks to device tree overlays
- ➔ The software is built with CI/CD
- ➔ Core dump app in debug builds to track crashes during the testing
- ➔ Different watch faces based on esp-lvlg-watchfaces from Felix Biego
- ➔ POSIX build to develop and test new UIs on a desktop PC



How to write a simple app

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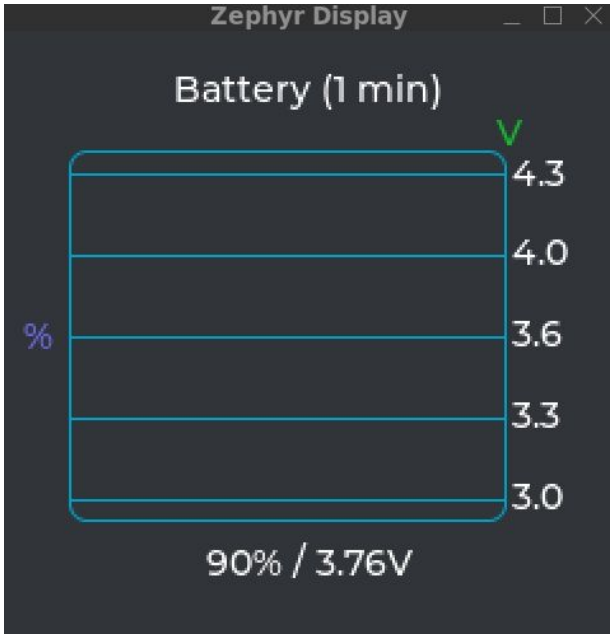
```
static application_t app = {
        .name = "Battery",
        .icon = ZSW_LV_IMG_USE(battery),
        .start_func = battery_app_start,
        .stop_func = battery_app_stop
};

static void battery_app_start(lv_obj_t *root, lv_group_t *group) {
        battery_ui_show(root, on_close_battery);
}

static void battery_app_stop(void) {
}

static void on_close_battery(void) {
}

static int battery_app_add(void) {
        zsw_app_manager_add_application(&app);
        return 0;
}

SYS_INIT(battery_app_add, APPLICATION, CONFIG_APPLICATION_INIT_PRIORITY);
```



Many ideas for the future

Open Source Smartwatch

- ➔ Running Doom
- ➔ Heart Rate sensor and fitness app
- ➔ LE audio with AI integration
- ➔ Optimized smartphone companion app for the watch
- ➔ New housing
- ➔ Switch to nRF54
- ➔ Finding someone who helps us to sell the watch
- ➔ Clean up code, update documentation, more templates, etc.
- ➔ etc.

Idea: ZSRing

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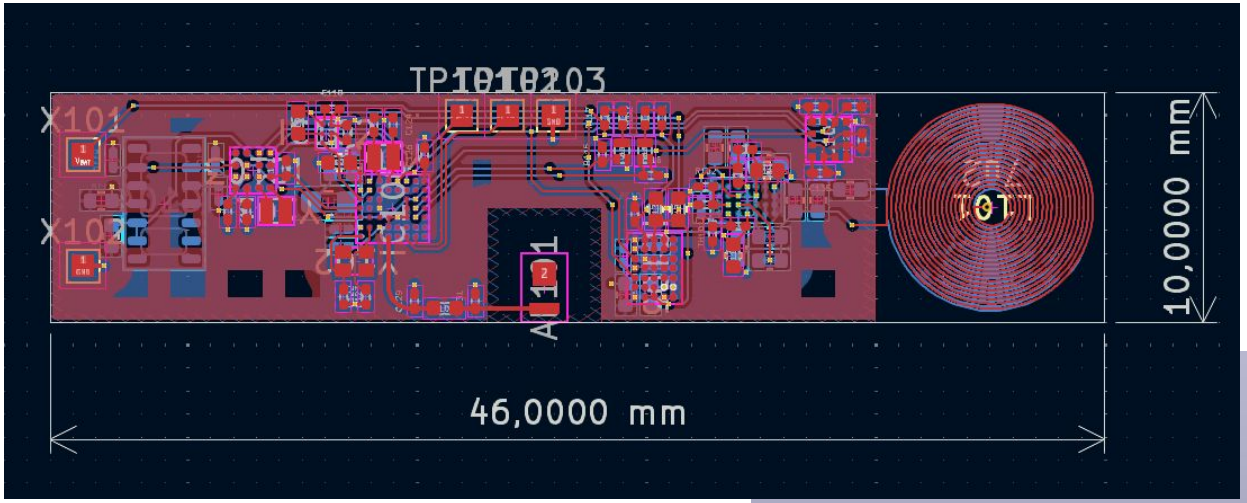

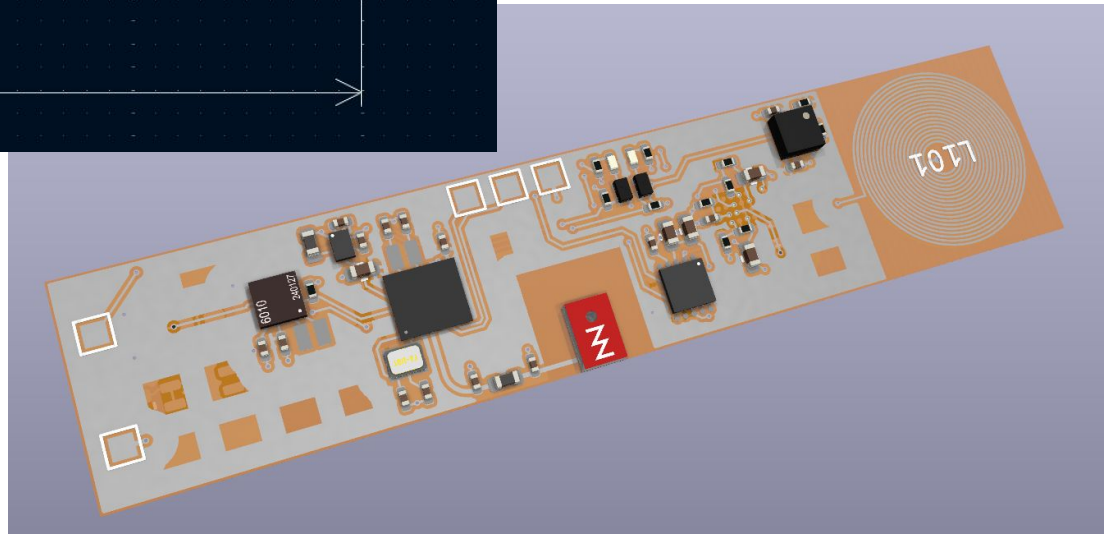

Project support

Open Source Smartwatch

- ➔ Since December 2024 the project is officially supported by the 2024 NGI0 Commons Fund
- ➔ The project is also supported by SEGGER who support us with OB licenses for our programmer
- ➔ Everyone can support on GitHub
- ➔ Always looking for additional support

SEGGER

The Embedded Experts

Support us!

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Short Demo

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QA

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Thanks for your attention!