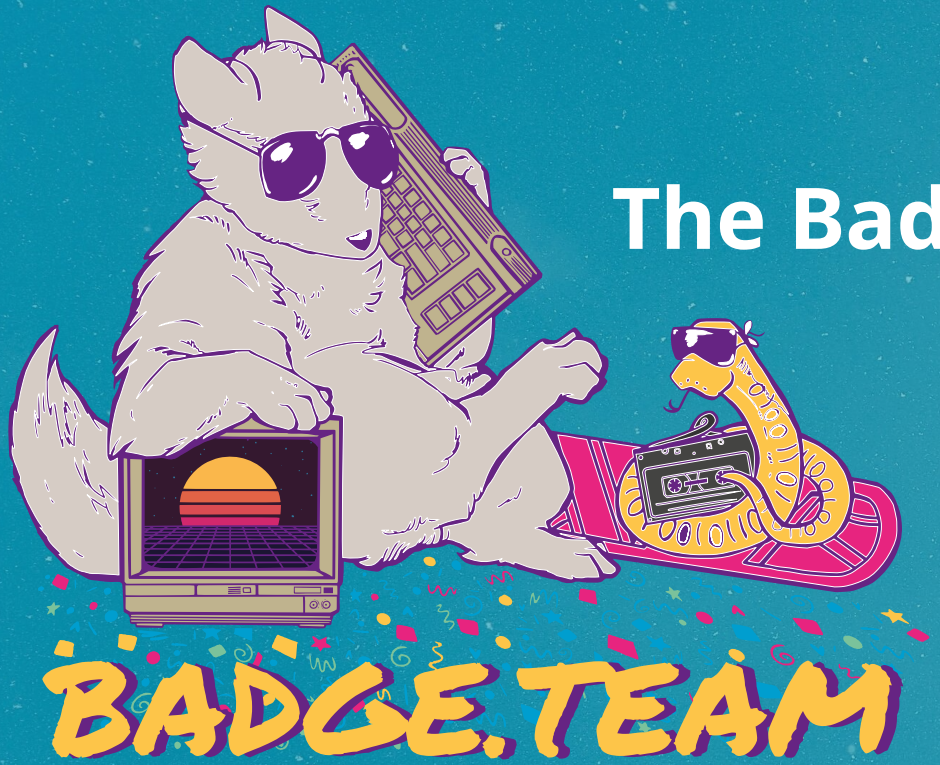
The Badge Is the Demo

Your next platform might be hanging around your neck

Anne Jan Brouwer 2026-08-22





The Badge Is the Demo

Your next platform might be hanging around your neck

#HOKE



📷 Mendel Mobach ✏️ Paul Honig

Anne Jan Brouwer

Hacker
Scener
Developer
Volunteer

BADGE.TEAM

Anus/ de FEEST

Aid to Ukraine



I HAVE

CDO

IT'S LIKE

OCD

BUT ALL THE LETTERS ARE
IN ALPHABETICAL ORDER

AS THEY SHOULD BE

OCD

WARNING

- Started as 10 year talk
- Going to go fast
- If no copyright for images / video assume badge.team or cleared as PD



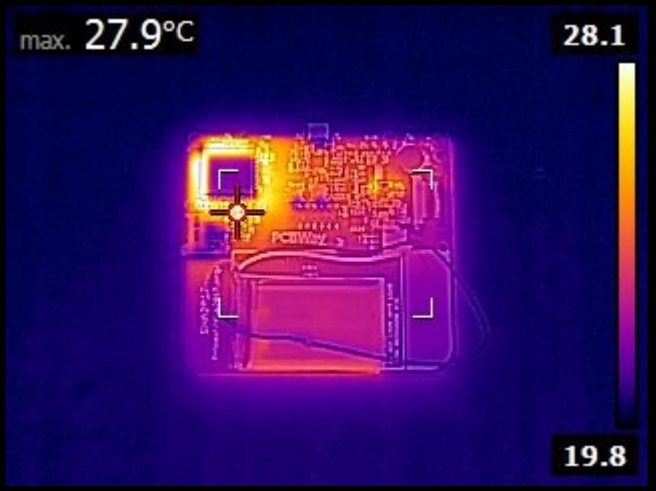
Paramount Pictures



This

WARNING

- Personal experiences
- From my PoV
- Not ment to offend
- Mistakes and omissions







WARNING



What happened before

- August 2011
- Finowfurt Germany
- CCCamp
- r0ket badge

https://events.ccc.de/camp/2011

What happened before

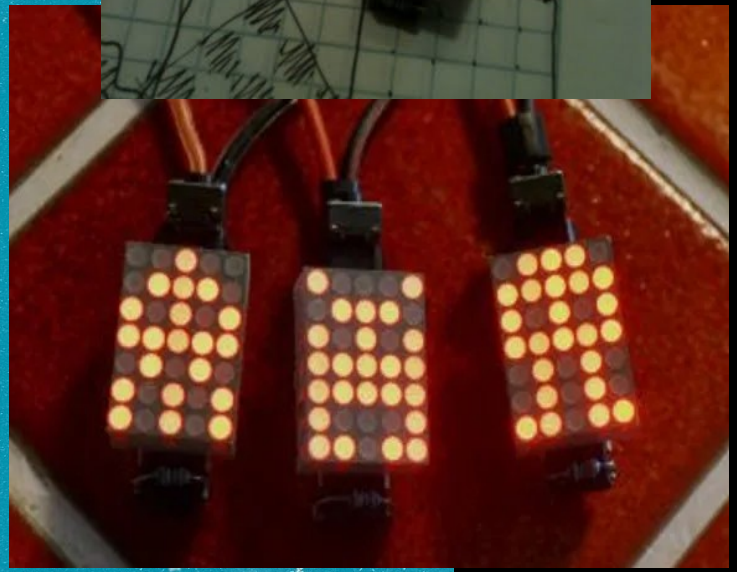


- August 2011
- r0ket
- Complicated toolchain
- Hard to share creations

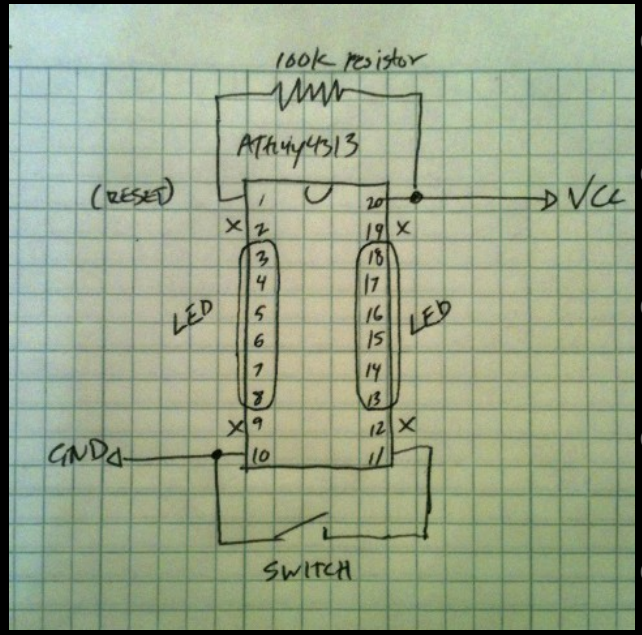
https://r0ket.badge.events.ccc.de

What happened before



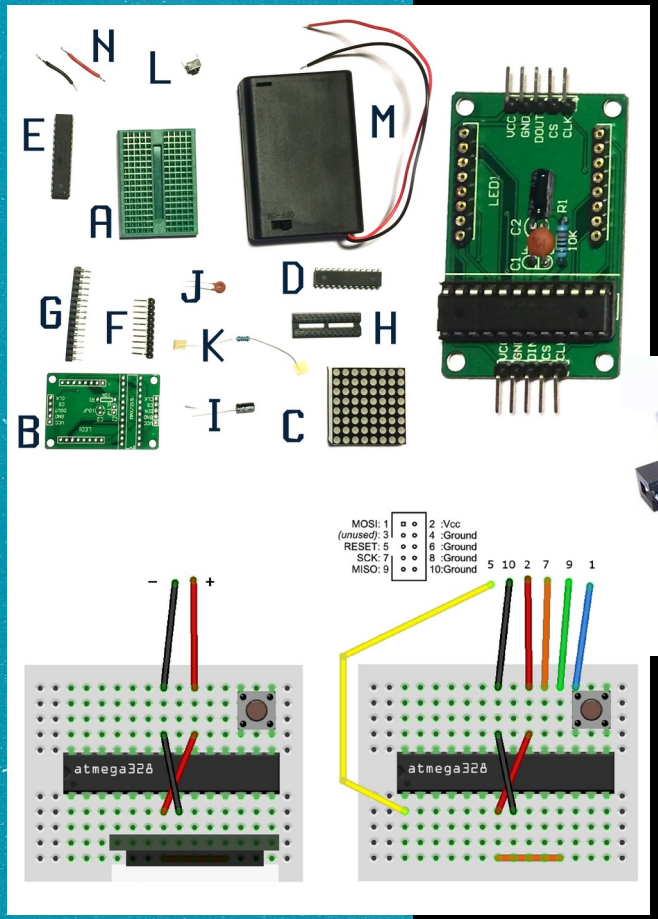


TigerUp



- October 2012
- ATtiny2313
- 5x7 LED matrix
- 3V Coin cell
- 100K resistor
- Push button

https://web.archive.org/web/20131006055658/https://sites.google.com/site/tinymatrix/





What happened before

- September 2013
- 10 Euro kit

ijduino v1.0

https://github.com/IJHack/ijduino

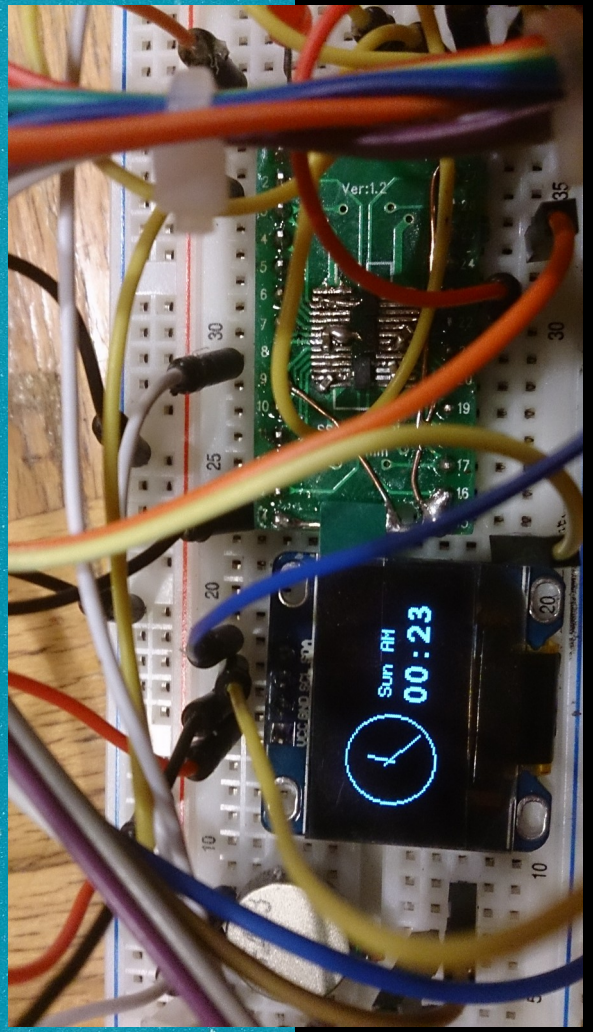
What happened before

- April 2014
- IJhack IJduino

- FlapIJbird

https://github.com/psy0rz/flappijbird

https://youtube.com/watch?v=a8VfNl8ukGI

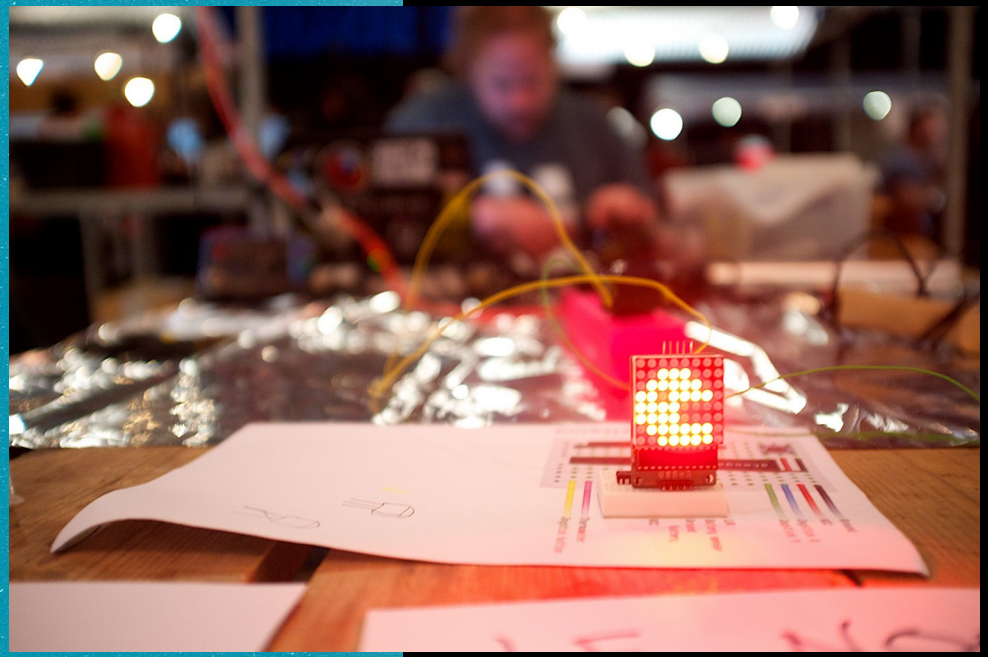


What happened before

- Januari 2015
- IJwatch

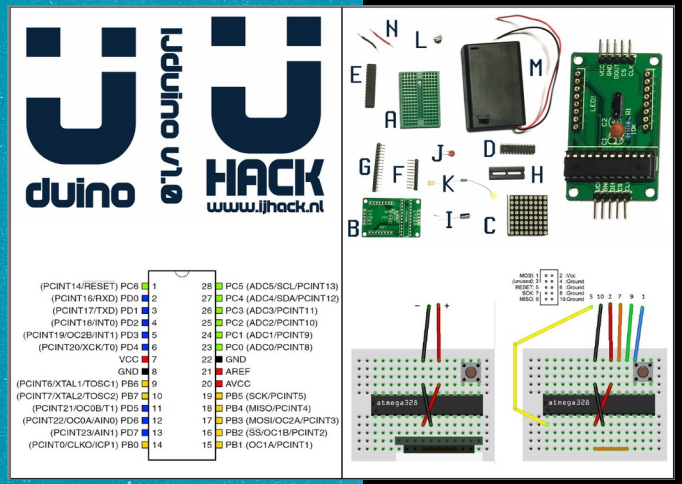
- ESP8266
- Lua loader

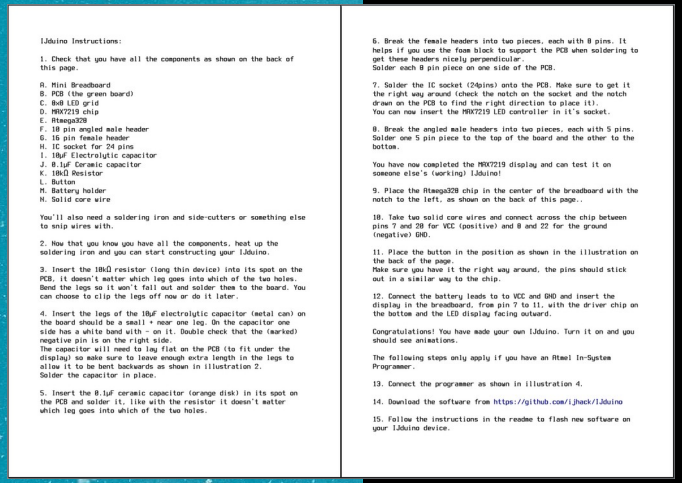
What happened before



Sebastiaan ter Burg

- May 10 2015
- IJhack IJduino
- Yami Ichi
- Play it outside
- Make it inside





IJduino Instructions:

1. Check that you have all the components as shown on the back of this page.

A. Mini Breadboard
B. PCB (the green board)
C. 8x8 LED grid
D. MAX7219 chip
E. Atmega328
F. 10 pin angled male header
G. 16 pin female header
H. IC socket for 24 pins
I. 10µF Electrolytic capacitor
J. 0.1µF Ceramic capacitor
K. 10kΩ Resistor
L. Button
M. Battery holder
N. Solid core wire

You'll also need a soldering iron and side-cutters or something else to snip wires with.

2. Now that you know you have all the components, heat up the soldering iron and you can start constructing your IJduino.

3. Insert the 10kΩ resistor (long thin device) into its spot on the PCB, it doesn't matter which leg goes into which of the two holes. Bend the legs so it won't fall out and solder them to the board. You can choose to clip the legs off now or do it later.

4. Insert the legs of the 10µF electrolytic capacitor (metal can) on the board should be a small + near one leg. On the capacitor one side has a white band with - on it. Double check that the (marked) negative pin is on the right side.
The capacitor will need to lay flat on the PCB (to fit under the display) so make sure to leave enough extra length in the legs to allow it to be bent backwards as shown in illustration 2.
Solder the capacitor in place.

5. Insert the 0.1µF ceramic capacitor (orange disk) in its spot on the PCB and solder it, like with the resistor it doesn't matter which leg goes into which of the two holes.

6. Break the female headers into two pieces, each with 8 pins. It helps if you use the foam block to support the PCB when soldering to get these headers nicely perpendicular.
Solder each 8 pin piece on one side of the PCB.

7. Solder the IC socket (24pins) onto the PCB. Make sure to get it the right way around (check the notch on the socket and the notch drawn on the PCB to find the right direction to place it).
You can now insert the MAX7219 LED controller in it's socket.

8. Break the angled male headers into two pieces, each with 5 pins. Solder one 5 pin piece to the top of the board and the other to the bottom.

You have now completed the MAX7219 display and can test it on someone else's (working) IJduino!

9. Place the Atmega328 chip in the center of the breadboard with the notch to the left, as shown on the back of this page..

10. Take two solid core wires and connect across the chip between pins 7 and 20 for VCC (positive) and 8 and 22 for the ground (negative) GND.

11. Place the button in the position as shown in the illustration on the back of the page.
Make sure you have it the right way around, the pins should stick out in a similar way to the chip.

12. Connect the battery leads to to VCC and GND and insert the display in the breadboard, from pin 7 to 11, with the driver chip on the bottom and the LED display facing outward.

Congratulations! You have made your own IJduino. Turn it on and you should see animations.

The following steps only apply if you have an Atmel In-System Programmer.

13. Connect the programmer as shown in illustration 4.

14. Download the software from https://github.com/ijhack/IJduino

15. Follow the instructions in the readme to flash new software on your IJduino device.

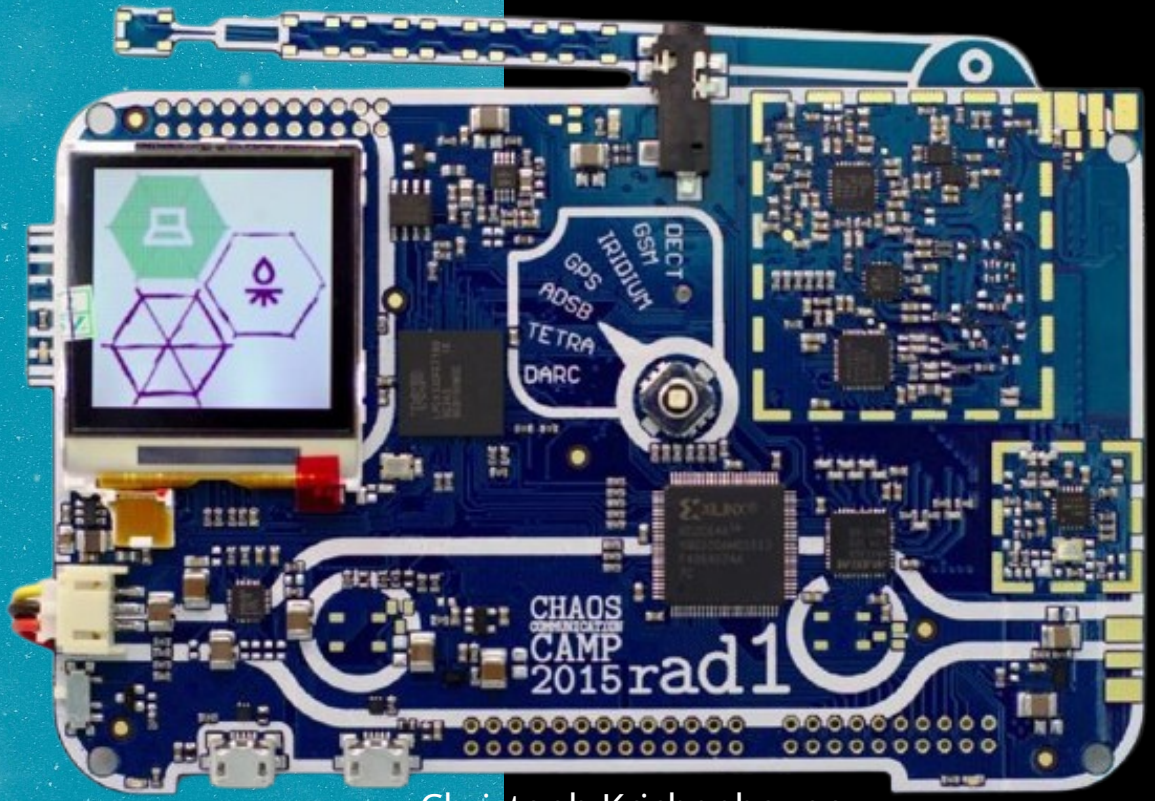
https://github.com/IJHack/ijduino

What happened before

- 10 Euro kit
- Complete package

IJduino v1.0
duino
HACK
www.ijhack.nl

What happened before



- August 2015
- CCCamp
- Rad1o
- Zehdenick Germany

CCCamp 2015

- August
- CCCamp



Riccardo Padovani

- Zehdenick

- Next dutch camp meetup
- Badge Manifesto

1. Be a badge
2. Add to event
3. Instantly hackable

Vuurvliegje

- Oktober
- Hark24
- Arnhem NL



2015



Dennis van Zuijlekom

https://hack42.nl/wiki/Hark24_17_oktober_2015

Vuurvliegje

- Oktober 2015
- Hark24
- Arnhem NL



Dennis van Zuijlekom



https://hack42.nl/wiki/Hark24_17_oktober_2015

SHA2017 Badge



2016



- February
- Mockup

- Parts for prototypes

SHA2017 Badge



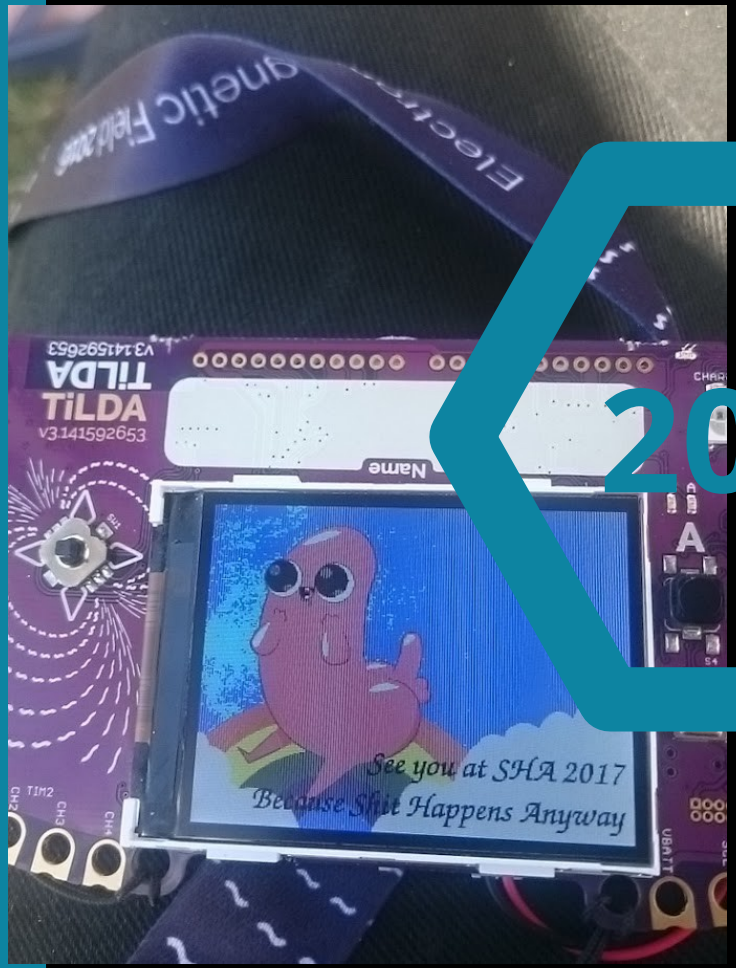


2016



- May - July
- PoC
- e-ink can work for badges

SHA2017 Badge



2016

- August
- EMF Camp

- Big team meeting

SHA2017 Badge



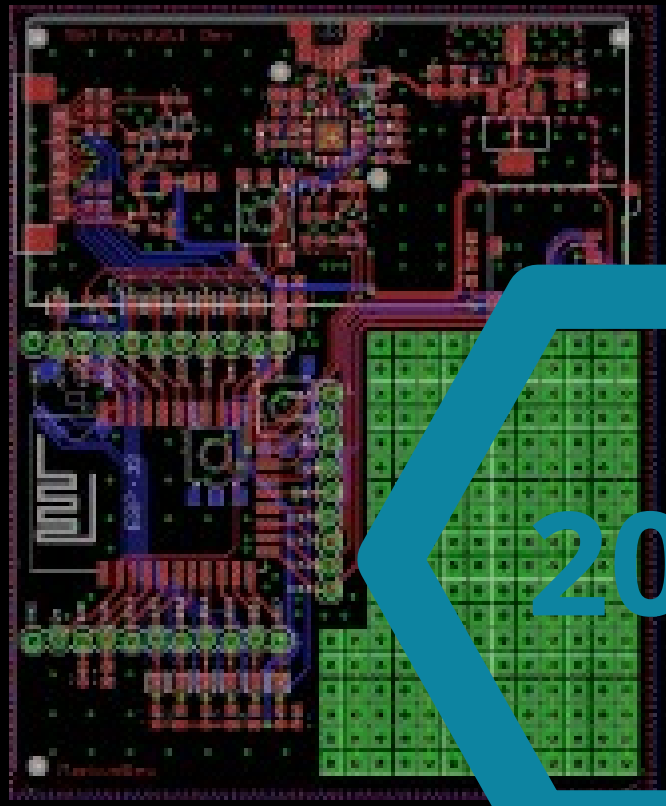
2016

- August
- PoC

- SHA2017 Field Day

https://youtube.com/watch?v=qpVdAvNJPxc

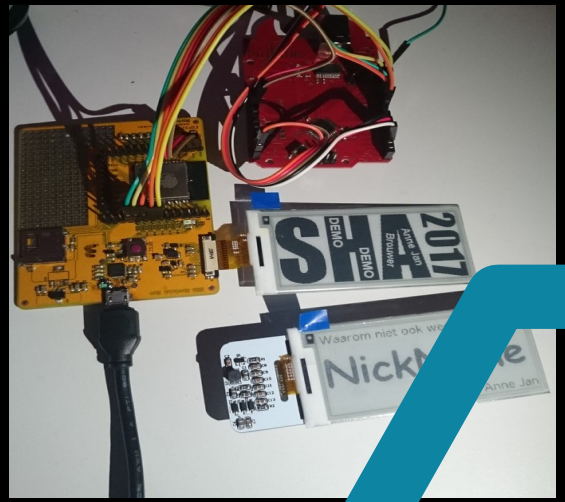
SHA2017 Badge



2016

- September
- First hw design

SHA2017 Badge



2016



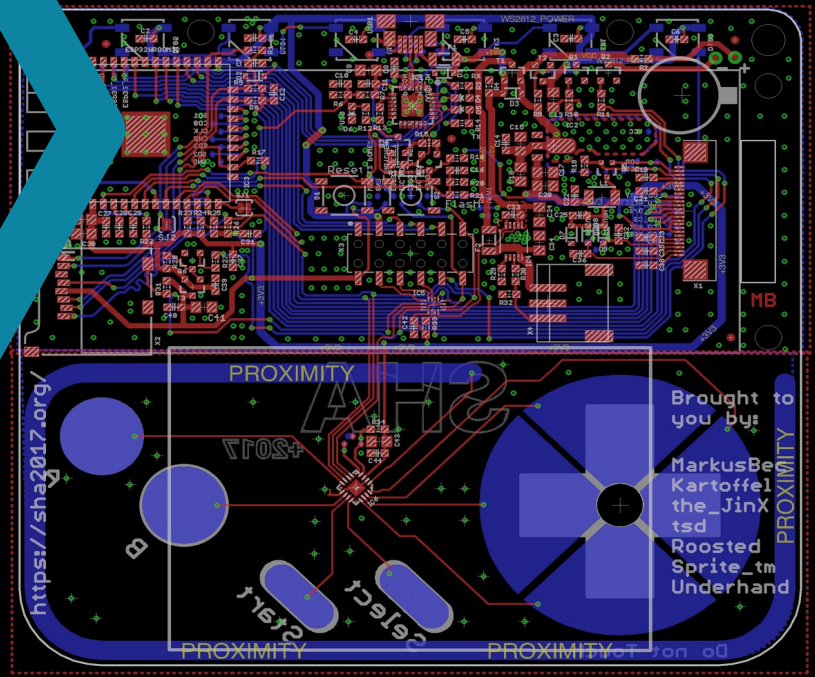
- December
- First hw
- Big meeting

SHA2017 Badge

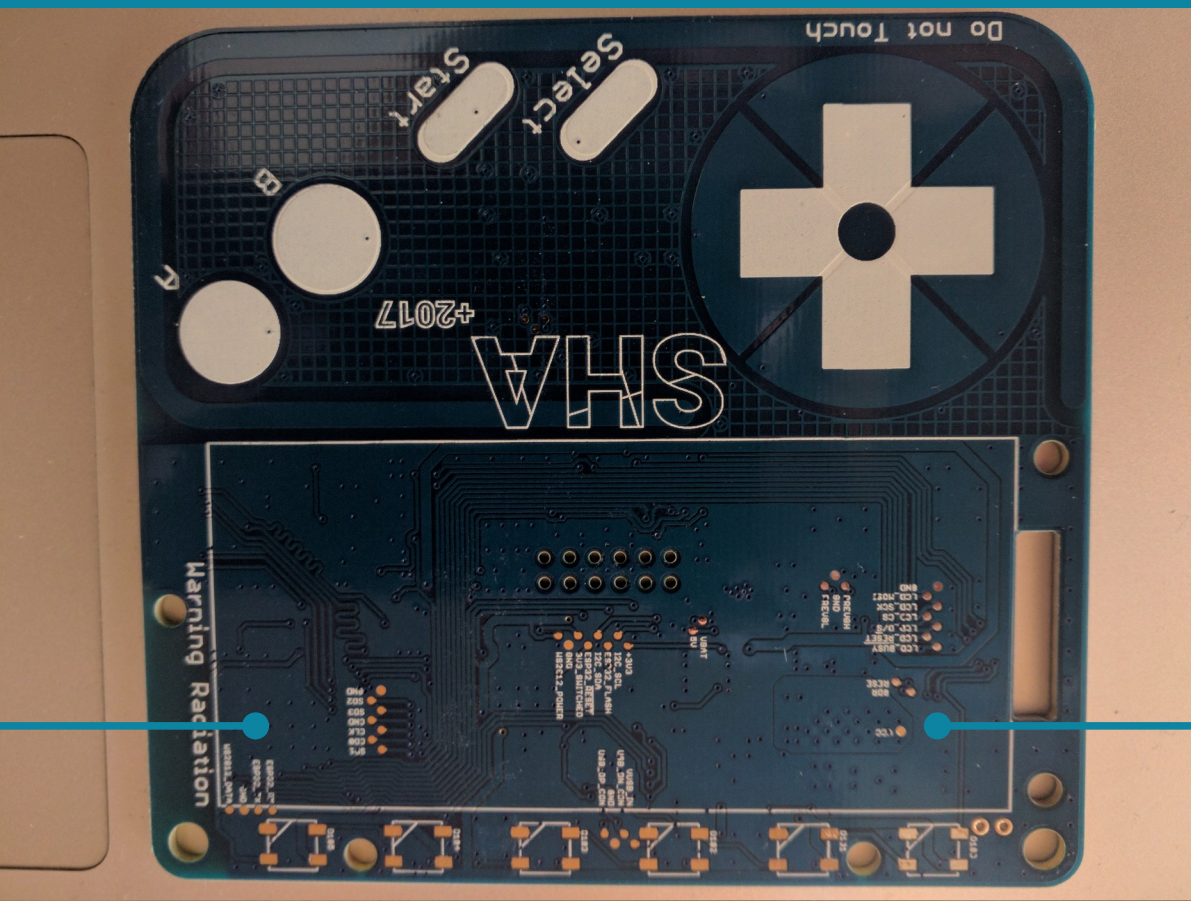
- January
- Design up

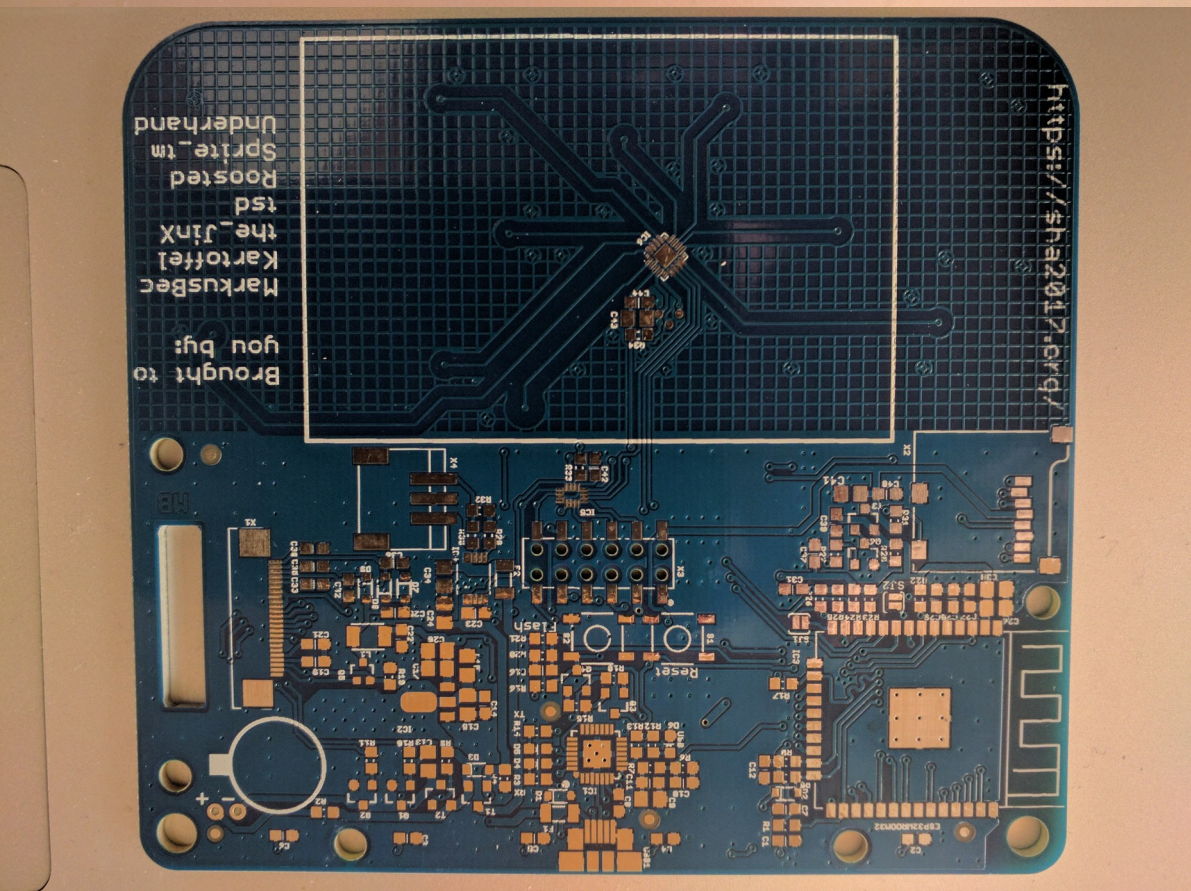
2017

- Stylish Gameboy



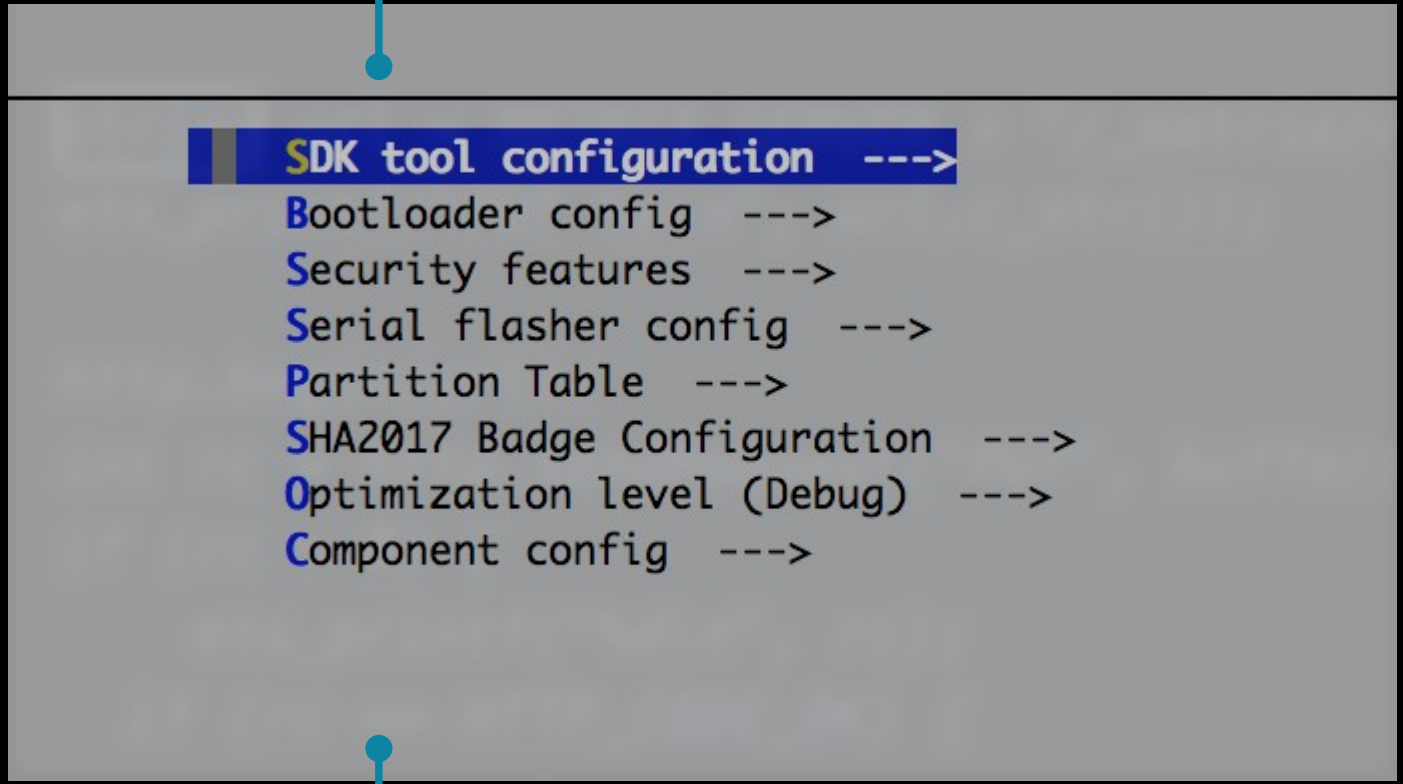
SHA2017 Badge





SHA2017 Badge

- Adding config

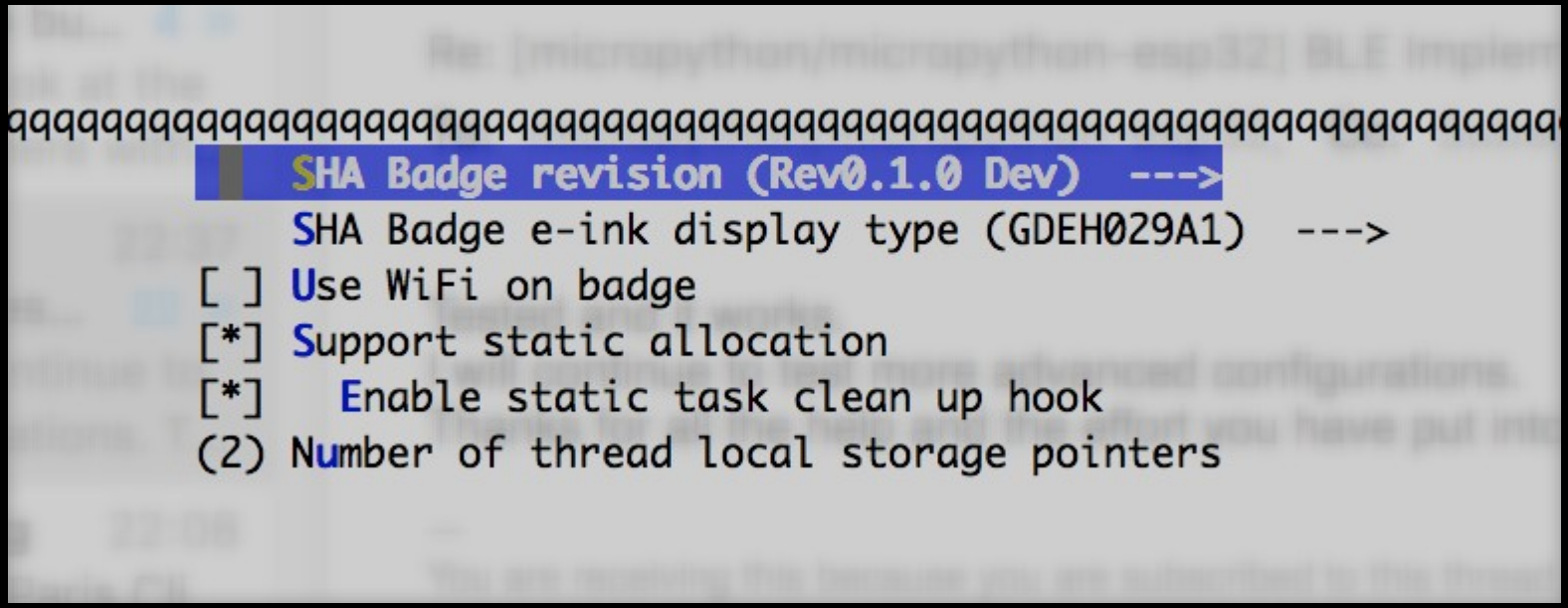


SHA2017 Badge



SHA2017 Badge

- Adding config

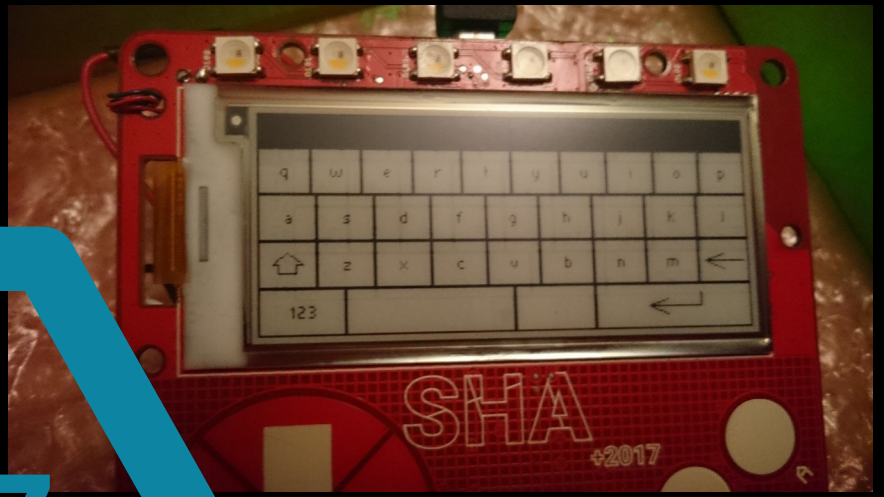


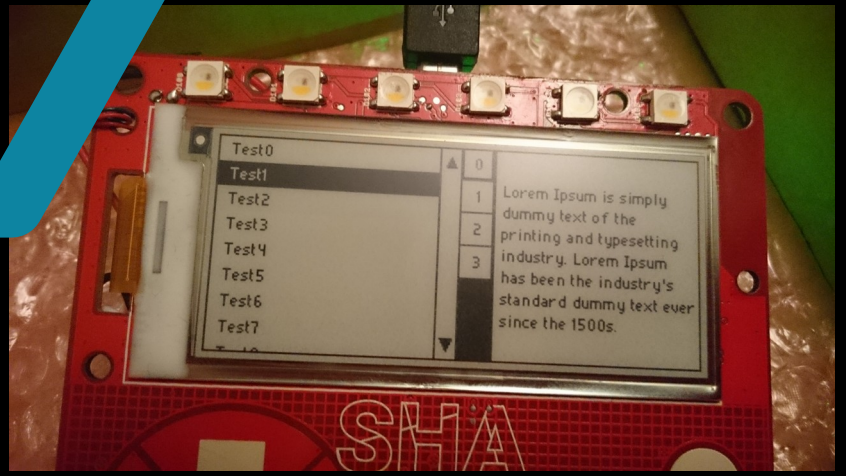
- Support many features

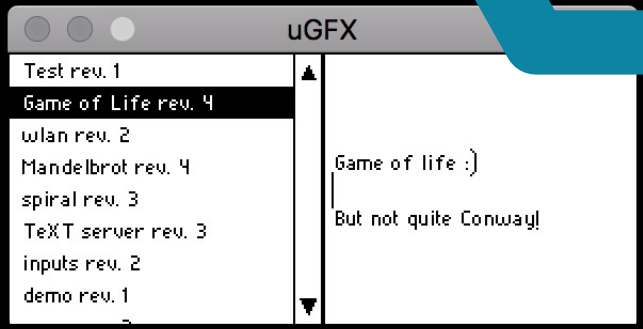
SHA2017 Badge

- UI
- UX
- APIs
- Emulator

2017

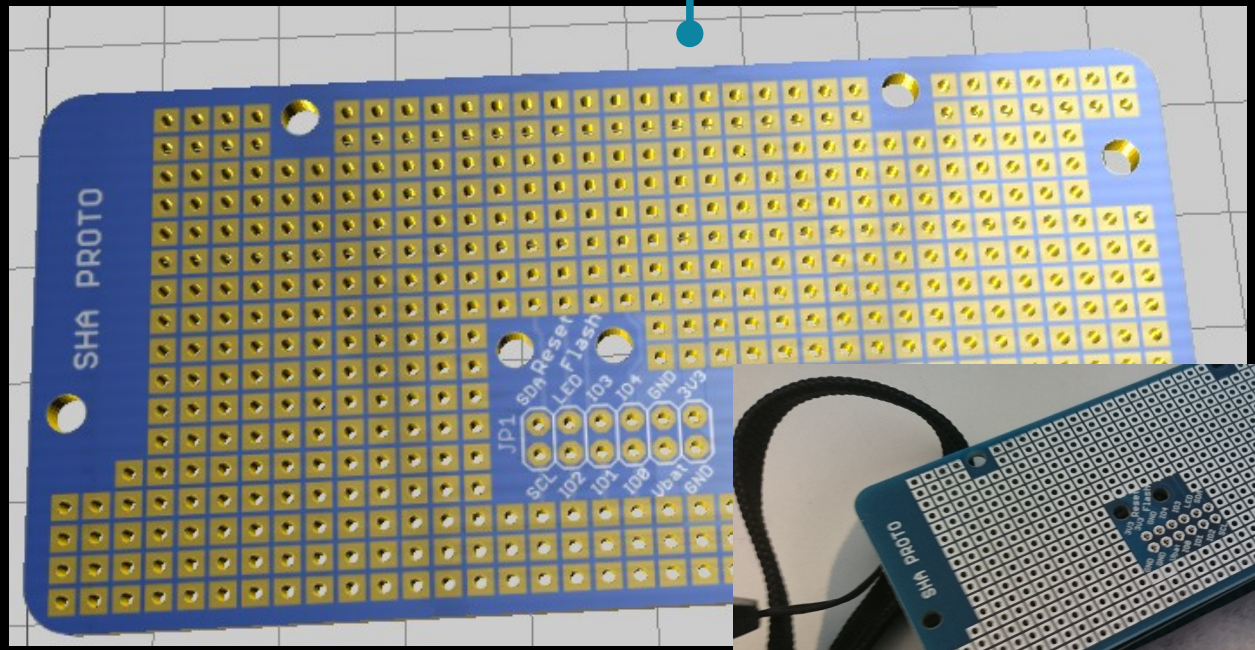


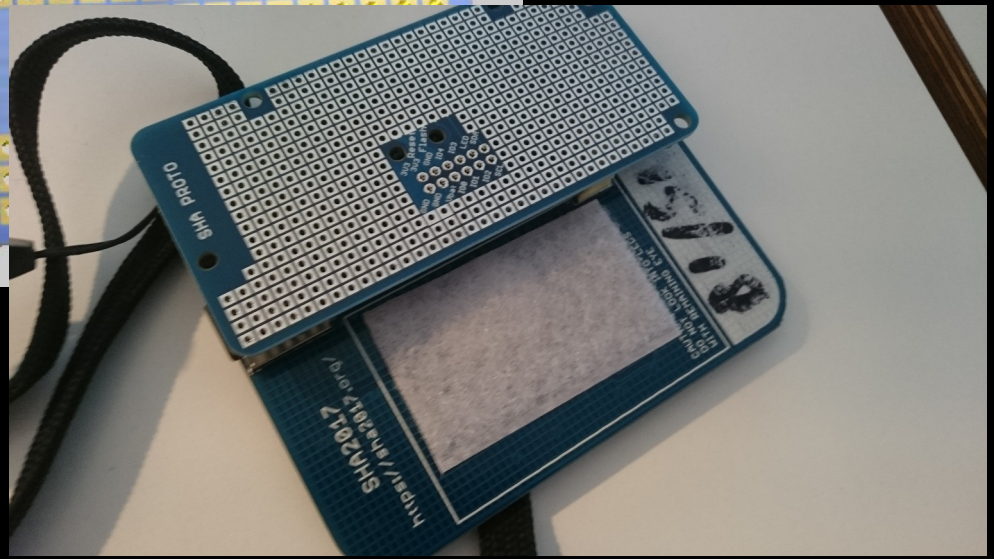




SHA2017 Badge

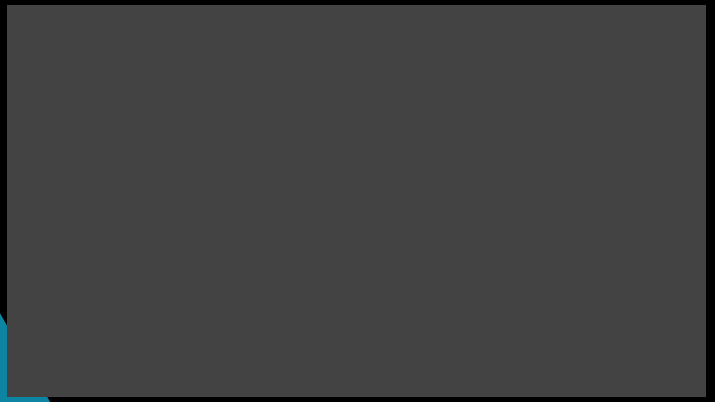
- Time for addons



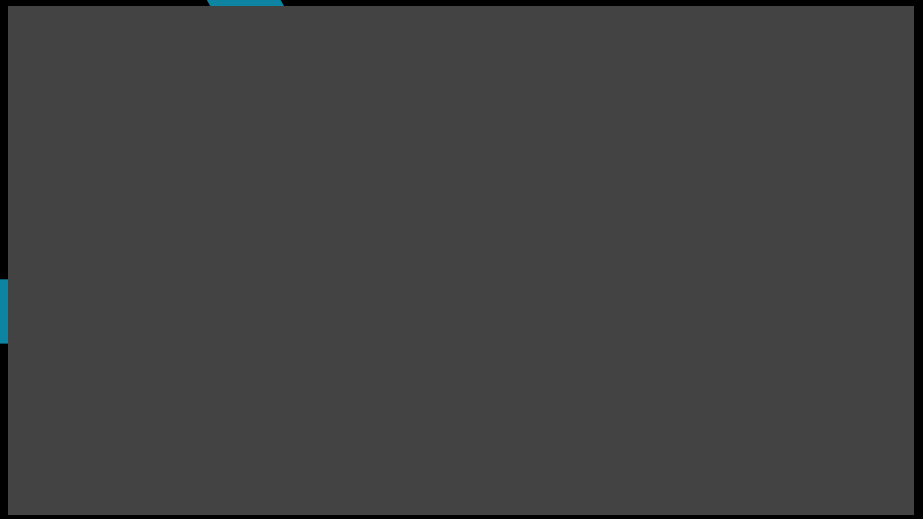


SHA2017 Badge

- OTA updates



https://www.youtube.com/watch?v=sr7oNflhugE

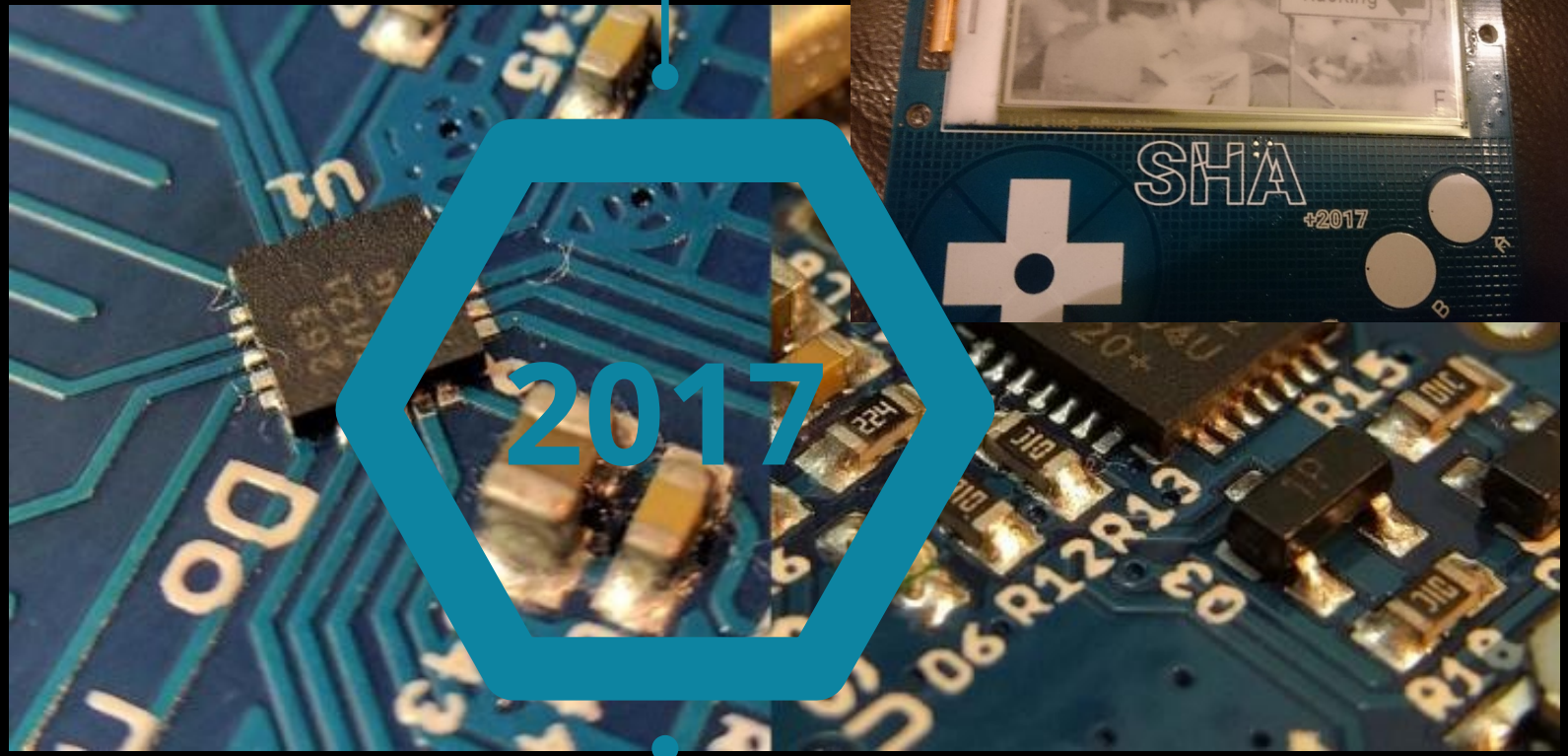


- Hatchery

https://www.youtube.com/watch?v=uTWOW8xhI9w

SHA2017 Badge

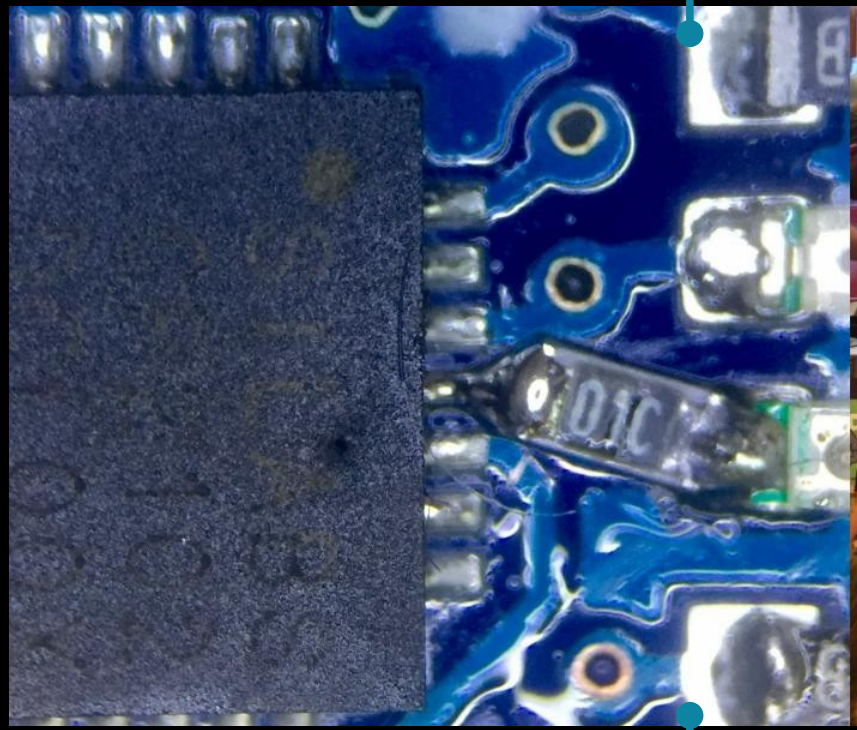
- Factory firmware



- E-ink is easy for hw debugging

SHA2017 Badge

- Sweatshop





https://blankers.eu/2021/sha2017-badge/

SHA2017 Badge

- Party time
- Over 200 apps
- 80% use



2017



https://blankers.eu/2021/sha2017-badge/

SHA2017 Badge



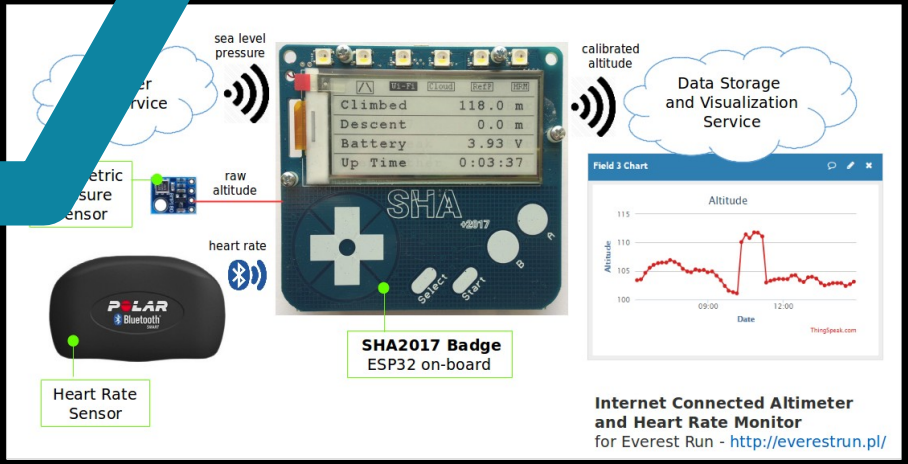
After SHA



polyfloyd.net

2018

- Lots of use in hackerspaces
- Use at events



https://github.com/krzychb/esp32-everest-run-badge#readme

Disobey

- During 34C3
- Let’s drop ugfx
- Fully opensource now
- Ship the dev to Helsinki



34C3:tWatch

Disobey

- They did a remix
- It’s just another target
- Apps can be shared among badges



HackerHotel

- Let’s just do a remix



2019





- No active components

2019

- Workshopping

ETHO

Based on https://github.com/electroniceel/protoboard





Sweatshopping

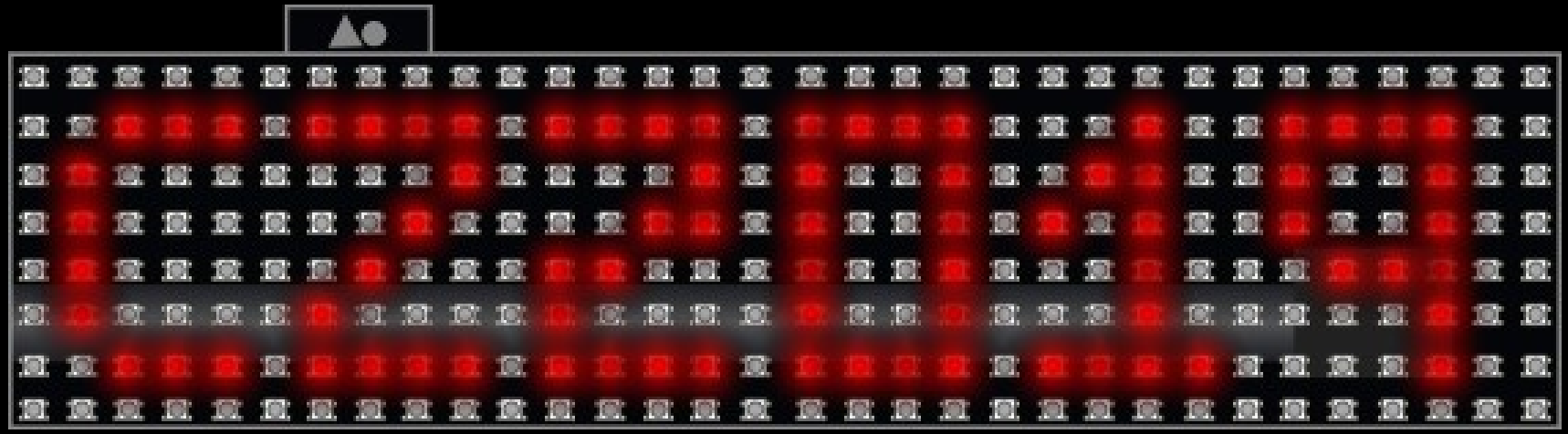
2019

Factorylining

BornHack

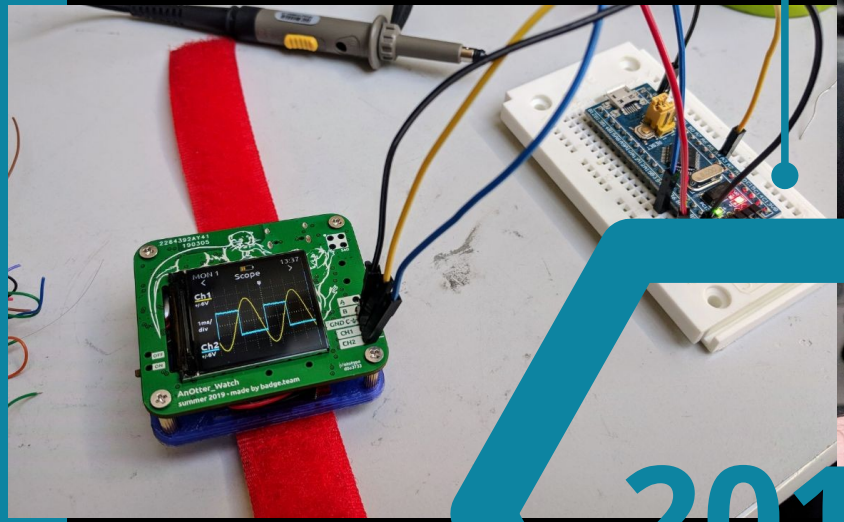
Campzone

- I-pane
- Doubles as AM radio

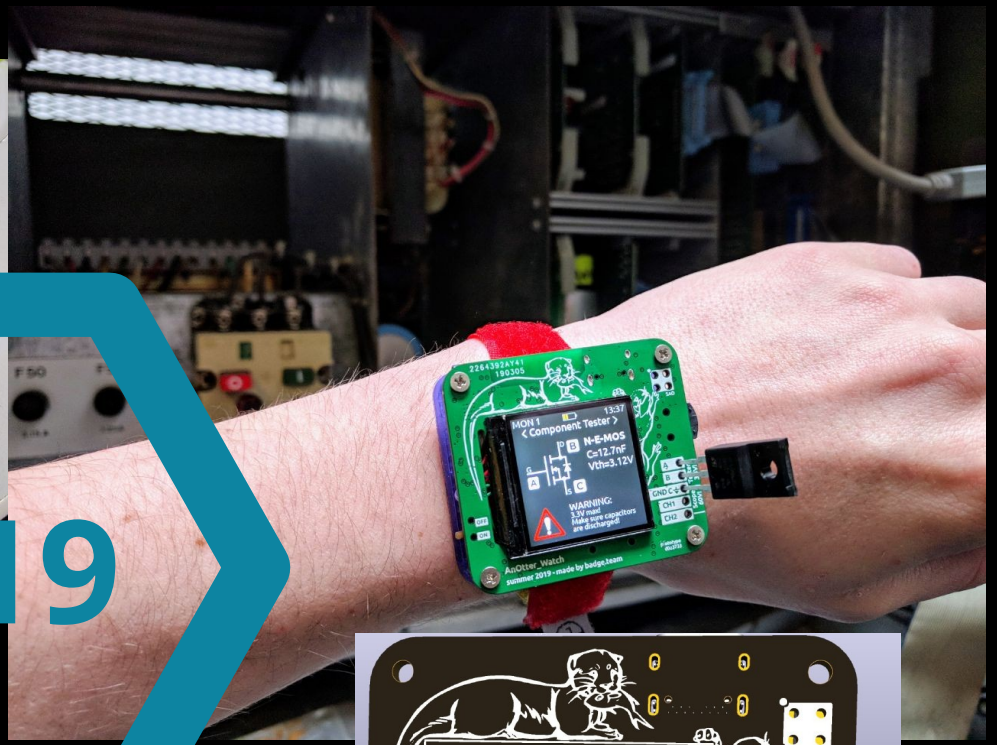


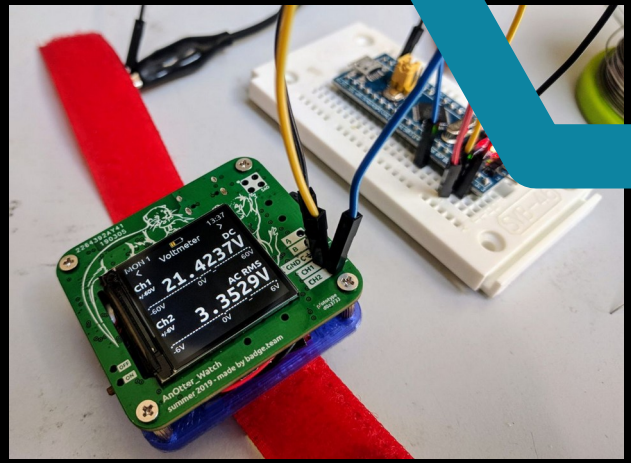
- Introduced icons
- Constraints = Chances

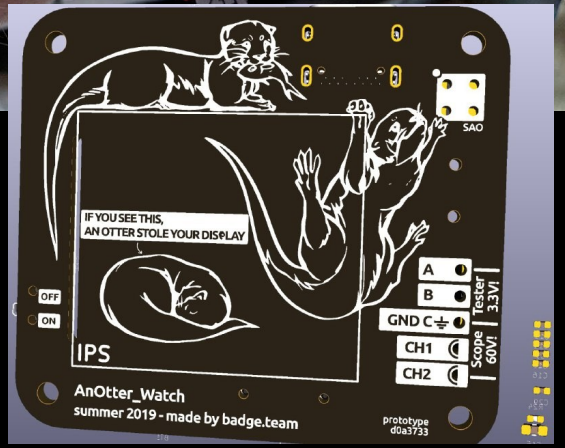
Vaporware



2019







https://defeestboek.nl/n/res/389.html



- High concept
- Low budget
- ATtiny1617

2020



tilde.industries/cyber-scarab

- Mixed reality

HackerHotel

2020

HackerHotel

Disobey

- Continuation
- Platform firmware

2020

- Same weekend

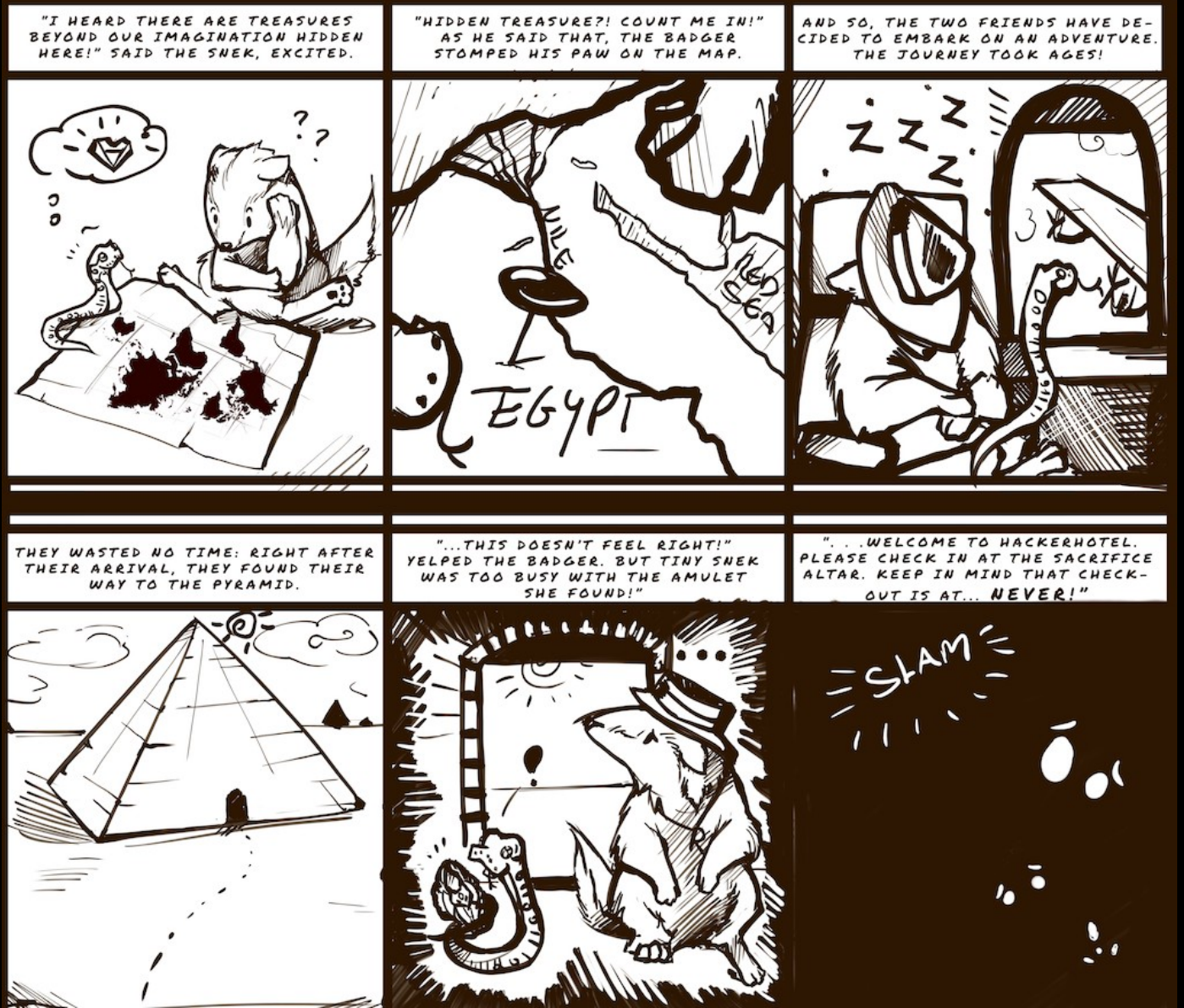


Disobey

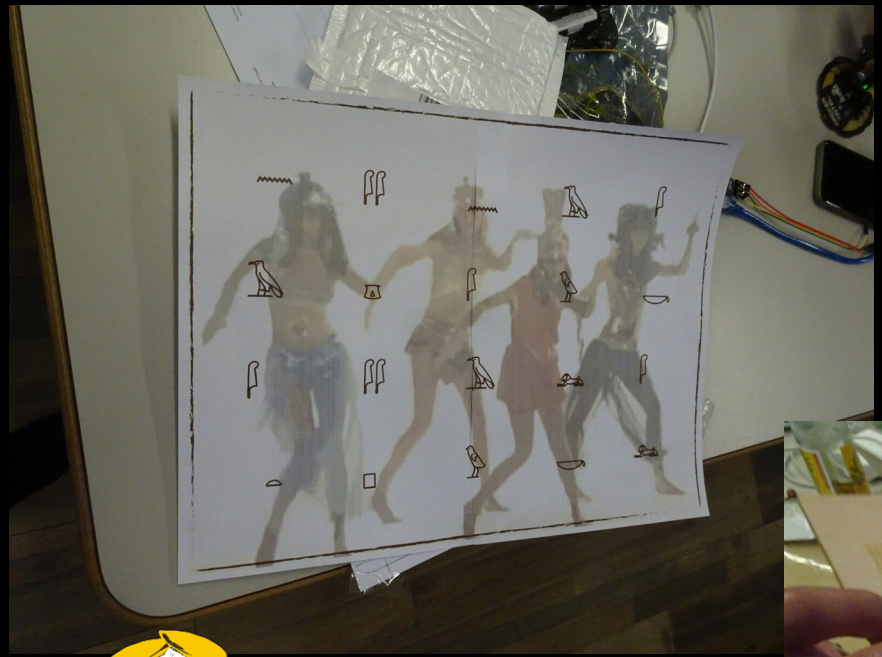
- Gift from Kliment
- Not a smartphone

2020





HackerHotel



- ROM 16K
- RAM 2048
- EEPROM 256



HAL

Thermal

Serial + audio

HackerHotel

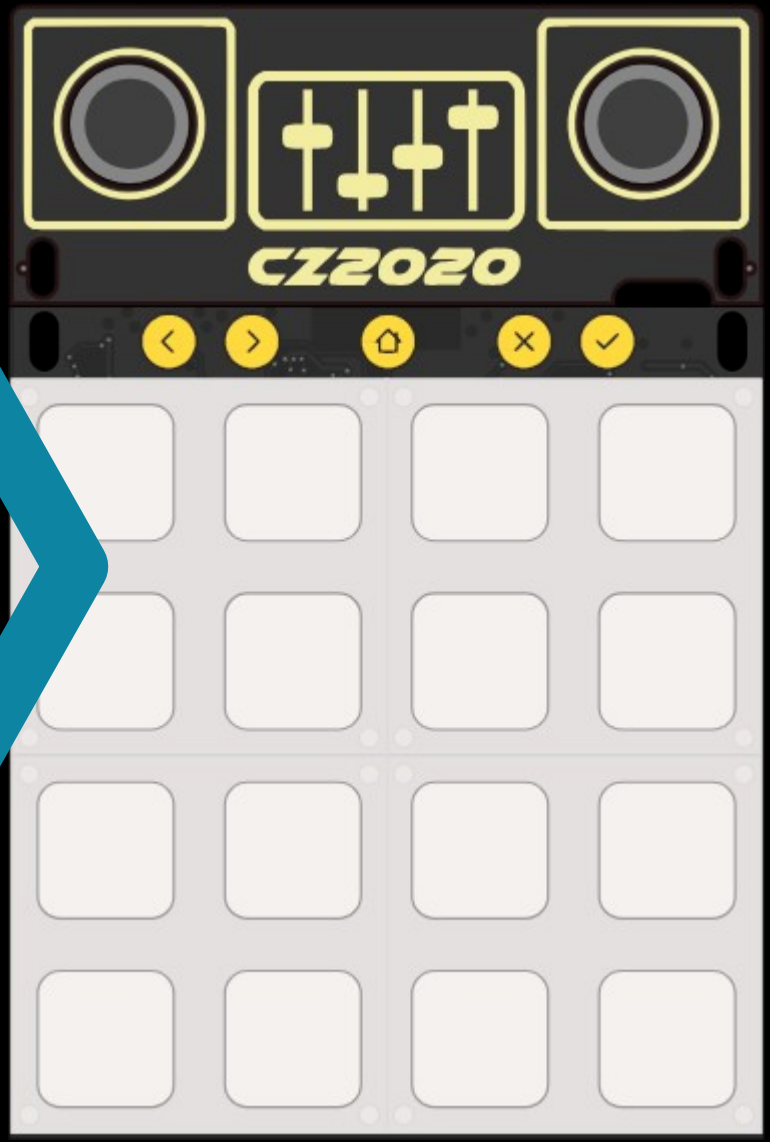
Campzone

- 4x4 RGB
- Web-USB
- HID



2020

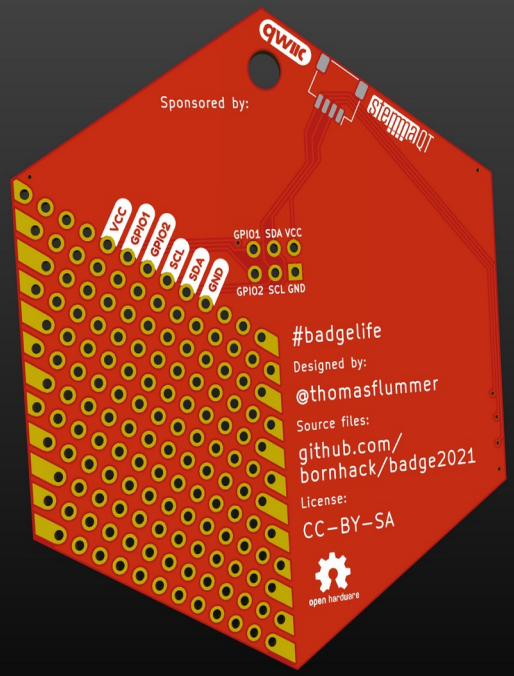
- Streamdeck

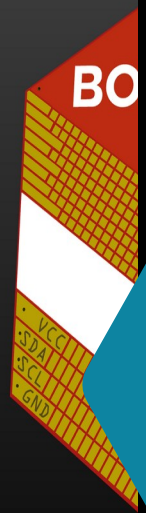


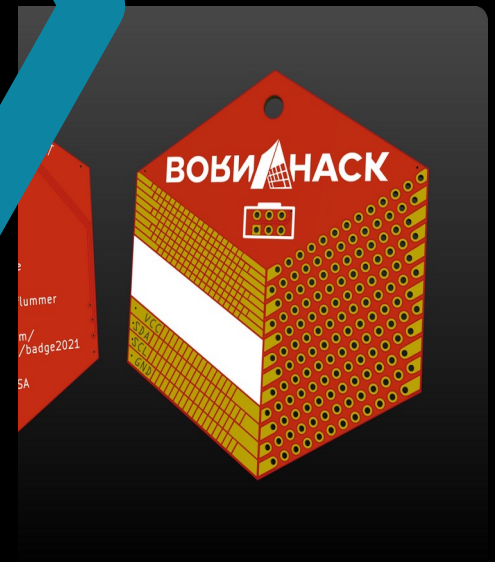
BornHack

2021

- Helping out workshops







- Brought some parts from our stock to hand out

- ICE40 UP5K FPGA
- RP2040
- ESP32



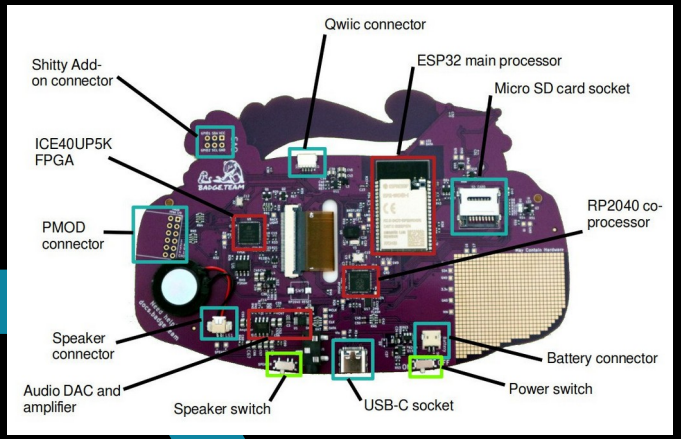
2022



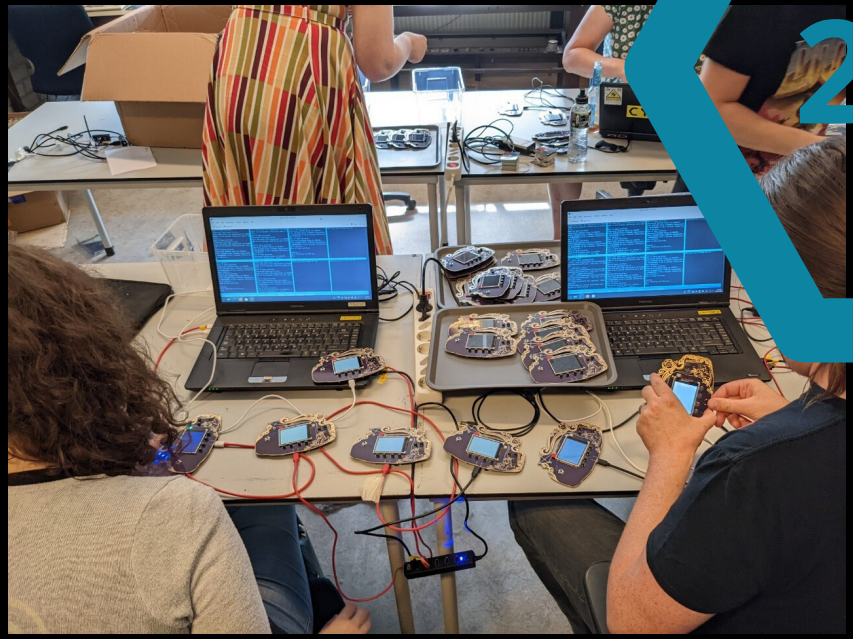
MCH2022

MCH2022





2022





- ESP binary
- FPGA bitstream
- MicroPython

https://www.youtube.com/watch?v=GLZgVrZyEfU



https://www.youtube.com/watch?v=zj28OzBNdR4

MCH2022

- This was released in 2025 by heavypixels

https://www.youtube.com/watch?v=E68ofn4zjU0



MCH2022

- Another World
- Amiga game

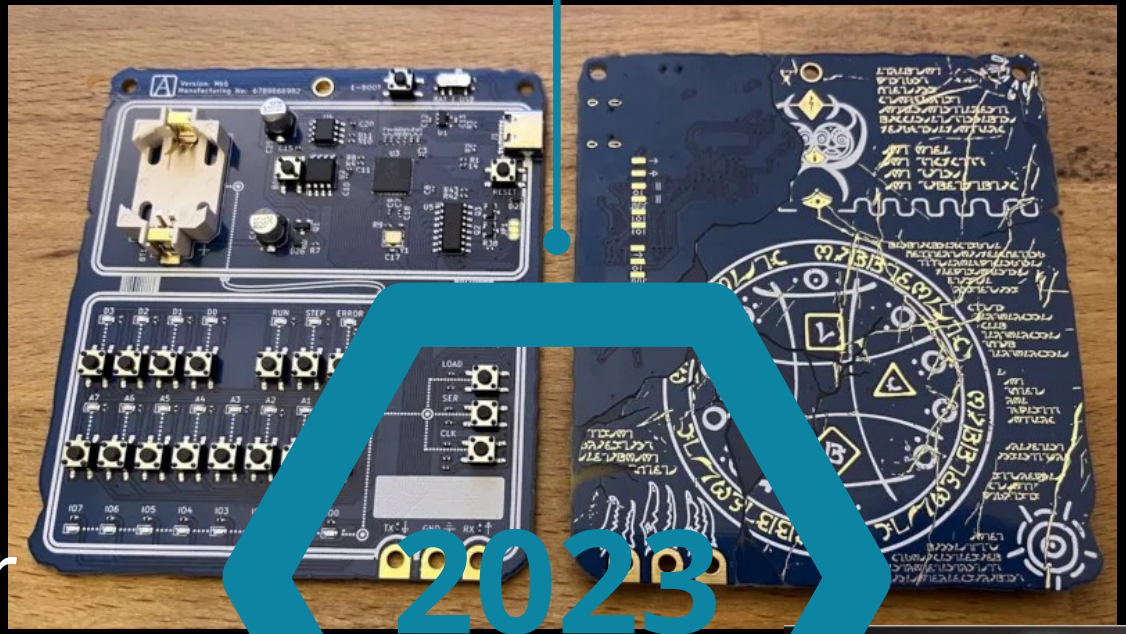
https://mastodon.online/@sylefeb/111099154800981817
https://github.com/sylefeb/a5k





MCH2022

- Only minor support
- 4 bit computer
- Puzzle
- Artwork by Nikolet
- All the PCB art layers



2023



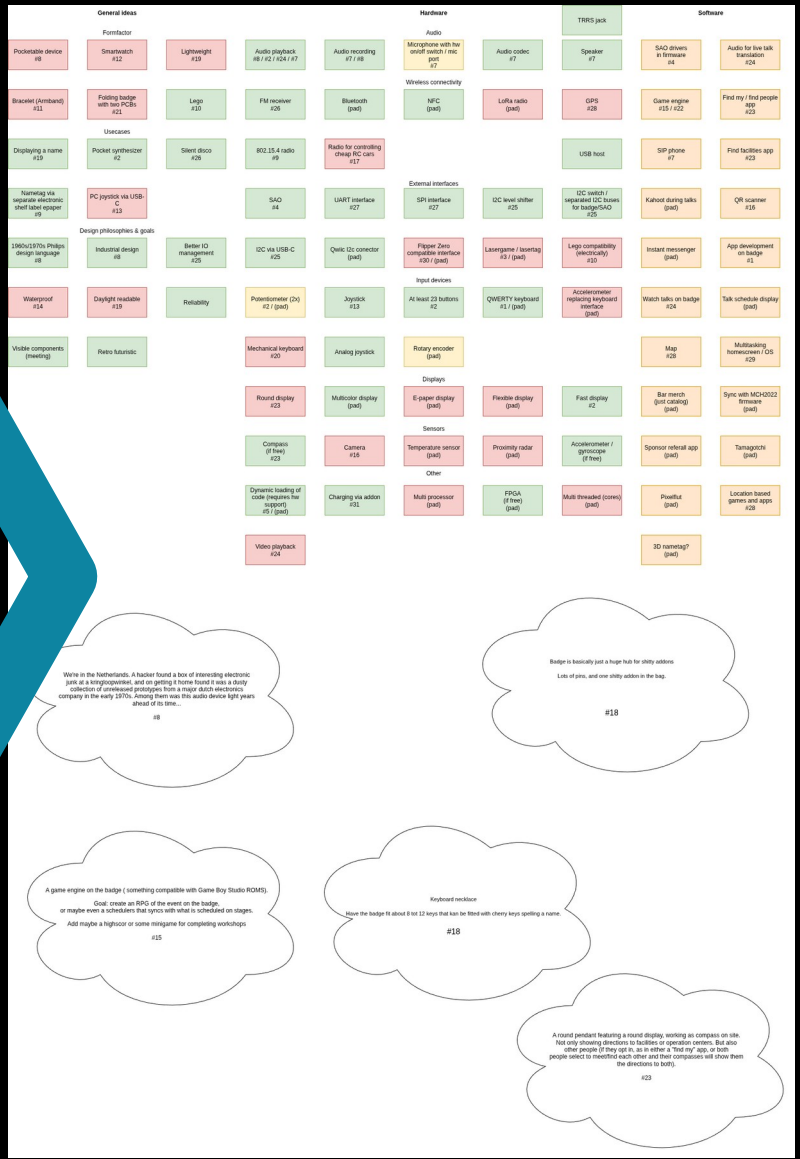
HackerHotel

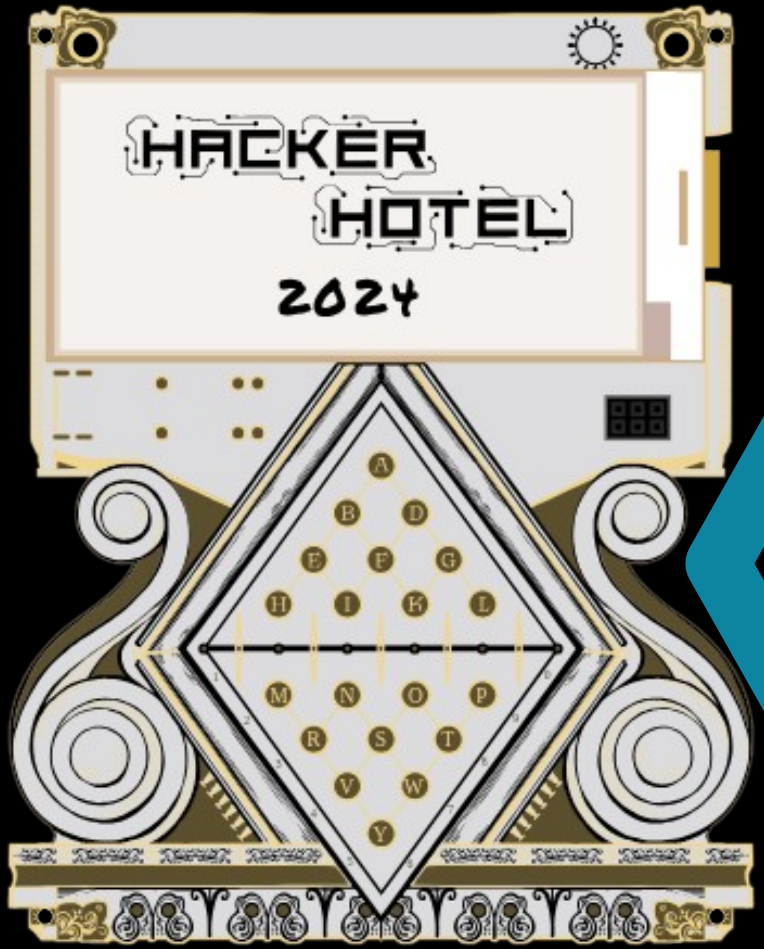
WHY2025 brainstorm

- All the ideas
- Some overlap

2023

- Finding consensus
- Weiging all ideas

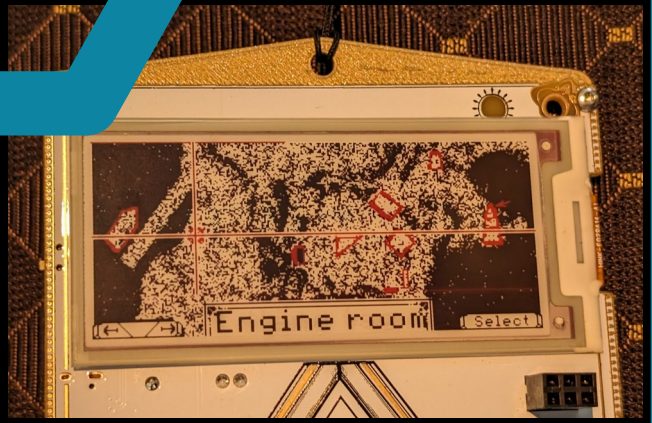




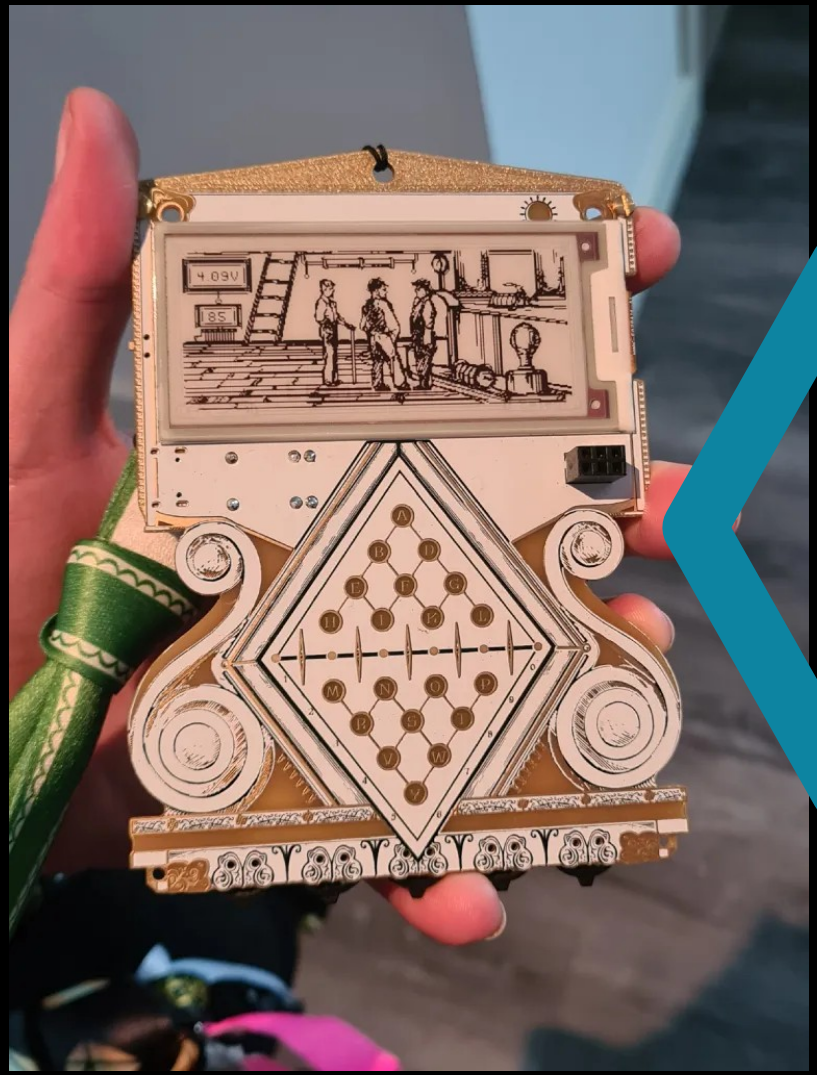
- RISC-V

2024

- 3 color e-ink
- Cooke and Wheatstone telegraph

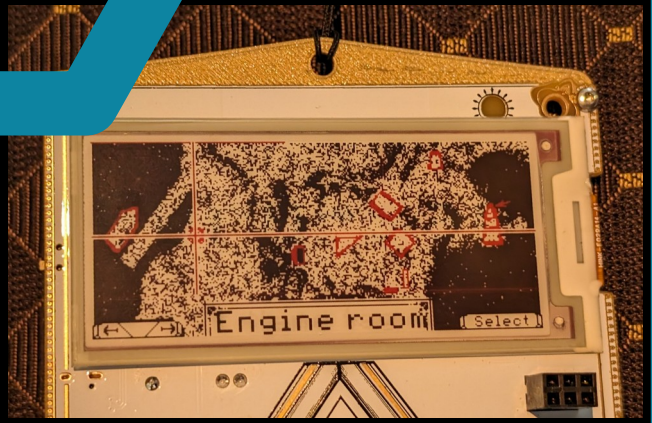


HackerHotel



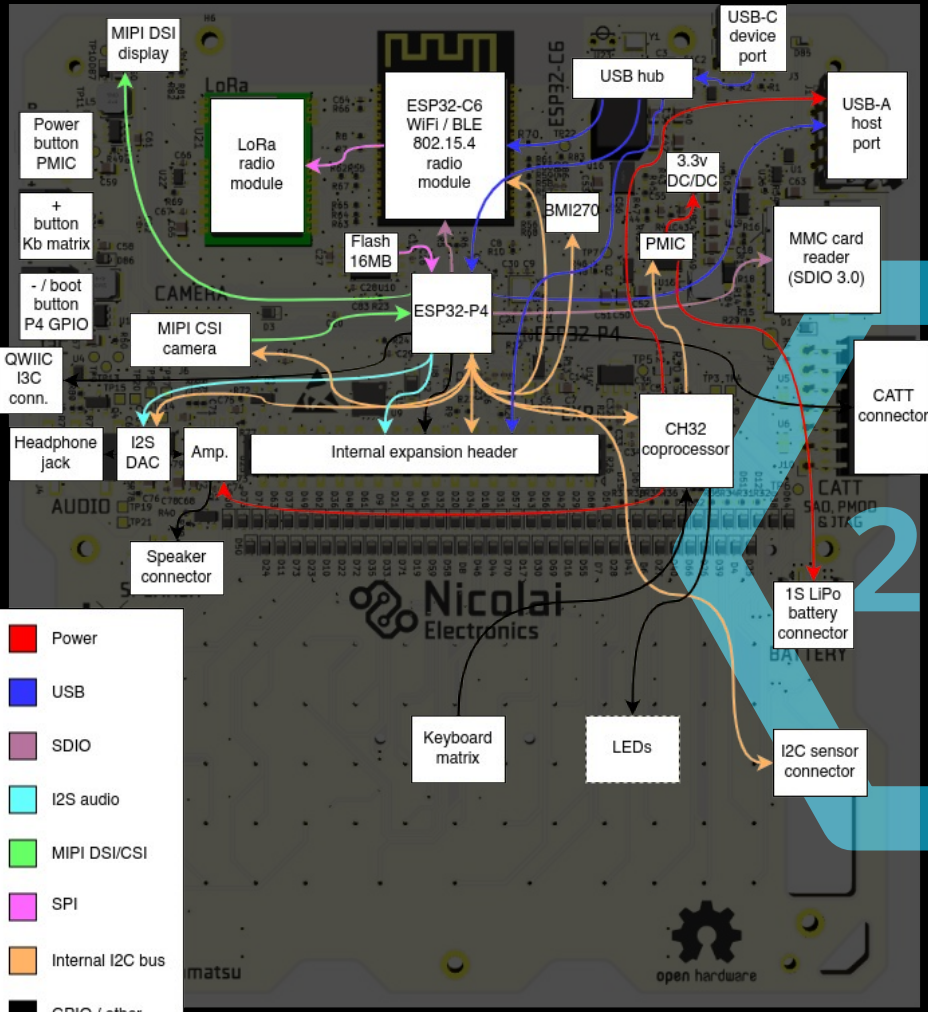
- Original adventure game

2024

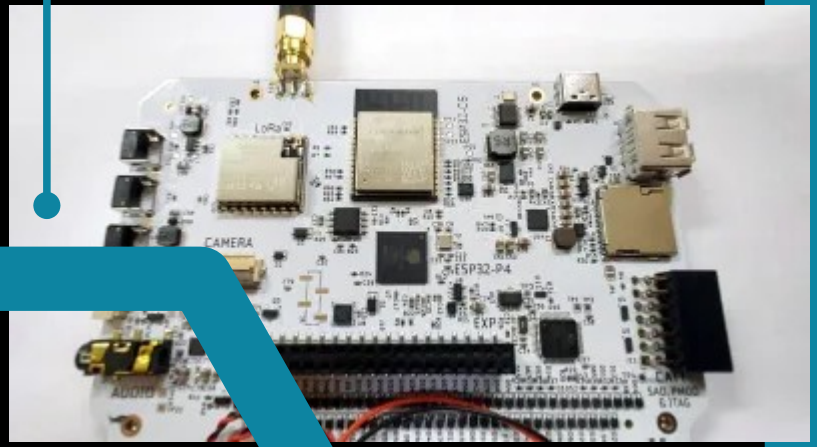


HackerHotel

Tanmatsu/Konsool



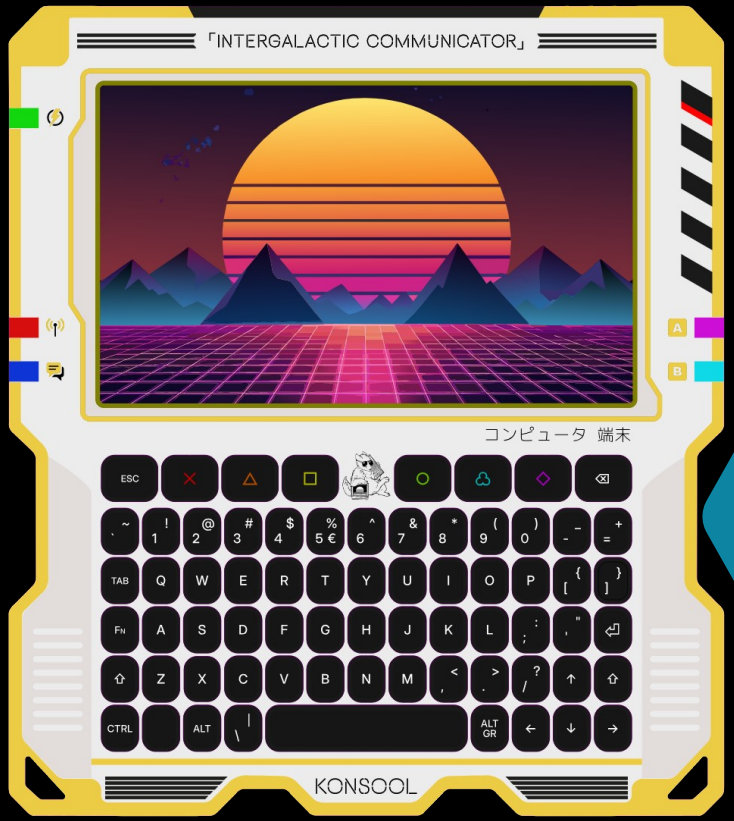
2024





https://docs.tanmatsu.cloud/

Konsool/Tanmatsu



- ESP32-P4
- ESP32-C6

2025



- LoRa
- CATT

https://badge.team/docs/badges/konsool/

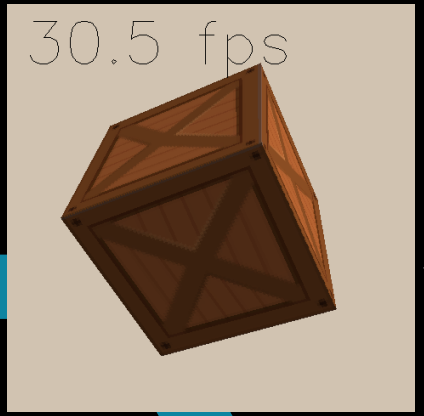
Konsool/Tanmatsu

2025

DaanDobber



Rene Schickbauer



Rene Schickbauer

Konsool/Tanmatsu

2025



KeleXBrimbor

- Official licensed C64 version



2025



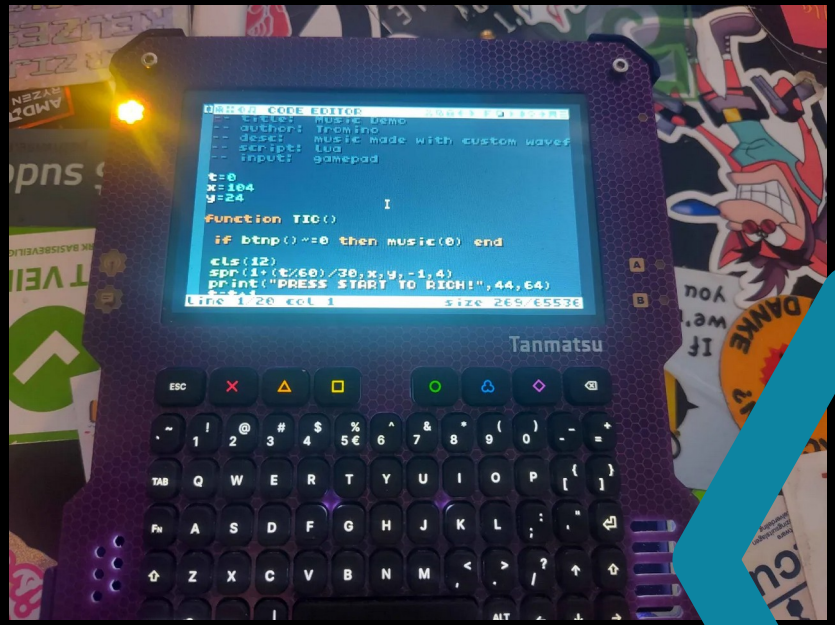
Ranzbak

de FEEST

https://media.bornhack.dk/files/4b2f1bf6-e481-4d11-9b9f-61ccfdd8917a/

Tanmatsu

Konsool/Tanmatsu



- Released yesterday ;-)

2025

https://github.com/annejan/TIC-80/tree/main/src/system/tanmatsu

Anus /
Anne Jan Brouwer

de FEEST

Badge.team

- Development and preservation of cultural expressions wrt PCB-design and embeded software mostly in hacker and maker scene.

2025



Foundation

Stichting Badge.Team

De ontwikkeling en het behoud van culturele uitingen op het gebied van PCB-ontwerp en embedded software te bevorderen, met name binnen de snelgroeiende hacker- en maker- scene

KVK-nummer: 97292931

Stichting

Rechtspersoon



- Sweatshops
- Firmware

~~2024~~

2025



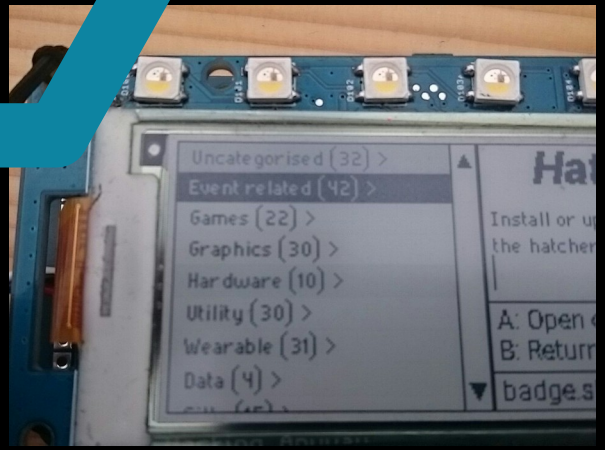
https://github.com/badgeteam/bornhack2024-firmware

BornHack

- BornHack 2025
  - Meshtastic firmware
  - Aftermarket MeshCore fw



2025



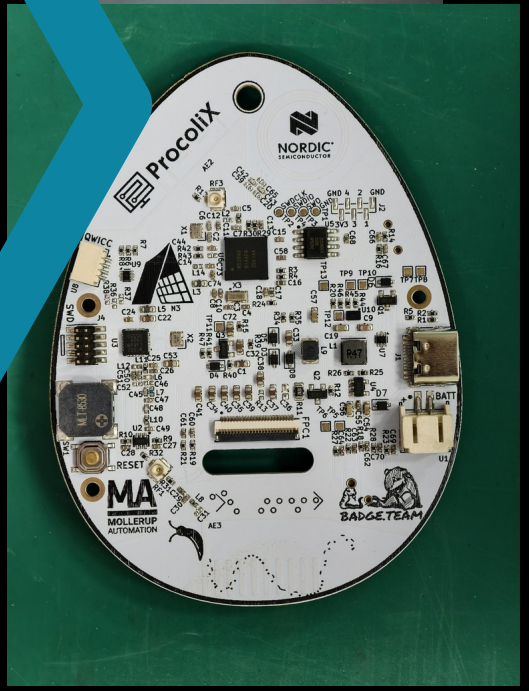
- Brainstorm for ‘26
  - Tamagotchi or DECT

BornHack

- BornHack 2026
  - Product not just badge
  - Tamagotchi
  - Minigames
  - Clock
  - Calendar

2026



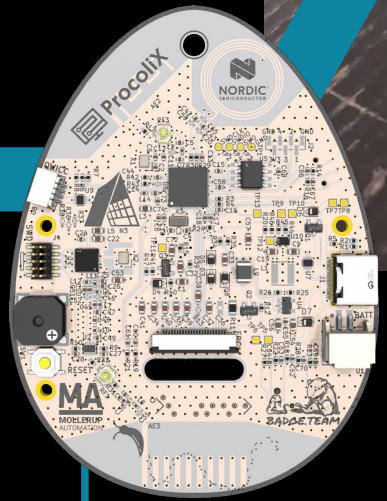


- Android app
  - Cryptosigned powerups

BornHack



2026





BornHack

BornHack



2026



BornHack

2026







- BornHack 2026
  - Nordic nRF52840
    - 1 MB Flash, 256 KB RAM
    - BLE, NFC etc
  - Semtech SX1262
    - LoRa
  - SSD1675A/B
    - 3 colour e-ink

CircuitPython

2026

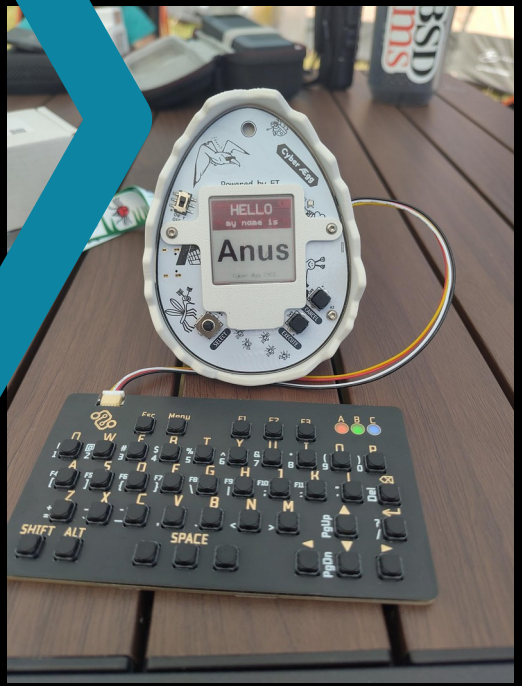


BornHack

BornHack

2026







Today

BornHack 2026

- More software

2026 EVOKE

- HackerHotel ‘27
  - In R&D phase

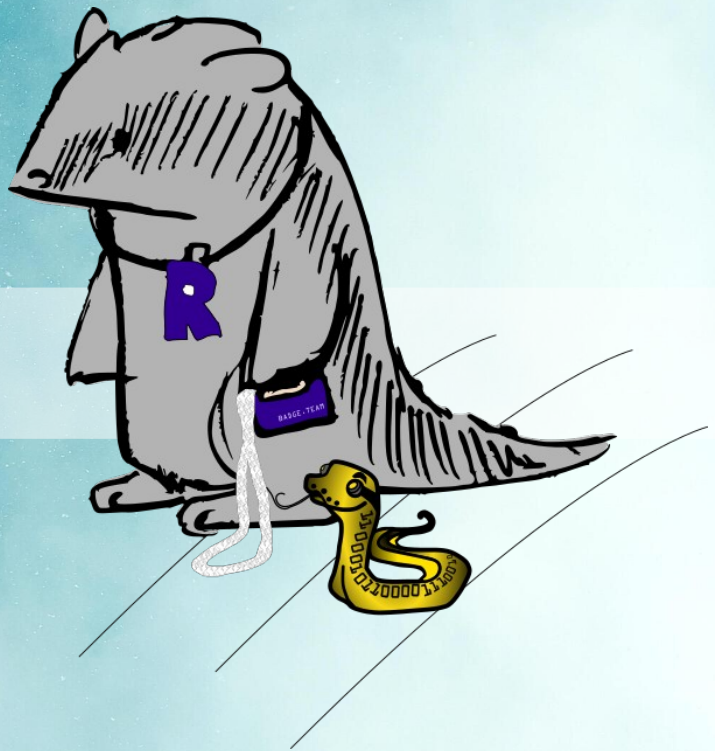
What's next

- New badges!
- New platforms?
- Your new ~~fantasy~~ console?

BADGE.TEAM

Badge.Team 10 yrs

Any questions?



Badge.Team 10 yrs

March 28, 2017

On to the next adventures

