



Arthaud Guillaume

Software Development and Electronics Engineer

Passionate about electronics and computer science, I strengthened my developer background with certified training in electronics. With more than 5 years of experience in software development and electronics, I design and develop solutions combining embedded software and electronic systems.

Projects

Volunteer for the 2025 Occitanie Junior Robotics Cup

Mar. 2025 - Mar. 2025



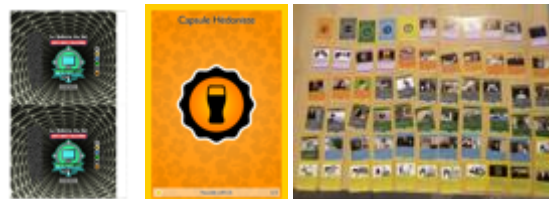
Setup and teardown of the equipment planned to host participants.
Support provided to competitors in case of electronic, mechanical, or algorithmic issues.

Software for Trading Card Game Booster Packs

Nov. 2024 - Dec. 2024



Creation of software generating trading and collectible cards.
Description of the different card types and features in an Excel file.
Automatic generation of SVG files integrated into the cards.
Generation of print-ready technical files for the printing company.



Python Markdown Git Inkscape Photoshop

Box of Psy Mini-Project

Dec. 2024 - Dec. 2024



Enclosure equipped with a button and a speaker.

The device plays a random sound chosen from a sound library stored on an SD card.

Project completed in one day for an event.

ESP32 microcontroller, class-D amplifier, and off-the-shelf battery charger.

Design made in SolidWorks and 3D printed.

Arduino C SolidWorks Impression 3D Audacity

3D-Printed Trophies

Nov. 2024 - Dec. 2024



Commissioned a 3D sculpt from an independent artist.

Designed a base and text plates in SolidWorks.

3D printed the model and adapted it to several sizes for a competition.

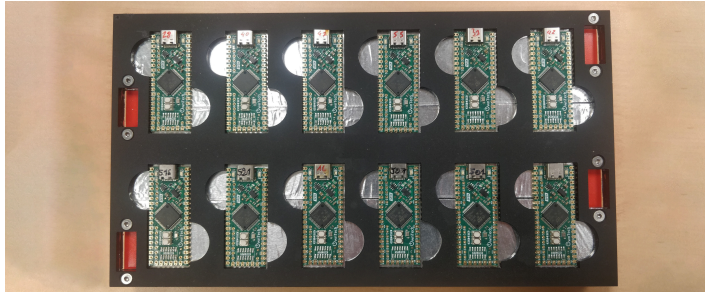
Painted the trophies and assembled the different parts.



SolidWorks Inkscape

Organizers for Microcontroller and Power Boards at OwnTech

Jul. 2024 - Jul. 2024



Design and manufacturing of stackable organizers for microcontroller boards and power boards.

The storage trays were designed to hold the boards between the different production steps before individual packaging.



SolidWorks Inkscape Découpe laser Co2 Impression 3D

Internal wiki at OwnTech

Jun. 2024 - Aug. 2024



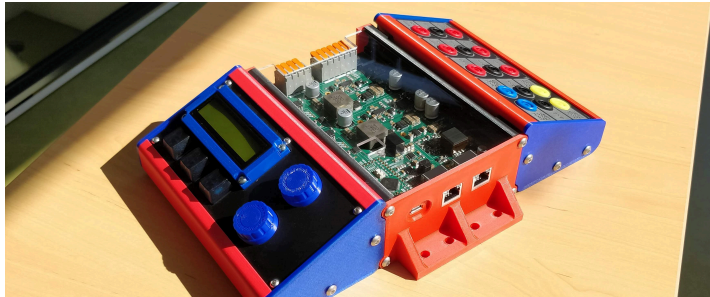
Deployment and maintenance of an internal MkDocs wiki to document and centralize all projects of the OwnTech startup, which designs open-source power boards.



Markdown Python Git Inkscape

Prototype of a Modular Educational System at OwnTech

May. 2024 - Aug. 2024



Prototyping of an educational platform compatible with OwnTech power converters.

Design of several modules connected to a main enclosure.

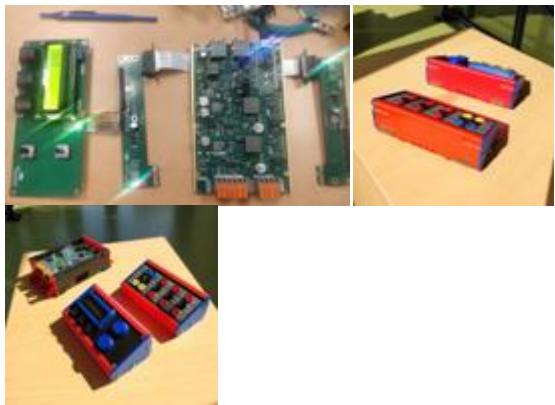
Module communication and identification through an I2C bus.

System equipped with signal protections for student use (MOS control PWM, voltage and current measurement).

Creation of a human-machine interface.

Enclosure and module design in SolidWorks, 3D printing, and CO2 laser cutting.

Writing extensive project documentation (memory map, Zephyr drivers, architecture).



C C++ Markdown Devicetree Zephyr OS Git

SolidWorks Impression 3D Découpe laser Co2

Volunteer for the 2024 Occitanie Junior Robotics Cup

Apr. 2024 - Apr. 2024



Setup and teardown of the equipment planned to host participants.

Support provided to competitors in case of electronic, mechanical, or algorithmic issues.



2024 Faire Festival Badge

Mini-Project

May. 2024 - Jun. 2024



Mini-project carried out as part of the 2024 Faire Festival, a makers cultural event in Toulouse.

Development of graphic and typographic animations on an OLED screen.

Raspberry Pi Pico and off-the-shelf battery charger.

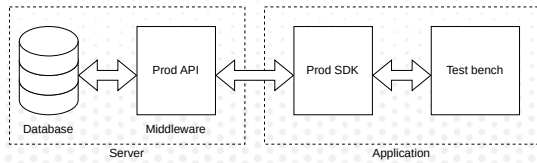
Mechanical parts designed in Inkscape and cut from acrylic with a CO2 laser.



C Inkscape Découpe laser Co2

Production API and SDK at OwnTech

Apr. 2024 - Aug. 2025



Prod API & Prod SDK

Creation of an API to store and centralize test reports.

The API generates unique serial numbers for the boards.

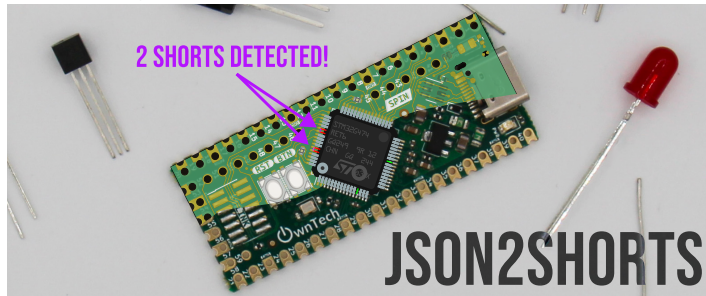
Parallel development of a Python SDK to make the API easier to use.

Writing extensive project documentation with many examples.

Markdown JS Python Node.js Open CV Git

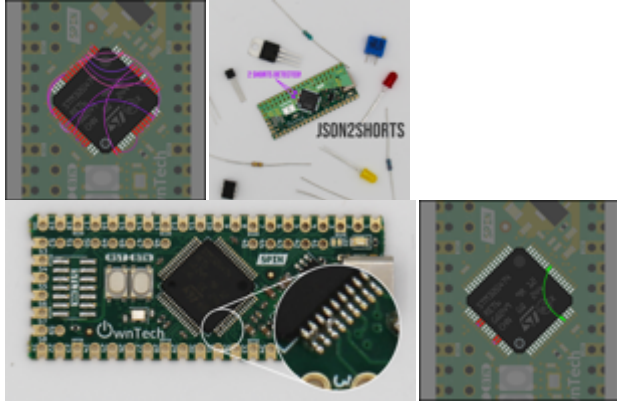
JSON2SHORTS at OwnTech

Mar. 2024 - Aug. 2024



Development of software for electronic board rework.

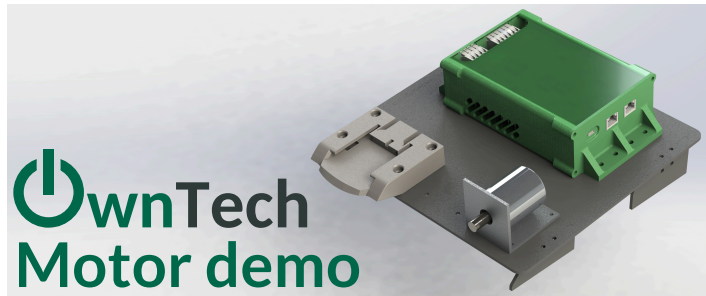
The software analyzes microcontroller board test reports and highlights potential short circuits to fix.



Python XML Git Inkscape

Brushless Motor Demo at OwnTech

Jul. 2023 - Jul. 2023



Design and preparation of an educational demo for a brushless motor controlled by an inverter board. Presentation of the project to the public. Design in SolidWorks, 3D printing, and CO2 laser-cut PMMA (Plexiglas).



SolidWorks Impression 3D Découpe laser Co2

Electric Bicycle Wheel Demo at OwnTech

Oct. 2023 - Oct. 2023



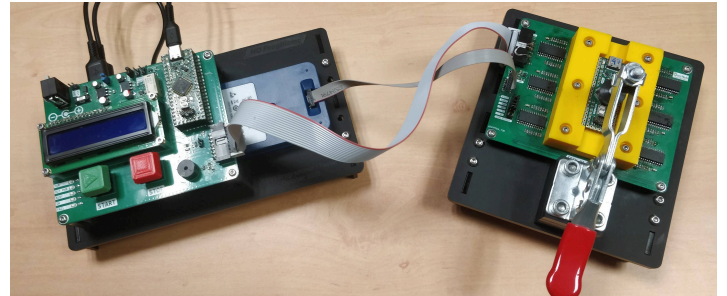
Design and preparation for trade shows of an interactive electric bicycle wheel demo controlled by an inverter board. Presentation of the project to the public. Design in SolidWorks, 3D printing, and CO2 laser-cut wood.



SolidWorks Impression 3D Découpe laser Co2

Test bench for development platform at OwnTech

Jul. 2023 - Feb. 2024



Creation of a tester and programmer for development boards for the OwnTech startup.

PCB design, routing, and assembly across the whole project.

Definition and documentation of a serial port communication protocol.

Definition of the test campaign strategy.

Identification of potential short circuits and measurement of current consumption.

Measurement of the voltage generated by the board LDO.

Programming via ST-LINK, bootloader upload, and verification.

Mechanical design in SolidWorks, 3D printing, and CO2 laser cutting of PMMA (Plexiglas).

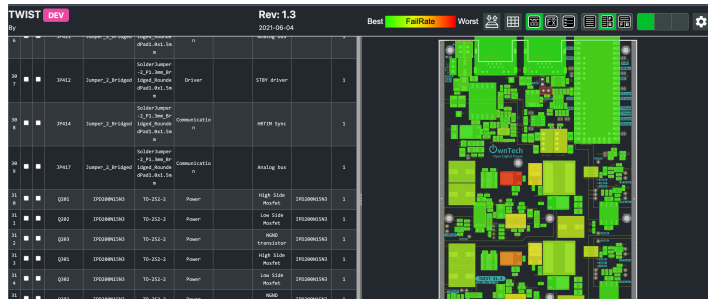
Detailed project documentation.



C C++ Python Shell Markdown Devicetree
Zephyr OS Git SolidWorks Impression 3D Découpe laser Co2

Web Application for Board Repair at OwnTech

Jun. 2023 - Jul. 2023



Modified the KiCad InteractiveBOM plugin into a web platform gathering all boards intended for users of the OwnTech startup.
Set up a QR code system redirecting to the application to show the details of the components on the purchased board as well as their estimated lifespan.
Made test reports and converter calibration data available.

JS HTML CSS Node.js Git

Electric Skateboard prototype at OwnTech

Mini-Project

Jun. 2023 - Jul. 2023



3D mechanical part design in SolidWorks.
Creation of a Bluetooth remote control based on an existing project.



C C++ Zephyr OS Git SolidWorks Impression 3D

Volunteer for the 2023 Occitanie Junior Robotics Cup

Mar. 2023 - Apr. 2023

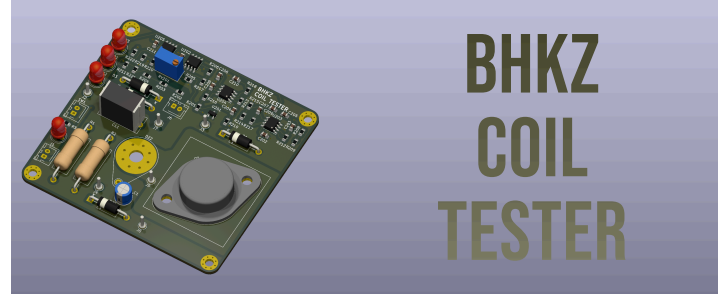


Setup and teardown of the equipment planned to host participants.
Support provided to competitors in case of electronic, mechanical, or algorithmic issues.



Transformer Tester for Porsche 911

Mar. 2023 - Mar. 2023



Built a circuit designed to verify the proper operation of transformers in a self-oscillating automotive flyback.
Measurement of the produced voltage as well as the oscillation frequency.

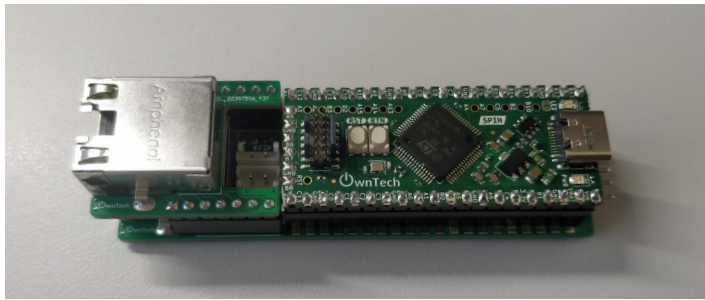


Git KiCad

Communication Shield for Microcontroller Board at

OwnTech

Mar. 2023 - Apr. 2023



Creation of a PCB intended to host a development board.

Assembly and tuning of the circuit.

Writing basic project documentation.



C C++ Zephyr OS Git PinMaker

Power Rack for DC-DC Converter at OwnTech

Nov. 2022 - Dec. 2022



Mechanical integration of a heatsink on the power boards produced by the OwnTech startup.

Integration into a rack with special drawers for Eurocards.



SolidWorks

Test and Characterization Bench for Power Converters at

OwnTech

Mar. 2023 - Oct. 2023



Contributed to the creation of the test bench inspired by my code model and architecture from a previous project (Sesame board).

Improved tests (feeder).

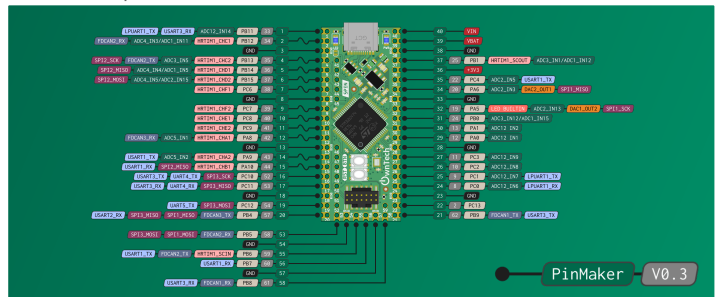
Added safety features.

Integrated a production SDK.

Python PyVisa Git

PinMaker at OwnTech

Oct. 2022 - Apr. 2024



Free and open-source software generating pinouts from JSON files.

Project carried out to enrich OwnTech documentation during the Supplyframe 2022 challenge on HackADay.io.

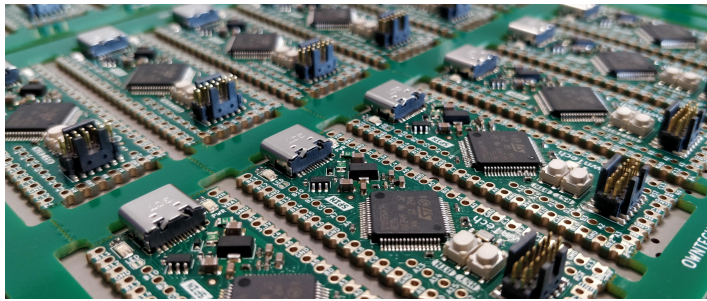
Implementation of an SVG file generation feature.

Writing basic documentation.

Python Markdown JSON Git Inkscape

STM32 Microcontroller Development Board at OwnTech

Aug. 2022 - Feb. 2024



Contributed to the design of a development board equipped with an STM32G4 microcontroller.

Improved routing and ground planes on the board.

Reworked the silkscreen to improve readability.

Refined the design for mass production.

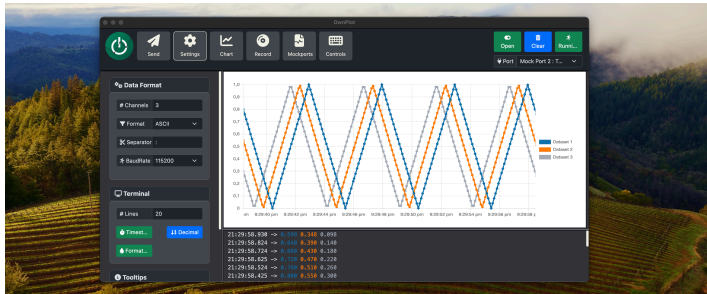
Reworked the initial batches under a microscope.



Git KiCad

OwnPlot, a serial Plotter at OwnTech

Jul. 2022 - Jul. 2023



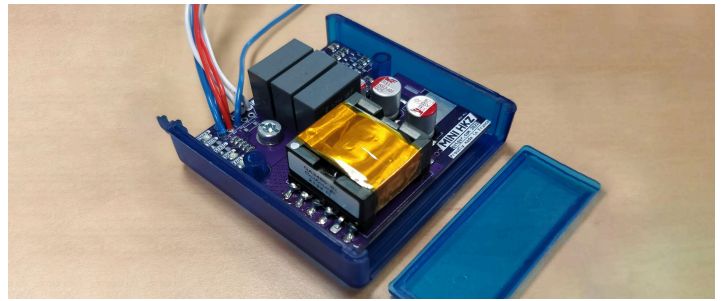
Development of a native cross-platform Electron.js serial plotter, free and open-source.

Writing basic documentation.

JS EJS HTML CSS Node.js Electron.js Git

Porsche 911 mini HKZ

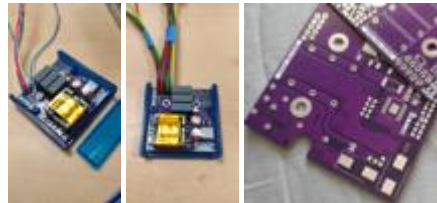
Aug. 2022 - Jul. 2022



Creation of a transistORIZED ignition unit.

Generates 450V and stores it in capacitors.

Prototype design and assembly.



Git KiCad

Commemorative Electronic Badge

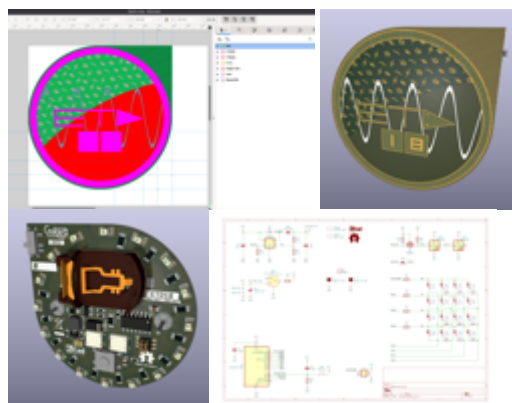
Jun. 2022 - Feb. 2023



Created a PCB badge for my fellow students in the electronics testing and development training course.

Designed with Inkscape and imported into KiCad.

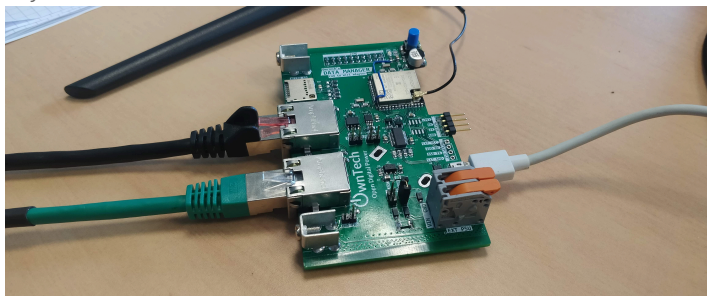
Mounted the LEDs on the back of the PCB to use the FR4 as a light diffuser. Based on an ATtiny 424 microcontroller (UDPI programming and debugging port).



C Git Inkscape KiCad

SHOUT telemetry card at OwnTech

May. 2022 - Oct. 2022



Eurocard-format PCB design.

CAN communication via the ThingSet protocol (single packets and ISO-TP).

Centralization of data from several power converters, with external Wi-Fi communication.

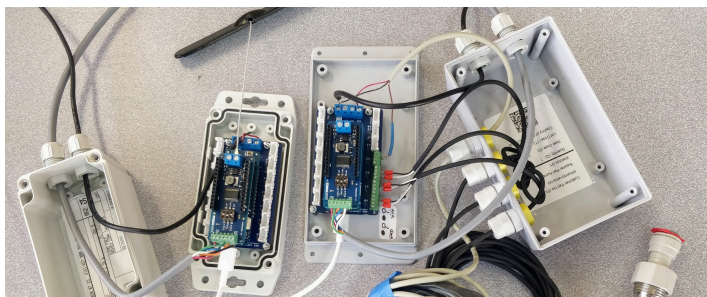
Writing basic documentation.



● C ● C++ ● Zephyr OS ● Git ● KiCad

BEENETIC's telemetry system and binary protocol at BEENETIC

Jan. 2022 - Mar. 2022



Development of a telemetry system measuring the temperature of beer tanks for a well-known bar in Toulouse.

Board-to-board communication (measurement and telemetry) over RS485.

Off-site GSM server communication.

Creation of a binary protocol and writing extensive documentation.

● C ● C++ ● Arduino ● Git

Volunteer for the 2022 Occitanie Junior Robotics Cup

May. 2022 - May. 2022



Setup and teardown of the equipment planned to host participants.

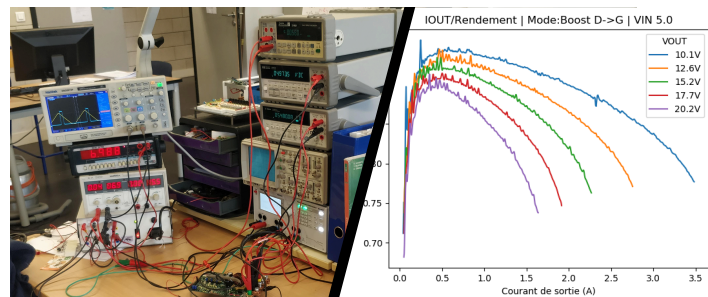
Support provided to competitors in case of electronic, mechanical, or algorithmic issues.

Management of participant pools.



Test bench for DC-DC card at AFPA

Dec. 2021 - Dec. 2021



Characterization of an analog DC-DC converter (Sesame board).

Efficiency curve plotting automated with PyVisa.

Recording and editing of a short project video.



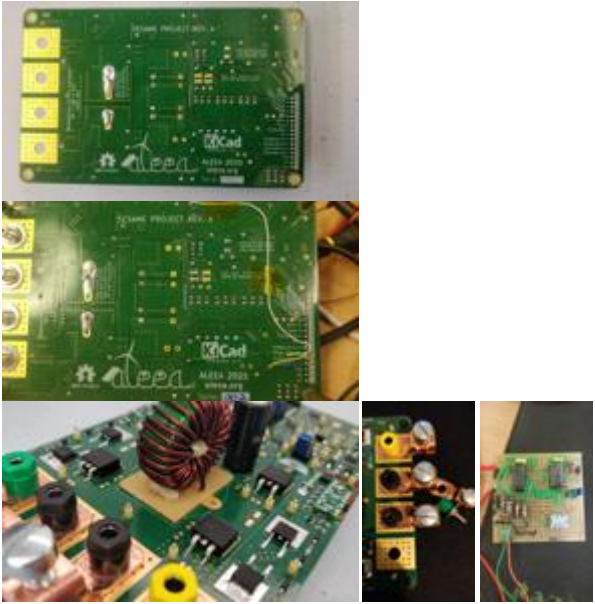
● Python ● PyVisa ● Git

Analogic DC-DC converter at AFPA

Aug. 2021 - Nov. 2021



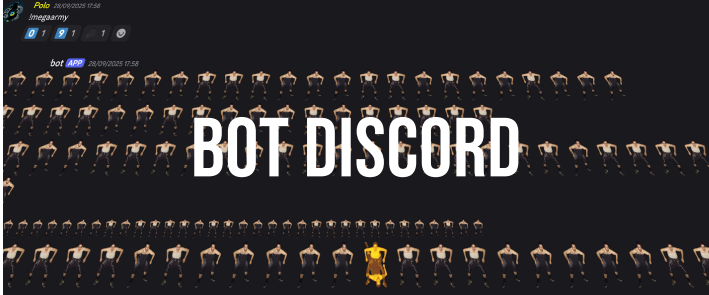
PCB design in collaboration with other students.
 Study and tuning of the different systems (PID, chopper, voltage and current protection).
 Simulation of several systems in LTSpice.
 System prototyping on breadboards.
 Board wiring under the supervision of an IPC-certified instructor.



Git KiCad LT Spice

Community Discord Bot

Dec. 2020 - Oct. 2024



Development of a Discord bot using the service Python API.
 The application lets users participate in games in a text channel.
 Development of a scoring and leaderboard system.
 Used regularly by around thirty users since 2021.

Python JSON SQL Sequelize Photoshop

16x2 LCD Screen Emulator

Oct. 2020 - Oct. 2025



Creation of a PC-based LCD emulator designed to be compatible with the Arduino LiquidCrystal library.
Tool created to debug code intended for an Arduino platform without requiring access to the hardware.

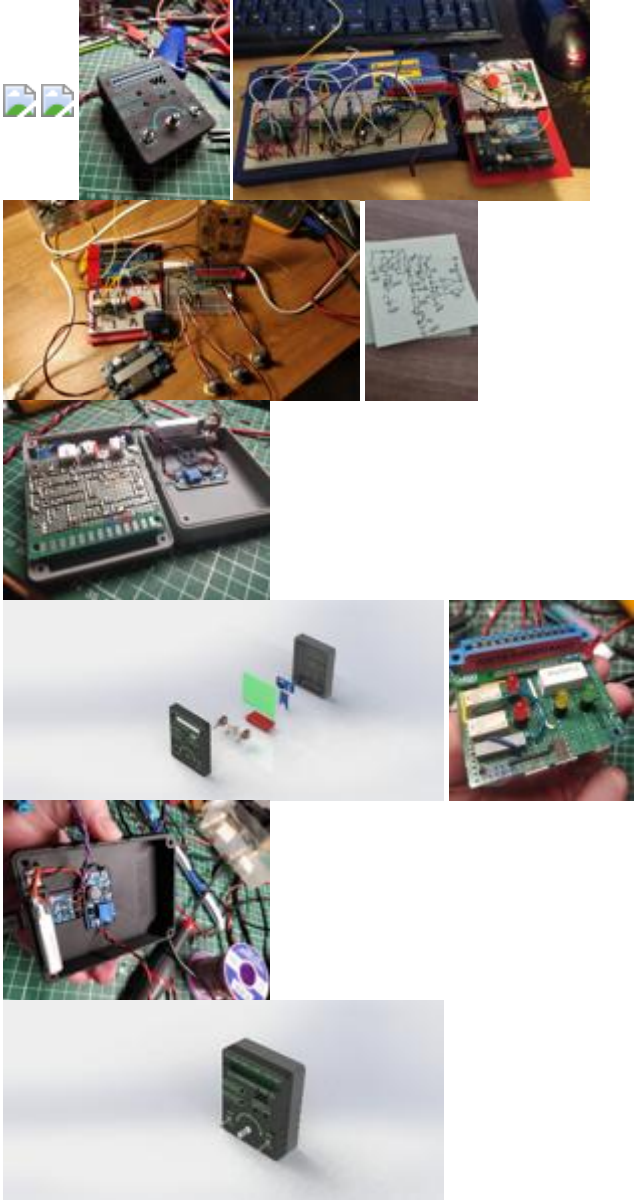
- C
- C++
- Arduino
- SFML
- Git

UNT/Porsche heat cards tester

Aug. 2020 - Feb. 2025



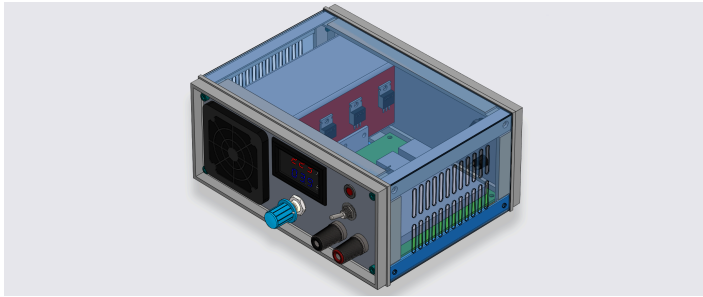
Development of an analog test tool for Porsche 911 heater boards (original boards and reproductions).
Simulations carried out with LTSpice.



- C
- C++
- Arduino
- Proteus
- KiCad
- LT Spice

DC load #1

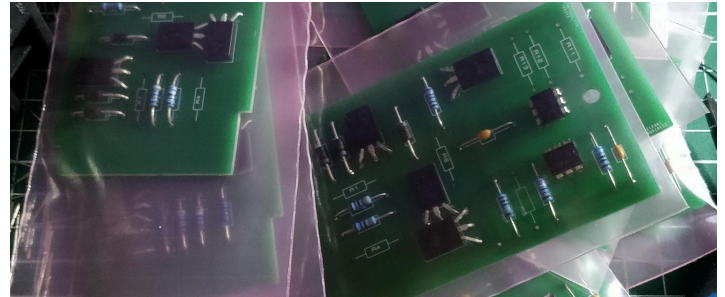
Apr. 2019 - Today



Design of a laboratory active load based on an existing enclosure.
Can continuously dissipate 300W.
CAD in SolidWorks.

Porsche 911 Heating Cards Reproduction

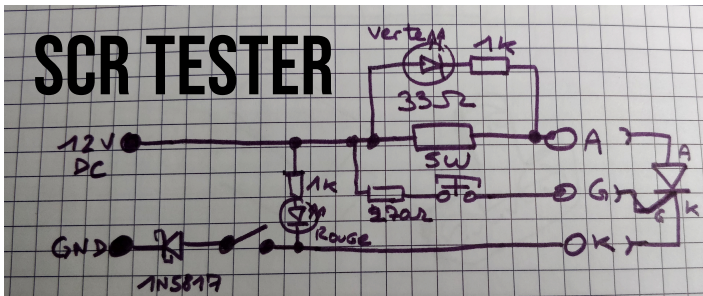
Feb. 2019 - Mar. 2019



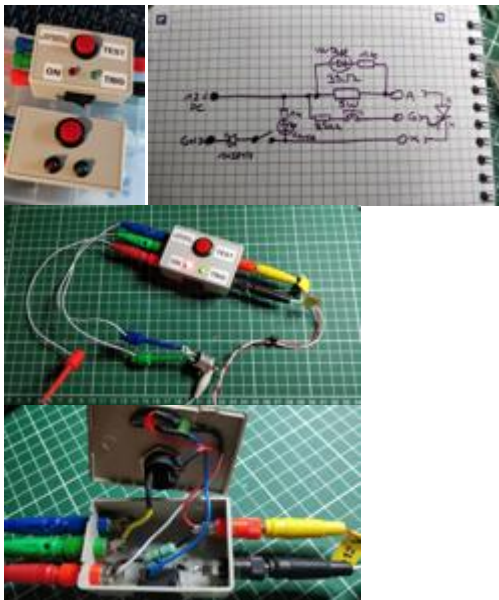
Heater boards for Porsche 911.
Reverse engineering of the original product by removing all components,
scanning it, and redrawing all traces in Proteus.
Manufacturing of a batch of 10 units.

Basic Thyristor Tester

Jan. 2019 - Jan. 2019

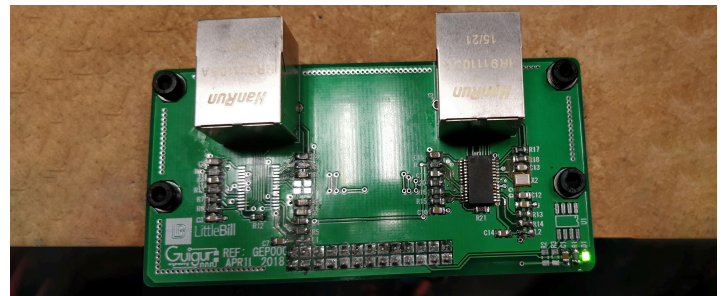


Small basic tester that powers the thyristor gate using a button.
If current flows and the thyristor remains conducting after releasing the button,
the thyristor is probably good.
It is not a curve tracer or a high-tech tester, but it allows quick failure checks.



Self-employment

Oct. 2017 - Mar. 2018



Created a self-employed status and prepared quotes.
Designed PCBs for a cash register terminal.



Proteus

WISIWIG electronic Configurator at SpiceTronic

Jun. 2017 - May. 2018

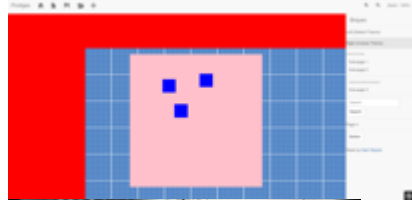


Studied the market and competitors.

Developed a proof of concept to demonstrate feasibility.

Integrated technology blocks designed in Altium.

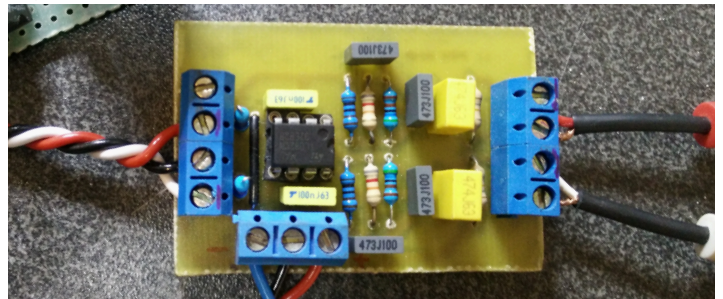
Production and testing of electronic prototypes.



● PHP ● HTML ● CSS ● SQL ● JSON ● Symfony 3
■ Three.js ■ jQuery Git PHPStorm

RIAA Amplifier

May. 2017 - May. 2017



RIAA amplifier for turntables.

Open-source design made in Proteus.

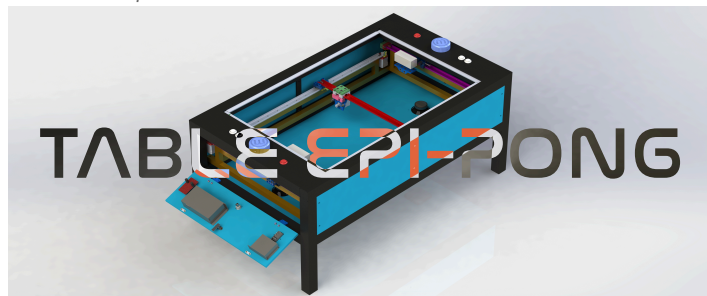
Prototype etched with ferric chloride.



Proteus

Epi Pong Table

Jan. 2017 - Sep. 2018



Handmade metal coffee table.

This table contains linear axes to move paddles and a ball.

Inspired by the arcade game, this table lets you play Pong with real moving parts.



C C++ Arduino Git SolidWorks Impression 3D

guigur.com V3

Aug. 2016 - Sep. 2019



New version of the website.

Creation of several online tools (URL minimizer).

Archive of older projects.

User area.

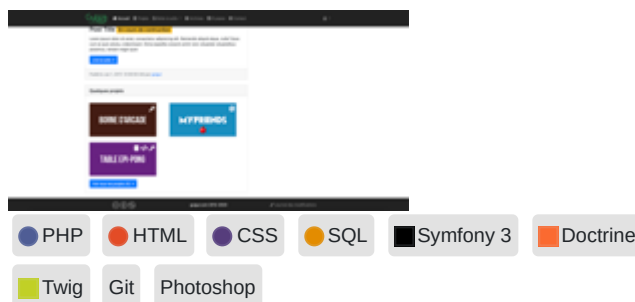
Admin panel.

Action log in the database.

Contact area.

Testing space for other Symfony projects.

Automatic dark mode based on operating system preferences.



BHKZ Reproduction for Porsche 911

Jun. 2016 - Today



Reproduction of ignition units for Porsche 911.

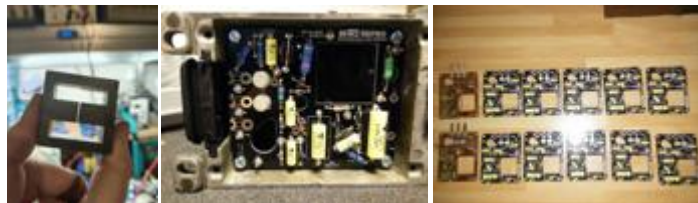
Sheet metal and brass parts cut by a professional.

PCB manufacturing.

Assembly tuning.

Transformer winding.

Reproduction of plastic parts in polyurethane using a mold.



Proteus

KiCad

LT Spice

SolidWorks

Découpe laser

Impression 3D

Hardware at Ecoticket

Dec. 2015 - Oct. 2016



ecoticket

Student project.

Cash register terminal designed to retrieve receipts through NFC or Bluetooth.

Embedded Linux system on a Raspberry Pi Zero with a BLE + Wi-Fi module.

Interface board with NFC antenna and custom buttons.

Supports printers over Ethernet, serial port, and USB.



Python

C

Devicetree

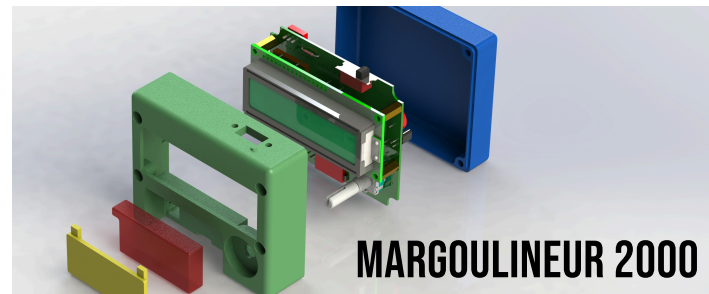
NFC

Bluetooth

Proteus

Margoulineur2000 & Margoulduino

Oct. 2015 - Jun. 2023



NFC reading and writing devices.

Useful for automating tasks on NFC media.

Also useful for security vulnerability research.

Fully open-source.

The platform also has firmware for composing music and sharing it on NFC cards.



C C++ Arduino NFC Proteus SolidWorks

Impression 3D

Ynovy/TechFrench

Mar. 2015 - Aug. 2015



Created a website for a startup with other interns.

Learned Symfony 2.

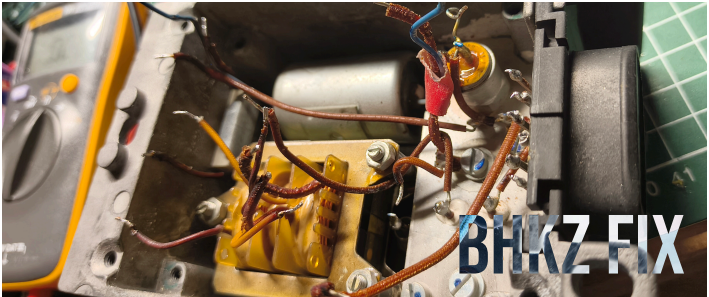
Created interfaces and an admin panel.

Created controllers and services.

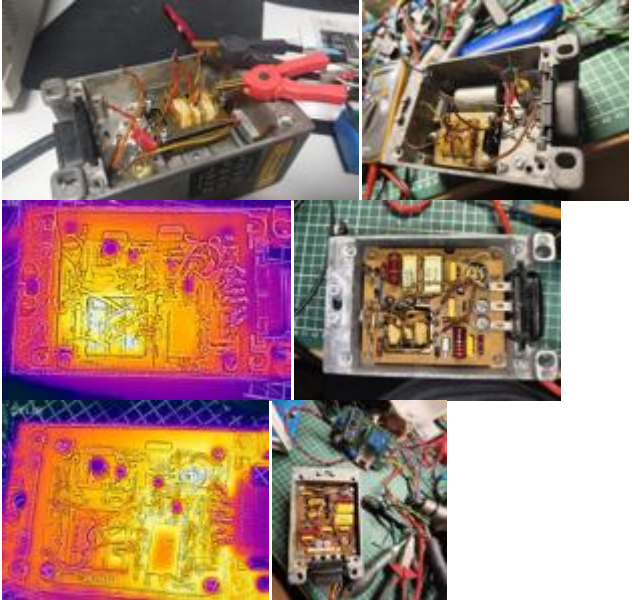


Repair of BHKZ Units for Porsche 911

Jun. 2014 - Today



Repair of multiple ignition units for Porsche 911.
3-pin and 6-pin models.
Simple faults (burned trace) as well as complex faults (intermittent failures).



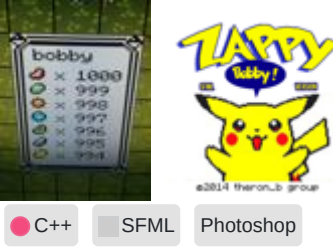
Oscilloscope LT Spice

Zappy

Jun. 2014 - Jul. 2014



Second-year group project.
AIs evolving on a map while feeding on resources.
C++ graphical interface using the SFML library.



Arcade

Apr. 2014 - Sep. 2014



Creation of a multi-game arcade cabinet.

Design based on the "Joust" arcade cabinet.

Wood cutting with a jigsaw.

Disassembly and integration of a CRT television.

Software configuration on a dedicated PC.



myfriends2.fr

Jul. 2013 - May. 2014



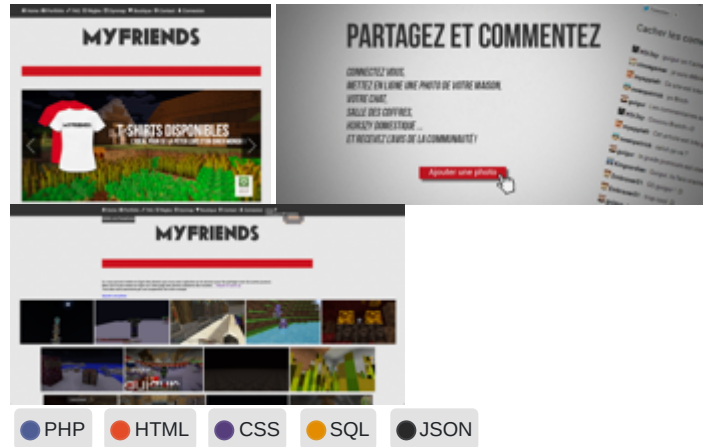
Creation of a community website for a game server.

Integration with the game server.

Community area for server members.

Blogging section with comments.

Questions and answers section.



guigur.com V2

Apr. 2013 - Jul. 2015



First dynamic personal website with PHP and a database.

Introduction to PHP and SQL.

Basic blogging system.



● PHP ● HTML ● CSS ● SQL

guigur.com V1

Dec. 2012 - Jan. 2013



First personal website.

Introduction to HTML and CSS.



● HTML ● CSS