

A full-page background image of a person surfing on a wave. The surfer is in a crouched position, riding a wave that is breaking to their right. The surfboard has a black and white checkered pattern. The water is a deep blue, and the sky is a lighter blue with some white clouds. In the background, there are some hills and palm trees. The overall mood is energetic and adventurous.

Let's catch
some waves
together!

Psicontrol

Internship and thesis
opportunities

2026-2027

Are you ready for your next wave?

Why is an internship or a company-hosted thesis valuable for you?

Firstly, an internship or thesis needs to be worthwhile for the student, i.e. you! Everyone deserves the opportunity to participate in a project that is both captivating and educational, in order to receive a positive, hands-on work experience.

This will help you to obtain a better insight into your chosen field of study and the possible career paths that come with it. You will not only be able to gain new skills and improve your existing skills, but you will also get to interact with people who practice this profession on a daily basis. They should be able to answer all of your questions and will be pleased to help you further discover your strengths and possible new interests.



Why consider doing an internship or thesis at Psicontrol?

At Psicontrol, we believe that we can help you to catch the next wave! We will assist you in terms of defining the subject of your thesis by talking about your interests and aligning them with our expertise.

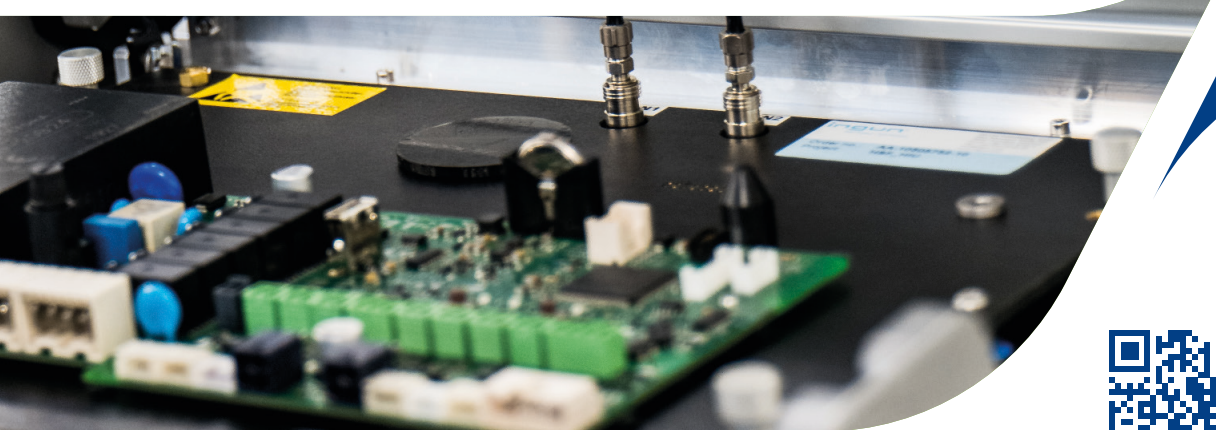
Hence, we will be able to offer you a project that will not only suit you, but also one that you will be passionate about.

In addition, interns or thesis students are welcomed as member of our team and are given tasks that closely relate to our ongoing projects. A personal coach will guide you along every step of the journey with a view to both realizing your goals and optimizing your experience.

What does Psicontrol do?

Psicontrol, part of Picanol Group (a business unit of Tessenderlo Group), takes care of the design, development and production of custom-made electronics, human-machine interfaces and touch devices. To facilitate this, we have an R&D and prototyping department in Ieper, Belgium, and procurement, production and service activities at our branches in Belgium and Romania.

Our R&D department consists of several teams that undertake tasks such as analog and digital electronics design, writing embedded and application software, product design, environmental testing and development of reliable production tests with the goal of increasing quality.

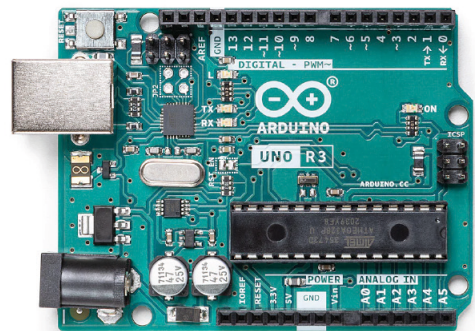


You can find more information about Psicontrol by visiting www.psicontrol.com.

We'd love to have you on our team!

To show our appreciation for your invested time and effort in the project, we will not let you leave empty-handed.

We hope you will enjoy a starting kit Arduino Uno as a parting gift to further explore your newly acquired skills!



Psicontrol research fields

We have listed a number of topics and skills related to the Psicontrol activities. You can review these themes to ascertain whether they align with your interests and, if so, we invite you to come and have a chat with us! Together we can define your ideal internship or thesis subject.

Human-machine interfaces

- Capacitive touch interface
- Display integration
- Sensors

- Graphical user interfaces
- Applications in Qt / C++ / C#
- TouchGFX / Embedded Wizard

- Mechanical product design
- 3D-printing & prototyping
- Materials engineering

Wireless connectivity

- RF design
- Antenna circuits

- Internet of Things
- Bluetooth & Wi-Fi
- TCP/IP stacks
- Mesh networking

Design & Compliance

- Schematic design
- PCB layout
- Circuits verification

- EMC
- Climate tests
- Vibration tests
- Safety

Power

Consumption monitoring
Low power analog design
Input-output control
Battery

Applications

Web integration
GUI
Database management

.NET / C#
Angular Js
SQL
Qt

FPGA

State-machines / VHDL
Test bench / Real-time
ModelSim / Tcl

Motor Control

Control of stepper motors
Analog driver design

Feedback system
Control technics

Linux

A9-processor platform
Multicore
High performance applications

Networking capabilities
Yocto / Python
Raspberry Pi / BeagleBone

Proposed subjects

The following section contains a few examples of internships or thesis subjects you can undertake at Psicontrol. If you are interested, let us know!

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To make it easier to navigate these subjects, we've divided them into categories:



electronic
design



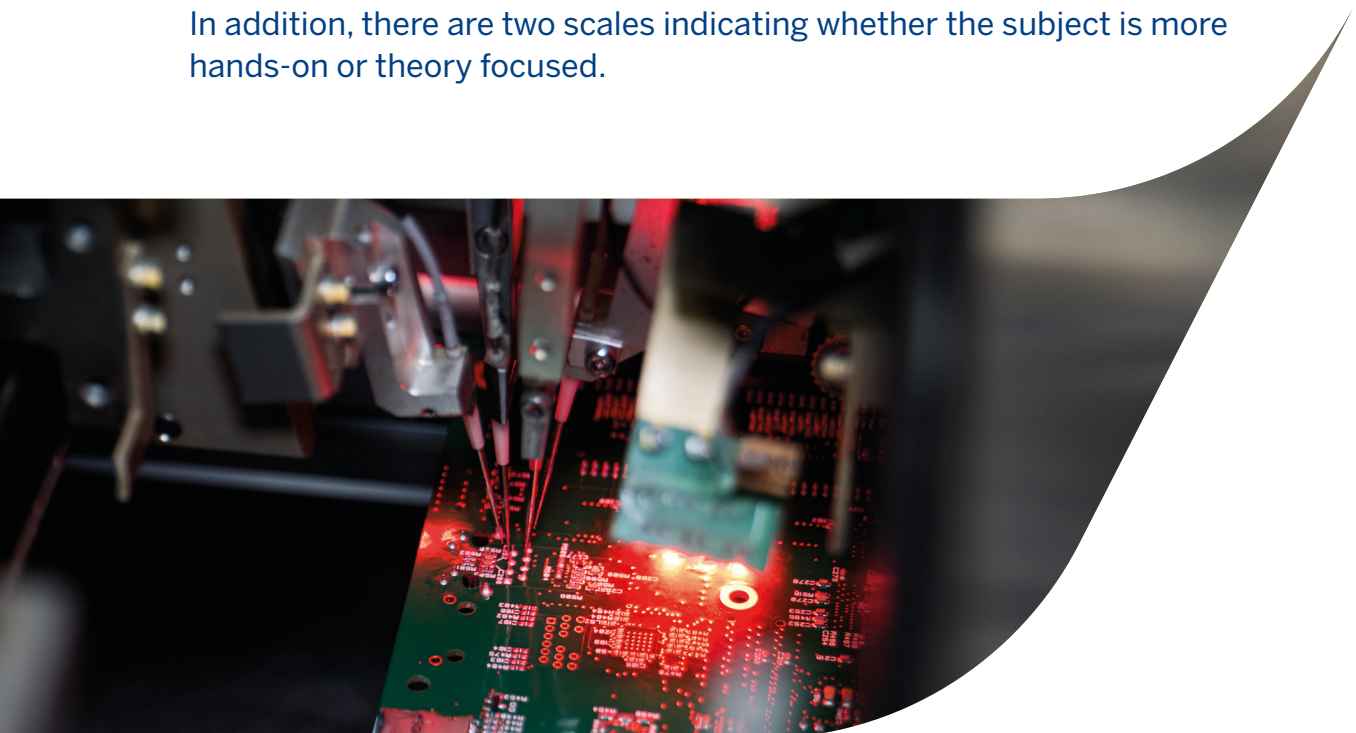
embedded software
design



electromechanical
design

You can find the corresponding icon(s) next to each subject.

In addition, there are two scales indicating whether the subject is more hands-on or theory focused.





Virtual device simulator for embedded systems

Keywords: Zephyr RTOS, embedded software, simulation, test automation.



Hands-on

Theory focused

Description

Embedded software development often requires extensive testing of features that depend on external hardware and communication interfaces. Running applications in a simulated environment accelerates development, enables automated regression testing, and allows software validation without requiring physical devices. The goal of this internship is to investigate and extend the simulation capabilities of Zephyr RTOS to create a generic virtual platform for embedded applications.

Your task

- Port an existing embedded platform and application to Zephyr RTOS.
- Evaluate and integrate Zephyr simulation technologies.
- Develop a generic framework for simulating peripherals such as CAN, UART, Modbus, GPIO, and displays.
- Create a web-based interface to monitor, configure, and interact with the virtual device.

Contact

For more information, please contact Tom Lierman:

✉ tom.lierman@psicontrol.com

Offline voice-controlled smart home assistant

Keywords: Edge AI, speech recognition, on-device inference, LLM, model optimization.



Hands-on



Theory focused



Description

Voice-controlled smart home systems are becoming increasingly intelligent thanks to advances in AI. However, many commercial solutions rely on cloud processing, raising privacy concerns due to the transmission of sensitive voice data. The goal of this internship is to develop a fully offline voice assistant for smart home control. An MCU-based satellite device will capture voice commands and perform wake-word detection, while a local server will handle speech recognition and intent understanding using AI models. The resulting intents will be used to control smart home devices such as a thermostat. The focus is on privacy, low latency, and seamless user interaction.

Your task

- Select and evaluate AI models for offline speech recognition and intent detection.
- Build and configure the AI software stack on a local server.
- Implement wake-word detection and audio transfer from the MCU satellite.
- Integrate smart home device control based on the detected user intents.

Contact

For more information, please contact Tom Lierman:

✉ tom.lierman@psicontrol.com



Cybersecurity vulnerability management

Keywords: cybersecurity, embedded software, automation.



Description

Hands-on



Theory focused



Modern embedded software products rely on a large number of third-party and open-source components. Identifying and managing security vulnerabilities in these components is becoming increasingly important.

During this internship, the vulnerability management process for embedded software products should be assessed and improved. The focus will be on analyzing detected vulnerabilities, improving the assessment and triage process, reducing false positives, and exploring opportunities to automate repetitive activities.

The ultimate goal is to help development teams focus on vulnerabilities that truly matter while minimizing manual effort.

Your task

- Analyze the current vulnerability management workflow.
- Investigate methods for assessing and prioritizing detected vulnerabilities based on their actual impact and relevance.
- Study common causes of false positive vulnerability findings and propose efficient ways to reduce them.
- Define and evaluate a practical triage process that supports consistent decision-making and documentation.
- Explore automation opportunities to reduce manual work for software developers and security engineers.

Contact

For more information, please contact Tom Lierman:

✉ tom.lierman@psicontrol.com

Feasibility study: porting an embedded Linux application to an MCU using Zephyr RTOS

Keywords: embedded Linux, Zephyr RTOS, proof of concept, software migration, resource optimization.



Description

Hands-on

Theory focused



Many embedded products today are based on Embedded Linux platforms that provide rich operating system services and significant computing resources. However, for cost-sensitive, low-power, or real-time applications, a microcontroller (MCU) running a lightweight RTOS such as Zephyr may be a more suitable solution.

The objective of this internship is to investigate the feasibility of migrating an existing Embedded Linux application to an MCU-based platform using Zephyr RTOS. The study should identify the technical challenges, limitations, required architectural changes, and potential benefits of such a migration. A proof-of-concept implementation will be developed to evaluate the practical effort, performance impact, and resource requirements.

Your task

- Analyze the architecture and software dependencies of an existing Embedded Linux application.
- Identify Linux-specific services, libraries, and interfaces that would need replacement or adaptation on an MCU platform.
- Study the capabilities and ecosystem of Zephyr RTOS.
- Define a migration strategy from Embedded Linux to Zephyr.
- Implement and validate a proof-of-concept on a suitable MCU platform.
- Evaluate memory usage, performance, maintainability, and development effort.
- Document findings, challenges, and recommendations regarding future product developments.

Contact

For more information, please contact Tom Lierman:

✉ tom.lierman@psicontrol.com



Universal display tester

Keywords: generic platform, display verification, LVDS, MIPI_DSI.

Description

Hands-on

Theory focused



Develop a scalable test platform that enables automatic testing of different display types using standardized test patterns. The platform should be easily expandable and provide support for a wide range of display technologies.

Your task

- Develop a video generation module capable of creating standardized test patterns and test scenarios.
- Design a video signal distribution system to drive multiple displays from a single video source.
- Develop modular interface adapters supporting different display protocols such as LVDS, MIPI-DSI, and eDP.
- Implement configurable power supply and display initialization circuits for a wide range of display types and controllers.
- Develop a user-friendly GUI for display configuration, test selection, and automated test execution.

Contact

For more information, please contact Lore Descheemaeker:

✉ lore.descheemaeker@psicontrol.com

Thermal characterization and lifetime prediction of intelligent power modules (IPMs)

Keywords: power electronics, IPM, SiC, GaN, thermal characterization, reliability, lifetime prediction.



Description

Hands-on



Theory focused



Intelligent Power Modules (IPMs) are increasingly used in modern power electronic systems because they combine power switches, gate drivers, and protection functions into a compact and efficient solution. While this simplifies system design, understanding the thermal behavior inside these modules remains challenging. Heat generated by one component can influence the temperature of neighboring components, affecting both performance and reliability.

Your task

- Study thermal behavior of SiC and GaN based IPMs.
- Investigate thermal interactions between power switches, gate drivers, and integrated temperature sensors.
- Develop and build a laboratory setup for thermal characterization.
- Perform measurements and identify thermal transfer functions within an IPM.
- Explore failure mechanisms and lifetime models of SiC and GaN devices.
- Develop simulation models to predict module lifetime.

Contact

For more information, please contact Sven Maes:

✉ sven.maes@psicontrol.com



EMC design methodology for power converters

Keywords: EMC, EMI, power electronics, motor drives, PCB design, filtering, simulation, laboratory testing.



Description

Hands-on



Theory focused



Every motor drive and power converter generates electrical noise. If this noise is not properly controlled, products may fail EMC compliance testing, requiring expensive redesigns late in the project.

The goal of this internship is to develop practical design guidelines that enable engineers to identify and address EMC challenges early in the design process. The work combines theory, simulation, laboratory measurements, and hardware evaluation to create an EMC design methodology that can be reused in future Psicontrol projects.

Your task

- Study the fundamentals of EMC in power electronics and motor drives.
- Investigate how switching converters and motor drives generate electrical noise.
- Study the effect of PCB layout, grounding, shielding, filtering, and component placement on EMC performance.
- Create simulation models and compare them with measurements.
- Design and evaluate EMC mitigation techniques such as filters, snubbers, common-mode chokes, shielding, etc.
- Perform conducted emission measurements in the laboratory on existing or specially developed hardware.
- Develop practical EMC design guidelines, checklists, and best practices for future product developments.

Contact

For more information, please contact Sven Maes:

✉ sven.maes@psicontrol.com

Compact programmable power supply

Keywords: hardware design, analog electronics.



Hands-on

Theory focused

Description

For production purposes, we are always looking for compact and reliable instruments to verify our quality. When needed, we develop our own electronics that fit better with our specific requirements.

One example is a programmable DC power supply that fits in certain test setups. A first iteration of this design has been done, but many improvements and features can still be added to the hardware and software.

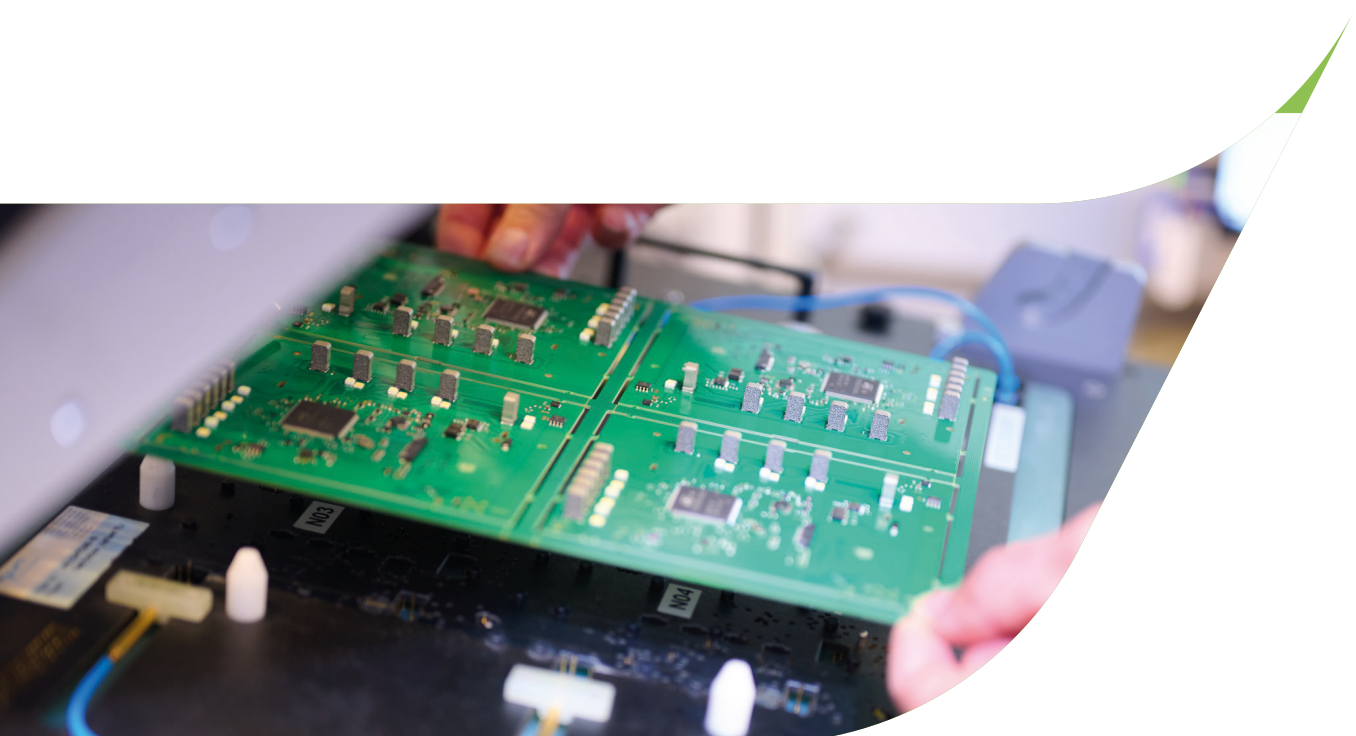
Your task

- Learn how a 4-quadrant power supply works.
- Improve the existing hardware design.
- Test and debug your design in the lab.
- Write a software layer for further automation.

Contact

For more information, please contact Luc Van Asch:

✉ luc.vanasch@psicontrol.com





Propose your own topic

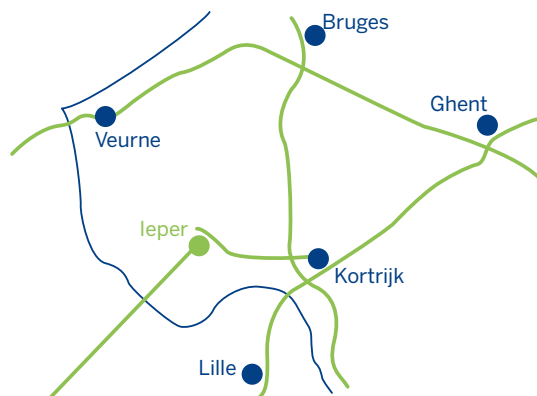
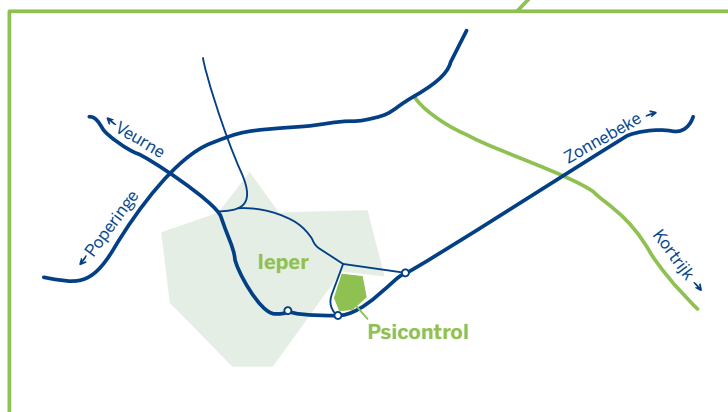
Is your preferred subject not listed here? Don't worry, we can still do our very best to provide you with an internship or thesis subject that is perfect for you.

Contact us via jobs@psicontrol.com or +32 57 409 696 to set up a meeting in which you can tell us about your interests so that we can propose a suitable subject for you.

Where to find us

We'd be pleased to welcome you to our brand-new headquarters.

Address: Zuiderring 1, 8900 Ieper.



Are you ready for your next wave?

We offer a promising future for all talents
eager to translate trends in high-tech
into reliable and sustainable
high-tech applications.

Psicontrol nv

Steverlyncklaan 15
8900 Ieper
Belgium

T +32 57 409 696
jobs@psicontrol.com
www.psicontrol.com



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