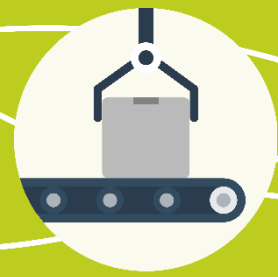


HARDWARE
DESIGN



SOFTWARE
DEVELOPMENT



MANUFACTURING
SERVICES

Internship opportunities

2018-2019

General Information

Why is an internship valuable for you?

In the first instance, an internship needs to be worthwhile for you, the student! Everyone deserves the opportunity to participate in an internship that is captivating and educational, in order to receive a **hands-on work experience**.

This will help you obtain a better **insight in your chosen field of study** and the possible **career paths** that come with it. You will not only be able to gain and **improve your skills**, but you can also interact with people who practice this profession on a daily basis. They will have the answers to many of your questions and are able to help you **discover your strengths and interests**.



Why consider an internship at PsiControl?

At PsiControl, we believe that we can help you and not the other way around. We will **help you define your subject**, by talking about your interests and aligning them with our expertise. Hence, we are able to offer you an internship that will suit you, one that you can be **passionate** about.

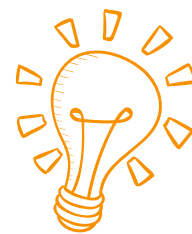
In addition, interns are part of our team and have tasks that closely relate to our ongoing projects. A **personal coach** will guide you every step of the way with a view to both realizing the internship goals and optimizing your experience.

What does PsiControl do?

PsiControl 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 Ypres (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.



How can I apply for an internship?

There are two ways to apply for our internships. Firstly, you can contact us by e-mail or telephone to **set up a meeting in which you can tell us about your interests**. We have listed in this folder some topics that are related to our activities and which you can use as a **guideline**. With this information, we can propose a suitable internship subject for you!

Contact us via jobs@psicontrol.com

A second option is to apply for one of the **predefined subjects** outlined in this folder!

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, come have a chat with us! Together we can **define your ideal internship 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 TESTING
Immunity Radiation Safety
EMC Climate Tests Circuit Verification

POWER

Consumption Monitoring
Low Power Analog Design
Input-output Control
Battery

FPGA

State-Machines / **VHDL**
Test Bench / Real-time
ModelSim / Tcl



APPLICATIONS

Web Integration
GUI
Database Management

.NET / C#
Angular Js
SQL
Qt

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

Testimonials



” **Alexander Cornelissen & Jarne Wille**
Electronics-ICT / Kortrijk

During our internship, we investigated several stepper motor drivers that will be used on a Picanol weaving machine. Our coach, Niels was really supportive and always ready to answer our questions. We had a desk right in the middle of the PsiControl colleagues and were part of an ongoing project. We were also invited to join in with all of the social activities, such as after-work drinks and sports. This really helped us feel part of the team.

Furthermore, we appreciated the flexible working hours, and the fact we could even extend our internship to a summer job!

” **Tom Lierman**
Electronics-ICT / Ghent

For a period of five weeks, I was part of a project involving the PsiControl Embedded Software team, writing a protocol analyzer tool.

There is a pleasant and friendly atmosphere in the workplace and everyone was ready to help out and answer all of my questions. For me, it was the perfect place for my first work experience!



Proposed Subjects



The following section contains a few **examples of internships** you can undertake at PsiControl. If you are interested in any them, let us know!

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

VISUALIZATION ON EMBEDDED DEVICES: 4.3"	8
EVALUATE EMBEDDED WIFI AND BLUETOOTH CHIPSET	9
AUTOMATIC TEST SOFTWARE MAINTENANCE AND MONITORING	10
DEFINITION AND IMPLEMENTATION OF AN AUTOMATIC TOUCH SCREEN TESTER	11
GENERIC AND EMC BENIGN DISPLAY DRIVER TOOL	12
SELECTION AND INTEGRATION OF CAPACITIVE TOUCH SOLUTION IN AN INDUSTRIAL HMI PRODUCT	13
PROPOSE YOUR OWN SUBJECT	14





VISUALIZATION ON EMBEDDED DEVICES: 4.3"

Description

The **touch revolution** is still in progress. While many people are used to smartphone touch capabilities, old clunky interfaces (e.g. thermostats) remain widespread.

The challenge is now to bring touch to these **small controller interfaces**. To enable this, we often use the TouchGFX graphical library.

Your task

- Prototype and **interface on our 4.3"** touch platform
- Investigate and demonstrate the capabilities of **TouchGFX** library

Skills and Tools

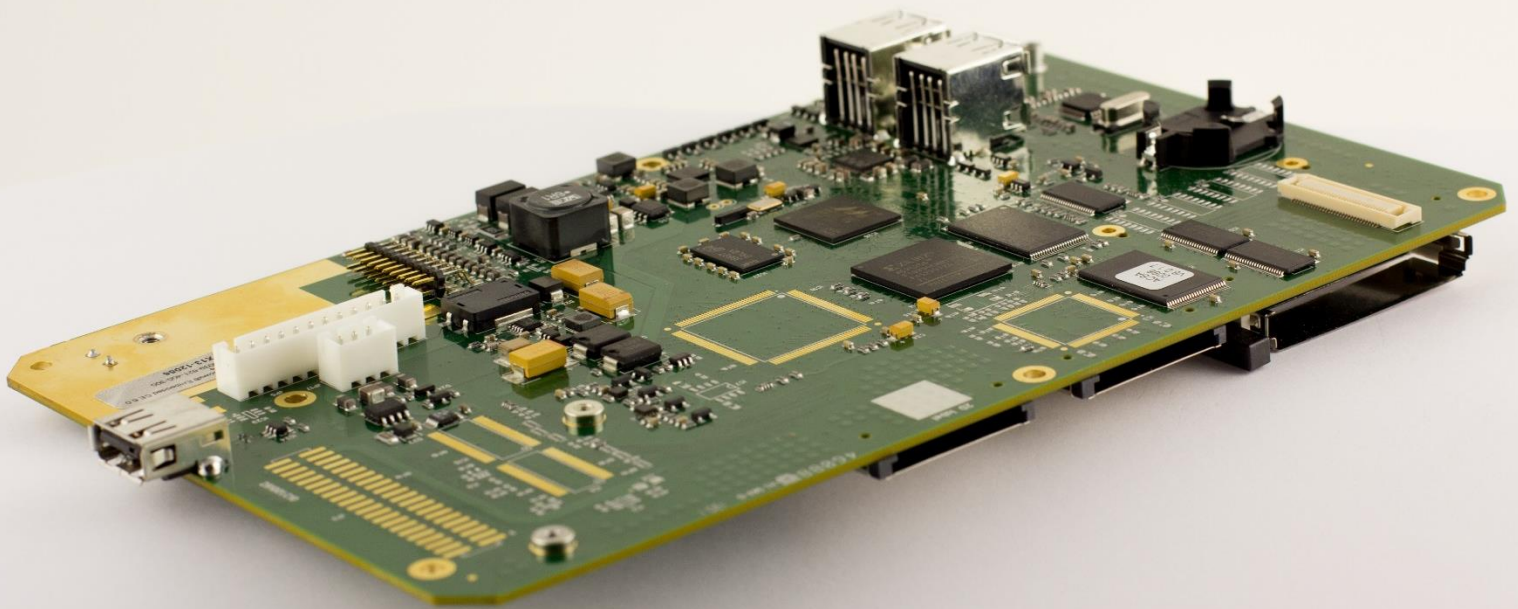
- TouchGFX
- C++
- Embedded software



Contact



For more information, please contact Filip Deniere:
e-mail filip.deniere@psicontrol.com or Tel. +32 57 409608



EVALUATE EMBEDDED WIFI AND BLUETOOTH CHIPSET

Description

Different chipset solutions for Wi-Fi and Bluetooth LE are available on today's market. Our SwipeStat platform supports Bluetooth LE with a specific chipset that is dedicated to BTLE. We now have our eyes set on a chipset featured with two cores, which can handle **both BTLE and WIFI**.

Your task

- Evaluate the chipset capabilities, tools, available libraries, ease of use, ...
- Try out features by using code examples
- Compare **BTLE functionality** with our current BTLE chipset

Skills and Tools

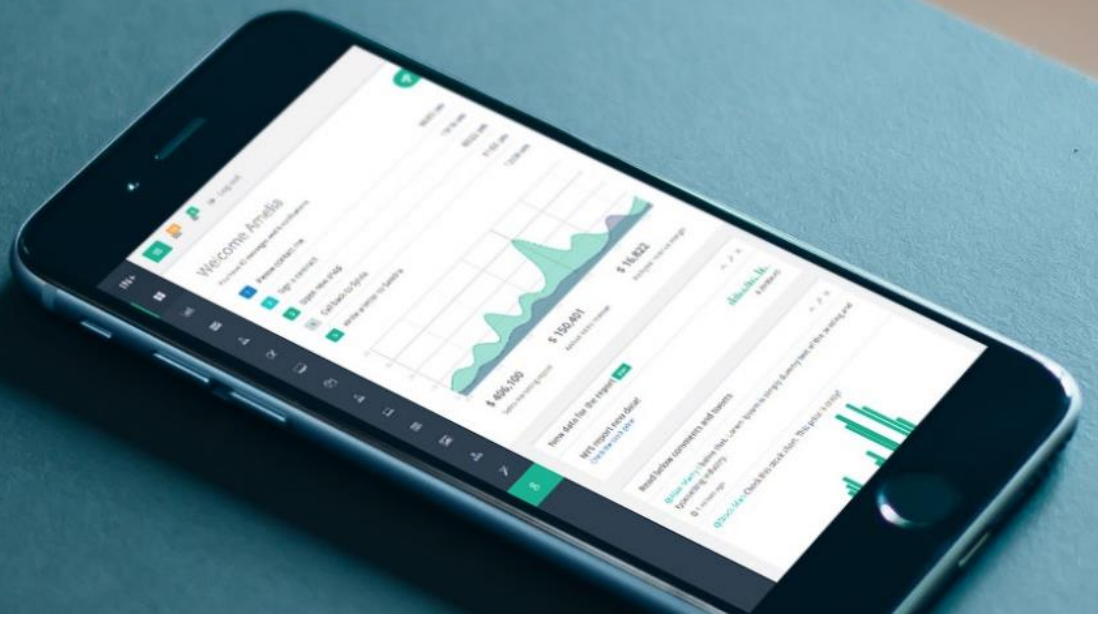
- TCP/IP Stacks
- Wi-Fi / Bluetooth
- C++
- Embedded software



Contact



For more information, please contact Filip Deniere:
e-mail filip.deniere@psicontrol.com or Tel. +32 57 409608



AUTOMATIC TEST SOFTWARE MAINTENANCE AND MONITORING

Description

PsiControl has two production sites: one is situated in Ieper, while the other one is in Romania. Part of the production flow involves the functional test of the products on automated test equipment. These test systems in production are monitored by an Excel document. However, this is far from optimal and creates a lot of overhead.

Your goal will be to convert the functionality of this Excel into a **web-based application**. The Front-End will be a lightweight Angular Application while the Back-End will be a C# based web API.

Your task

- Develop an intricate part of a Web-Based application in a **.net environment**
- Create an easy-to-use Graphical User Interface, based on an extended visual template
- Visually show the status of production test systems

Skills and Tools

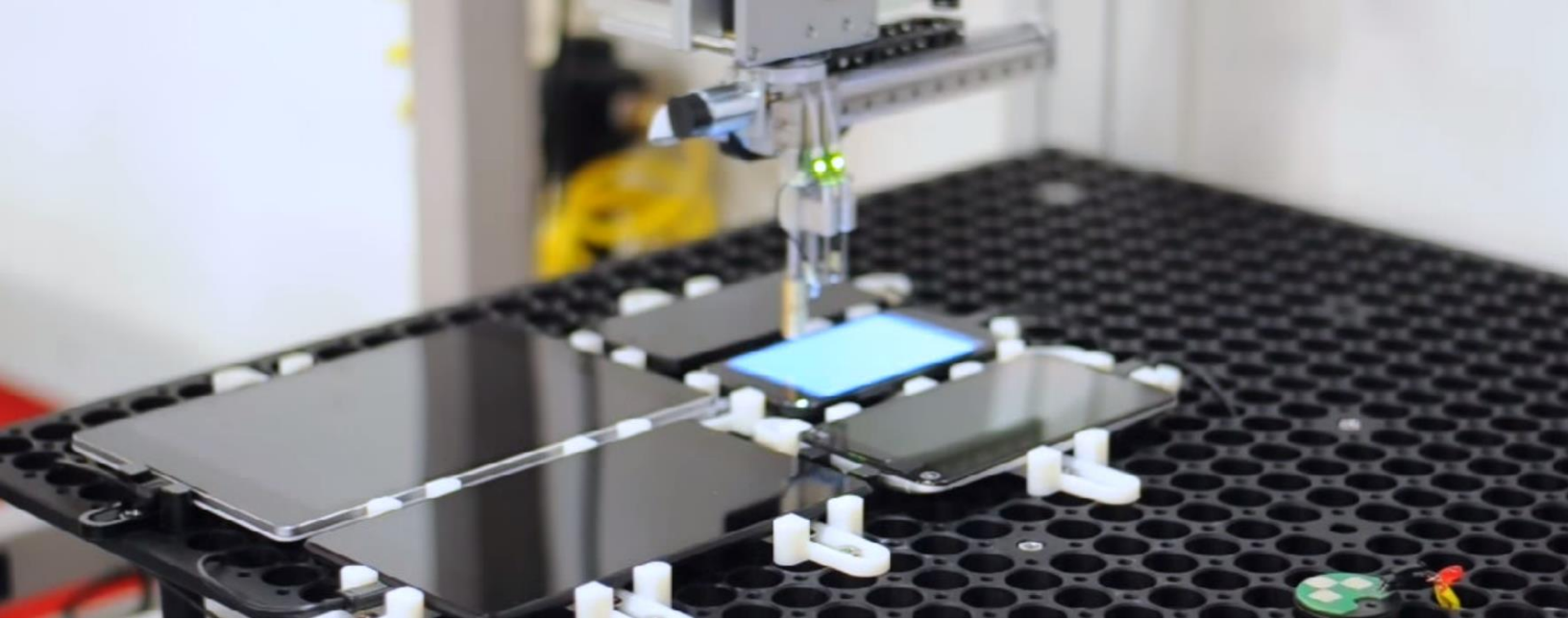
- Web API
- .NET / C#
- SQL
- Graphical User Interface



Contact



For more information, please contact Wouter Baert:
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DEFINITION AND IMPLEMENTATION OF AN AUTOMATIC TOUCH SCREEN TESTER

Description

As we integrate a growing amount of displays and capacitive touch solutions, our production testing equipment needs to evolve in order to guarantee the best possible quality for these products. It is a challenging task to **combine a camera setup for vision tests and capacitive touch probes in a compact and automated testing solution**. A combination of hardware and software skills are required to design and implement a reusable touch screen tester.

Your task

- Design a positioning table for touch screen testing
- Program a control mechanism
- Create an automatic test for one of PsiControls HMI products using a vision testing library

Skills and Tools

- Electronics
- Stepper motors
- Programming
- Vision testing



Contact



For more information, please contact Wouter Baert:
e-mail wouter.baert@psicontrol.com or Tel. +32 57 409656



GENERIC AND EMC BENIGN DISPLAY DRIVER TOOL

Description

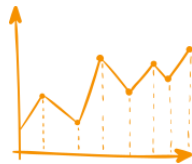
We have **in-house electromagnetic compatibility (EMC), climate and durability testing facilities** at PsiControl. We see that displays have a significant impact on the outcome of the EMC tests of our products, but there is little or no data available on how they behave under given circumstances. The risk and lead-time of a project decreases if we can **understand and predict the display EMC-behavior**. Hence, a stand-alone setup is required to test different kind of displays and each display will have its own software driver.

Your task

- Design a generic measurement-ready and EMC benign display setup
- Analyze results of **different displays** and the impact of **various filters**

Skills and Tools

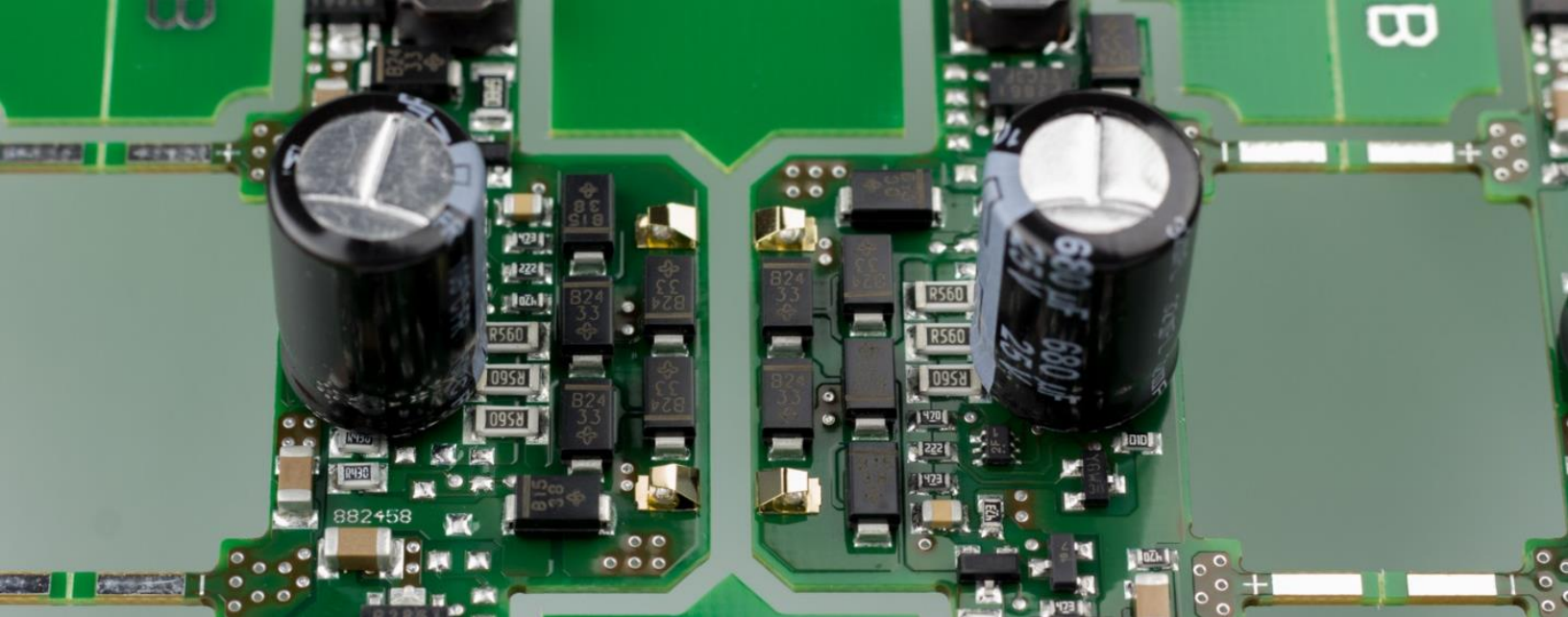
- EMC-measurements
- Displays
- Embedded software



Contact



For more information, please contact Jonas Geldof:
e-mail jonas.geldof@psicontrol.com or Tel. +32 57 409658



SELECTION AND INTEGRATION OF CAPACITIVE TOUCH SOLUTION IN AN INDUSTRIAL HMI PRODUCT

Description

Capacitive touch technology is used in a lot in modern products, e.g. smartphones, media players, TV's, etc. However, modern **industrial HMI controllers** are asking for the same look and feel. Since industrial applications require a lot more attention with regard to immunity and environmental influences, PsiControl is looking for the best possible solutions to **integrate** this technology in industrial applications.

Your task

- **Investigate and compare** different technology solutions that are currently available
- Experiment with different solutions and compare them in terms of functionality, ease of use and robustness
- Integration in a PsiControl HMI product

Skills and Tools

- Human-Machine Interface
- Capacitive Touch
- EMC-measurements
- Analog Electronics



Contact



For more information, please contact Jonas Geldof:
e-mail jonas.geldof@psicontrol.com or Tel. +32 57 409658



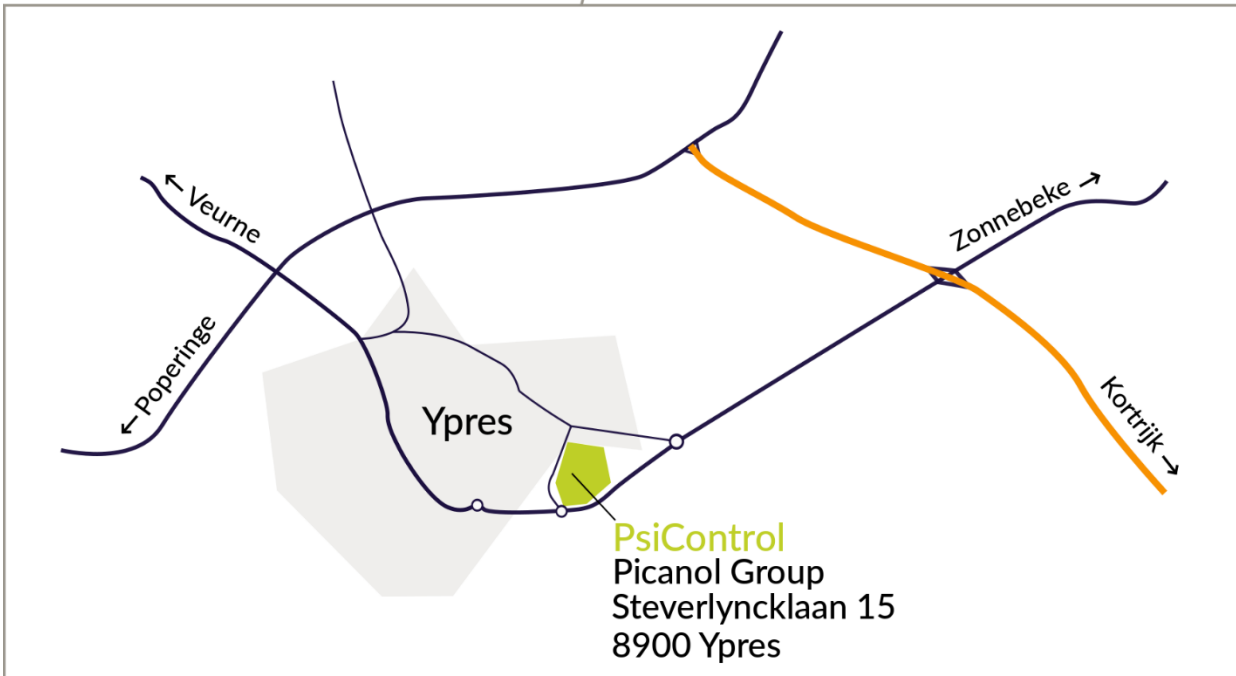
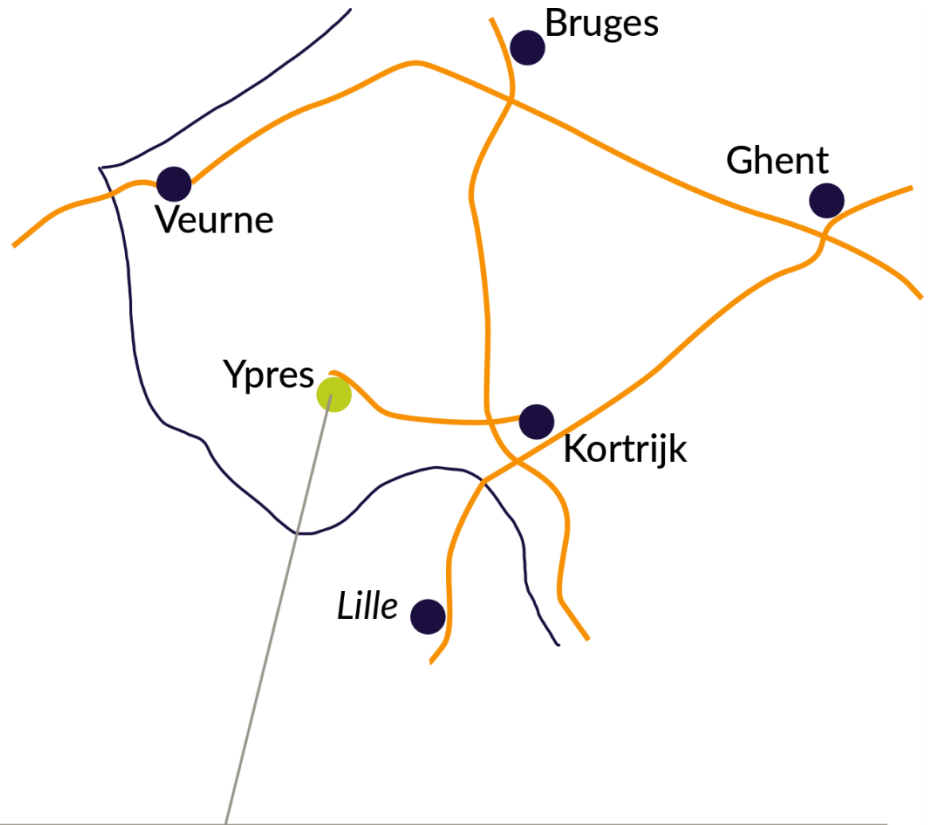
PROPOSE YOUR OWN SUBJECT

The electronics and software sector are evolving rapidly and we are always interested in new projects to investigate! Do you have an idea that you want to work out, or a subject that you are very curious about? Let us know, and we can define your internship or thesis together.

Contact us via jobs@psicontrol.com



Location



Wij zoeken **nieuwe collega's**! Kom jij ons team versterken?
We are looking for **new colleagues**! Will you join our team?



+32 (0) 57 222 111 // jobs@psicontrol.com // www.psicontrol.com



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