



INTERNSHIP – Innovative current measurement method

H55's mission is to make air transport, quiet, clean and affordable. The company's patented and certified electric propulsion and battery management technology supports several aircraft manufacturers and operators to use electric propulsion for both existing aircraft designs and future VTOL and e-Commuter concepts.

A Swiss company created in 2017 by the leadership team of Solar Impulse, André Borschberg, Sebastien Demont, and Gregory Blatt, H55 has accumulated design, development, certification, and electric flight experience. Its proven track record comes from developing 2 Solar Impulse airplanes, the only electric airplane with unlimited endurance, the Twister Aero1 acrobatic aircraft, and the Bristell Energic.

The core of H55's proprietary technology is focused on an integrated power, propulsion and battery management system which includes battery packs, connectors, motor, motor controller, pilot interface and power controls. The company's product offering includes a fully integrated, certified electric propulsion and battery management solutions, as well as a stand-alone energy storage and battery management systems.

H55 is financed by a reputable group of investors from Silicon Valley and Switzerland, and as such, is well positioned for its next stage of its development. The company's short-term priorities include building up out of engineering team, putting into place production facilities, and creating a north American subsidiary.

At H55, you will work with a very forward-looking team who are changing the paradigms of air transportation. H55 is composed of highly experienced engineers, entrepreneurs and managers and is seeking like mind talented professionals who understand how to couple creativity and innovation with technical and business considerations.

Context

In the scope of its product development, the company must have the ability to sense high currents in a low-dissipative way with high bandwidth and high accuracy. Solutions are already existing on the market but are far from ideal (Bulkiness, limited performances, high power consumption).

Nowadays, solution arise to provide current measurement means directly integrated in ICs and sensing the magnetic field produced by a busbar passing close by. They would allow to significantly reduce the volume of the current sensors and to improve the electrical performances.

In the frame of an internship, H55 would like to explore those new technologies prior integrating them in a product. The objective is to explore the technology, quantify the performances and produce a prototype that will be tested in laboratory.

Your Role

As an intern, you will work closely with your mentor and other employees of the hardware/software team who will help you apply your knowledge and grow your skills.

The perimeter of the internship will be:

- Benchmarking of the solutions currently available on the market
- Selection of the most appropriate to our use case (BW, accuracy, offset compensation...)
- Selection of the best integration method for the sensor and busbar assembly (Separated busbar and sensor or a solution based on a PCB embedding the busbar and the sensor)
- Assessment of the global accuracy depending on the variability of the acquisition chain, manufacturing tolerances, environmental conditions... (Certainly assisted by electromagnetic simulation)
- Design and production of a prototype
- Validation of the performances in lab testing
- Based on the outcomes of the study, provide guidelines about the deployment of those technologies in a product development.

Your Profile

- Master's student in electrical engineering
- Notion or interest for:
 - Analogue and digital electronics
 - Electromagnetic simulation
 - PCB technology
 - Familiar with lab equipment (Oscilloscope, power supply, active load, network analyser)
- Ability to understand and debug embedded hardware
- Fast learner, rigorous, hands-on problem-solving, ability to document properly
- Fluency in English (oral and written), French an asset.

Additional Information

- Work Location: Sion, Switzerland
- Entry Date: immediately
- Start May 2023
- Duration: 6 months

Applications sent to:

- Mrs Emmanuelle Doux
- jobs@h55.ch
- Only qualified applications will be considered
- No recruitment agencies, please

H55 is an equal opportunity employer and welcomes applications from all qualified individuals regardless of race, sex, disability, religion/belief, sexual orientation or age. All aspects of employment including the decision to hire, promote, discipline, or discharge, will be based on competence, performance, and business needs.