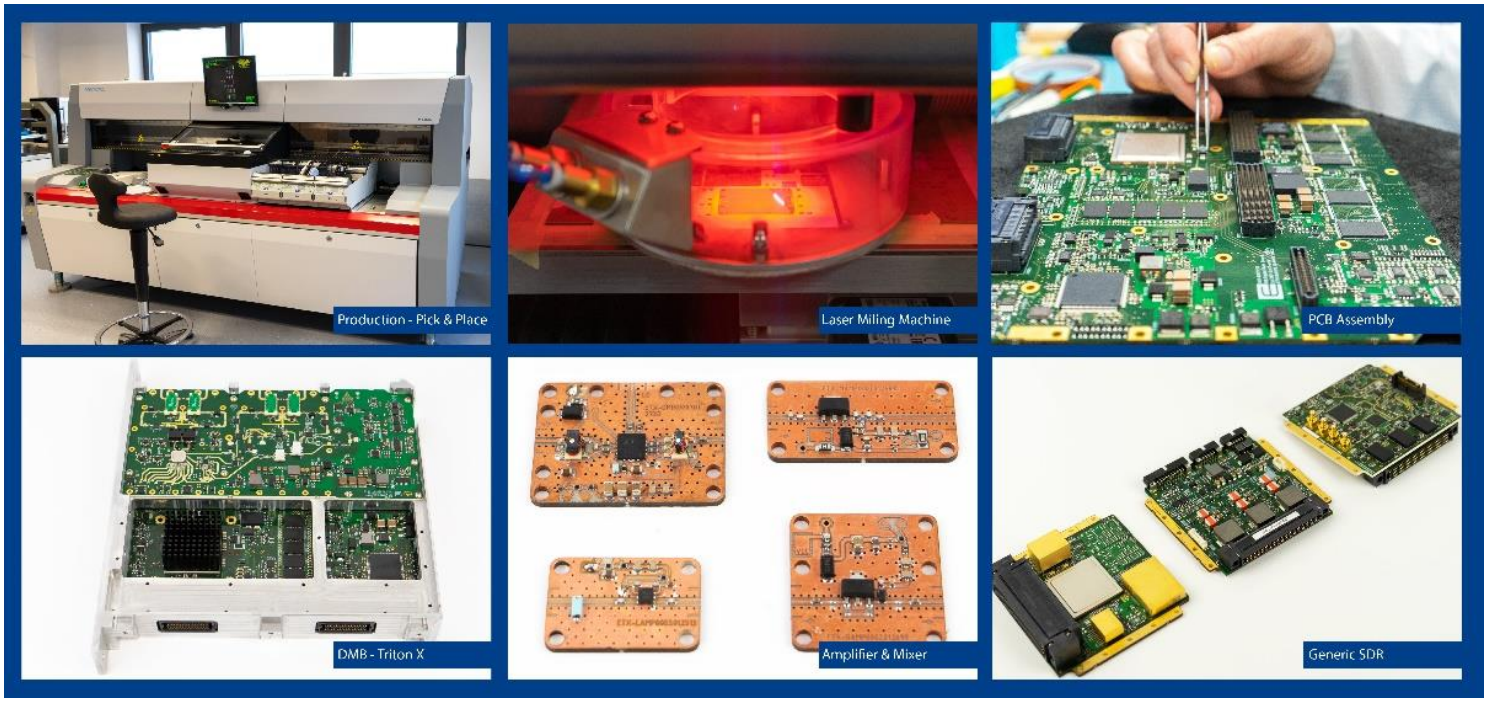
electronics and software solutions

emTroniX

We are hiring!

Internship Offers



Luxembourg, Hautcharage, le 26/09/2024

Internship Offer
Electronic Production Facility- Quality Monitoring

Context

Production of products need quality assessment. Concerning environmental condition, this means:

- Monitoring of the main relevant environmental characteristics such as:
  - Temperature
  - Humidity
  - Particles counts
  - Volatile Organic Compounds
  - UV…
- Logging the corresponding values
- Sending alerts in case some parameters are out of production range
- Triggering actions in some cases to reduce the exposure to unacceptable risks

Key Internship Steps

- Define the need and the corresponding technical requirements
- Define the global architecture of the setup
  - Sensors
  - Actuators
  - Network configuration
  - Databases
- Interface with the existing ERP will be a plus.

Who are we looking for?

Motivated intern candidate with technical IT skills, electronics and software, autonomous and willing to expand their industrial knowledge would be appreciated.

Interested in this internship offer? Don’t hesitate to send us your resume at **jobs@emtronix.lu**

Luxembourg, Hautcharage, le 26/09/2024

Internship Offer
RF performance test automation

Context

Production of products need quality assessment. This means:

- Testing the full capabilities of the product to assess its performance
- Producing automated reports and sort between compliant and non-compliant products
- Ensure reproducibility
- Reduce the execution time as much as possible to lower the resources footprint
- Limit the human factor and manipulations
- Optimise for timing constraints
- Logging all data in a long-term manner

Key internship steps

- Analyse the products that are to be produced
- Analyse the available test equipment capabilities
- Select components that matches production constraints
- Set a proper architecture or Setup
    - For the tests
    - To manage results in an efficient manner (traceability, storage, statistics, alarms…)
- Propose a list of potential improvements

Who are we looking for?

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Luxembourg, Hautcharage, le 26/09/2024

Internship Offer
Software – Cybersecurity Principles for a sub-system in space

Context

Products such as Software Defined Radio have to comply with rules in order to deploy cyber security principles and assets in coherence with the overall technical environment.

- Inputs and Outputs are in numbers
- Protocols are in numbers also
    - SpaceWire,
    - Ethernet
    - RS 422…
    - CAN
    - …
- The final application is not defined (Software Defined means that final application will be determined by a Tier person
- The interfaces allow:
    - Tele-Measures
    - Tele-Commands
    - Reprogramming
    - …

Key internship steps

- Analyse the product at stake and the technical environment
- Find state of the art material from organizations (ESA…)
- Analyse the attack surfaces and threats
- Analyse the design of the product with regards to the analysis
- Propose a list of potential improvements
    - In term of architecture or Setup
    - In term on components (SW and/or HW)

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Luxembourg, Hautcharage, le 26/09/2024

Internship Offer
Artificial Intelligence integration to FPGA components

Context

Products such as Software Defined embed multiple assets including cores that are sometimes dedicated to Artificial Intelligence.

As Artificial Intelligence algorithms are often developed by teams that are not knowing the details of the components at stake (FPGA for example), needing guidance to perform a smooth and efficient integration within a complete application.

Key internship steps

- Analyse the capabilities on a selected component for AI capabilities
  - Orders of magnitude (code sizes, performances…)
  - Constraints (formats)
  - Performances optimizations
  - Define some metrics for code integration KPI
- Test integration of a given AI algorithm as a reference
  - Integration of a given AI algorithm into the target component
  - Measure KPIs
  - Vary integration parameters
- Define the best way for integration.
- An On-Board Controller shall be later implemented to perform other usual tasks in parallel with the AI to define compatible development rules.

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Luxembourg, Hautcharage, le 26/09/2024

Internship Offer
Development of a Mobile app for quality monitoring

Context

In Electronic production facilities, quality is often at stake. The use of procedures, methods and rained resources is key to induce good practices.

Quality tools to control the outcomes is the second part for looping back the results and improve in a continuous manner.

This control activity should be done any place in the company, addressing several Key Performance Indicators.

Some examples:

- Defect at a production step, to be recorded (photos, traceability, log, all in the company cloud for further analysis)
- Safety related event or anomaly (all needed information reported with alarm to relevant people in the company with no delay)

Key internship steps

- Requirements analysis and clarification
- Architecture definition taking into account:
  - the IT infrastructure of the company,
  - The equipment
- Develop a mobile app
  - Selection of the app language
  - Code the main functions
- Verify the Minimal Viable Product with the clients
  - Critical design items to be confirmed
- Develop the final application
- Deliver App and documentation

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Luxembourg, Hautcharage, le 26/09/2024

Internship Offer
Development of Techno bricks for Virtual Reality Environment

Context

New tools are now used for various occasions. Virtual Reality make it possible to immerse people:

- In a non-existing environment (not existing yet, distant in space, in time…)
- In a dangerous or fragile environment (costly, ESD sensitive, One Time

Some examples:

- Analysing the mounting procedure of a product to verify the feasibility, the risks, and the overall performance (when relevant)
- Train people for tasks or risk management in the company
- Demonstrate products in a safe and memorable way

Key internship steps

- Requirements analysis and clarification
- Define the techno-bricks:
  - individually
  - Their potential interaction
- Develop the bricks
  - Select the right order to maximize the final value of the developed products.
  - Confirm the usability of each individual brick.
- Optional: Develop an application with the developed products
- Deliver corresponding documentation for usage and maintenance

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