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Our 5G remote accessible Lab at NTNU

The remote accessible 5G Lab at NTNU is now operational. NTNU and DTU have completed the setup with measurements and have documented their findings in the form of a paper accepted at the IEEE Consumer Communications & Networking Conference (CCNC) 2025.
The paper is entitled Comparative Analysis of Power Consumption in LTE, 5G-NSA, 5G-SA, and Private 5G Networks. The paper presents a comparative analysis of power consumption in Long-Term Evolution (LTE), 5G non-standalone (5G-NSA), 5G-Standalone (5G-SA), and 5G private networks on the User Equipment (UE) side. The study was conducted across two locations to account for variations in network deployments.

Final Yearly Hub meeting organized in Lund

On 21-22 October the Hub organized the final Yearly Hub meeting in Lund. The seventh yearly meeting was focusing on making our achievements sustainable also after the completion of the contract with NordForsk.

The meeting was also used to look back on all the achievements reached during the seven years contract. Highlights include:

- PhD student Hackathon "IoT on Mars"
- PhD student meeting, Espoo
- LinkedIn training for Hub students, Lyngby
- Seven HI2OT Annual meetings
- Thematic seminar (Safety-critical applications)
- Five dedicated Summer Schools
  - Fog computing and Industry 4.0
  - Cyber Physical Systems
  - Edge and Fog Computing
  - Robotics
  - Advanced Computer Architecture and Compilation

Since the project was running also during the Covid, a number of remarkable achievements are related to the pandemic, causing an 18 months physical closing of our universities, i.e.

- Nearly all teaching is now offered in a hybrid way
- The Nordic IoT Roadmap was developed during the lock-down
- All teachers and students got used to on-line provisions
- A list of jointly available equipment was developed (currently 40 pcs)
- A sharing of course modules with currently six courses free op IPR
- Many conferences offer hybrid participation (reducing CO2)

62 PhD students have been affiliated with the Hub of which 46 have graduated during the project. During the project the Hub partners offered nearly 80 courses/events to our Hub students.
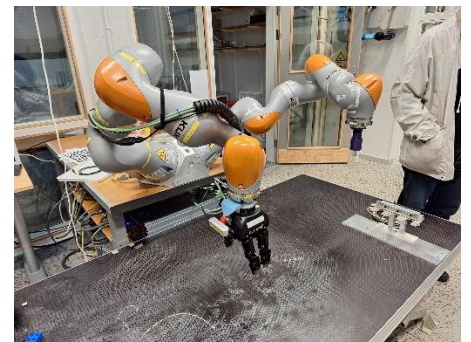
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Repository of shared course modules

In order to share resources when developing new courses, the Hub initiated an action to make course modules freely available across the partners. All these courses are free of IPR rights. Currently, six such course modules are provided in our shared database:

- Trustworthiness and Dependability in Edge-based Cyber-Physical Systems
- Digital Design with Chisel
- Design of Embedded Systems
- Real-Time Scheduling
- Mobile backhaul networks
- Deep learning compilers

Robot demonstration in Lund

During the final Yearly meeting in Lund the partners visited the Automation Laboratory and got a demo of the Dual-Arm KUKA Robot. It consists of two LBR IIWA 7 R800 robots on a torso such that the robot can use its two arms like a human worker.

Lasting Hub impact

At the final meeting in Lund the partners discussed how to maintain a lasting impact of the Hub. The discussion ended up with a long list of joint activities that may be pursued in the future.
Just to mention some of the lowest hanging fruits:
- Joint involvement in EU proposals (COST and MSCA-DN proposals already submitted/in process)

- Joint mailing list/shared Google calendar with events/news
- Maintain the access to joint infrastructure (Labs)
- Maintain a yearly meeting including the young staff to discuss e.g. curricula delelopment

In the next Zoom meeting, the partners will discuss the full list of initiatives and prioritize which one to pursue after the project completion.

Hub calendar

TECoSA Seminar – Holistic perspectives on safety of Automated Driving Systems
Stockholm, 7 November 2024

Scandinavian Conference on System & Software Safety
Göteborg, 19-20 Nov. 2024

TECoSA Seminar – Transformation of Software Engineering Concepts in Industrial Automation
Stockholm, 5 December 2024