NORDIC IIoT NEWS No. 7, 2021

The Covid-19 situation

The coronavirus pandemic has meant major changes for everyone who is used to the open borders in the Nordic region.

Recently a growing number of new cases of Covid-19 have been recorded. It means that the health situation is rapidly worsening.
Please pay attention to the national rules if you plan to visit one of the Hub partners.

Below, you will find links to the general information of the Nordic countries' authorities about restrictions and closures, entry rules and possibilities for testing and vaccination in the Nordic countries:

https://www.norden.org/en/info-norden/information-about-coronavirus-pandemic-nordic-countries-6

Annual Hub meeting in Copenhagen

Following a 20-month lock-down of the Nordic societies, the first post pandemic annual meeting took place on 2-3 November in Copenhagen. All eight Hub research groups were represented in the meeting.

The two-day agenda included both progress reporting as well as student sessions.

During the lock-down period the partners adapted the teaching and networking to the "new normal", e.g.:

- Nearly all teaching was converted from physical lectures to virtual on-line provision within 6 to 12 months.
- By means of monthly on-line Hub meetings a Nordic IIoT roadmap was developed during the pandemic.
- All teachers and students got used to the on-line provisions of lectures and examinations.
- A list of jointly available IIoT equipment including nearly 40 advanced set-ups was gathered and made available to all students across the Hub.
- A repository of shared course material that the Hub partners can use in order to develop new courses or improving existing courses.

Considering the recent increase in Covid-19 infections it seems like the seminar was organized in a narrow "window" of physical presence!

Aalto University, FI
Lund University, SE
Norwegian University of Science and Technology, NO
Royal Institute of Technology, SE
Technical University of Denmark, DK

NordForsk

Student session during the Annual meeting

Better involvement was requested by the PhD students!

During the Annual meeting the students had parallel sessions to discuss how to strengthen their presence in the Hub.

Also, a panel session was organized with seven students to discuss how they can strengthen their direct interaction across the institutions. Several ideas were raised, among other:

- More (small) physical events
- More detailed thesis descriptions
- Engagement, e.g., by a LinkedIn group

During the meeting the PhD students created a Discord server. https://discord.gg/MNYqn2MXnp

The idea is to have a quick and convenient way to chat with each other, connect with people researching in the same area, share interesting talks/papers and possibly arrange their own events in the future.

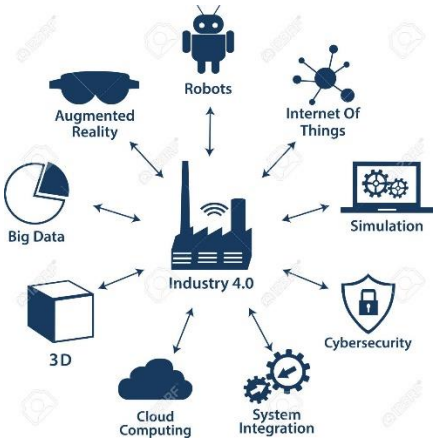
The shared Hub repository of course material

In the Fall of 2021, the Hub decided to create a shared repository containing course material that the Hub partners can use to develop new courses or improve existing courses. The background is the increased focus on remote teaching caused by the pandemic. Each of the hub nodes have invested substantial amounts of resources transforming their existing courses into remote courses with the full course material available on the net, in many cases also including laboratory exercises that can be performed remotely using, e.g., simulated physical equipment rather than real equipment. The aim of this repository is to enable sharing these resources among the Hub partners.

Five course modules are currently registered in the Hub database:

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

Shared Hub equipment and labs



The eight university departments associated with the Hub have invested substantial amounts of resources in building up fully equipped laboratories. It varies from stand-alone equipment to fully working prototype labs.

Across the borders, the Hub students can take advantage of these labs.

Currently the list of shared equipment includes nearly 40 test set-ups. Below we mention just a few of these. For the full list please consult our shared google drive.

Aalto Industrial Internet Campus
Kone cranes industrial overhead crane is an open physical and digital development environment targeted for different third parties i.e. students, startups, SMEs, larger corporations or other parties, who want to innovate and develop new devices and applications that are connected to overhead cranes.

NTNU Industrial Robotic Lab with four robot cells:

- The Milling cell: consisting of two KUKA KR120 robots which primarily is tooled for milling
- The Small Welding cell: with a KUKA KR5 with TIG welding, used for small welding projects
- The Assembly cell: with two KUKA KR6 robots with Robotiq gripper
- The General Robotic cell: with a KUKA KR16 and a set of various tools

DTU IoT prototyping lab
Consisting of a complete PCB manufacturing pipeline:

- Soldering stations: WELLER WS80, PU81, JBC Nano rework machine, YIHUA YH-853AAA hotiron station
- CNC machine: WEGSTR Milling
- Etching machine: PA210
- Double Side UV Light Exposure Machine
- 3D printer: MakerBot Replicator+
- Laser printer: Epson P400
- Via machine: EZPICK
- Precision lead reflow oven: ZB2520HL
- Place stencil machine: eurocircuits eC-stencilmate
- Glue dispensing machine: TH-2004K

Deliverable D7

A deliverable on Recommendations for Nordic IIoT cooperation (D7) is currently being drafted. You will find the draft in our shared Google drive.

The deliverable summarizes the activities that have been developed in the first four years of the Hub, i.e.:

- Physical courses/events
- On-line courses/events
- Repository of course modules
- The Nordic IIoT roadmap
- PhD student exchange programmes
- Access to IIoT equipment
- Yearly meetings
- The website
- Newsletters and pr material

At the end of the report, we assess the durability of these activities, i.e., can they continue to run after the completion of the Hub funding.

Please feel free to send your input to this deliverable.

New PhD student associated with the Hub

A new PhD student has been associated with the Hub. Please welcome:

- Xinyi Tu (Joyce), Aalto

We now have 59 PhD students affiliated to the Hub meaning that their Hub activities are eligible for funding. Please visit http://www.nordic-iot.org/doctoral-school/list-of-affiliated-phds/ for a complete list of students.