5G-SMART NEWSLETTER YEAR 1

Dear Reader,

After the 5G-SMART project has been up and running for one year, we would like to take the opportunity to highlight the most significant achievements and news of the project so far.
In this issue, you will find out more about:

- Milestones achieved
- Published 5G-SMART deliverables
- Upcoming events

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Milestones and Results

5G-SMART aims at demonstrating how 5G can improve manufacturing through its work on industry field trials, business models and research concepts. Within three 5G-enabled industry field trials (located in Aachen, Kista and Reutlingen), 5G-SMART is demonstrating, evaluating, and validating 5G systems for manufacturing applications in real production environments.

In the first year of the project, 5G-SMART has succeeded in making a broad analysis of smart manufacturing use cases, investigating the definition and characteristics of the use cases to be trialed at the three different trial sites of the project, but as well taking a look at more future-looking use cases. The deliverable D1.1 summarizes the findings of 5G-SMART in this area including a detailed description of use cases and a requirements analysis. Furthermore, the project has made a thorough gap analysis between the state of the art and requirements of the smart manufacturing use cases, focusing on 5G features, such as integration of 5G with Time-Sensitive Networking (TSN), 5G end-to-end time synchronization and positioning. Results can be found in deliverable D5.1.

A milestone was reached, when finalizing the design of the 5G communication network deployment for all trial sites. At two of the trial sites, in Kista and Aachen, the 5G networks are already installed.

In this newsletter, we only give short insights into the project progress, the interested reader is referred to the intermediate project report, deliverable D7.2, for a more details.

KEY FACTS

Project start: 2019-06-01

Duration: 30 months

EU funding: 10,200,413.75 €

Abstract

5G-SMART unlocks the value of 5G for smart manufacturing through demonstrating, validating and evaluating its potential in real manufacturing environments. 5G-SMART trials will test the most advanced 5G integrated manufacturing applications such as digital twin, industrial robotics and machine vision based remote operations. 5G-SMART will undertake the first ever evaluation of Electromagnetic Compatibility (EMC), channel measurements and co-existence between public and private industrial networks in real manufacturing environments easing the integration of 5G. The new 5G features, developed in 5G-SMART such as time synchronization and positioning for manufacturing use cases represent a technological leap.

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Use case development

The use cases to be trialed are under intense development:

- At the Kista trial site, 5G-SMART will validate 5G-enabled industrial robotics, including remotely supported collaboration and AR-assisted shop floor visualization. The design of the 5G-based testbed for industrial robotics for the Kista trial site is documented in deliverable D2.1.
- At the Aachen trial site, the focus is on 5G enhanced industrial manufacturing. D3.1 gives insights into the wireless infrastructure at the site, while D3.2 provides a detailed report on the design options for monitoring of workpieces and machines in real-time. A first demo has already been developed for one of the use cases.
- At the Reutlingen trial site, 5G-SMART is working towards the realization of two use cases: Cloud-based mobile robotics and TSN/Industrial LAN over 5G. Furthermore, 5G-SMART will perform extensive channel measurements and undertake electromagnetic compatibility (EMC) measurements in the semiconductor factory. The related insights and results are planned to be published in autumn 2020.

Save the date

5G-SMART has shown to create impact with publications, keynotes, contributions to standards and demos, highlighting the relevance of the project at international fora. Here, the upcoming events that 5G-SMART is organizing/participating in are listed. We are looking forward to meeting and interacting with you in one or several of these.

- PIMRC 31st August – 3rd September 2020, 5G-SMART workshop on 5G mobile communications for smart factories.
- 5G-SMART Webinar 22nd September 2020, on “5G for smart manufacturing – Industry and 3GPP RAN latest status”, link to register.
- Webinar series in autumn on 5G-SMART demo’s, more information to come.

FIELD TRIALS

5G for enhanced industrial robotics applications

Kista, Ericsson smart factory

5G URLCC, eMBB services

5G for enhanced industrial manufacturing processes

Aachen, Fraunhofer IPT shop floor

5G URLLC, eMBB, mMTC services

5G for enhanced factory automation

Reutlingen, Bosch semiconductor factory

5G URLLC, eMBB services EMC & Channel measurement