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First Public Activity Report

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Author(s):	O. Thomas
Reviewed by:	I.Dor

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Publishable summary

Unlike more traditional embedded systems, a full-fledged Cyber-Physical-Systems (CPS) is typically a network of interacting elements with physical input and output as opposed to standalone devices. The notion is closely tied to concepts of robotics and sensor networks with intelligence mechanisms based on computational intelligence, but is applicable to a much broader range of applications.

SMEs play a key role in European economies. They generate most of the innovative ideas for CPS products. However, due to limited resources, SMEs are very often not able to own all the necessary skills and technologies required to successfully develop CPS product and bring them to the market. Also, the fragmentation of the market hampers SMEs to grow outside their local market.

In the frame of H2020 and the Smart-Anything-Everywhere Initiative (www.smartanythingeverywhere.eu), EU is exploring the establishment of European pilot networks of embedded systems design centers, which help SMEs in any sector to embedded new electronic components in their products or services. The goal of these networks is to lower barriers for SMEs to enable them to build innovative CPS solutions and products, making use of high quality technology and knowledge available throughout Europe.

EuroCPS (www.eurocps.org) is targeting outcome 'b' "Innovation Actions" of the H2020 objective ICT-2014 "Smart Cyber-Physical Systems". The project aims to arm Europe with a network of design centers in order to initiate and boost synergies between SMEs, major CPS-platforms, and CPS-competency providers. The expected outcome is to capture the emerging CPS markets and create sustained demand for European manufacturing. To that end, the EuroCPS design centers act as one-stop-shop, providing technical expertise, coaching and access to advanced industrial CPS platforms in order to get SMEs up to speed on the innovation ecosystem of CPS products by facilitating access to the leading edge technologies and their implementation. In the process, design centers tap existing regional ecosystems in several countries to bring the full value chain from hardware/software platforms to high value-added CPS products and services.

To demonstrate this new cooperation model (leveraging software, system and nano-electronic industries), EuroCPS supports and funds industrial experiments (IE) considering their excellence, their impact on the ecosystem and their industrialization implementation possibility and prospects through three open calls. At least 30 granted IEs are expected for developing innovative CPS products. The IE duration is between 6 and 18 months. The IE targeted products are designed, constructed and built on the eight EuroCPS Platforms:

- Avionics platform provided by Thales,
- Connectivity platform provided by Schneider,
- INEMO platform provided by STMicroelectronics,
- Integrated and open platform provided by AVL,
- Power management platform provided by Infineon,
- Quark platform provided by Intel,
- Silicon processes and package technology platform provided by STMicroelectronics,
- STM32F platform provided by STMicroelectronics.

The 15 EuroCPS partners are major European system suppliers, world-class research centers and technology providers, all rooted in the top European regional ecosystems. They act as networking, competence or platform partners in order to provide all the necessary expertise and competencies to innovators from any sector. The networking partners of the project help in attracting experiments from local ecosystem. The competence partners support the third parties with services to help using one of the technology platforms of the EuroCPS network. The platform partners provide access to their technology platforms (hardware and/or software products) with technical support (knowledge transfer, engineering support).

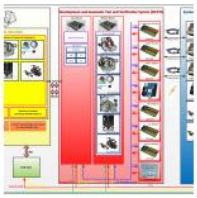
EuroCPS has started in February 2015. The first period of the project was meant to define all the materials necessary to manage the open call procedure, to monitor and report the granted industrial experiments, to enhance the networking and the communication through all the dedicated partners. Besides all these fundamental tasks, two open calls have been successfully launched and managed resulting in the selection of **24 IEs over 72 proposals**. The 9 selected IEs on the first call have all started and some of them have already reached their first milestones. Regarding the 15 selected IEs on the second call, the Standard Agreements signatures are in progress and the projects should start in a close future.

Therefore, after one year of activity, the **attractiveness** for SMEs of the proposed design center model combined with financial support is highlighted by more than 100 SMEs interested in proposing IE and the high-quality of the 72 submitted proposals. The three kinds of projects (SW intensive project, System integration project, CPS with innovative components project) supported by EuroCPS are evenly used by the 24 selected IEs. Except one, all the technology platforms support at least 2 IEs. The **efficiency of the model to build on open tools, platforms and standards** is demonstrated by the completion of the first call thanks to a tight consortium, a simple proposal (5 weeks) procedure, a fast acceptance notification (7 weeks), and a short time to launch IEs. The **capacity to initiate and boost synergies** between SMEs, technology supplier and competences inside and outside their region or traditional market place is underlined by 20% of the submitted IEs coming from European countries not represented by a EuroCPS partner.

The figure below introduces the 9 IEs launched after the first call. They show the capacity of EuroCPS to bring innovative CPS to business from any sectors within the help of networking, competence and platform partners.

Innovation Branding Through Trusted IoT IBT3

Mb/s Green-OFDM IoT

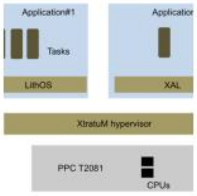


Development and Automatic Test and Verification System (DATVS)

mikrolab

GUDA – Multifunctional graphical universal data display

Localization and Tracking with inertial sensors for agri-food applications (LTIS)



Mixed Critical Avionics on Multicore Xtratum Hypervisor (MCS-MX)

SmartLAB – Sample Management with RFID Tags for Laboratories

SmartSSL

WEETSY2 – Wearable Eye Tracking System V2

The IEs have just started, their impact on SME products and Europe market share will be then evaluated in the second and third periods of the project.