

# ARTEMIS TECHNOLOGY CONFERENCE 2015

6+7 October | Turin, Italy

## D<sup>5</sup>-CPS

### Development & Deployment of Dependable, Dynamic & Distributed CPS applications

#### PROJECT IDEA

This project aims to drastically decrease the cost and complexity to program and deploy dynamically evolving and distributed Cyber-Physical Systems (CPS); it targets **fully self-configuring CPS** that automatically adapt to changing conditions.

To achieve this, the D<sup>5</sup>-CPS consortium will design and develop APIs, software services, and hardware controllers to enable **opportunistic integration of a dynamic and distributed CPS** while satisfying critical business concerns related to **dependability** (security, reliability and energy consumption).

The consortium will build on state-of-the-art technologies (MicroPnP, Contiki, 6LoWPAN, 6TiSCH, OpenWSN, SmartMesh IP, CoAP) to establish a **coherent software/hardware stack** including self-identification of hardware, service discovery, software deployment protocols and domain-specific configurations.

The research will be driven and evaluated by **two business cases** in industrial automation and fleet management:

- **mobile, automated robots** that dynamically integrate with surrounding cameras, scanners and sensors for way-finding and collision avoidance;
- **supply chain visibility systems** demand distributed and dependable CPS infrastructure to collect and process real-time logistics data (e.g. from sensors, cameras, scanners, on-board computers, smart phones).

#### KEY CONTRIBUTIONS

- 100% self-identifying & self-configuring CPS hardware
- ultra low cost, 99,999% reliable, and energy efficient (>6y AA battery)
- deterministic behavior under highly adaptive conditions
- end-to-end security solution through object security
- pilot deployment in industrial environment
- standardization of the solution, e.g. through the IETF 6TiSCH WG



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#### ORGANISATION

> iMinds-DistriNet/KU Leuven

#### CONSORTIUM STATUS

Looking for business case providers, system integrators, software configuration tool providers

#### AVAILABLE KEY PARTNERS

> KU Leuven, Belgium  
> INRIA, France  
> Lancaster University, UK  
> INESC-ID/IST, Portugal