2018 – Ph.D. position
Security in the Extreme Edge of the Internet of Things

Level of qualifications required: Master's degree or equivalent.

Offer: Ph.D. Position.

About Centro de Electrónica Industrial (CEI-UPM):

CEI-UPM has the mission of creating knowledge, developing applications, transferring technology and educating engineers and researchers, in close cooperation with industrial partners in the field of industrial electronics.

Our way of doing includes basic and applied research and new methodologies. We like to think out of the box, looking for broader impact.

CEI-UPM is in the ETSI Industriales, José Gutiérrez Abascal 2, 28006, Madrid, Spain.

Context

The Ph.D. candidate will work with CEI-UPM researchers in the area of Internet of Things and Digital Embedded Systems.

Assignment

This Ph.D. will be part of the SCOTT project (Secure Connected Trustable Things) in the ECSEL call from H2020. The starting date of the Ph.D. is flexible but should be before the 01/10/2018.

Creating trust in wireless solutions and increasing their social acceptance are major challenges to achieve the full potential of the Internet of Things (IoT). Therefore, SCOTT – Secure COnnected Trustable Things, a pan-European effort with 57 key partners from 12 countries (EU and Brazil), will provide comprehensive cost-efficient solutions of wireless, end-to-end secure, trustworthy connectivity, and interoperability (Technology Readiness Level 6-7) to bridge the last mile to market implementation. SCOTT will not just deal with ,things that are connected, but with, trustable things that securely communicate, i.e., things interconnected by dependable wireless technology and valuing the end-users' privacy rules.

SCOTT uses a standardized multi-domain reference architecture, created in a predecessor project (DEWI and its "Bubble concept") and being fully compliant with ISO 29182 – Sensor Network Reference Architecture, which fosters

reusability, scalability, and interoperability of SCOTT solutions. SCOTT also utilizes a clearly use-case driven approach with 15 use cases from different areas of high relevance to European society and industry; a specific focus will be put on cross-domain use cases and heterogeneous environments, emphasizing 5G and cloud computing aspects to build up digital ecosystems to achieve a broader market penetration.

Tangible results from all use cases will ultimately be shown to a broader public via more than 20 demonstrators all over Europe.

Use Cases will be further substantiated by the development and utilization of nearly 50 technical building blocks for security/safety, distributed cloud integration, energy efficiency/autonomy of devices and reference architecture/implementations, which are all necessary to realize the SCOTT use cases and facilitate composability of systems as well as cross-domain sharing of trustable wireless technologies and services.

More info of the SCOTT project here.

Objectives

The goal of this Ph.D. is, therefore, to propose a security framework for the extreme edge of the IoT, within the railway scenario.

Application

We are looking for motivated candidates, please send CV, a motivation letter, reference letters, and any relevant material to jorge.portilla@upm.es.

Requirements for candidate

- Strong programming skills (C/C++ recommended).
- Knowledge of embedded systems and operating systems.
- Basic knowledge of WSN and IoT technologies.

Valuable skills

- Knowledge of cybersecurity.
- Knowledge of hardware design.
- Knowledge of IoT communication technologies.

Remuneration

Contract, annual gross salary amounting to **16.422 €,** in **12 monthly pays**.