OMRON

Assessment of IPC security

Internship project at Omron 's-Hertogenbosch

Omron

Omron has been established in 1933 in Japan and is a leader in the world of industrial automation. Omron is a socially engaged company: from 1959 our key principle is to be "working for the benefit of society". Omron has more than 35.000 employees in 35 countries supporting industry with advanced technology and innovative solutions.

Omron has a strong presence in the Netherlands. Our European headquarters and the Dutch sales organization are based in Hoofddorp. Our site in 's-Hertogenbosch includes a high-quality development center, the European Logistic Centre and an important factory of the Industrial Automation division.

Department

The research and development group of Omron in 's-Hertogenbosch focuses on the hardware for industrial automation controllers and the associated embedded software. The customers are machine- and robot-builders who sell their machines to manufacturing plants. Omron focuses specifically on plants for the packaging of food and beverage where universal controllers (PLCs), temperature controllers, motion controllers and safety systems determine the intelligence of the system[1]. The automation business is competitive and characterized by slow market movements (machines are used for decades), the need for robust products and professionals co-developing with professionals. In addition, customization and modularity is important. Most of the developed products end up in our own factory in 's-Hertogenbosch, and so is this our preferred location for prototyping. The research and development group has skills and expertise to implement complex high speed systems based on both FPGA's and Intel/ARM processors.

IPC security

Omron is looking for a graduate who is interested in working in an Omron office for the duration of 6 months. Being this graduate, you will either work in the Netherlands or in Japan. Your work focuses on the investigation and validation of certain security concerns we are having.

Industrial control in discrete manufacturing is moving more and more into industrial PCs[2]. These IPCs provide an open platform, allowing flexible man-machine and network-machine interfacing. An IPC shall nevertheless be very reliable and secure, because it is operating in an industrial environment. Some important questions to be answered are:

− How can we ensure the system's integrity, i.e. how can we ensure that the machine produces correctly?
− How can we ensure availability, i.e. how can we prevent downtime and keep the system up and running?
− How can we keep relevant data confidential and which data is part of this relevant data?

As a graduation student, you will collaborate with Omron R&D organization to answer the security questions and eventually contribute to Omron's product development. After the 6 month period, the internship is completed with a presentation and report.

Contact

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[1] Omron, Industrial Automation for packaging: http://industrial.omron.eu/en/solutions/packaging

[2] Wikipedia, Industrial Computer: http://en.wikipedia.org/wiki/Industrial_PC

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