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Endian Case Study - **Smart Mini Factory at the University of Bolzano**

Smart Mini Factory
Laboratory for Industry 4.0
unibz

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Fakultät für Naturwissenschaften und Technik
Facoltà di Scienze e Tecnologie
Faculty of Science and Technology

Endian ensures IT security in the Smart Mini Factory at the University of Bolzano

"By using the Endian Secure Digital Platform, we are protecting our learning factory, while at the same time we show companies and students how IT security can be implemented in networked production environments,"

Dr. Erwin Rauch,
head of the Smart Mini Factory

Smart factories offer a wide attack surface for cyber criminals. That is why the Free University of Bolzano is securing its "Smart Mini Factory", a learning factory for Industry 4.0 technologies, with the Endian Secure Digital Platform. In addition to comprehensive IT security, the platform enables the use of edge computing and the management of roles and rights.

"By using the Endian Secure Digital Platform, we are protecting our learning factory, while at the same time we show companies and students how IT security can be implemented in networked production environments," says Dr Erwin Rauch, head of the Smart Mini Factory.

"With its numerous connectivity points, every intelligent factory has a large attack surface for cyber criminals," adds Endian CEO Raphael Vallazza. "Therefore IT Security has to be a key issue for any smart factory."

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Raphael Vallazza,
Endian CEO

Granularly coordinated IT security for optimal protection

A cyberattack on a networked factory can be life-threatening in extreme cases, for example if an employee is near a machine that is set in motion by a cyberattack. For this reason, the University of Bolzano decided on network segmentation and separated some machines of the Smart Mini Factory from the general network via the Endian 4i Edge X IoT security gateways.

Via several coordinated security functions, the gateways simultaneously protect the connected infrastructure from cyberattacks: a Virtual Private Network (VPN) enables secure remote access and encryption of the network. All data entering and leaving the network is analysed via Deep Packet Inspection (DPI). If an attacker manages to overcome the firewall, an intrusion detection system (IDS) automatically detects the attack and the intrusion prevention system (IPS) blocks it.

Heterogeneous systems networked

In the Smart Mini Factory, different systems are connected to the gateways, for example an intelligent transfer line system from Montratec, a collaborative robot from Universal Robots (model UR10), the Adept Quattro industrial robot from Omron and another industrial robot from ABB.

Self-created units are also networked via the gateways, such as an intelligent warehouse and a station for quality control. In addition, each shuttle of the transfer line is equipped with edge computing power to achieve precise positioning in space thanks to the collection and decentralized elaboration of data collected from inertial measurement units.

Simulate user groups

In addition to the gateways, the Endian Secure Digital Platform also includes the switchboard. This is the platform's central management tool, which can be used to create and manage granular role and rights administration. It can be used to set up realistic user groups in the Smart Mini Factory, demonstrating the presence of different actors in a business-like scenario to provide more authenticity.

Learning factory for knowledge transfer

The Smart Mini Factory is a learning factory laboratory for applied research and teaching. It is intended to form a platform where scientists, students as well as industry and trade meet to create a transfer of knowledge from research to practice.

The aim is to explore and simulate various modern and advanced concepts of production technologies and methods in the context of Industry 4.0. The focus is on the requirements of small and medium-sized enterprises (SMEs) for hybrid and human-centred production and assembly systems as well as robotics and mechatronics for industrial automation.

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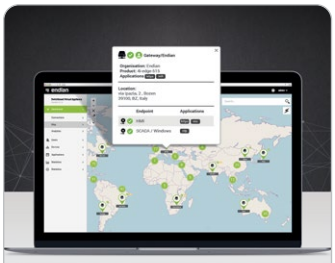

The **Endian Switchboard** is the heart of the Endian Secure Digital Platform that provides secure remote access to field equipment, data collection and visualization, edge computing and powerful user and device permission management.

About Endian:

Endian is a leading security manufacturer in the field of Industry 4.0. The company's declared goal is to set technological standards in the market for highly secure data communication. Based in Bolzano, South Tyrol, the company was founded in 2003 by CEO Raphael Vallazza and a team of experienced network specialists and security experts. The product portfolio ranges from security solutions for SMBs and hotspot management to solutions for industrial production facilities. In addition to the enterprise products, Endian offers a free-to-use Community Edition, which is one of the most popular open source UTMs with over 2.2 million downloads.
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