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Smart Factory Web: a new IIC testbed

On September 19, 2016, the Industrial Internet Consortium® (IIC™) approved the Smart Factory Web as a new member of its family of testbeds to validate its Industrial Internet Reference Architecture (IIRA) and technologies for the Industrial Internet of Things. The Smart Factory Web testbed will be deployed and operated by the Korea Electronics Technology Institute KETI and the Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB). The Smart Factory Web aims to form a network of smart factories with flexible adaptation of production capabilities and sharing of resources and assets to improve order fulfillment.

The initial smart factories in the Smart Factory Web are two operational factories in Germany: a) the model factory Plug&Work of Fraunhofer IOSB in Karlsruhe and b) selected equipment of the SmartFactoryOWL in Lemgo, an initiative of Fraunhofer and the OWL University of Applied Sciences. The model factories of KETI planned in Korea in Pangyo and Ansan will also be an integral part of the Smart Factory Web. They will be linked to the German model factories to achieve a cross-factory, cross-organization usage scenario.

The Korean-German collaboration between KETI and Fraunhofer IOSB will enable the establishment of the Korean smart factories and will advance the international usage of key standards such as AutomationML for the plant description and OPC UA as communication mechanism as well as architectures for Industrial Internet of Things systems. Secure Plug&Work techniques will be applied to adapt factories on-the-fly by inserting new manufacturing assets into the factory production with a minimum of engineering effort.

The German model factories are also members of the Labs Network Industrie 4.0. "It is planned to propose the Smart Factory Web as a joint IIC-Industrie 4.0 testbed. This is where we can investigate and demonstrate the compatibility between IIRA and RAMI4.0, the respective reference architecture models of IIC and Industrie 4.0" says Kym Watson, deputy head of the department Information Management and Production Control (ILT) at Fraunhofer IOSB, who led the Smart Factory Web team through the IIC testbed approval process.

According to Byunhun Song, head of the KETI Smart Factory ICT Center, "the Smart Factory Web is the first testbed in Korea approved by the IIC. This will have great influence on the distribution of the smart factory technology in Korea, especially, as it will enable interoperability between IIC and Industrie 4.0". This activity is established and operated by the Korea Smart Factory Foundation (KOSF), and financed by a grant of the Ministry of Trade, Industry and Energy (MOTIE).

"The Smart Factory Web is open to other companies. Providers of factory components, in software or hardware, and operators of smart factories around the world are invited to contribute to the Smart Factory Web if they comply with the idea of a collaborative factory network based upon open standards", emphasizes Thomas Usländer, spokesperson of the Fraunhofer IOSB business unit Automation and head of the department ILT at Fraunhofer IOSB, who originally launched the testbed idea. A call for collaboration has been issued through www.smartfactoryweb.com.

"In addition to the technological innovations the Smart Factory Web will enable new business models when implementing the Industrie 4.0 use case 'Order driven adaptive production' in the manufacturing domain. This will also strengthen and promote the »it's OWL« initiative", states Jürgen Jasperneite, head of the Fraunhofer IOSB Application Center Industrial Automation (INA) in Lemgo, Germany, which is a founding member of the leading-edge technology cluster »Intelligent Technical Systems OstWestfalenLippe - it's OWL«.

About KETI
KETI is a R&D institution specialized in the electronics & IT areas under the Ministry of Trade, Industry and Energy. Since its establishment in 1991, KETI has advanced the competitiveness of small and medium-sized enterprises in Korea's flagship industries and new industries. The KETI team led by Byunhun Song (leader of Korean Smart Factory Web Testbed) actively participates in the Smart Factory ICT research. The main goal is to implement an Industrial Internet of Things (IIoT) Platform which supports connection with OPC Unified Architecture and integration with IoT/M2M services.

For more information visit http://www.keti.re.kr/e-keti/

About Fraunhofer IOSB
The Fraunhofer-Gesellschaft is a leading organization of institutes of applied research in Germany, undertaking contract research on behalf of industry, the service sector and the government. Fraunhofer-Gesellschaft is actively involved in industrial consortia seeking technical solutions to improve the competitiveness of industry. At present, the organization maintains 67 research institutes with some 24,000 employees at locations throughout Germany.

The Fraunhofer-Institute of Optronics, System Technologies and Image Exploitation (IOSB), with locations in Germany at Karlsruhe, Ettlingen, Ilmenau and Lemgo, has 450 permanent employees, of which 345 are scientists or engineers, and has annual operational costs of about 53 million € (2015). IOSB develops innovative concepts and application solutions in information technology in business units 'Automation', 'Energy, Water and Environment', 'Automated Visual Inspection', 'Defense' and 'Security'. IOSB has over 30 years of experience in the requirements analysis, design, implementation and optimization of complex information management and control systems for factory automation using modern model- and knowledge-based methods.

For more information visit http://www.iosb.fraunhofer.de/servlet/is/12579 .

About Industrial Internet Consortium
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For more information visit http://www.iiconsortium.org .