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SPRINT

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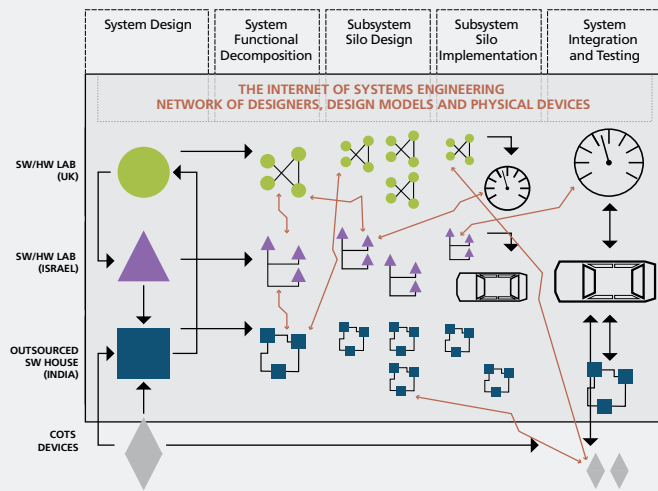www.fokus.fraunhofer.de/en/sqc
www.sprint-iot.eu

Internet of Systems Engineering

SPRINT (Software Platform for Integration of Engineering and Things) is an international collaboration of industry leaders and research institutes which aims to connect virtual and physical components of the entire circle of product development by introducing new concepts related to the Internet of Things paradigm. The new software platform enables the effective verification through system design and deployment phase.

Accelerating the Engineering of Complex Systems

The product complexity increases due to rapid technology innovations but also because of heterogeneous combinations of mechanical, electronic and software components such as in aircrafts or automobiles. To guarantee high quality while producing products efficiently and competitively it is necessary to improve and accelerate the design and implementation of complex engineering systems. The present design approach is a „siloed" one. Each phase of the development process is mostly separated into units and confined to a single development team or company. But today's reality of geographically distributed collaborative projects and multi toolvendor environments requires massive coordination and information exchange. The actual integration and testing of various components is only possible in completely assembled systems. SPRINT addresses the challenges of early and continuous integration in multi-domain and multi-location teams by fostering the established concepts of Internet of Services and Internet of Things to the concept of Internet of Engineering and Things. Due to the connection of physical and virtual components as well as collaborating engineers via Internet full control of the entire design process is possible and most efficient.

THE INTERNET OF SYSTEMS ENGINEERING
NETWORK OF DESIGNERS, DESIGN MODELS AND PHYSICAL DEVICES

SW/HW LAB (UK)

SW/HW LAB (ISRAEL)

OUTSOURCED SW HOUSE (INDIA)

COTS DEVICES

Approach: Internet of Systems Engineering

Key Innovation and Technology Approach

The platform includes novel early verification approaches involving virtual integration of mathematical models of components to alleviate problems of late error discovery since it supports the entire development circle – from product design over integration and verification up to deployment. It simplifies the development process and offers a novel design approach working with contract definitions.

Rich interfaces to things can be defined as to their correct interconnection over the Internet and the development of verification methodologies performing at run-time. To provide a virtual collaboration infrastructure every physical device must be connected to Internet via REST to HTTP. The platform endorses the IBM Standard OSLC (Open Services for Lifecycle Collaboration) which aims to facilitate tool integration, establish robust and flexible connections and make more data accessible. SPRINT supports the entire design process by providing tool testing, data storage and High Level Architecture (HLA) for simulation.

Application and Benefits

Within the Internet of Systems Engineering multiple design teams in different locations with many design, test and simulation tools as well as physical devices are interconnected. SRPINT connects the tools used by the different companies to present a single unified picture of the system being developed. This innovative Software Platform for Integration of Engineering and Things facilitates the control of the entire design process and enables effective verification through the system design and deployment phase. Moreover, such a software platform can accelerate system verification and deployment by providing real time feedback to designers anywhere.

The exchange among widely distributed devices and design teams becomes easier, the development process of complex products will be more effective, costs can be minimized and quality is guaranteed. SPRINT is an international collaboration with EADS UK, Israel Aerospace Industries, IBM Haifa Research, Mathcore, ALES and Elvior to simplify the design of complex engineering systems.

Support

– Geographically distributed collaborative projects
– Multi-tool vendor environment
– Multiple design methodologies
– Design data isolation

making cities smart