

Industry 4.0 on a Shoestring: Low-cost approaches to Digitizing and Automating in Industrial Operations

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Session description:

This special session deals with how low-cost and off-the-shelf solutions can be applied to industrial processes in small and medium enterprises (SMEs) dealing with manufacturing, construction, logistics, and even healthcare. These low-risk solutions are typically applied peripherally, and can be positive enablers and motivators of early digitization for small companies. They may also lead to large-scale adoption of digitization technologies towards transforming the SMEs into Industry 4.0 compliant ones in the long run. Interestingly, many SME early digitization needs can be captured by a limited set of solutions that can be adapted across companies within an application domain (such as manufacturing) or even across different application domains.

The goal is to investigate how simple, one-off digital solutions can be impactful across various application domains, their limitations, and the apparent advantages they offer besides digitization of infrastructure and processes. Motivating use-cases of similar efforts across the globe in academia and industries are equally welcome. In the long run, this special session aims to lay the groundwork for standardizing, validating, and defining the good practices and procedures for developing low-cost, low-risk digitization solutions from off-the-shelf components, primarily focusing on the applications in manufacturing, construction, logistics, and healthcare.

More broadly, the session invites any papers that are focused on developing low-cost digital solutions for manufacturing. The topics of interest include, but are not limited to:

- Digital manufacturing
- Industry 4.0
- Sensor networks and networked control,
- Sensor/data fusion
- IoT/ Industrial IoT
- Low-cost automation
- Manufacturing Systems
- Factory Modelling and Automation,
- Integrated Manufacturing,
- Monitoring and Supervision,
- Process Automation
- Sensors, Instrumentation and Actuators,
- Condition Monitoring,
- Image Processing,
- Industrial processes and Industry 4.0,
- Smart Technology,
- Software engineering