

**Workshop:****Remote, Virtual or Mixed: RFID Measuring Chamber for Building up IoT Competences****Purpose/Objectives**

In the Workshop we want to demonstrate three digitized versions of one lab and we would like to discuss the technical implementation and the didactic design decisions, that have been made to provide the labs for study and teaching. On this basis, we would like to work with the participants on evaluation criteria for the lab-based learning activities in order to figure out, which laboratory can meet which learning objectives.

**Duration**

2 Hours

**Presenter(s):**

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**Short description/Abstract**

RFID is one of several important key technologies in Industry 4.0. To train lab-based knowledge and skills for future engineers and to support learners as well as researchers with real lab equipment, the Project Open Digital Lab for You (<http://digilab4u.com>) developed for the Hochschule für Technik Stuttgart (HFT Stuttgart / University of Applied Sciences Stuttgart) a digitalized RFID lab environment for a cross-institutional use.

Based on a laboratory for the measurement of RFID transponder, we present three different digitized versions of this lab, which allow the user a virtual or remote access. In DigiLab4U, we currently provide three ways of running RFID Measuring experiments without attending to the real laboratory:

1. Conducting remote experiments via a web interface.
2. Conducting virtual reality experiments with simulated data (currently used for preparation).
3. Conducting remote experiments via VR, means combining remote and virtual to gain real data (implementation has been started. We hope to gain a presentable version until REV 2021).

The first two digitized approaches are already implemented and first outcomes of a formative evaluation of them could be presented. We will summarize the key outcomes for learning and teaching processes, concerning the following topics: general aspects of the design of the learning environment, didactical methods (e. g. support of self-regulated learning), media- and tool evaluation, evaluation of human and non-human resources.

In the Workshop we would like to discuss the design and implementation of the three above presented lab-versions, concerning the following questions:

- Technical implementation
- Selected aspects of media-didactical Design
- Potentials and limits of the respective laboratory versions for study, teaching and research
- Define Evaluation criteria for remote labs

Finally, we would like to work with the participants on evaluation criteria for the lab-based learning activities in order to figure out, which laboratory can meet which learning objectives.

**Equipment needed by participants:**

PC with Internet connection: Each participant who is interested into doing remote experiment, need to have access to a PC with Internet connection.