Industry 4.0 advanced laboratory for technology demonstration and cutting-edge research

**Technological demonstrator** on display, close to city exhibition center

**Leading** market, **industrial** grade hardware and software

**Research** enabled

**Holistic** approach to **Industry 4.0**

**Connected** with the University of Verona **Computational Platform**

Plant simulation on **Digital Twin**

**High speed**, dedicated **fiber broadband** connection

**Cooperation** with local companies

Close to **Verona Fiere** city exhibition center

**1km** from A4 **motorway**

**2.5km** from city center

**Bus** from airport and **railway**
Laboratory Architecture
ICE Laboratory will be equipped with state-of-the-practice, Industry 4.0 compliant machinery. Subtractive manufacturing, assembly and disassembly, quality control are the phases common to many industries: ICE Laboratory will exploit these techniques by combining them with innovative approaches like 3D printing. All phases will be interconnected by a smart logistic system composed of a conveyor belt strongly integrated with mobile robots. A camera tracking system will cover the whole area providing safety by monitoring robots and operators positions. The packing station will pack the finished products that will be placed in particular trays of the vertical storage system. The laboratory is designed to be easily extendable with new technologies or integrated with industry partner systems.

A Complete Software Stack
ICE Laboratory will be controlled by a modern software stack, able to exploit the physical machines as well as possible. The adopted stack will contain leading market and open source software solutions. These two types of software can share data between each other and they are interchangeable at each layer, making the laboratory suitable for both industry and research.

A Digital Twin of the lab will be realized, while a completely integrated cloud platform will collect data from all the layers, make analysis and provide feedback to the plant. The necessary processing power will be provided by the University of Verona Computational Platform.

Opportunities
ICE Laboratory will represent a big opportunity for interested partners:
- access to the Computer Science Department knowledge and support capabilities
- allowing partners to test new technologies in a controlled environment;
- being used as a showroom to push new technologies in industry.

Dipartimenti di Eccellenza
ICE laboratory is born in the context of the excellence project “Informatica per Industria 4.0” won by the Computer Science Department of University of Verona and funded by the MIUR (Italian Ministry of Education, University and Research).
Two millions of euros have been funded for this project.