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The European Coordination Hub for Open Robotics Development

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Experiments Call II Kick-Off

Experiment Presentations

Palma de Mallorca, Spain

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Bristol Robotics Laboratory

BLUE OCEAN ROBOTICS
- for humans

RUROBOTS
Cognitive Science at Work

SEVENTH FRAMEWORK PROGRAMME

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The European Coordination Hub for Open Robotics Development

WIRES
WIring Robotic SystEm for Switchgears

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Bristol Robotics Laboratory
BLUE OCEAN ROBOTICS – for humans
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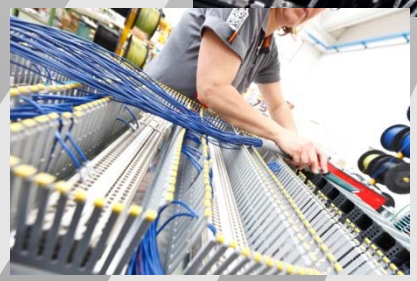
Brief Experiment Description

The **WIRES** experiment aims at developing the basic tools and techniques for enabling the robotized switchgear wiring in the industrial scenario

- Switchgears are found in power generating stations and substations, commercial and institutional buildings, industrial plants, automatic machines, civil houses
- The production is characterized by large variability and small production lots
- Automatic solutions for switchgear wiring are very limited
- Reduced flexibility and programming time and cost

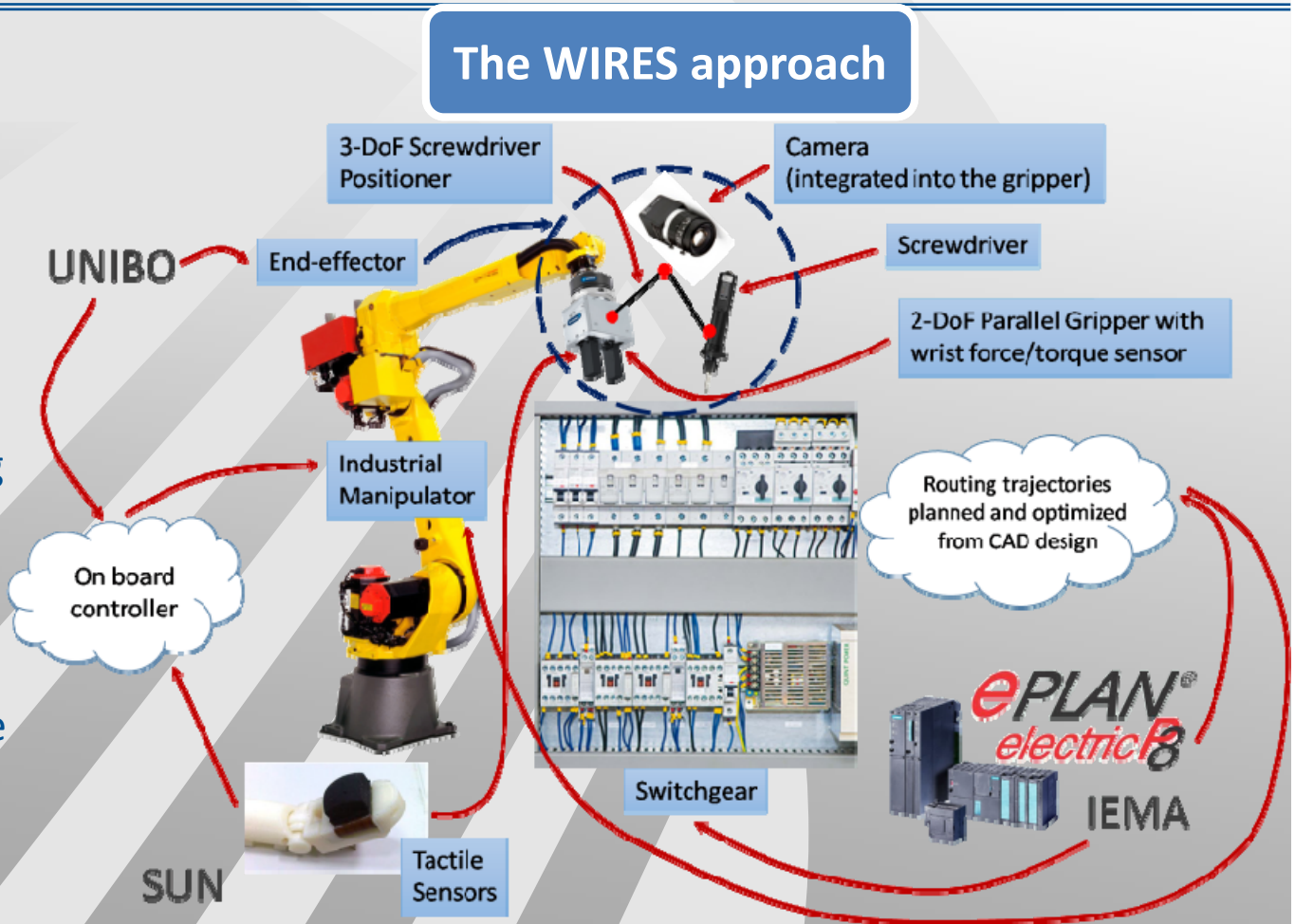


The wiring process is executed by human operators

Novelty/Objectives

A **software package** for extracting the data from the switchgear design files and optimizing the wiring procedure and an **end effector** for electric cable connection

- **Software objective:**
  - optimization of the wiring sequence
  - planning robotic trajectories for wiring tasks
- **Hardware objective:**
  - end effector for wiring operations
  - with force/tactile sensors for detecting wire orientation, 3D camera and orientable screwdriver



Impact

The **WIRES** experiment will have strong socio-economic and scientific impacts on different fields, enabling the manipulation of deformable objects in industry

- **Impact on product cost and company income**:
  - estimated wiring time reduction of about 40%
  - **additional sales volume** of about **4M€**, with an increase of about 53%
  - **traceability**, product **quality** and **time to market reduction** of about **10 days** (-26%)

- **Additional impacts:**
  - **patent application**, e.g. tool for robotized wiring
  - **cross domain application and collaborations**, in the field of industrial manufacturing involving deformable object manipulation
  - **job creation**, a start-up for commercializing WIRES experiment outcomes

- **Scientific impact**:
  - **exhibitions and fairs** to attract stakeholders, switchgear manufactures, robot designers
  - peer-reviewed **scientific publications** and **conferences**, organization of **workshops**