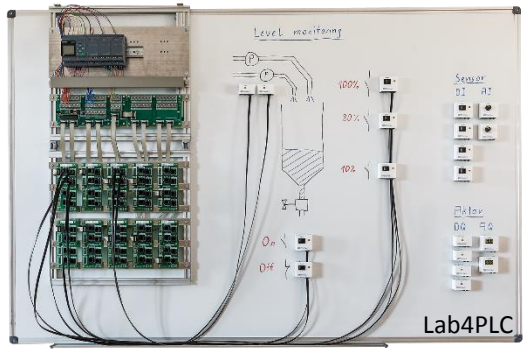
Lab4PLC

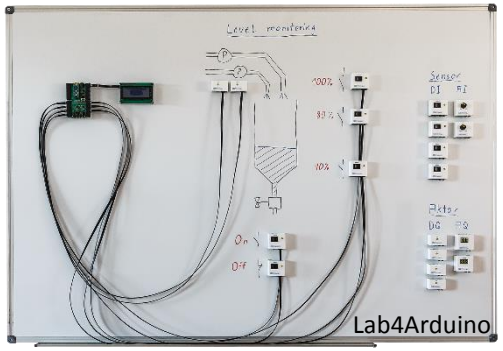
industry independent / application independent

Lab4Arduino

Flexible → Individual → Innovative

Simulate	• whatever **you** need
Test	• what's necessary for **you**
Training	• whatever **you** want
Visualize	• what **you** want to present





Use Lab4PLC and Lab4Arduino

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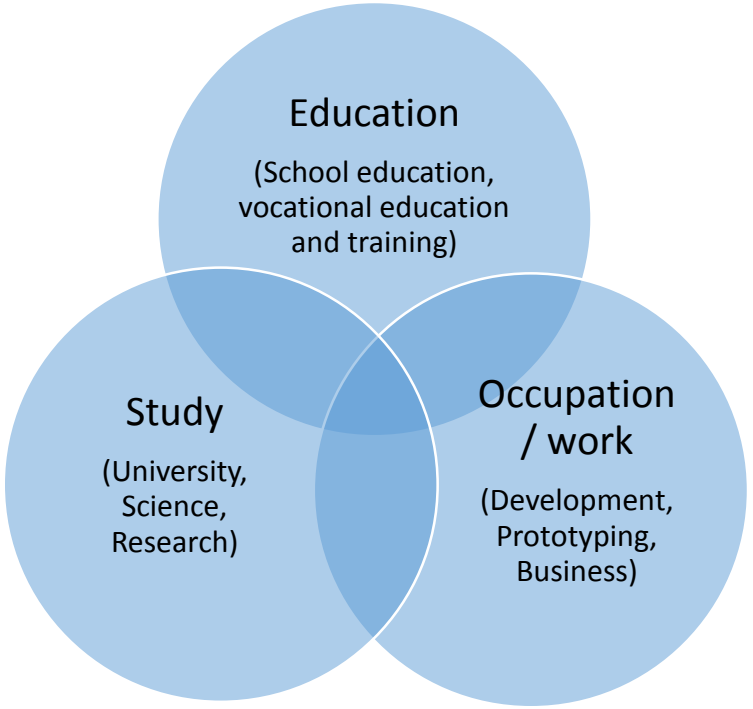
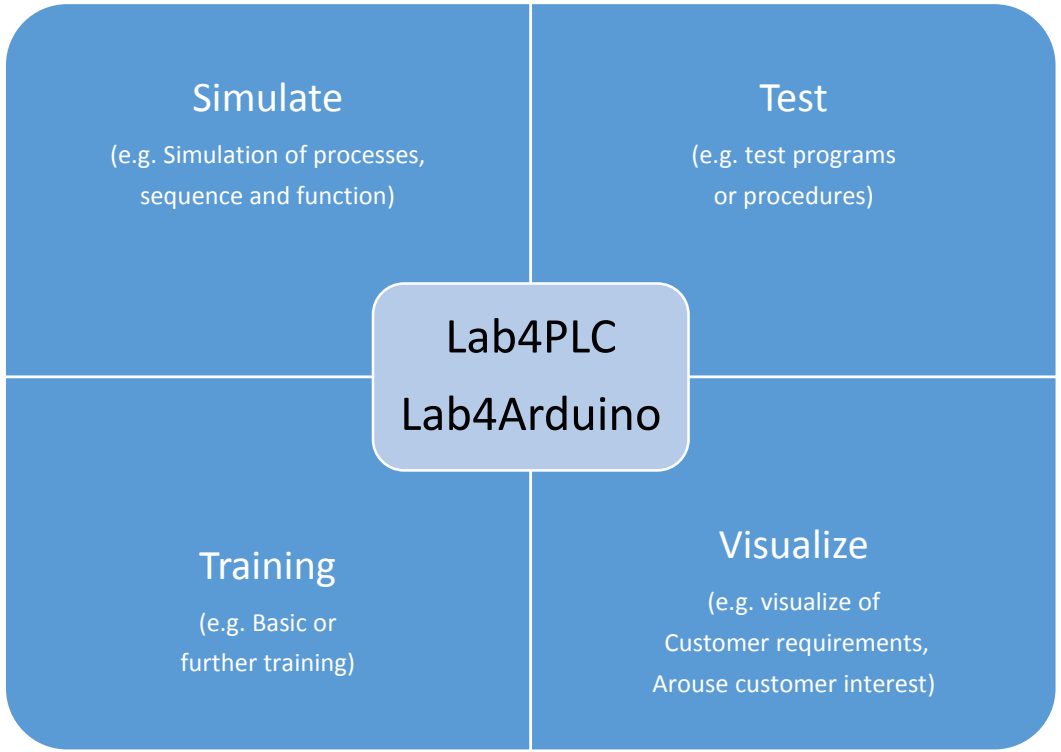
Flexible use



Supported technologies

- Industry 4.0
- IoT
- Smart Home

Visualization toolset



What is Lab4PLC and Lab4Arduino?

The Lab4PLC and Lab4Arduino visualization toolset provides a simulation, testing, training or visualization environment for education, study or work on a whiteboard or workplace*. With this environment, it is possible to build up and display any visualizable requirement regardless of industry and application.

Simulate whatever **you** need, test what's necessary for **you**, train whatever **you** want, visualize what **you** want to present.

Lab4PLC and **Lab4Arduino** is the simple and flexible tool that will assist you in all these tasks. You determine the limits of the application possibilities!

The modular design of the Lab4PLC and Lab4Arduino allows this system to be perfectly adapted to your needs. This makes solutions from small tasks to Industry 4.0, IoT and Smart Home feasible.

* Pad with metal paper and whiteboard functionality

What makes Lab4PLC - Lab4Arduino special

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Standard

- Learn and test
- Many different tasks on pre-made Trainingscards included
- Trainingscards in three difficulty levels (Level 1 to 3)
- Suitable for beginners and advanced

Flexible

- Visualization of individual requirements
- Supports practical training in school, training company, training center, ...
- Useable in the test center to examine solutions for feasibility and function
- Simulation of individual customer requirements in sales pitch or presentation in the showroom, school education, vocational education and training

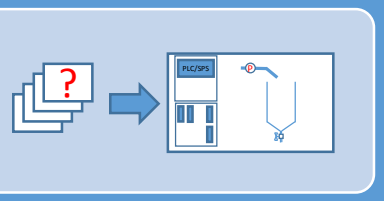
Individual

- Industrial and application independent
- Supported technologies: Industry 4.0, Smart Home, IoT (Internet of Things)
- Flexibly expandable to visualize complex tasks
- Several Lab4PLCs (different PLC manufacturers and types) and / or Lab4Arduino can be connected

Innovative

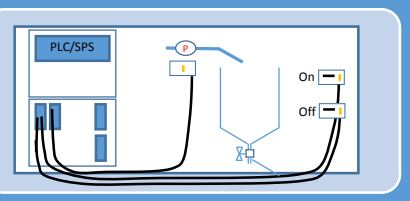
- Tasks and solutions can be flexibly changed or adapted at any time
- The procedure from the task to the solution can be chosen flexibly
- Independent of PLC manufacturer (for details see "technical specification")
- Can be used on the whiteboard or the workplace

Application example – Training (many more possible)



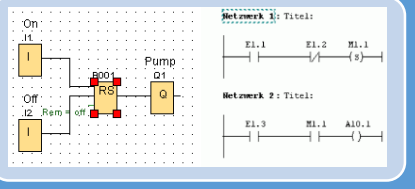
Selection of a task

- Selection of a task, e.g. from the included Trainingscards
- Visualization of the task on the whiteboard or
- Visualization of the task on a pad of metal paper with whiteboard function on the workplace



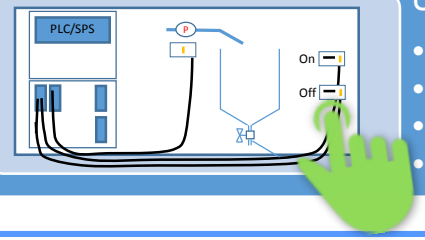
Technical properties

- Specify the sensors and actuators (function, default, range, ...)
- Definition of the inputs for the sensors and outputs for the actuators
- Add the sensors and actuators
- Connect the sensors and actuators to the lab



Switching program

- Development of the program (switching program) for PLC or Arduino
- Load the program (switching program) to PLC or Arduino



Using the Lab4PLC or Lab4Arduino

- Simulate the chosen task
- Testing the functionality -> possibly error analysis
- Execution of the training (use cases / exceptions)
- Visualization of the use cases

Technical Specification - Lab4PLC

- Can be used with PLC controls from different manufacturers
  e.g. Siemens (e.g. Logo, S7-1200, S7-1500,..), Beckhoff, Bosch Rexroth, Phoenix Contact, Eaton, Schneider, Moeller, Controllino (Mini, Maxi, Mega),…
- Operating voltage 12 or 24 volt
- Inputs / Outputs:
  - Digital Inputs 8, 16, 24, max. 32 (expandable by additional Lab4PLC or Lab4Arduino)
  - Digital Outputs 8, 16, 24, max. 32 (expandable by additional Lab4PLC or Lab4Arduino)
  - Analog Inputs 4, max. 8 (expandable by additional Lab4PLC or Lab4Arduino)
  - Analog Outputs 4, max. 8 (expandable by additional Lab4PLC or Lab4Arduino)
- Analog voltage range switchable
  (0 - 10 Volt or 0 - operating voltage)
- Technical specifications of the PLC manufacturer must be observed
  (e.g., operating voltage, functional range)
- Provided and supported extensions of the PLC manufacturer can be used
  (e.g., protocol, software-, app-, cloud-features)

Technical Specification - Lab4Arduino

- Suitable for „Arduino Nano“
- Pin compatible Arduino Nano Board required
  (recommended original „Arduino Nano“)
- Operating voltage: 7 - 12 volt
- Inputs / Outputs:
  - Digital Inputs / Outputs : 10 Ports (4 Outputs with PWM)
  - Analog Inputs: 4 Ports (0 till 5 volt)
  - I²C: 2 Ports
  - H-Bridge: 2 Ports (each 5 volt, usable as motor driver)
- Technical specifications of the Arduino Nano must be considered
  (e.g., operating voltage, functional range)

Sensors and Actuators

Sensor

Switch (Digital)

Tactile or switching function

Adjustable function as normally open or normally closed

Visualization of the signal status via LED

Value (Analog)

Voltage setting for analog value

Analog value dependent on selected voltage range (0-10 volt or 0 – operating voltage)

Actuator

LED (Digital)

Signaling of the signal status via LED

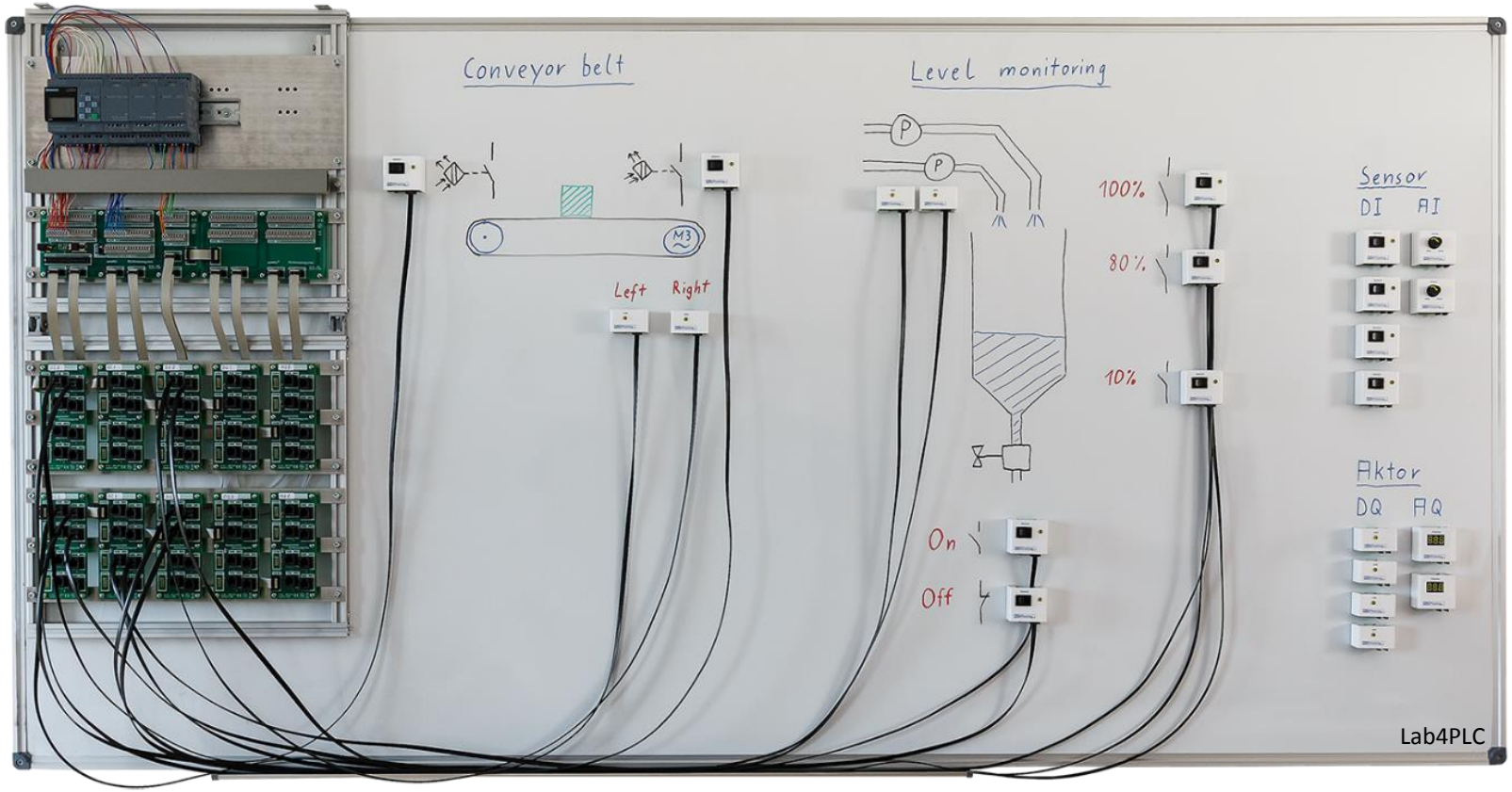
Display (Analog)

Voltage display for analog value

0.0 - 24.0 volt, 3 digit

Photo documentation of possible applications

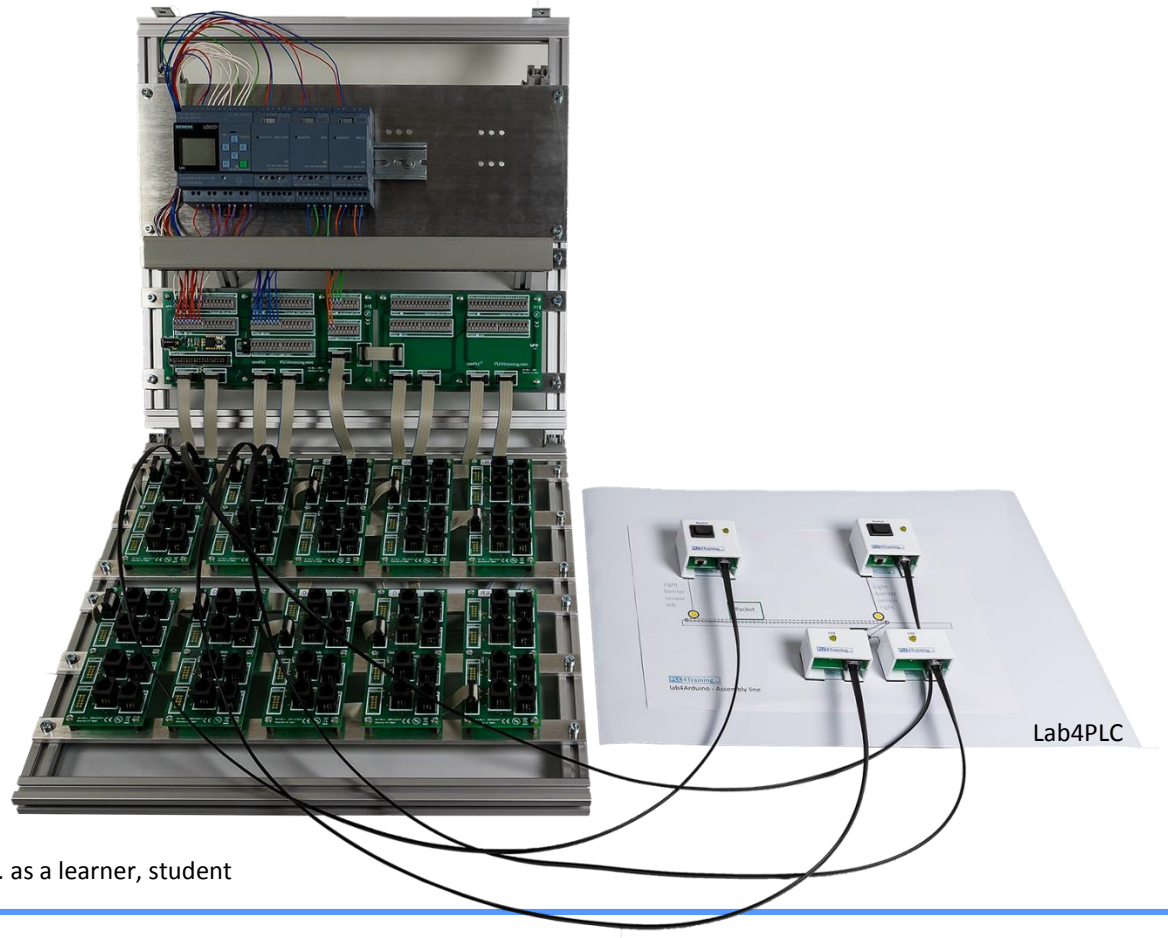
Whiteboard with Lab4PLC: Control reversing conveyor and level monitoring



e.g. as a moderator, trainer, learner, student

Photo documentation of possible applications

Workplace with Lab4PLC: Control reversing conveyor



e.g. as a learner, student

Sample: Simulation Boolean term AND

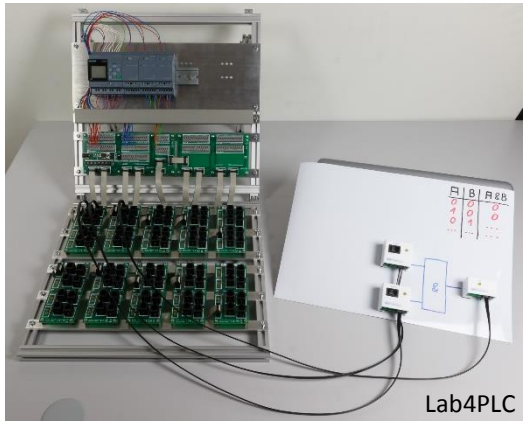
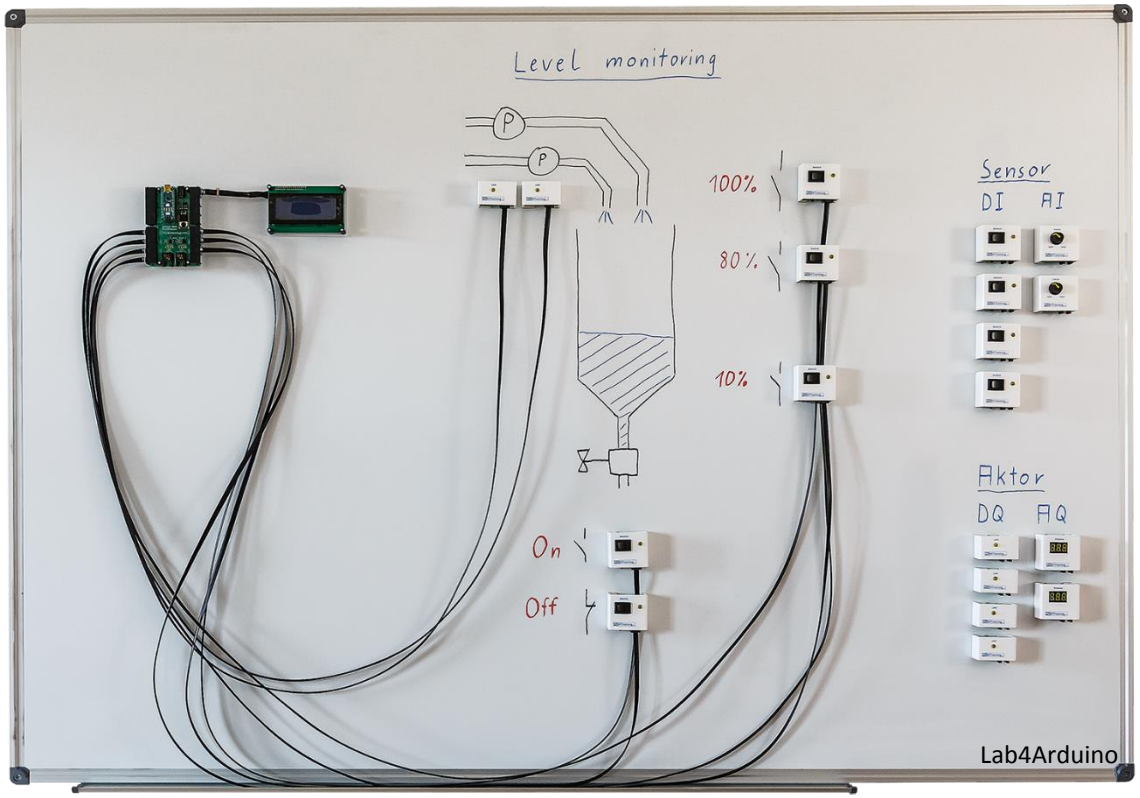


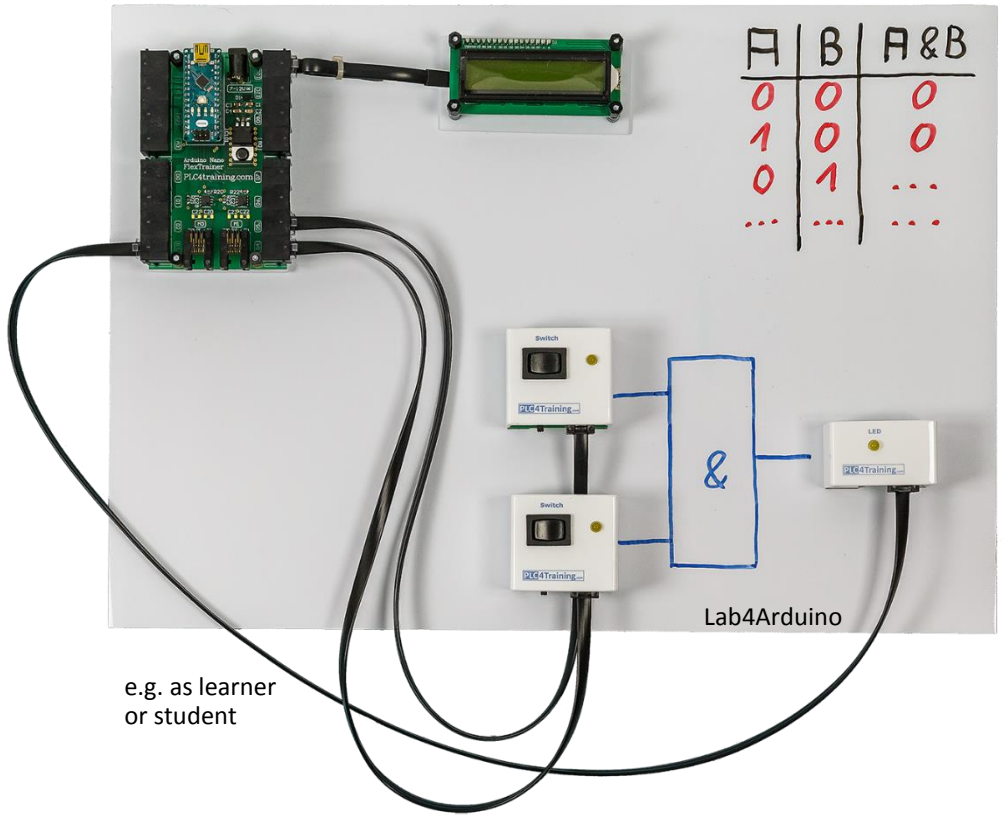
Photo documentation of possible applications

Whiteboard with Lab4Arduino:
Control reversing conveyor



e.g. as a moderator, trainer, learner, student

Workplace with Lab4Arduino:
Simulation Boolean term AND



e.g. as learner
or student

Info and Contact

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  Website www.PLC4Training.com or on
  Facebook www.facebook.com/PLC4Training
  We are happy to present our products in your office.
  We answer your questions by e-mail or telephone.
  We are looking forward to your contact request.

- **Contact:**

  Pfeiffer-IT GmbH
  Am Schiebelsberg 14
  87499 Wildpoldsried (Germany)
  Phone: +49 8304 923 7980
  E-Mail: Info@PLC4Training.com