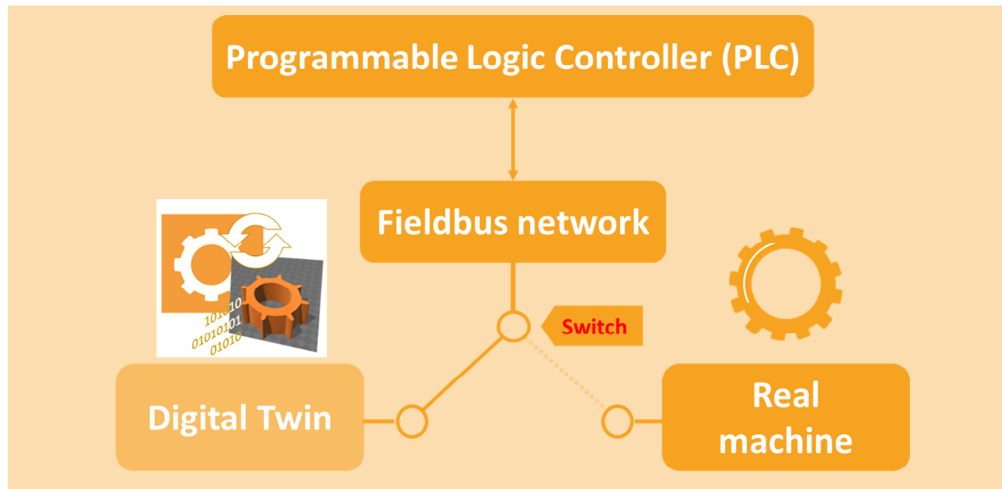




Teaching Digitalization and Systems Modeling for Virtual Commissioning Using Virtual Labs

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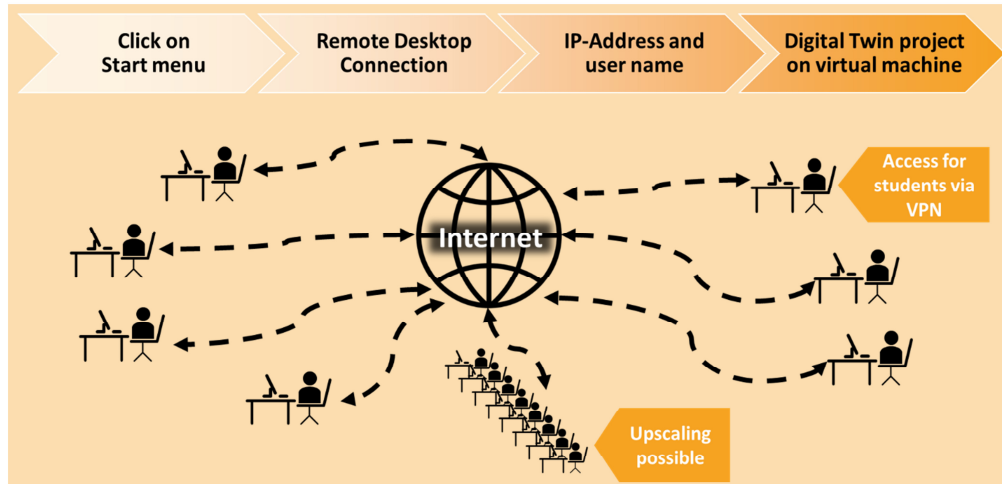
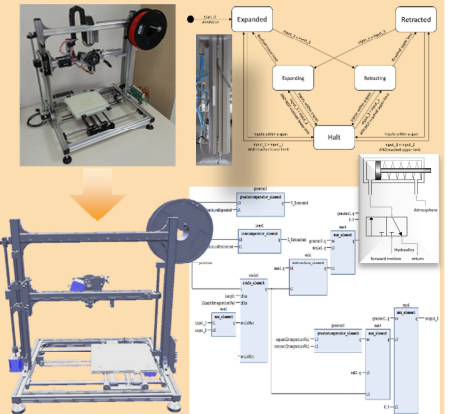


Theoretical part with E-Learning



- Organizational matters and Team building
- How to Remote Access the VC teaching lab
- Engineering of production plants
- Virtual Commissioning
- Programmable Logic Controller (PLC)
- Fieldbus standards and network topologies
- Software concepts for Virtual Commissioning
- Modelling mechatronic components

Practical part with PBL



Description of ICT components

Component	Requirements/Features	Specifications/Details	Additional Features
STUDENT	Student PC	Remote desktop connection (RDP)	Sufficient bandwidth
	Windows®	Screen transfer	Virtual private network
VIRTUAL DESKTOP	Virtual Desktop	60 GB hard disk / 16 GB RAM	Multiple virtual screens
	Licenses	PLC programming environment	Emulated PLC runtime
	VPN connection	Software for virtual commissioning	Applications
HOST PC	Virtualization software	Sufficient disk space and memory	Access management
	Or Type-1 Hypervisor	Set-up and administration	Security dongles