



Böblingen (visitable at short notice)

INDUSTRY 4.0 SCENARIO IN IT TRAINING

Solution for training and continuing education – Robot and simulation environment for the technical production environment

SUMMARY

Trainees in future will gain early experience of modeling a digital twin and programming a robot in a virtual environment and a real environment, using the latest software and hardware solutions.

CURRENT SITUATION

Until now, IT students at the Data Processing Academy got their first taste of the world of robotics in a teach box. To bring the way they learn about robotics up to date, a virtual learning environment (digital twin) was created when the robot was replaced, allowing the students to familiarize themselves with the movements and programming of a 6-axis robot in a fun and risk-free context.

PROJECT DESCRIPTION

In future, the students will achieve the following goals:

- gain early experience of the behavior and programming of robots with a virtual model
- be able use the camera embedded in the robot gripper to recognize the position of components and read QR codes
- be able to program robots graphically and output the robot specific code using a postprocessor
- be able to observe the results in the actual system
- learn how to model changes to the robot cell or new systems using 3D simulation software
- address the robot controller using Industry 4.0 interface programming

INDUSTRY 4.0 FEATURES

- Creation of a digital twin
- Use of a digital twin to visualize the actual robot environment and verify robot programming
- Human machine collaboration with a multi-axis robot



PARTNERS



Gottlieb-Daimler-Schule 2
Technisches Schulzentrum Sindelfingen
mit Abteilung Akademie für Datenverarbeitung



SOLUTION

- Custom-built unenclosed lightweight robots with camera and printer – a site-specific mobile solution for training
- Simulation of robot application in industry-neutral simulation software with comprehensive library
- Use of the open software system for the import of CAD data and the export of controller data to the robot

CONTACT

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STANDARDIZATION APPROACHES

Visual robot programming in a neutral or open source language and compilation in a postprocessor to create controller-specific code. Data exchange between the robot controller and the virtual environment should be possible by trainees themselves using administration shells.