

Use case 8: Efficient programming of robot tasks by human demonstration

Problem/goal	Utilization of kinesthetic teaching for user-friendly programming of assembly tasks
Potential users	Manufacturing companies that need to automate their assembly production processes
NACE	C26.1 Manufacture of electronic components and boards, C27.1 Manufacture of electric motors, C29.3 Manufacture of parts and accessories for motor vehicles
Description	Traditional systems for robot programming are still complex and rely on user knowledge about robotics. End-users therefore often cannot program their robots without the help of system integrators, which prolongs the programming time and increases the price of robot applications. In this demonstrator, we address these challenges by providing a software and hardware framework that include both front-end and back-end solutions to integrate programming by demonstration paradigm based on kinesthetic teaching into an effective system for programming of robot assembly tasks.
Hardware	Universal Robot UR10 (or any other robot with gravity compensation), button interface
Software	Open source software (ROS), MATLAB Simulink (optional)
Standards	Considered: ISO/TS 15066:2016, ISO 10218-1/2
Possible benefits	Operators without expert knowledge in robotics will be able to efficiently calibrate and program new automated assembly tasks.
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