Use Case 14: Virtualization of a robot cell with a real controller

Problem/goal	To create a safe environment for training, testing and simulation purposes. Context: metal cutting processes, robotization, virtualization
Potential users	SME- and large metalworking manufacturers dealing with challenges related to economically feasible manufacturing of lot-size-one. Educational sector.
Description	A virtual robot cell that is driven with a real controller. The aim is to create a realistic virtual training and testing environment which allows the user to interact with the control software and see the resulting actions in real-time. The control software and its user interface are identical to the one used with actual robot cells and the detailed visualization can be displayed on screens or viewed in virtual reality. It enables educational establishments to create interactive learning environments for robotics and agile manufacturing.
Hardware	Fastems cell controller and a separate PC for the virtual model
Software	Visual Components 4.1, MMS 7.2
Standards	WebSocket, JSON, Python 2.7
Possible benefits	Demonstration of system functionalities, virtual commissioning, simulation, training, testing new work pieces safely. Interactive learning, learning by doing.
Partners	Fastems Oy Ab (Finland), Tampere University (Tampere)