

Decentralized admittance control client

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The other robot, Universal Robots' UR5e, is a 6-dof collaborative manipulator with a 5kg payload. Communication with the robot is achieved with via the Real-Time Data Exchange (RTDE) interface, with `ur_rtde` for client-side implementation. The highest available communication frequency is 500Hz. Wrench sensing is obtained from UR5e's built-in force-torque sensor via the same interface. The Robotiq 2F-85 gripper is connected to the robot's wrist tool flange, and controlled via RS485 serial communication. The client-side communication protocol with the gripper is implemented in Python. The CLIK control law is implemented in a custom library written in Python, leveraging Pinocchio's implementation of rigid body algorithms. Due to versioning incompatibilities between the library and ROS Melodic, communication with the ROS stack was handled by thin translation layer between ROS messages and protobuf with negligible overhead.