TELEROBOTICS EXTENDER AKA TREX

haption

COTS-BASED APPROACH = COST-EFFECTIVE SOLUTION

Haption's force-feedback devices can be used to control robots manually from a distance, in an intuitive manner. The operators are removed from the dangerous zone and still keep their dexterity and can make full use of their manual skills without the need for programming. Thanks to the force-feedback, they are able to monitor the forces applied by the robots to their environment, thus reducing the risks of damage.

Remote handling   # Telemaintenance   # Robotics
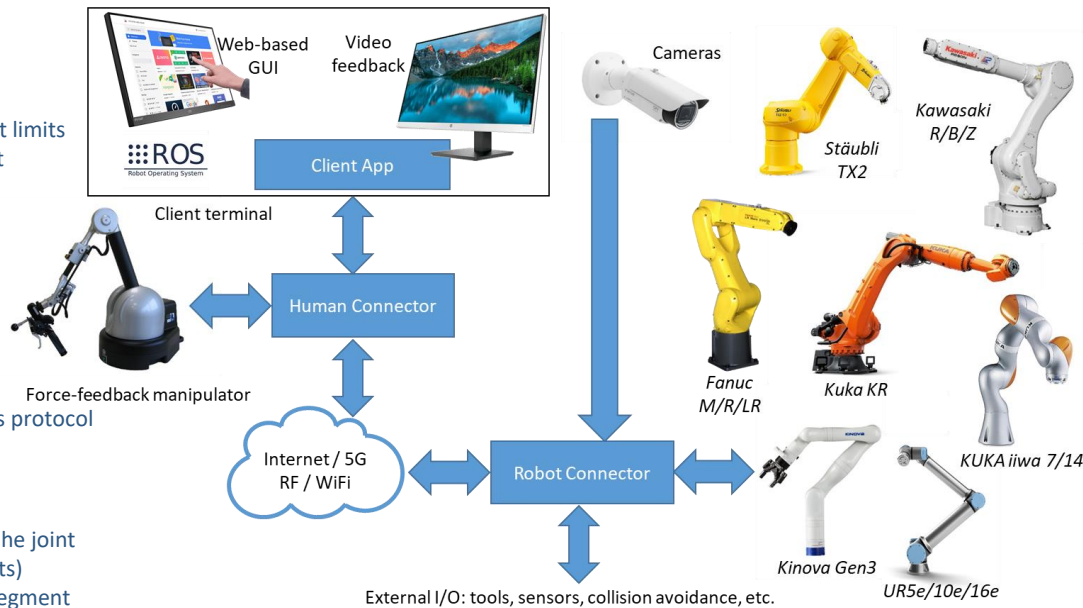
FUNCTIONALITIES

TREX VERSION 1.0 & 1.1
✔ Bilateral control with force-feedback
✔ Type of feedback:
  • Dynamic feedback: inertia, drag, joint limits
  • Interactive feedback: weight, contact
✔ Clutching in translation and rotation
✔ Adjustable base rotation
✔ Adjustable force and movement scaling
✔ Smooth transition between control modes
✔ High level of safety
✔ Full data streaming over Ethernet/UDP
✔ Virtual fixtures
✔ Internal collision prevention
✔ Secure, high-performance communications protocol
✔ Multi-lingual Graphical User Interface

TREX VERSION 1.2
✔ Possibility for the site manager to change the joint limits of the robot (within the physical limits)
✔ Viewpoint of camera attached to a robot segment
✔ Internal collision prevention
✔ Limitation of robot movement with a bounding box (still under development)
✔ Support of Staubli TX2 robots (160, 90, 40) with uniVAL Drive
✔ Possibility to duplicate an existing coupling configuration
✔ Adjustable gripper rotation speed
✔ Adjustable joint motion speed
✔ Cartesian translation motion with sliders
✔ Display of communication latency between TREX Boxes
✔ Joint and Cartesian control via gamepad
✔ Support of WiFi 6 transport between two TREX Boxes
✔ Support of external force/torque sensor ATI/Schunk Axia80
✔ Support of standalone Robotiq gripper
✔ Cartesian constraints in the tool reference frame
✔ Different force scaling for translations and rotations
✔ Support for Dark mode in Control GUI

Beside our hardware products, we provide software modules and technical expertise for the implementation of telerobotic applications.

The TREX Vision

Web-based GUI — Video feedback — Cameras — Client App — Client terminal — Human Connector — Force-feedback manipulator — Internet / 5G RF / WiFi — Robot Connector — Stäubli TX2 — Kawasaki R/B/Z — Fanuc M/R/LR — Kuka KR — KUKA iiwa 7/14 — Kinova Gen3 — UR5e/10e/16e

External I/O: tools, sensors, collision avoidance, etc.

Robot vendors	Models	Prerequisites
FANUC	LR Mate, M & R Series (*)	Controller R30iBPlus running software v9.30 P13 with RAM upgrade
Kawasaki Robotics	RS, BX, MS Series (*)	Controllers F60, E01, E02
Kinova	Gen3	None
KUKA	LBR iiwa 7 R800 LBR iiwa 14 R820	KUKA Sunrise 1.16 or newer with FRI and GripperToolbox
KUKA	KR (*)	KUKA.RobotSensorInterface
Stäubli	TX2 (*)	Controller CS9 with uniVAL Drive 2
Universal Robots	URe Series	Polyscope 5.9 or newer

(*) Requires an intervention of our personnel on the specific robot model, quoted separately

SUPPORTED ROBOTS
See table

COMPATIBLE WITH
Virtuose 6D TAO

DELIVERABLES
TREX Box + license for your robot model

2023