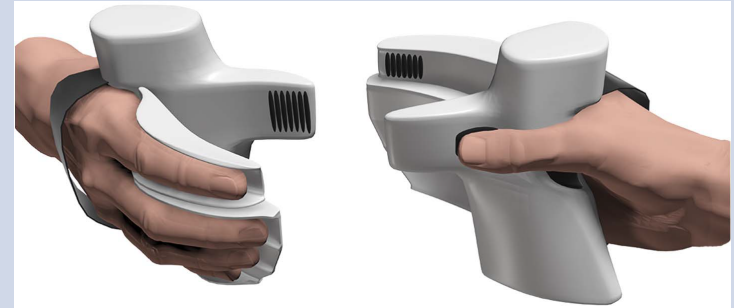


A hand controller device enables a user to control virtual or real (robot) hands/grippers/tools over distance and to feel what the robot feels:

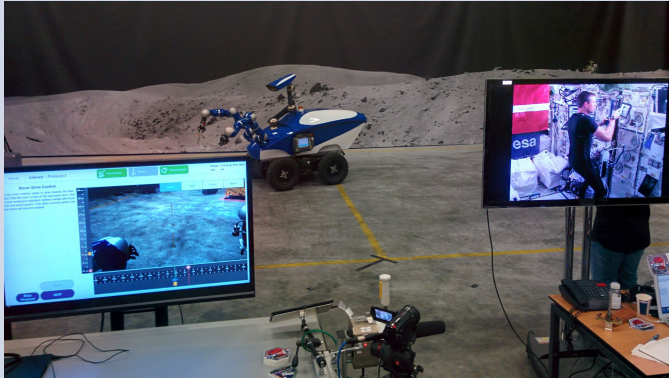
- Useful when performing tasks/work in remote or dangerous environments.
- The human is in the loop to deal with unexpected and unstructured situations.
- The human remains the highest authority over (partial) automated systems.
- One user can control multiple robots / multiple users can control one robot.

The unique features of this device are:

- Intuitive and user friendly or dangerous environments.
- Versatile interface
- Natural grasping
- Force feedback



The technology was developed for telerobotic operations in the International Space Station (ISS)



Interact project: ESA astronaut Andreas Mogensen performs sub-millimeter precision task

It can be used to control robots in environments that are not suitable for humans:

- Underwater.
- Nuclear areas.
- War zones.
- Natural disasters.
- Oil & gas.
- Chemical handling..

There are also applications in:

- General remote handling.
- Medical - surgery, training, rehabilitation.
- Video gaming controller

Strengths

- Sleek human-centric design – fits any size of hand.
- Efficient resourcing due to task-grasp optimization.
- Controls a wide variety of slave robotic hands.
- Compatible with arm exoskeletons without wrists or arms.

Weaknesses

- For certain applications it may be a challenge to keep the device affordable.

Opportunities

- Several applications for control robots in environments that are not suitable for humans.

Threats

- Alternative grasping devices already in the market

- The technology is protected in the US (US10071485B1) and in Europe (EP2919948B1) in Denmark, France and Germany
- For further information, contact Mercedes Sánchez Álvarez (Mercedes.Sanchez.Alvarez@esa.int)
- The European Space Agency (ESA) is Europe's gateway to space. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world.