TELEXISTENCE

Making Robotics Exponentially more Relevant

ABOUT

TELEXISTENCE Inc. was founded in 2017 to design, manufacture, and operate robots in anywhere we see an opportunity of pushing the fundamental state of art forward.

A CONCEPT OF TELEXISTENCE

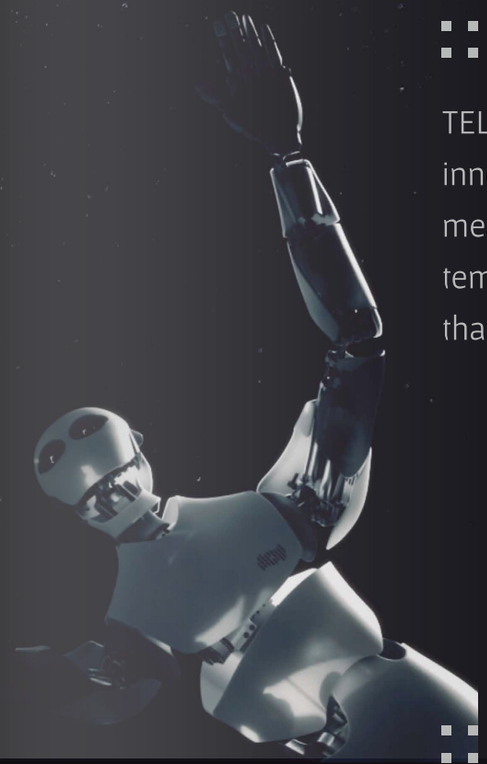
“TELEXISTENCE” is a concept that was first proposed in 1980 by Dr. Susumu Tachi, Professor Emeritus of the University of Tokyo and the chairman of TELEXISTENCE Inc., which refers to the notion of human beings in effect being in a place other than where he or she actually exists and being able to act freely in that remote environment – essentially expanding the presence of human beings – as well as the technological systems that make this possible.

OUR TEAM

To stay liner and agile, TELEXISTENCE Inc. is a group of people believing in some key principles; freedom & responsibility, TELEXISTENCE delivers, live in faith, doers is better than complainers, get ready to be misunderstood.

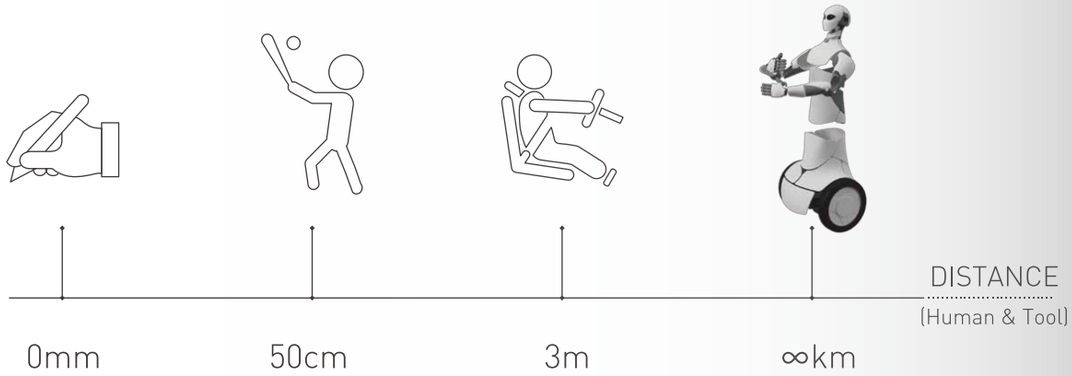
OUR MISSION

TO CREATE THE WORLD WHERE EVERY SINGLE PERSON AT EVERY CORNER ON PLANETS BENEFITS FROM ROBOTIC REVOLUTION



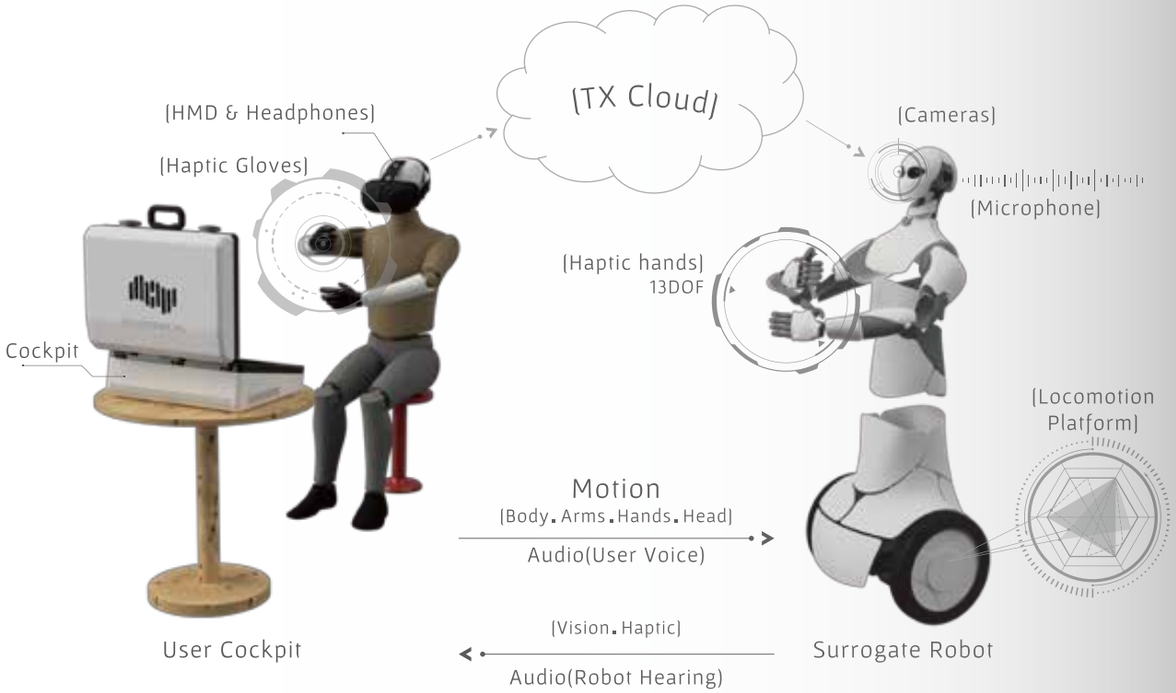
TELEXISTENCE Inc. aims to be the systematic innovator of scale in robotics. Innovator means new stuff. And scale means big, sys–tematic ways of looking things done in a way that’s reproducible.

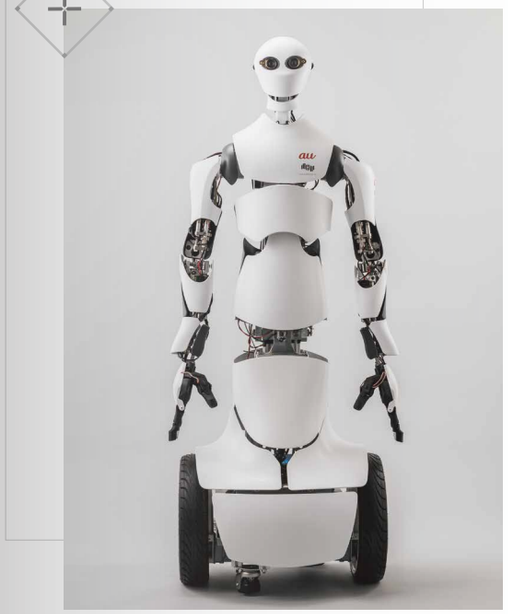
TECHNOLOGY CONCEPT



Telexistence allows to extend your body beyond your borders (not just few cm, but several km across the Internet) and feel as if you are in a remote place.

SYSTEM OVERVIEW (MODEL H)





UNIQUE MECHANICAL DESIGN

Unlike conventional industrial manipulators, our Model H robot follows a unique joint structure, wider joint limits and dimension proportions that is similar to a human. This enables the operator to easily adopt to the robot body, perform remote manipulations with much dexterity and achieve higher efficiency compared to a conventional teleoperated robot. While keeping those unique design features our robot is designed to be low cost, mass producible, higher end-effector accuracy, and yet a better looking overall design.

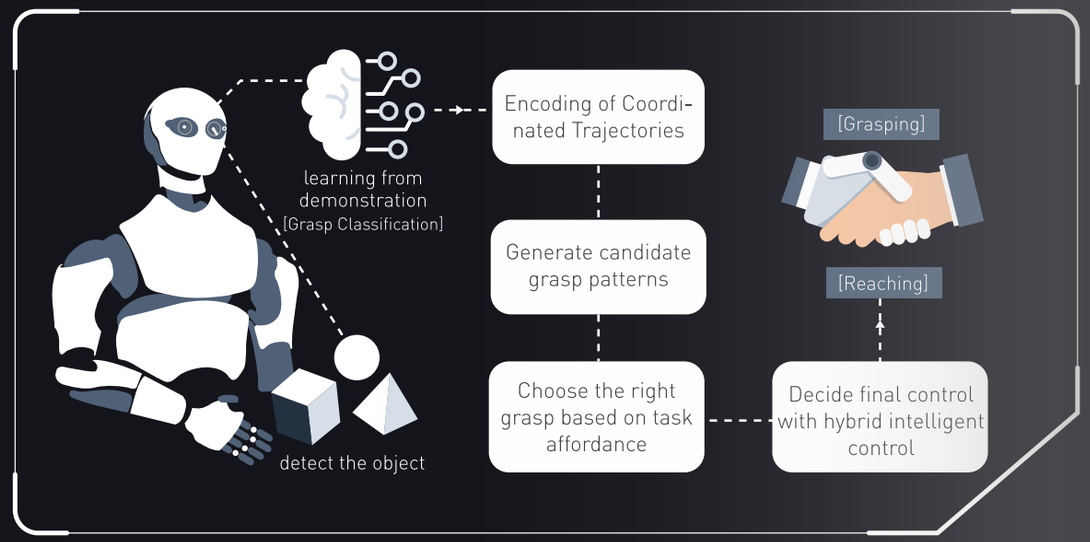
Optimized UI/UX Design

Haptic Gloves

Built-in HMD

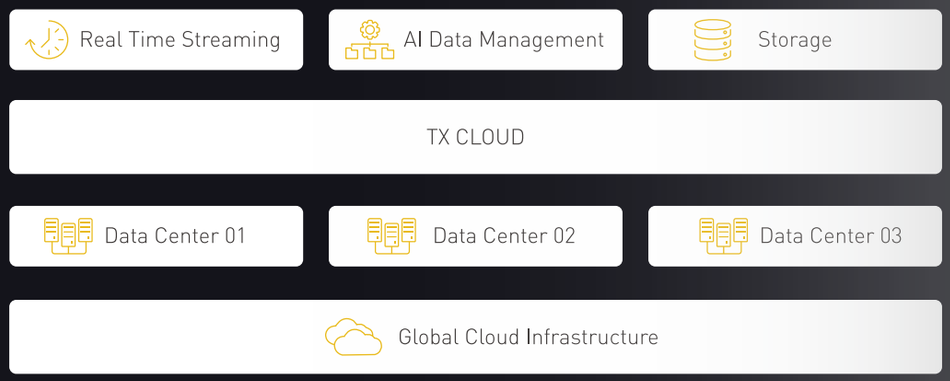
Conventional robot control interfaces are bulky, non-mobile and requires long setup time. At Telexistence Inc, we want to provide freedom and best mobility experience to our valued customers by introducing a carry on luggage type compact all-in-one cockpit package with built-in HMD, body trackers, data gloves and haptic devices. TX cockpit is airplane-approved carry-on size and weight so that our customers can access their remote robots from anywhere in the world.

HYBRID INTELLIGENT CONTROL



Humans can manipulate objects based on the understanding of object dynamics just by seeing them and previous experiences. We focus on learning from demonstration to understand how human operators manipulate objects during a remote manipulation session, collect lots of data and predict coordinated trajectories for reaching & grasping by using deep neural networks. The predicted trajectories and raw input data is fused together with a unique hybrid intelligent control algorithm to provide 4 modes of operation (direct telexistence, teach, automation, assist) during everyday tasks.

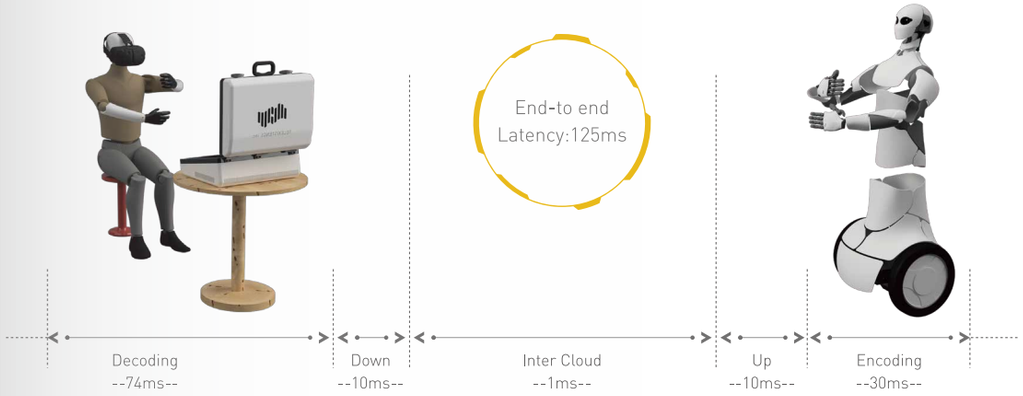
CONNECTIVITY ANYWHERE



Our goal is to achieve remote work possible between anywhere around the globe. We have developed a multi-hop global packet transmission based proprietary cloud infrastructure “TX Cloud” on top of AWS. This guarantees the enterprise level security, regional access, scale-out architecture, high-performance computing resources, storage, zero downtime with hot standby, and many more features. Our Robot and Cockpit software connects to TX Cloud via a standard Internet connection provided by a wired LAN, WiFi or 4G/LTE connection.

ULTRA-LOW LATENCY STREAMING

Data transmission from robot to cockpit (2160 × 1200 at 80 fps video, binaural audio, haptic data, misc robot information) is pre-processed, synchronized, and encoded with GPU accelerated pipelines. Furthermore, the stream is routed through TX Cloud’s SDN technology with Intelligent routing capability for traffic transmission and bandwidth control that delivers end-to-end ultra-low latency (<100ms) data delivery.



OPTIMIZED FOR VR SICKNESS

In order to successfully conduct Telexistence business, it’s necessary to reduce the physical labour by replacing humans from physical work and enabling remote work through robots. However, In order to do so operators should be able manipulate the robots via VR for 8 hours/day with several breaks. We provide a unique solution that stabilizes the robot video over the effects of mechanical judder and user’s viewpoint rendering method. This enables us to disengage the mechanical and VR system with an easy to use Cockpit UI/UX optimized for long hours of tele-manipulation with reduced VR sickness.

Partners

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