

Goal1 Realization of a society in which human beings can be free from limitations of body, brain, space, and time by 2050.

Reliability-ensuring Cybernetic Avatar Infrastructure Allowing Interactive Teleoperation

Project manager

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Summary of the project

Moonshot Goal 1 aims to establish a cybernetic avatar (CA) platform that allows anyone to participate in a variety of social activities and spread CA life based on socially-accepted ideas. Currently, R&D projects are being conducted from the three perspectives of "Freedom from Body Limitations", "Freedom from Brain Limitations", and "Freedom from Space Limitations and Time Limitations". At present, R&D is underway for a fundamental technology in which one operator can directly operate one or more CAs. It will be extended to technologies and infrastructure that allow one person to operate more than 10 avatars at the same speed and accuracy as one avatar case by 2030. Also, it will be further extended to technologies and infrastructure to carry out large-scale complex tasks combining large numbers of CAs teleoperated by multiple persons by 2050. Besides, it is assumed that CA's activity area will be expanded to in the air, under the sea, and on the moon. This project aims to establish a communication platform that realizes stable operation and control of CA services even when communication is degraded by unstable network conditions, CA density, environmental changes, etc.

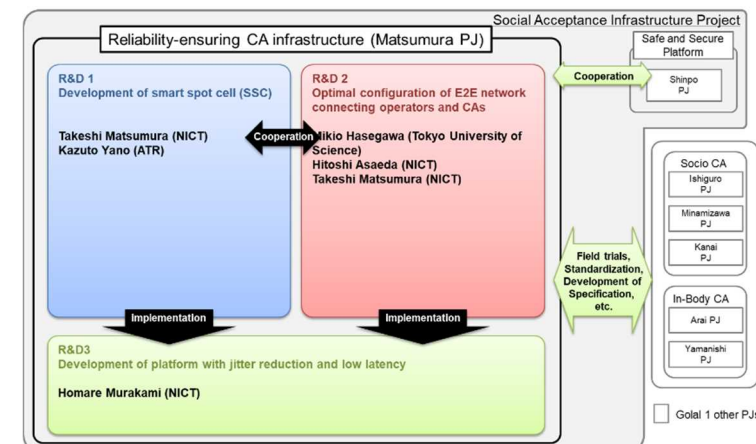
Milestone by year 2030

Toward the goal that one operator can operate 10 or more CAs simultaneously by 2030, and M operators cooperatively control N CAs ($M \times N$ control) by 2050, this project tries to develop the reliability-ensuring CA infrastructure.

Milestone by year 2025

This project will develop and demonstrate a fundamental technology that allows one person to remotely control 2 or 3 CAs at the same time, with the premise of expanding to $1 \times N$ CA operation. Also, we will develop and demonstrate a fundamental technology that allows two or three persons to remotely control one CA cooperatively, with the premise of expanding to $M \times 1$ CA operation.

R&D theme structure of the project



1. Development of Smart Spot Cell (SSC) that provides an appropriate wireless communication environment for CAs
Development of flexible and high reliable CA communication area according to CA operation and density
2. Optimal configuration of end-to-end (E2E) network connecting operators and CAs
Optimization of network configuration for CA remote control
3. Development of platform with jitter reduction and low latency
Development of a reliable CA platform with above technologies 1 and 2 to realize jitter reduction and low latency

We will cross-examine the communication requirements of each CA in other Moonshot Goal 1 projects and aim to ensure the reliability of communication in remote control of CA and to develop a CA infrastructure that increases social acceptance.