Robotics Platform for Emergent Intelligence Grounded in the Order of Embodied Interactions

Project manager

(selected in 2026)

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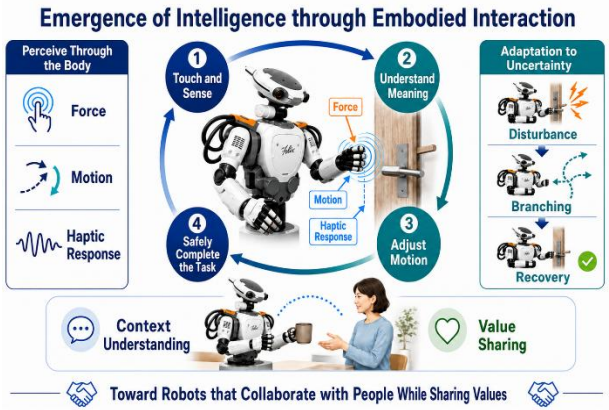
Leader's institution

Keio University

R&D institutions

Keio University, Kawada Robotics Corporation, Saitama University, Yokohama National University, OMRON SINIC X Corporation, Microtech Laboratory Co., Ltd., DOUBLE Research & Development Co., Ltd., WACOH-TECH Inc.

Summary of the project



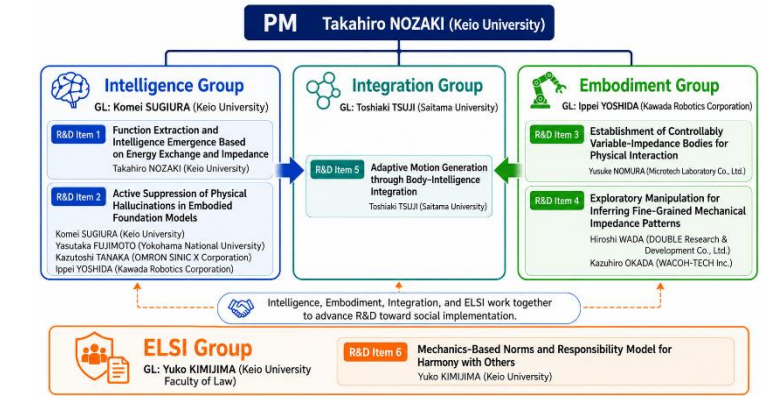
This project aims to develop robotic intelligence that understands object properties and possible actions from forces, motions, and energy exchanged through physical interaction. By integrating contact, friction, and deformation information across intelligence, embodiment, and simulation, we seek to build general-purpose autonomous robots that can safely complete tasks in unknown or disturbed environments and adapt flexibly to changes in people and surroundings.

Milestone by 2030

By 2030, we will demonstrate in real-world environments such as food processing, construction and civil engineering, and daily-life assistance that robots can complete entire task sequences with a success rate of at least 95%, even under unforeseen disturbances and changing conditions, and adapt to environmental changes within 30 minutes. We will also realize robotic systems that operate safely and in accordance with social norms near people while autonomously avoiding unseen risks. Furthermore, through pilot deployment at three or more companies, we will establish auditable operational procedures, clear responsibility boundaries, and practical guidelines, advancing toward real-world implementation and standardization.



Project structure



Under the PM, the project is organized into four groups—"Intelligence," "Embodiment," "Integration," and "ELSI"—that work in close collaboration while leveraging their respective areas of expertise. The Integration Group brings together the research outcomes from the Intelligence and Embodiment Groups, while the ELSI Group connects social norms and models of responsibility to the research and development process. Through this structure, the project advances technology development and real-world implementation in an integrated manner.

*Certain illustrations in this document were created with the assistance of generative AI.