

# Cybernic Smart Mobility

## Contributing to Re-design of Vehicles and Infrastructure

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March 2026  
CYBERDYNE Inc.

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## Social Background of the SIP Challenge:

- Progression of super-aging society and increase in people with mobility challenges
- Insufficient public transportation in regional cities and depopulated areas
- Lack of safe and environmentally friendly means of transportation

## Mission of the SIP Challenge (**Excerpt from Strategy and Plan**):

Building a platform that "**dynamically integrates both hard and soft infrastructure** that enables the utilization of **a wide range of mobility resources** including private cars and freight vehicles in addition to traditional public transportation, as well as **new mobility means**, along with the **towns and regions** that encompass them, from **the perspective of moving people, goods, and services**, to realize **safe, environmentally friendly, fair and seamless mobility**"

## "**Current Status and Issues**" (Project Background) from the Call for Proposals:

- "While various small mobility devices are currently being developed, there are **technical challenges for social implementation** such as **operating time, vehicle weight, and portability**"
- "While existing efforts have conducted demonstration experiments in **limited applications and external environments** such as park pathways and airport passenger terminals, **comprehensive travel assuming all usage scenarios** is **not sufficiently supported in terms of legal positioning study and infrastructure development for implementation**"
- "It is expected to lower the barriers to mobility and **contribute to realizing people's well-being**"

To address the aforementioned current issues and contribute to the "redesign" of various mobility services for extracting requirements for vehicles (mobility devices) and infrastructure, we will implement the following action initiatives:



[Action Items] (Research and Development Theme: "Cybernic Smart Mobility Contributing to Re-design")

- **Study of next-generation mobility devices and infrastructure, etc.**

(Specification development, HW/SW design/prototype development/improvement, basic performance verification, study of infrastructure environments where mobility devices function effectively)

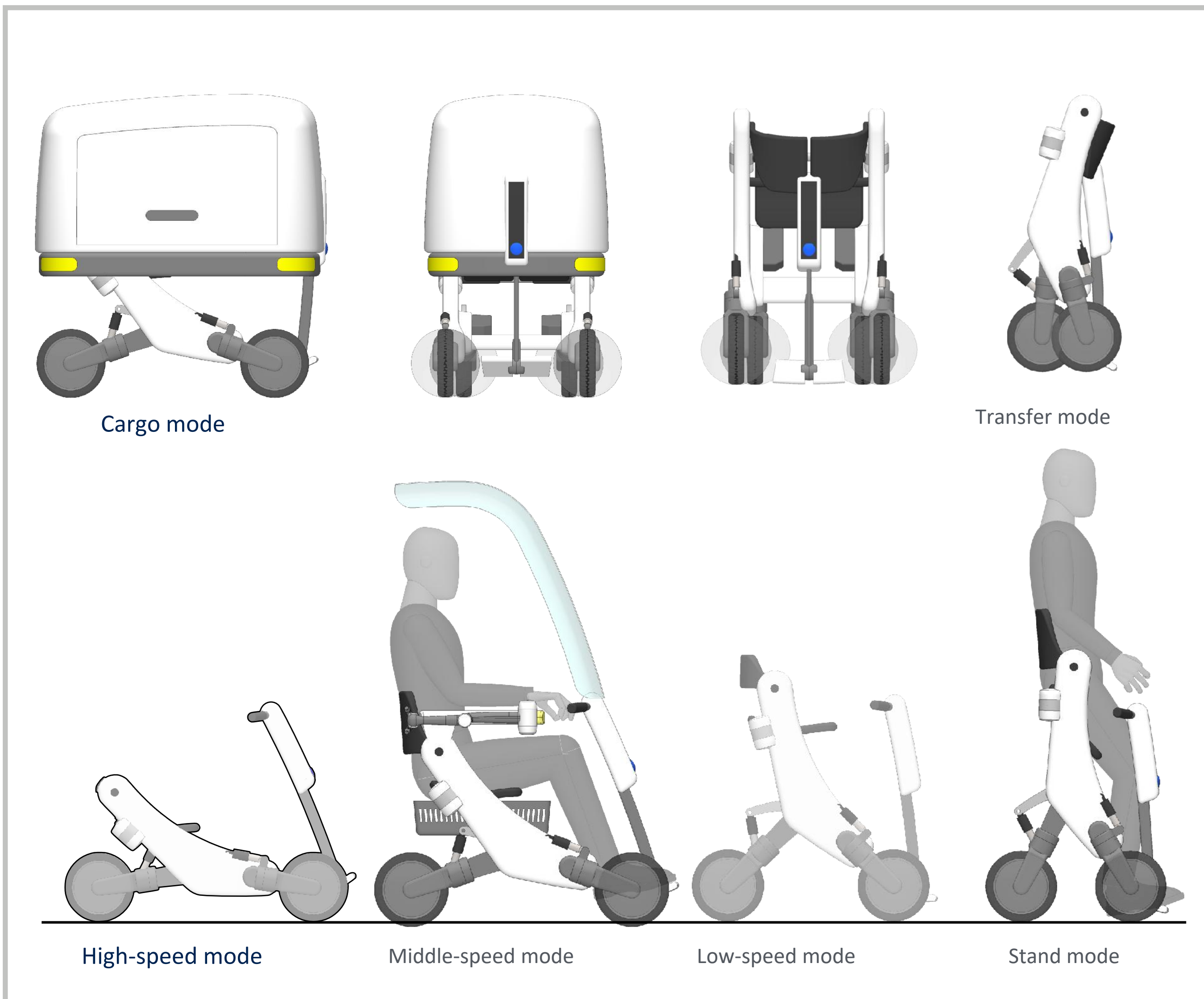
- **Design and implementation of demonstration experiments**

(Field selection, design and implementation of demonstration experiments for human mobility, design and implementation of demonstration experiments for goods transportation)

- **Extraction of service requirements for realizing values that next-generation mobility devices can provide**

(Analysis of demonstration experiment results, improvement and detailing of mobility device specifications, formulation of business and regulatory recommendations based on demonstration experiment results, proposal for regional mobility resources as infrastructure that efficiently integrates human mobility and logistics without separation through next-generation mobility devices; verification of business models in use cases and demonstration regions)

# Overview of Cybernic Smart Mobility: Concept Image



Concept image of various modes of Cybernic Smart Mobility

## Expected Specifications (from call for proposals):

- Capacity: 1 person (maximum) (also supports cargo-only mode)
- Load capacity: Approximately 100kg (+20kg cargo)
- Travel speed: Approximately 0-20km/h
- Foldable, capable of indoor/outdoor travel
- Can use elevators (without elevator modifications)

## Technical Advantages:

### 1. Cybernics Technology

- Fusion of humans, AI robots, and information systems (core technology of SIP HCPS Human-Collaborative Robotics)
- Physiological information monitoring (optional) and safety functions

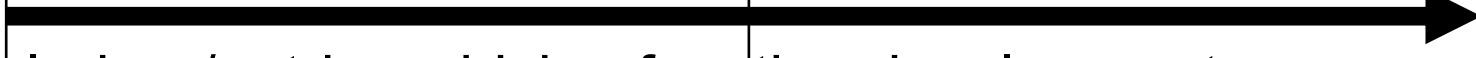
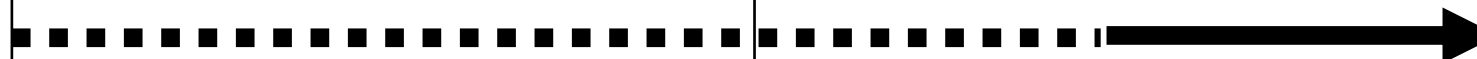
### 2. Autonomous Driving Technology

- Environmental recognition functions (camera, LiDAR, GPS, etc.)
- Obstacle detection/avoidance, fall prevention, speed limitation, etc.

### 3. Data Integration

- Integration with urban OS, building OS, digital twins, etc.

# Research and Development Plan: Schedule and R&D Objectives

| R&D Items                                                 | FY2024                                                                                                                                                                  | FY2025                                                                                                                                                                                                                                                                                                                                                                                                                                   | FY2026 | FY2027 |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|
| Specification development of Cybernic Smart Mobility      | <br> | Basic Performance Requirements and Concept Development<br><br>Elemental Technology Development                                                                                                                                                                                                                                                                                                                                           |        |        |
| HW development of Cybernic Smart Mobility                 |                                                                                                                                                                         | <br>Development verification prototype development<br><br><br>Demonstration experiment prototype development<br><br><br>Demonstration experiment prototype improvement           |        |        |
| SW development of Cybernic Smart Mobility                 |                                                                                                                                                                         | <br>Indoor/outdoor driving function development<br><br><br>Urban/building OS integration function development<br><br><br>SW improvement and verification                       |        |        |
| Verification of Cybernic Smart Mobility                   |                                                                                                                                                                         | <br>Basic performance verification<br><br><br>Demonstration experiment planning and preparation<br><br><br>Demonstration experiments in collaboration with other R&D items |        |        |
| Study on social implementation of Cybernic Smart Mobility |                                                                                                                                                                         | Improvement and detailing of specifications based on demonstration experiment results<br><br><br>Study for extracting requirements contributing to re-design                                                                                                                                                                                        |        |        |

## Interim Goals (FY2025):

- Specification development completed
- 80% achievement of prototype basic verification
- 70% urban OS integration functionality
- 30% autonomous driving functionality development

## Final Goals (FY2027):

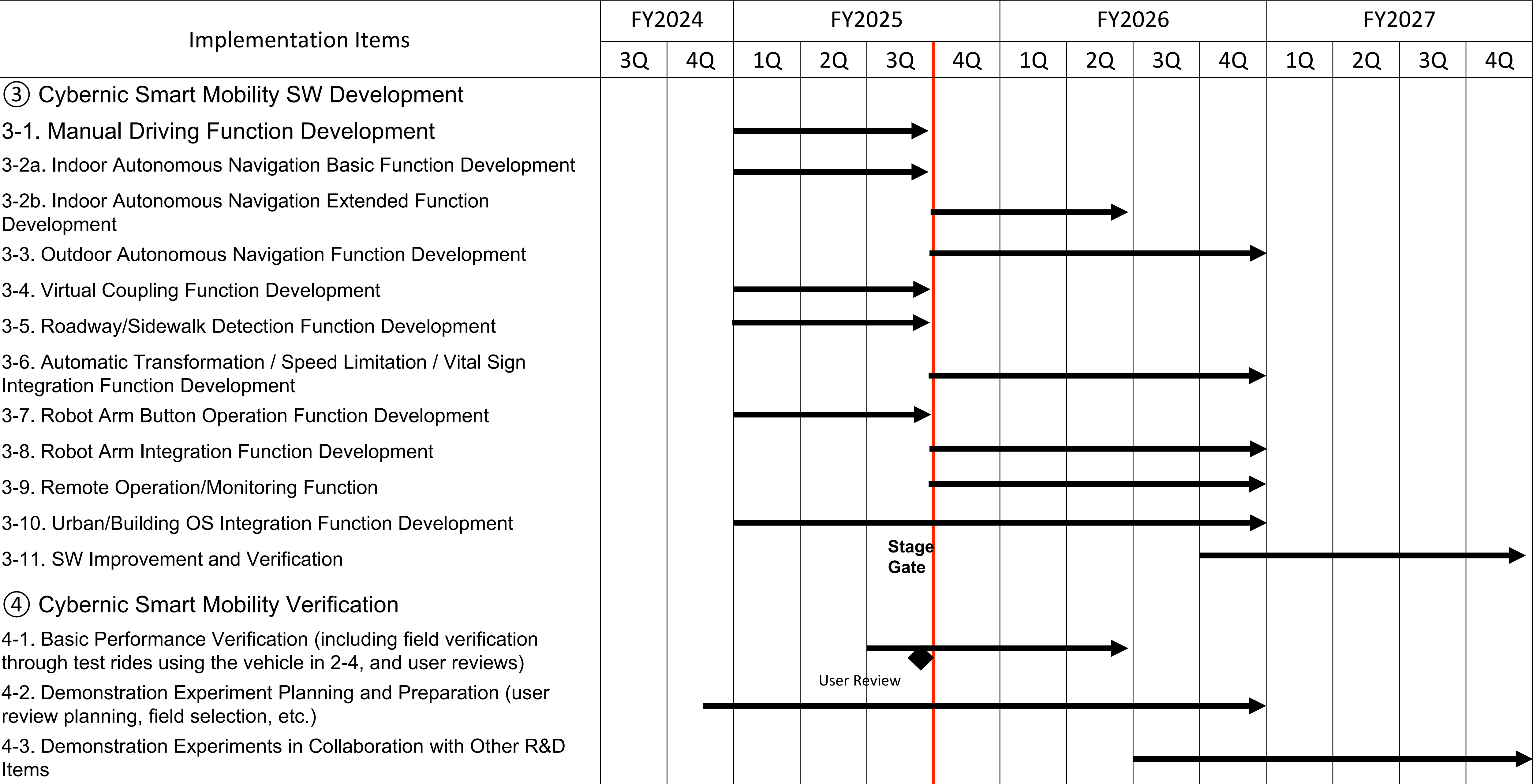
- Demonstration experiments completed
- All functionality development completed
- Business and regulatory recommendations formulated
- Performance and safety standards proposed

↳ **Leading to "Extraction of Requirements for Vehicles, Infrastructure, etc. Contributing to Re-design"**

Research and Development Plan: R&D Implementation Items and Schedule (1)

| Implementation Items                                                                                                                                                                                                                                                                                                                                | FY2024 |    | FY2025 |    |    |    | FY2026 |    |    |    | FY2027 |    |    |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----|--------|----|----|----|--------|----|----|----|--------|----|----|----|
|                                                                                                                                                                                                                                                                                                                                                     | 3Q     | 4Q | 1Q     | 2Q | 3Q | 4Q | 1Q     | 2Q | 3Q | 4Q | 1Q     | 2Q | 3Q | 4Q |
| ① Cybernic Smart Mobility Specification Development                                                                                                                                                                                                                                                                                                 |        |    |        |    |    |    |        |    |    |    |        |    |    |    |
| 1-1. Basic Performance Requirements and Concept Development                                                                                                                                                                                                                                                                                         | →      |    |        |    |    |    |        |    |    |    |        |    |    |    |
| 1-2. Elemental Technology Development                                                                                                                                                                                                                                                                                                               | →      |    |        |    |    |    |        |    |    |    |        |    |    |    |
| ② Cybernic Smart Mobility HW Development                                                                                                                                                                                                                                                                                                            |        |    |        |    |    |    |        |    |    |    |        |    |    |    |
| 2-1. Transformation Function Prototype Development                                                                                                                                                                                                                                                                                                  |        |    | →      |    |    |    |        |    |    |    |        |    |    |    |
| 2-2. Mobility Function Development                                                                                                                                                                                                                                                                                                                  |        |    | →      |    |    |    |        |    |    |    |        |    |    |    |
| 2-3. Robot Arm Development                                                                                                                                                                                                                                                                                                                          |        |    | →      |    |    |    |        |    |    |    |        |    |    |    |
| 2-4. Demonstration Experiment Prototype Development                                                                                                                                                                                                                                                                                                 |        |    | →      |    |    |    |        |    |    |    |        |    |    |    |
| 2-5. Demonstration Experiment Prototype Improvement                                                                                                                                                                                                                                                                                                 |        |    |        |    |    |    |        |    |    |    |        |    |    |    |
| <div>(The demonstration experiment prototype is the mobility function verification prototype and the transformation function verification prototype integrated into one unit linked with 4-1. Basic Performance Verification)</div> <div>Test ride event (internal stakeholders)</div> <div>Available for external presentation (video-based)</div> |        |    |        |    |    |    |        |    |    |    |        |    |    |    |
| →                                                                                                                                                                                                                                                                                                                                                   |        |    |        |    |    |    |        |    |    |    |        |    |    |    |

Research and Development Plan: R&D Implementation Items and Schedule (2)



Research and Development Plan: R&D Implementation Items and Schedule (3)

| Implementation Items                                                                       | FY2024 |    | FY2025 |    |    |    | FY2026                                                                 |    |    |    | FY2027      |    |    |    |
|--------------------------------------------------------------------------------------------|--------|----|--------|----|----|----|------------------------------------------------------------------------|----|----|----|-------------|----|----|----|
|                                                                                            | 3Q     | 4Q | 1Q     | 2Q | 3Q | 4Q | 1Q                                                                     | 2Q | 3Q | 4Q | 1Q          | 2Q | 3Q | 4Q |
| ⑤ Study on Social Implementation of Cybernic Smart Mobility                                |        |    |        |    |    |    |                                                                        |    |    |    |             |    |    |    |
| 5-1. Improvement and Detailing of Specifications Based on Demonstration Experiment Results |        |    |        |    |    |    |                                                                        |    |    |    | <div></div> |    |    |    |
| 5-2. Study and Proposal of Standardization for Social Implementation                       |        |    |        |    |    |    | <div>Study for extracting requirements contributing to re-design</div> |    |    |    | <div></div> |    |    |    |

## 1. Cybernic Smart Mobility Specification Development:

Cybernic Smart Mobility is a new electric vehicle (mobility device) with the following specifications:

- Capacity: 1 person (maximum)
- Load capacity: Approximately 100kg (+20kg cargo, or 120kg for cargo-only mode)
- Travel speed: Approximately 0-20km/h
- Operating time: Sufficient operating time for daily use without major constraints
- Vehicle weight: A weight that humans can load/unload into passenger cars, etc. (target approximately 30kg)
- Other features: Foldable, capable of both outdoor and indoor travel, and able to use various elevators without requiring special equipment installation or human intervention

In addition to these specifications, it will be equipped with the following functions according to usage scenarios:

- Movement sensors: Obstacle detection (e.g., camera, LiDAR), GPS, sound pressure, illuminance, air pressure, humidity, and temperature information
- SW integration: Integration with BIM, urban OS, building OS, digital twins, geographic information, sensor information, etc.
- Information display interface: Presents aggregated and organized predictive information to passengers as visual and audio information
- Control: Remote operation/monitoring, collision prevention, fall prevention, emergency stop, and autonomous speed limitation
- Options: Function to acquire passenger physiological information, function to safely decelerate and stop upon detecting physiological abnormalities, and function to notify registered contacts

In this implementation item, we conduct "Basic Performance Requirements and Concept Development" and "Elemental Technology Development" to define the specifications of Cybernic Smart Mobility.

### 2. Cybernic Smart Mobility HW Development:

- As preliminary work before developing the demonstration experiment prototype, we develop a mobility function (basic function) verification prototype and a transformation function (automatic transformation by switch operation) verification prototype.
- In developing the mobility function verification prototype, we conduct functional verification of the drive unit and turning unit, verification of sensor placement positions, development of the robot arm, and so on.
- In developing the drive system that enables turning, we design and prototype a mechanism (4WS: 4-Wheel Steering) that changes the direction of each wheel to enable turning in narrow spaces such as inside elevators.
- In developing the robot arm that realizes elevator button operation, we design and prototype an arm with sufficient degrees of freedom to meet the required functions.
- In developing the transformation function verification prototype, we design and prototype a mechanism that automatically transforms between riding modes (Low/Middle/High-speed mode, Stand mode), goods transportation mode (Cargo mode), and loading mode (Transfer mode) by switch operation.

### 3. Cybernic Smart Mobility SW Development:

- We develop the software necessary for the control and integration of Cybernic Smart Mobility, including manual driving functions, indoor/outdoor autonomous navigation functions, virtual coupling functions, roadway/sidewalk detection functions, automatic transformation / speed limitation / vital sign integration functions, robot arm button operation functions, remote operation/monitoring functions, and integration functions with urban OS and building OS.
- In collaboration with the SIP Human-Collaborative Robotics Challenge, we also implement a function that acquires passenger physiological information using the small vital sensors that are their prototypes/deliverables, integrating the mobility with the vital sensors. This realizes a function that performs gradual deceleration and safe stopping when an abnormality in the passenger's physiological condition is detected, and automatically notifies registered contacts.
- We continuously implement SW improvements and verification to enhance the stability of each function, fix bugs, and improve usability.

### 4. Cybernic Smart Mobility Verification:

- We evaluate and verify the basic performance as a vehicle integrating various hardware and software functions. We conduct reliability confirmation through repeated operation tests, verification of passenger safety and comfort, evaluation of obstacle detection functions and the appropriateness of avoidance actions, and so on.
- For demonstration experiment planning and preparation, we plan driving experiments in actual fields within Tsukuba City, which is selected as a Super City (an expected route connecting CYBERDYNE Tsukuba Headquarters, Tsukuba City Hall, and IIAS Tsukuba (shopping mall)). In collaboration with Professor Kenji Suzuki of the University of Tsukuba, who oversees Tsukuba Super City, we obtain advice on technical challenges in the real environment of public spaces in Tsukuba Science City and formulate plans.
- Demonstration experiments are conducted efficiently by combining simulations in cyber space (digital space) with verification in real environments.

### 5. Study on Social Implementation of Cybernic Smart Mobility:

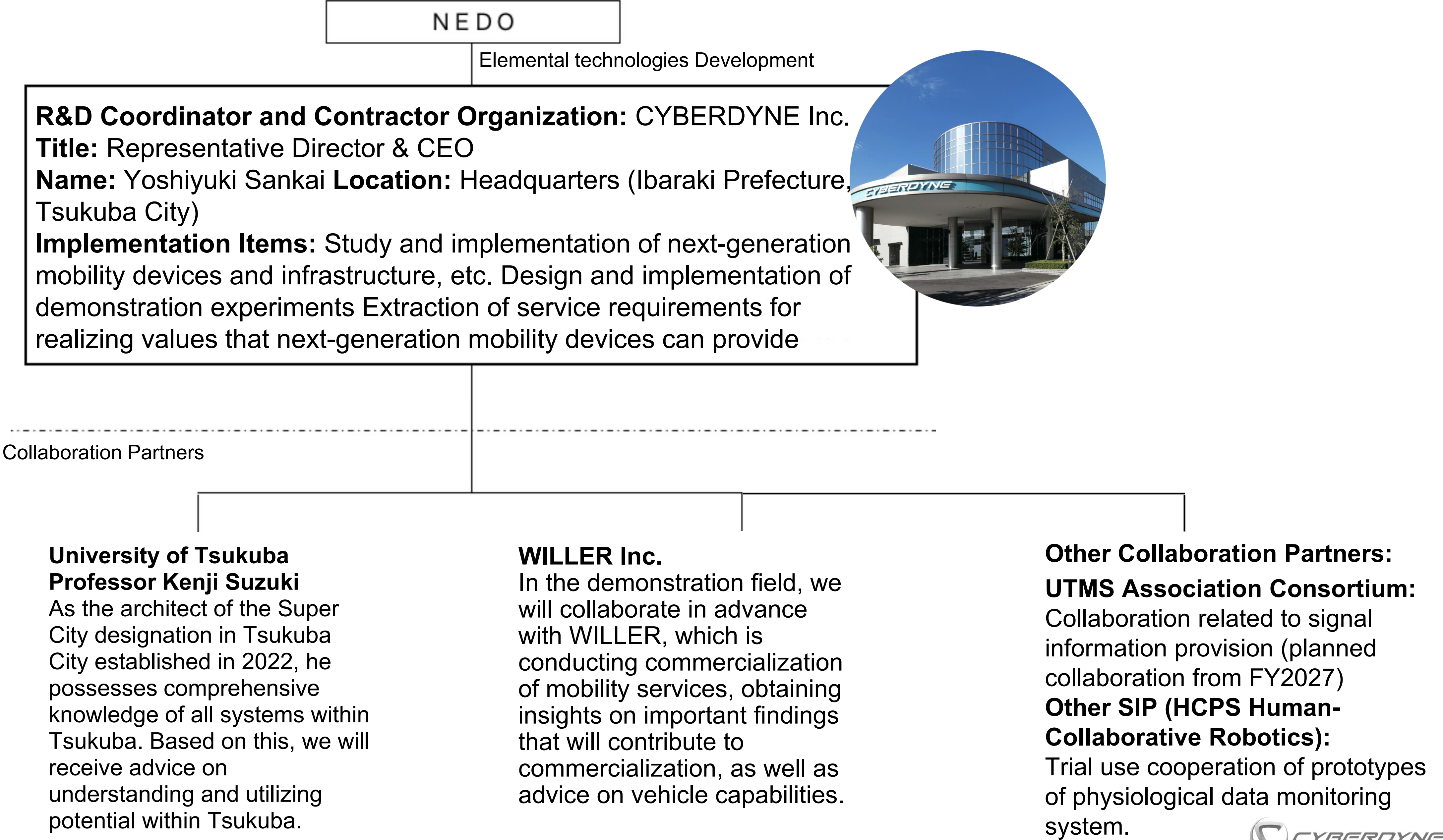
- Based on the data and insights obtained from demonstration experiments, we organize the vehicle specifications and related infrastructure requirements. We extract the technical requirements for vehicles supporting both human mobility and goods transportation, as well as broadly defined infrastructure requirements including charging facility placement, insurance systems, operation management structures, alignment with current regulations, and consideration of new legal frameworks.
- While formulating safety standards for the social implementation of this project's new-concept vehicle and implementing initiatives that contribute to creating an environment conducive to social implementation and acceptance, we conduct business model verification (economic feasibility study/verification) in demonstration regions, comprehensively organize the requirements necessary for the social implementation of Cybernic Smart Mobility, and achieve the extraction of requirements for vehicles, infrastructure, etc. that contribute to re-design.

Outcome targets for social implementation, set through user reviews, peer reviews, etc.:

Through discussions with the PD and SPDs, as the final outcome targets for social implementation (at the end of FY2027, when SIP concludes):

- 1) Deliverable: Multi-mode vehicle (expansion of the countermeasure menu list),
- 2) Form of social implementation: Private-sector commercialization (mass production of the multi-mode vehicle and deployment of requirements to vehicle manufacturers),
- 3) Anticipated deployment / social implementation destinations: Around Tsukuba City Hall (indoor/outdoor areas including between large commercial facilities, in collaboration with the Super City concept), housing for the elderly, and within Tohoku University (deployment as transport-mobility use contributing to an energy management system using food residue), etc.; cities other than Tsukuba are also under consideration as demonstration experiment fields,
- 4) Target price range: Specifications mindful of cost optimization (including design changes) while closely monitoring the competitive situation of mobility,
- 5) Direction after SIP completion: Deployment of requirements to vehicle manufacturers (small mobility businesses), opening up of software APIs, etc.,

these were established.



# Results and Progress Status: Basic Performance Requirements and Concept Development

FY2025 Implementation Item: 1-1. Basic Performance Requirements and Concept Development

Building on the basic performance requirement design and concept design of the development verification prototypes (mobility function verification prototype and transformation function verification prototype) carried out in FY2024, in FY2025 we achieved the transition to the actual-prototype fabrication phase for demonstration experiments.

- **Transcending physical boundaries (outdoor/indoor, between floors)**
- **Transcending user boundaries (elderly, persons with disabilities, able-bodied)**
- **Transcending usage boundaries (human mobility, goods transportation)**
- **Transcending boundaries between cyber space and physical space (urban/building OS integration, simulation utilization)**

Concept: Under the design philosophy of "transcending four boundaries," while maintaining a multi-mode configuration through transformation (six modes in total: Low-speed / Middle-speed / High-speed / Stand / Cargo / Transfer), we carried out verification-prototype design and fabrication in two lines: Concept Design A (mobility function verification prototype) and Concept Design B (transformation/turning/lateral-movement function verification prototype).

Basic Performance Requirements:

- Capacity: 1 person (maximum)
- Load capacity: Approximately 100kg (+20kg cargo, or 120kg for cargo-only mode)
- Travel speed: Approximately 0-20km/h
- Operating time: Sufficient operating time for daily use without major constraints (approximately 20km range)
- Vehicle weight: 30kg or less (can be loaded/unloaded into passenger cars, etc. by humans)
- Vehicle dimensions: Approximately 1,000mm×600mm×850mm
- Other features: Foldable, capable of both outdoor and indoor travel, and able to use various elevators without requiring special equipment installation or human intervention

# Results and Progress Status: Elemental Technology Development

FY2025 Implementation Item: 1-2. Elemental Technology Development - Mobility Function Verification Prototype (Concept A) / Transformation Function Verification Prototype (Concept B)



Mobility Function Verification Prototype (Concept A)

From April to May 2025, we carried out parts procurement, assembly, and operation verification, and achieved a demonstration in October 2025.

It has a specification that allows a person to ride (equivalent to 200W×2-4 units), and operation at a maximum speed of approximately 6km/h was confirmed. We conducted actual-machine verification of mobility functions, including round-trip travel between arbitrary points A and B on an indoor route and obstacle detection/safe stopping, and demonstrated it at the large-scale demonstration inspection event.



Spin turn

Horizontal movement



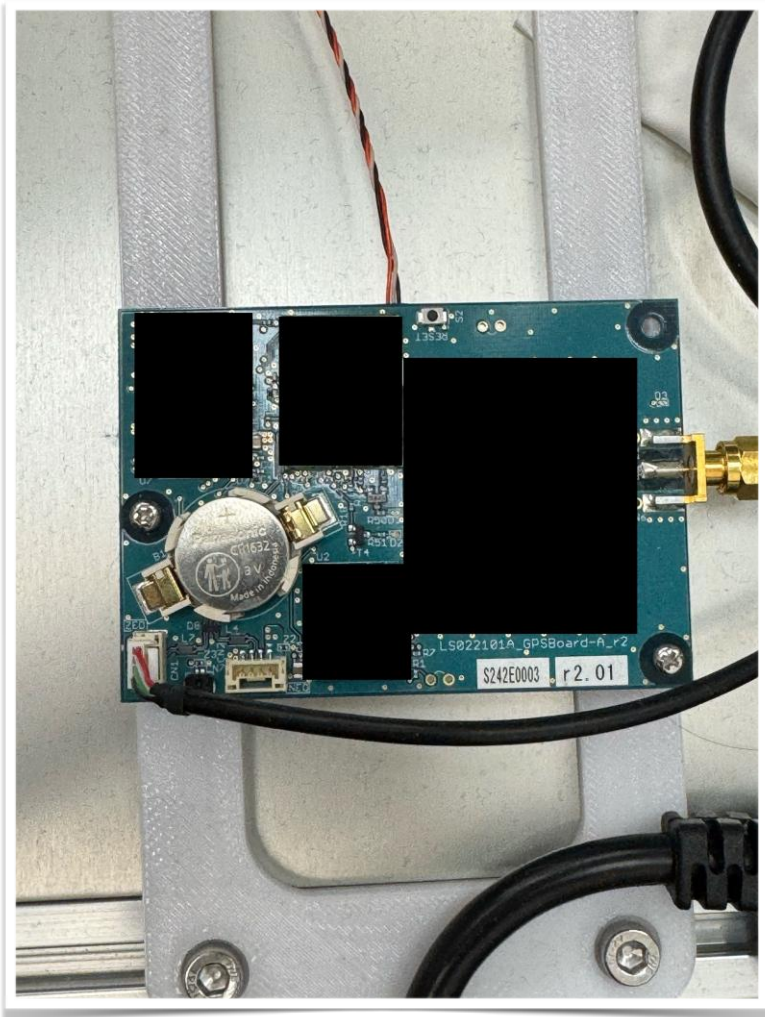
Transfer mode

Transformation Function Verification Prototype (Concept B)

We confirmed that on-the-spot turning and lateral movement using 4WS are possible. We also implemented a transformation function that switches between seated mode and standing mode by switch operation, and conducted operation verification at the large-scale demonstration inspection event.

# Results and Progress Status: Elemental Technology Development

FY2025 Implementation Item: 1-2. Elemental Technology Development - Centimeter-level Positioning Technology Development / V2I Signal Information Utilization Communication Function Development

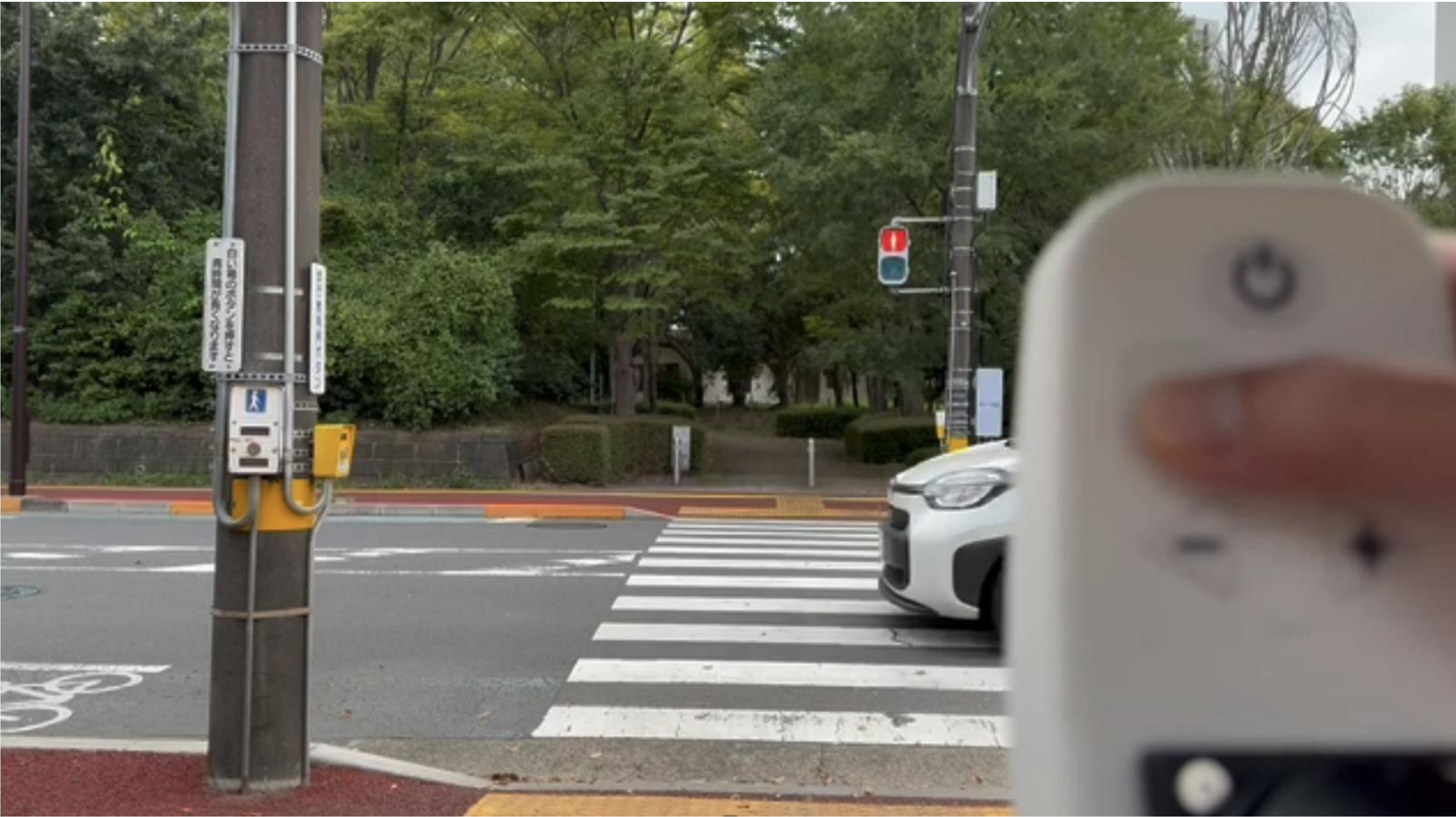


Processing board (L6-band signal processing / latitude, longitude, elevation, speed, etc.)



GPS/GNSS antenna

We continued the development of centimeter-level positioning technology utilizing the L6 signal of GPS/GNSS.



We developed a V2I communication and signal information utilization function with a BLE roadside unit linked to the Advanced PICS of the UTMS Association Consortium. At the hands-on event on October 7-8, 2025, we conducted communication and crossing demonstrations with the pedestrian crossing signal in front of Azuma Elementary School using joystick operation, confirming that actual communication with road infrastructure is possible.

# Results and Progress Status: Elemental Technology Development

FY2025 Implementation Item: 1-2. Elemental Technology Development - Software Verification Simulation Technology

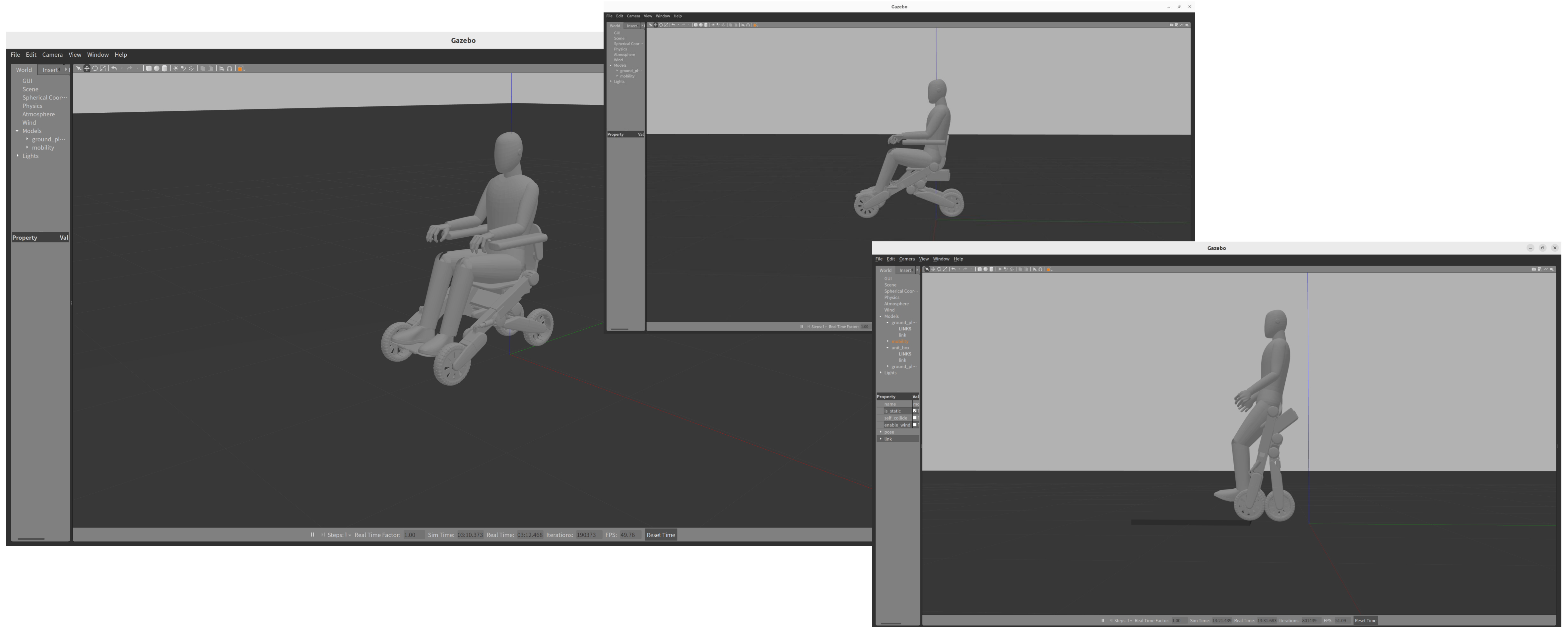


Software verification using a simulator: Environmental visualization (mapping)

We built a physical simulation environment adopting the robot simulator Gazebo and ROS2 (Robot Operating System 2), establishing a development environment in which control algorithms for mobility functions, autonomous navigation, obstacle avoidance, etc. can be verified before prototype fabrication.

# Results and Progress Status: Elemental Technology Development

## FY2025 Implementation Item: 1-2. Elemental Technology Development - Introduction of Physical Simulation Technology



Prior to actual machine testing, we built a physical simulator using Gazebo and ROS2. This simulator plays an important role as a basic verification environment for verifying floor friction, step-climbing performance, braking distance, and the accuracy of machine transformation operations based on actual torque.

# Results and Progress Status: Cybernic Smart Mobility HW Development

## FY2025 Implementation Item: 2. Cybernic Smart Mobility HW Development

In FY2025 HW development, we improved the Concept A machine from a non-ridable specification (100W×2-4 units) to a rideable specification (equivalent to 200W×2-4 units). The main improvements include: ① enhancement of motor output (securing total driving-system output of 1kW or more), ② review of sensor placement (for autonomous navigation), ③ undercarriage design (including suspension), ④ development of robot arm functions, and ⑤ addition of signal communication functions.

From April to September 2025, we carried out parts procurement, assembly, and operation verification of Concept A and Concept B; in August we exhibited Concept B at the ITS World Congress in Atlanta, USA, and in October we achieved a demonstration with Concept A at the large-scale demonstration inspection event.

Regarding LiDAR (Light Detection and Ranging sensor), we proceeded with selection in a manner that meets the call-for-proposals requirements as an obstacle detection sensor, and proceeded with installation on the actual machine. At the October 2025 inspection event, the 2nd Domestic Symposium, and other occasions, we were able to observe demonstrations of the current model of the Kanazawa University consortium (card-type LiDAR), and discussed and examined the possibility of future collaboration.



Mobility Function Verification  
Prototype (Concept A)



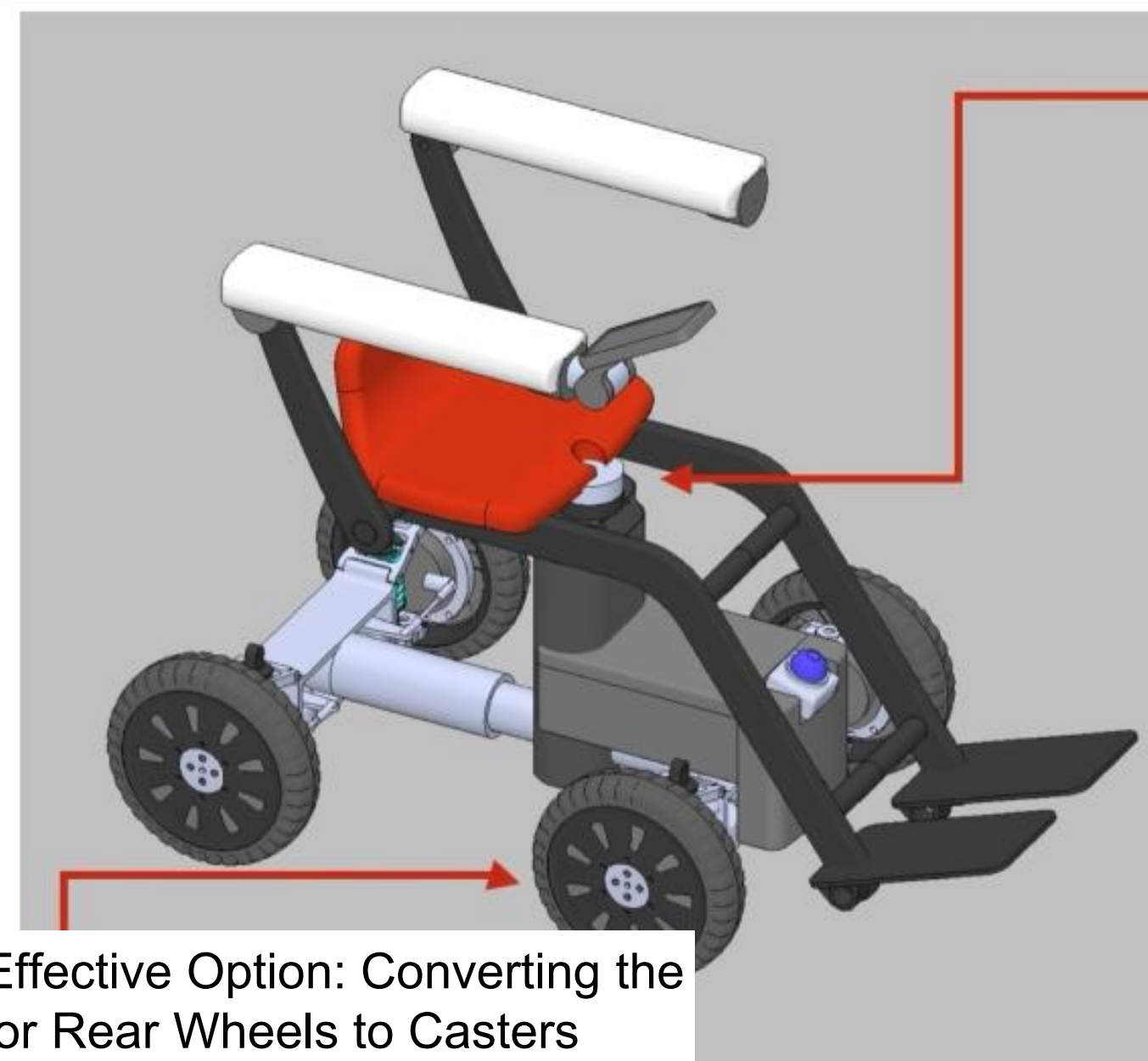
Transformation Function Verification  
Prototype (Concept B)

# Results and Progress Status: Cybernic Smart Mobility HW Development

FY2025 Implementation Item: 2. Cybernic Smart Mobility HW Development - Study on Cost Optimization

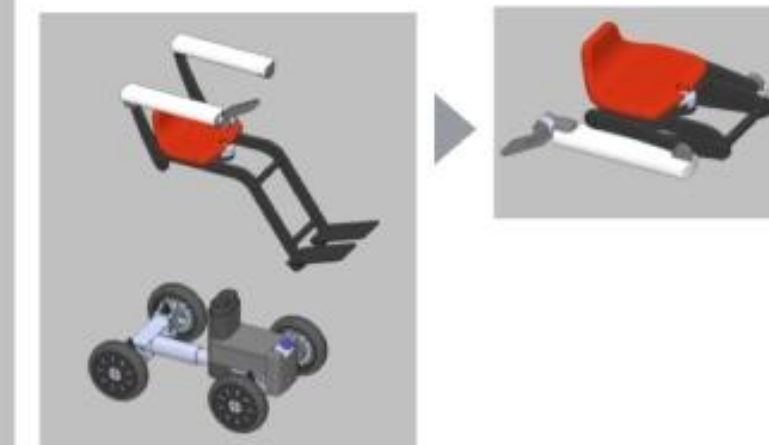


Toward the Use of  
Generic Components



Cost-Effective Option: Converting the  
Front or Rear Wheels to Casters

A modular design (as a common  
platform) to enable both the movement  
of people and the transport of goods



Fits in the back seat of  
a passenger car

As a study toward cost optimization of the demonstration experiment prototype, we organized, as items for consideration, design changes from the previous mechanical configuration of the transformation function verification prototype to making the front or rear wheels casters, and to a separable configuration (separating the base (foundation) unit from the riding unit and transport unit).

(Background of this design change for cost optimization) In the conventional design, the use of dedicated components had a pronounced impact on cost when considering social implementation; therefore, we made design changes such as reducing the number of drive joints for transformation and adopting structures such as telescopic ones that make good use of general-purpose parts.

## FY2025 Implementation Item: 3. Cybernic Smart Mobility SW Development

In FY2025, regarding the software development of Cybernic Smart Mobility, we achieved steady progress centered on the following development items.

- Indoor autonomous navigation basic function: Simulation verification completed, transitioning to actual-machine verification
- Outdoor autonomous navigation: Implementation of obstacle detection algorithm using LiDAR completed
- Signal information utilization function (inter-theme collaboration with the UTMS Association Consortium): Implementation completed, demonstrations conducted at hands-on and inspection events
- Transformation function: Specification study toward actual-machine implementation of the automatic transformation control SW

# Results and Progress Status: Cybernic Smart Mobility Verification

## FY2025 Implementation Item: 4-1. Basic Performance Verification Results



Mobility Function Verification Prototype (Concept A)



Transformation Function Verification Prototype (Concept B)

For both the mobility function verification prototype (Concept A) and the transformation function verification prototype (Concept B), we conducted software verification in parallel with hardware development. For the transformation function verification prototype, we confirmed manual transformation and driving functions by joystick operation; for the mobility function verification prototype, we advanced actual-machine verification of person-on-board travel (maximum speed approximately 6km/h) and indoor autonomous navigation functions.

o Achievement status: In accordance with the plan, we carried out various R&D such as specification development, HW development, SW development, and basic performance verification preparation. In addition, as inter-theme collaboration that was not in the original plan, we developed a signal information utilization function through communication with a BLE roadside unit linked to the Advanced PICS of the UTMS Association Consortium (a signal information utilization function on the mobility side receiving signal information provided via V2I). Having completed the evaluation of the verification prototypes, we began the design and development of a demonstration experiment prototype that takes cost optimization into account.

## FY2025 Implementation Item: 4-2. Demonstration Experiment Planning and Preparation

Toward the demonstration experiments of Cybernic Smart Mobility, we formulated the experiment plan and selected the fields. The demonstration experiments aim not only to verify the effectiveness of the developed technologies but also to identify challenges and examine solutions for social implementation.

### Selection of Demonstration Fields:

#### 1. CYBERDYNE Tsukuba Headquarters and surrounding area:

- Purpose: Basic performance verification of seamless indoor/outdoor movement, elevator use, goods transportation functions, etc.
- Characteristics: A managed private-land environment, suitable for initial demonstration
- Implementation items: Basic mobility function tests, transformation function tests, autonomous driving tests, elevator integration tests, etc.

#### 2. Tsukuba City Hall and surrounding facilities:

- Purpose: Practicality verification of manual driving (with obstacle detection function) through public facilities, outdoors, and surrounding facilities (shopping mall), as well as autonomous driving and mobility support for elderly and disabled passengers
- Characteristics: Includes the interior of public facilities, outdoors, and surrounding facilities, enabling verification that assumes actual usage scenarios
- Implementation items: Inter-facility movement tests, evaluation tests by elderly and disabled persons, goods transport tests

3. We designated two locations—an elderly care facility and the field of Tohoku University's Smart Energy Challenge—as candidates for demonstration experiments toward social implementation (we began discussions with the relevant parties).

# Results and Progress Status: Cybernic Smart Mobility Verification

FY2025 Implementation Item: 4-3. Demonstration Experiments in Collaboration with Other R&D Items  
(regarding collaboration with the UTMS Association Consortium)

- We jointly developed and demonstrated a signal information acquisition function through communication between the Advanced PICS roadside unit and the mobility function verification prototype
- At the hands-on event on October 7, 2025, we conducted communication and crossing demonstrations with the pedestrian crossing signal in front of Azuma Elementary School



The roadside unit receives the green-signal extension button from the mobility



## Challenges (Regarding Regulatory Development)

(We plan to begin discussions on legal systems from the timing of Implementation Item "5-2. Study and Proposal of Standardization for Social Implementation." We will conduct internal discussions within the consortium in FY2026, and in FY2027, based on information on the results obtained from demonstration experiments, begin discussions with relevant ministries and related industries.)

1. **Legal Positioning Study:** To enable this mobility device to operate on public roads and sidewalks, we organize the legal category classification. If special-zone systems such as Smart City/Super City can be utilized, we will also consider utilizing special-zone systems.
2. **Safety Standards Formulation:** It can be anticipated that the formulation of safety standards according to the vehicle's maximum speed and weight will become necessary. We will identify gaps with related regulations—such as obligations to install lights and turn signals for this redesigned new vehicle and standards for ensuring distance from pedestrians—and connect these to recommendations.
3. **Environmental Preparation:** If a certification system for the new mobility category is necessary, we will provide knowledge to international conferences toward its development, and based on data obtained from demonstrations, support the creation of standards on safety, etc., implementing initiatives that contribute to creating an environment conducive to social implementation and acceptance.

1. We set the deliverable "2-⑧ **Multi-mode vehicle** (expansion of the countermeasure menu list)." We organized the exit for social implementation as "② **Proposal and implementation of broadly defined infrastructure that realizes a safe, comfortable, and lively city (public).**" We continue collaboration with the Tsukuba Super City concept and cooperation with WILLER Inc.
2. Stakeholder Collaboration: At the TF2 policy briefing, we confirmed the positioning of our consortium. From the User Review Committee, we received the comment that we should make the study of rental/subscription-type business models concrete toward social implementation, and decided to reflect this in our initiatives starting in FY2026.
3. Business continuation was approved for all implementation items, and we obtained an overall evaluation of "A" from the User Review Committee. From the Stage Gate Committee, we received advice on deepening the study of introduction costs, the potential of LiDAR technology, and involving businesses through the opening up of technology.



The 2025 ITS (Intelligent Transport Systems) World Congress in Atlanta, USA, is a world congress for the dissemination and exchange of information on intelligent transport systems; at the theme session of the Cabinet Office's Smart Mobility Challenge, we conducted a lecture presentation and an actual-machine exhibition.



## Cybernic Smart Mobility Contributing to Re-design of Vehicles and Infrastructure

The 3rd phase of the Cross-ministerial Strategic Innovation Promotion Program (SIP), Cabinet office, Japan

Development of Smart Mobility Platform, by CYBERDYNE Inc.

Hosted By:



In Partnership With:



Built By:



DEPLOYING TODAY, EMPOWERING TOMORROW

# International Collaboration and Outreach Activities



At the venue of the ITS World Congress in Atlanta, we also exhibited the actual machine transported from Japan (shown at left), and were able to convey to many participants the technology development initiatives and their progress as part of this SIP Smart Mobility effort, thereby promoting international collaboration and outreach.

