Next Generation Transport

Demonstration for social implementation of the last mile mobility system by automated and connected vehicles in dedicated zone

National Institute of Advanced Industrial Science and Technology (AIST)

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Objective

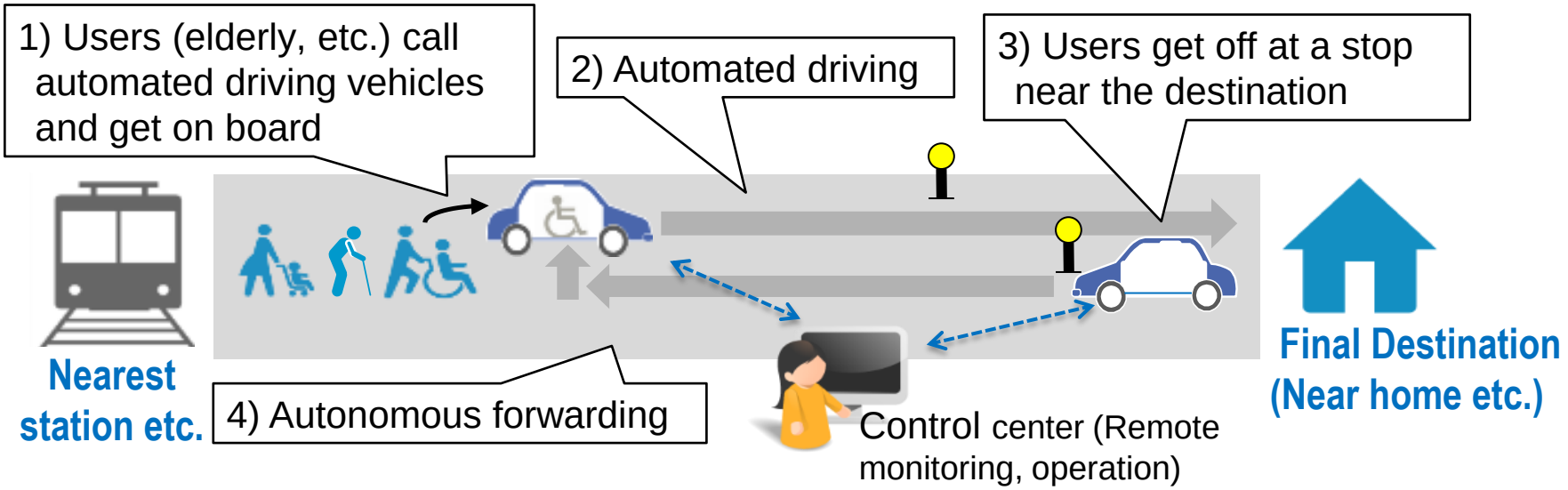
- Social implementation of new transportation system for public use by a small cart or a bus
  Automated driving technology for the last mile mobility
  - Support for short distances between transportation hub (railway, bus, etc.) and home, or final destination or in areas
  - Reduction of labor costs and Drivers shortage issue
  - Demonstrating transportation service of the last mile automated driving at the level 4 (SAE J3016) and a remote type automated driving systems (remote control operator and dispatcher)

- Sponsor: Ministry of Economy, Trade and Industry (METI) and
  Ministry of Land, Infrastructure, Transport and Tourism (MLIT)
  - 3 years from 2016FY, approximately 300 million yen per year.
    (Partly excludes development cost of automated bus)
  - AIST is conducting with companies and university.

Key points of project

- Establishment of automated driving technology
  - Demonstration of automated driving, safety and reliability of remote operation in real environment
- Clarification of business model (business feasibility)
  - Demonstrating the feasibility of service business and the way of continuity in the real regional model
- Establishment of social system
  - Discussion on institutional approach of technology and business aspects with relevant ministries, demonstration of infrastructure development
- Establishment of public acceptance
  - Demonstration for the high utility value and user acceptance for the stakeholders in the actual area

Service image



Service image

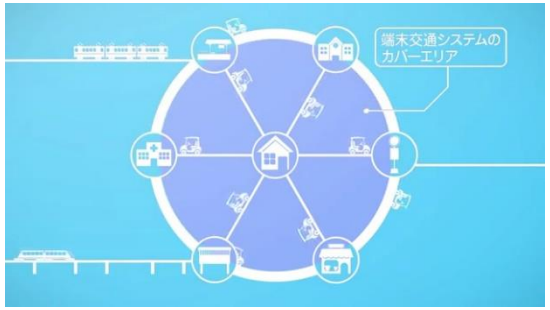
“Smart E Cart”

“Smart bus”

Vehicle image

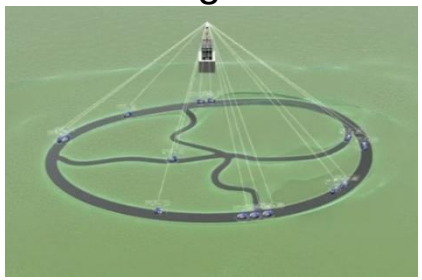
Technology development of smart E cart

Focus on application of technologies and operations with high safety, reliability, business viability, and continuity suitable for the installation region



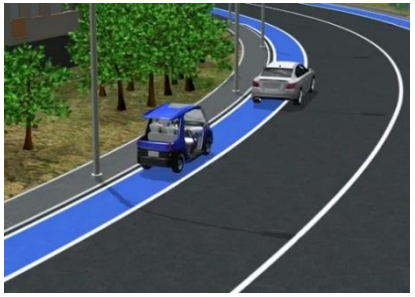
Coverage of Last Mile Mobility

Last Mile Mobility System: Smart E Cart image



Efficient operation by management system

Snow and indoor by electromagnetic induction line



Obstacle detection and safe stop

Avoid obstacles by remote monitoring / steering system

Demonstration areas (FOT area)

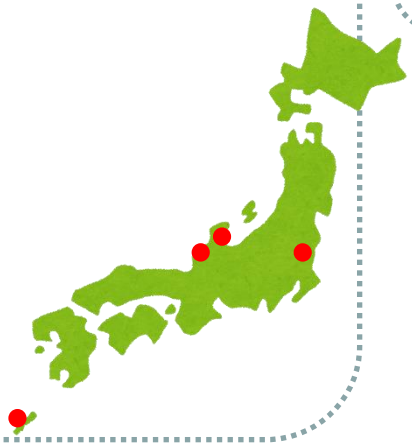
- Public offering for demonstration areas and selected 4 areas from 33 municipalities

"Small electric cart"

Eiheiji-cho, Fukui-Pref.:
Depopulated area model

Wajima-city, Ishikawa-Pref.:
City area model

Chatan-cho, Okinawa-Pref.:
Sightseeing area model



"Small bus"

Hitachi City, Ibaraki-Pref.:
Community bus model

- 4 regional models
- 4 key points verified by field operation test

Development Example

Chatan-cho, Okinawa

- On-site evaluation experiments started on June 26th, 2017
- Regional demonstration for last mile mobility
  First trial in Japan : Remote type Automated driving (not in public road)
  - Automated driving using electromagnetic induction cable (part of demonstration road: roundtrip less than 1 km)
  - Automated braking system by multiple sensors
  - Start / stop remotely controlled by the remote operation center/system
  - Obstacle Avoidance by remote control

Experimental vehicles (Smart E Cart)

Automated driving

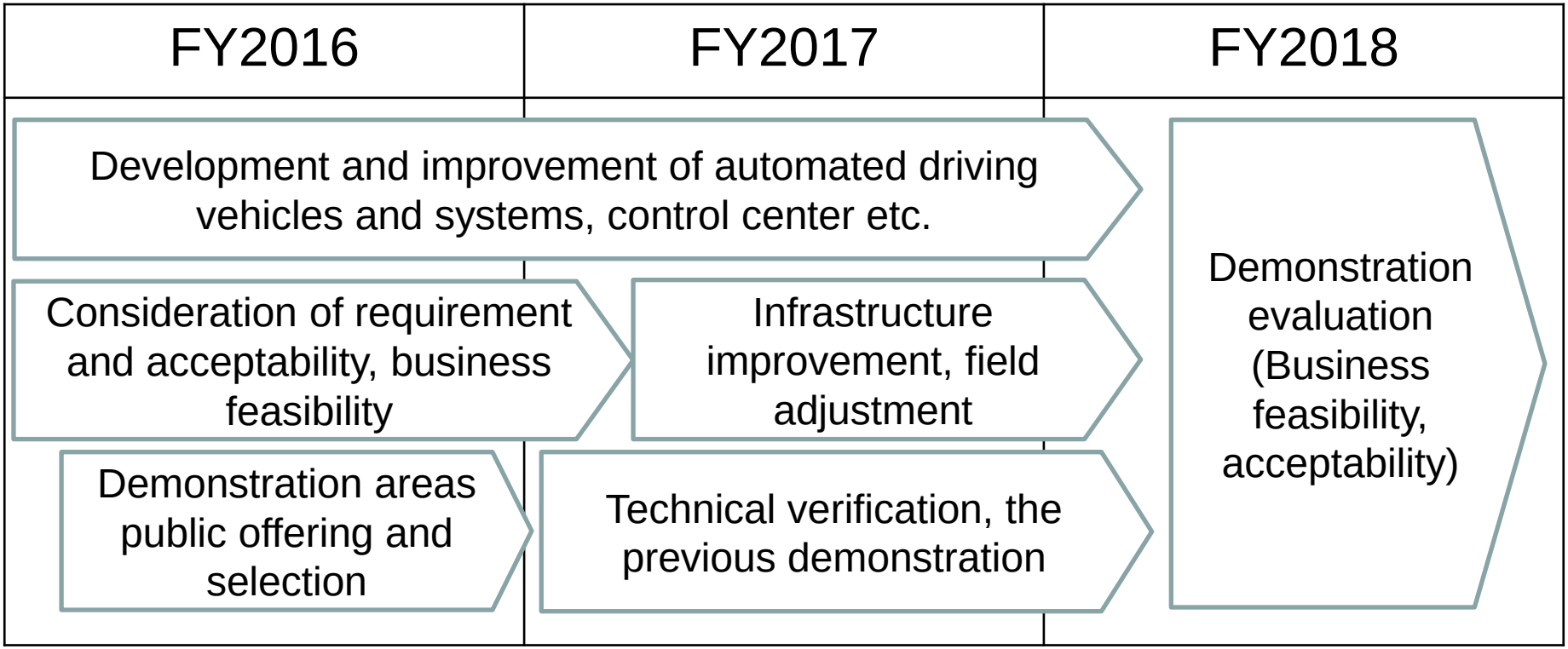
Remote monitoring / control monitor screen

Demonstration driving video

- Automated driving by electromagnetic induction cable, obstacle stops, remote monitoring, fault avoidance by remote control, return to the electromagnetic induction line automated driving

Development schedule

- For the full-scale field operation test in the next fiscal year, technical verification in each region
  - Scheduled Plan: Demonstration of remote controlled and automated driving on public road in this fiscal year



Thank you for your kind attention

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