Automated Driving Services in Rural Areas

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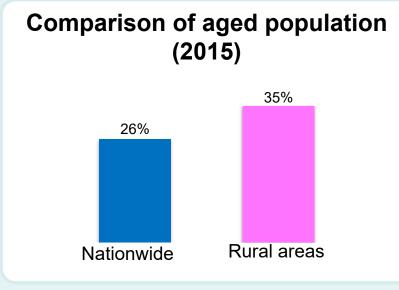


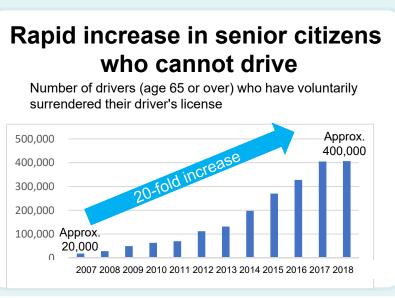
2. FOTs of automated driving services in rural areas

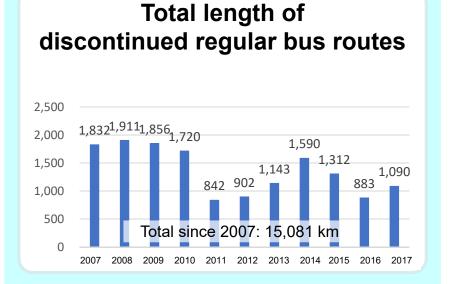


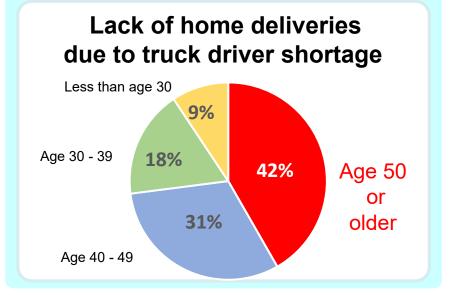
2. FOTs of automated driving services in rural areas









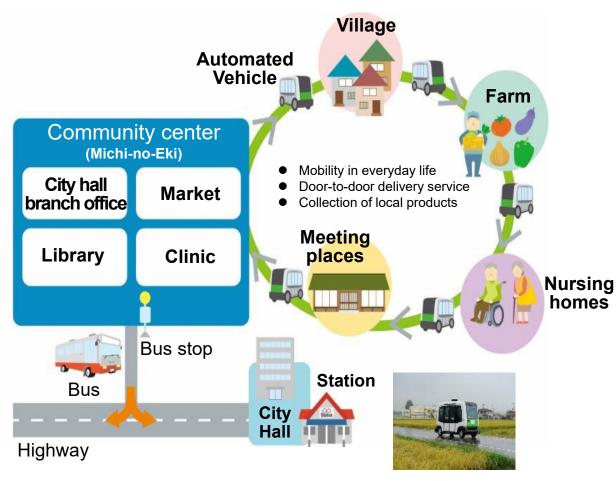




2. FOTs of automated driving services in rural areas

FOTs of automated driving services in rural areas multi-

- OExpected to support transport of both people and goods, and further local revitalization.
- OA series of FOTs of automated driving services based at Michi-no-Eki have been started since 2017.



AV : Automated driving Vehicle

FOTs have been implemented in rural areas



As of August 2021

(Short-term FOTs)

FY2017~2018

: 18 (* including both long-term and deployment in society)

(Long-term FOTs)

FY2018~

: 8

(* including deployment in

(Implementation service)

FY2019~

: 3

Niimi City, Okayama Prefecture (Michi-no-Eki "Koigakubo")

linan-cho, lishi-gun, Shimane Prefecture (Michi-no-Eki "Akagi Kogen")

Long-term FOT

Schedule: Sept. 1 - Oct. 10, 2020 Vehicle: Yamaha Motor Co., Ltd.

Ube City, Yamaguchi Prefecture (Michi-no-Eki "Kusunoki Komorebi no Sato")

[Implementation service] From 7/19, 2021

Miyama City, Fukuoka Prefecture (Miyama City Hall Yamakawa Branch)

[Long-term FOT]

Schedule: Nov. 2 - Dec. 21, 2018 Vehicle: Yamaha Motor Co., Ltd.

Ashikita-machi, Kumamoto Prefecture

(Michi-no-Eki "Ashikita Dekopon")

[Long-term FOT]

Schedule: Jan. 27 - Mar. 15. 2019 Vehicle: Yamaha Motor Co., Ltd.

Miyoshi City, Tokushima Prefecture (Michi-no-Eki "Nishiiya" • "Kazura Bashi Yume Butai")

> **Otsu City, Shiga Prefecture** (Michi-no-Eki "Imokonosato")

[Implementation service] From 11/30, 2019

Kamikoani Village, Akita Prefecture

(Michi-no-Eki "Kamikoani")

[Long-term FOT]

Schedule: Dec. 9, 2018 - Feb. 8, 2019 Vehicle: Yamaha Motor Co., Ltd.

Takahata-machi, Yamagata Prefecture

(Michi-no-Eki "Takahata")

Nagaoka City, Niigata Prefecture (Yamakoshi Fukko-Community Hub Orataru)

Nanto City, Toyama Prefecture (Michi-no-Eki "Taira")

Gujo City, Gifu Prefecture

(Michi-no-Eki "Meiho")

Taiki-cho, Hokkaido (Michi-no-Eki "Cosmall Taiki")

[Long-term FOT]

Schedule: May 21, Jun 21, 2019

Vehicle: Advanced Smart Mobility Co., Ltd.

Nishikata-machi, Tochigi City, Tochigi Prefecture

(Michi-no-Eki "Nishikata")

Hitachiota City, Ibaraki Prefecture

(Michi-no-Eki Hitachiouta and Takakura Koryu

[Long-term FOT]

Schedule: Jun. 23 - Jul. 21, 2019 Vehicle: Yamaha Motor Co., Ltd

Ina City, Nagano Prefecture (Michi-no-Eki "Minami Alps Mura Hase"

[Long-term FOT]

Schedule: Nov. 5 - 29, 2018

Vehicle: Advanced Smart Mobility Co., Ltd.

Toyota City, Aichi Prefecture

(Michi-no-Eki "Donguri No Sato Inabu")

[Implementation service] From 4/23, 2021

Tatehata-cho, Higashi-Omi City, Shiga Prefecture

(Michi-no-Eki "Okueigenji Keiryunosato")

[Long-term FOT]

Schedule: Nov. 15 - Dec. 20, 2019 Vehicle: Yamaha Motor Co., Ltd.



2. FOTs of automated driving services in rural areas

Deployment of automated driving services

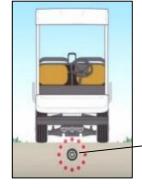


Automated Vehicles

< Vehicle >



< Automated driving mechanism>



< Vehicle specifications >

- O Developed by: Yamaha Motor Co., Ltd.
- O Capacity: Max. 6 occupants O Speed: Approx. 12km/h
- O Driver: During operation, driver is on board but only monitors operation and does not steer or otherwise operate Electromagnetic the vehicle induction lines

Electromagnetic induction lines are embedded in the road to guide vehicles

Operating system (Kamikoani)

Operating entity

Kamikoani Mobility Service Association (NPO)

Service

Pickup and drop-off of senior citizens

Fare

JPY 200 / trip

Operating distance

Total distance approx. 8km (round trip)

Schedule

Operating day: Everyday Regular service: AM: 1 trip (Mon. to Fri.) (On-demand service: Periods between regular service and on Saturdays and Sundays)

Operating system (Okueigenji))

Operating entity

Higashi-Omi City

Service

Pickup and drop-off of senior citizens and tourists

Delivery of agricultural products, etc.

Fare

JPY 150 / trip(passenger) 100 / trip(products)

Operating distance

Total distance approx. 4.4km

(round trip)

Schedule

Operating day: 4 days (Wed., Fri., Sat.,

Regular service: 6 trips (AM:2 trips. PM:4)

Operating system (Miyama).

Operating entity

Miyama City

Service

Pickup and drop-off of senior citizens

Fare

JPY 100 / trip

Operating distance

Total distance approx. 7.2km (round trip)

Schedule

Operating day: Mon. to Fri.

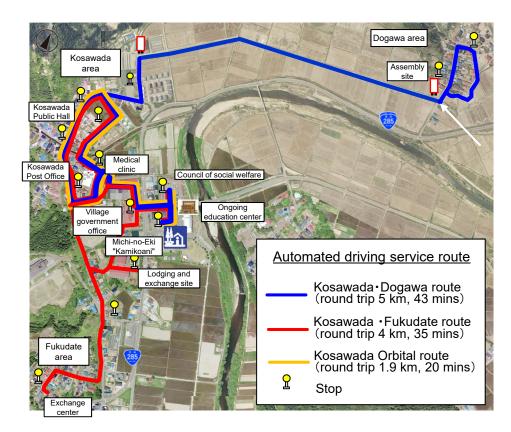
Regular service: 5 trips (AM:3, PM:2)

Deployment of automated driving services based at Michi-no-Eki "Kamikoani"



- O Total distance approx. 4 km based at Michi-no-Eki " Kamikoani".
- O From November 30, 2019 to January 18, 2021, to ensure safe and smooth automated driving, a dedicated driving space was created to prevent ordinary vehicles from entering the sector.

Routes



Pictures



▲ Driving on snowy roads



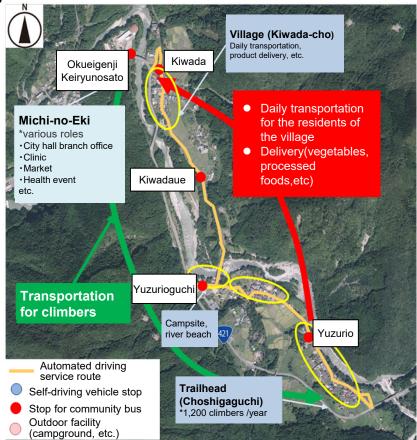
▲ Driving on dedicated space

Deployment of automated driving services based at Michi-no-Eki "Okueigenji Keiryunosato"



- O Total distance approx. 4.4km based at Michi-no-Eki "Okueigenji Keiryunosato ".
- O Installation of signboards and road markings on the route and dissemination with the cooperation of the local community for the smooth running of automated driving vehicles.

Routes



Pictures



▲ Automated driving



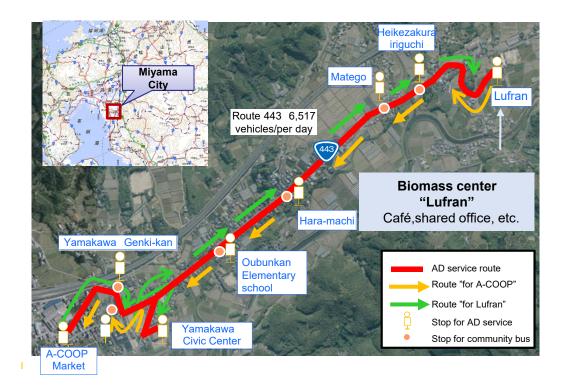
▲ Loading of farm products

Deployment of automated driving services based at "Miyama City Hall Yamakawa Branch"



- O Total distance approx. 7.2km based at "Miyama City Hall Yamakawa Branch ".
- O Secure regional transportation in sections where the service level of community buses is low. Automated driving service route is connecting the living and shopping bases of local residents with the biomass center "Lufran" promoted by Miyama City as a regional base.

Routes



Pictures



▲ Automated driving



▲ Riding

Efforts to boost ridership



New route to meet local needs



▲Extended the existing route to the village's sole convenience store to boost citizen's convenience.

■Cooperation with community



▲Local people gave nickname and created original sticker.

■Cooperation with others



▲Tie-up with Michi-no-Eki (Free ticket for purchase of JPY 1,000)



 \blacktriangle Tie-up with village market : transportation of goods

Verification results after social implementation "Kamikoani"



■ Verification of dedicated space (L=1km)

- O Operated without accident for over a year
- O No opinion such as anxiety about not having a driver
- O Excessive dedicated space management costs for traffic guides, etc.



Confirmed stable driving without a driver.
There are almost no users who feel uneasy.



Traffic control by traffic guides is essential for the operation of the dedicated space.

Study of vehicle and infrastructure maintenance

- O Organize the operation method by the local alone
- O Verify infrastructure and vehicle maintenance and repair work



Equipment management for operation by volunteers only



Testing device for disconnection point



Organize procedures by recording infrastructure repair work