

2nd. Asia Automobile Institute Summit

25-26 November 2013, Bali

Researchers Exchange

Eka Firmansyah

**Power Electronics Researcher
Electrical Eng. & Information Tech. Dept.
Universitas Gadjah Mada**

Mitsuo Yonezawa

**General Manager
Global Networking
Japan Automobile Research Institute**



<1st. AAI Summit's Review>

JARI's Plan of “Researchers Exchange”

Step-1:

Technical support dispatch from JARI

Step-2:

Short-term acceptance to JARI for training and education

Reviewing the above results,

Step-3:

Long-term dispatch and acceptance from/to JARI

<1st. AAI Summit's Review>

Summary of “Researchers Exchange”

- ✓ Promotion of a “Researchers Exchange” was **agreed to by the leaders** of Asian research institutes.
- ✓ Each Asian research institute **assigns a responsible staff** to promote a “Researchers Exchange”.
- ✓ The assigned staff member will **report the activities** of the “Researchers Exchange” over the next 6 months to the member institutes of the AAI Summit by June, 2013.
- ✓ “Researchers Exchange” will be **scheduled as one of the agenda items** in the next AAI Summit.

Today's Agenda

- 1. Report the progress since Summit #1 and introduce Step-2's example: JARI (15 min)**
- 2. Introduce the offer of Step-1 and -2 from each country (10-20 min. each)**
- 3. Discussion and further action (45 min)**
 - Step-1 and -2: Execution plan and issues
 - Step-2: Bundling possibility between requests to decrease common cost
 - Step-3: Process for realization
- 4. Wrap-up and next steps (5 min)**

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Researchers Exchange

Takeshi Fujii

General Manager

General Administration Division

Japan Automobile Research Institute

Mitsuo Yonezawa

General Manager

Global Networking



Contact Person in Each Institute

India (ARAI): Mr. Deepak Jagannath Kulkarni

Indonesia (Inard): Dr. (Mr.) Eka Firmansyah*

Japan (JARI): Mr. Takeshi Fujii

Malaysia (MIROS): Mr. Khairil Anwar Abu Kassim

Thailand (TAI): Ms. Chureerut Suwanwittaya

<Note>

*: Changed from Dr. Agus Subekti in October 2013.

Progress since #1 Summit

9-11 January, 2013

JARI's managing director and an expert of safety were invited to SIAT2013: Symposium on International Automotive Technology 2013 by ARAI for a lecture and as a chairman of the Key Note session.

May and June, 2013

JARI accepted six researchers/ technicians from MIROS for the training of crash tests.

20-21 June, 2013

JARI's president was invited to the Automotive Summit 2013 by TAI for a Key Note Lecture.

6 Offers from the Indonesian Side

6 offers of Step-2: Short-term acceptance to JARI for training and education are as follows:

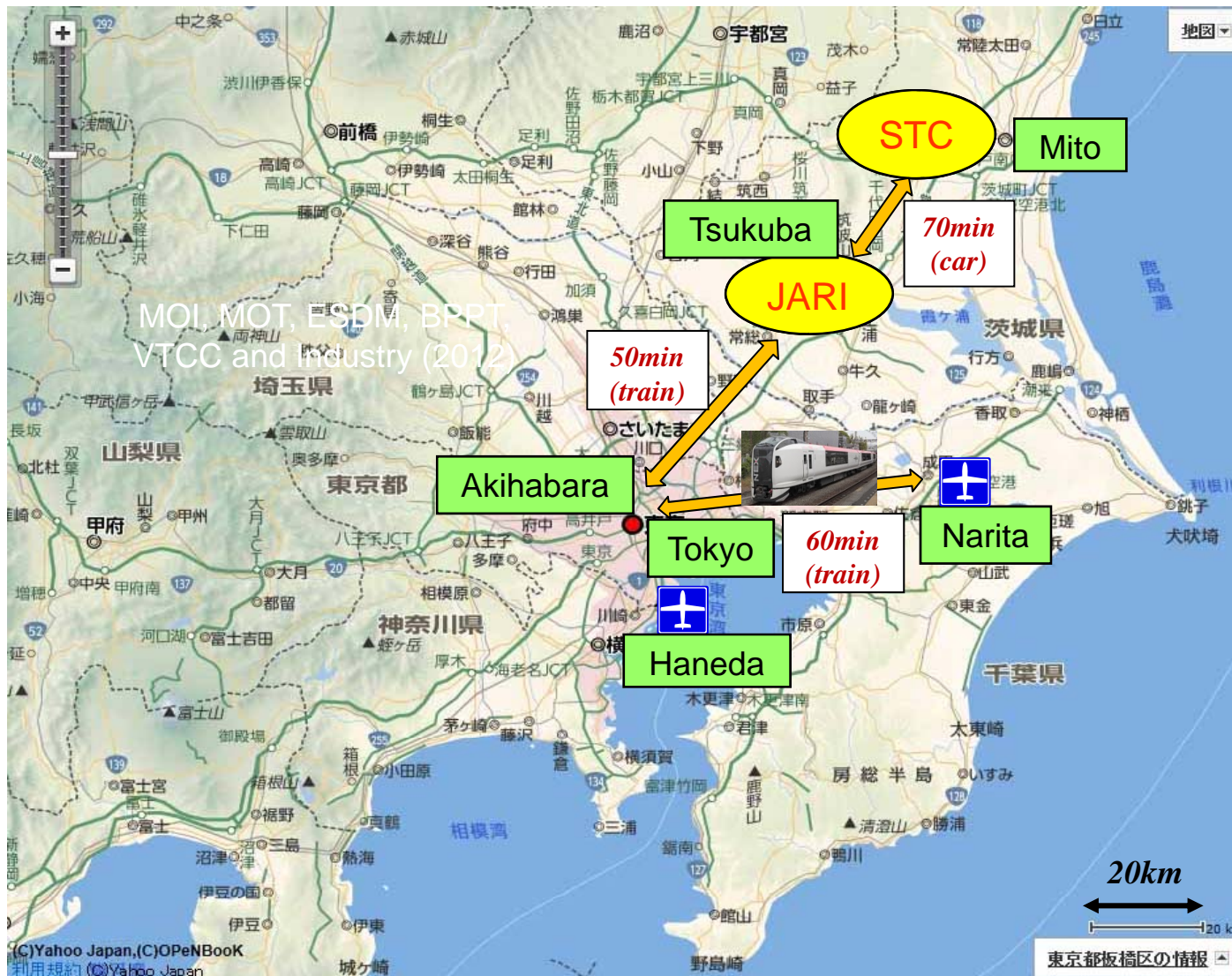
1. **Battery standardization** (testing procedures)
- + 3. **Battery and charging infrastructure standardization**
- + 6. **Electric cars safety**: Refer to pp. 6-10

2. **Compressed gas* conversion program**: Refer to pp. 11-14, *: Compressed natural gas (CNG)

5. **ISO 26262**: Refer to pp.

4. **Green and clean manufacturing**:
Sorry to say, JARI's not able to make a plan for this.

Introduction for Training of 1.+3.+6.: EV related items



Introduction for Training of 1.+3.+6.: EV related items

Tsukuba Research Facility for Day-1



Charge/discharge testing system



Constant-temperature bath

Shirosato Test Center for Day-2



JARI Shirosato Test Center
(STC)



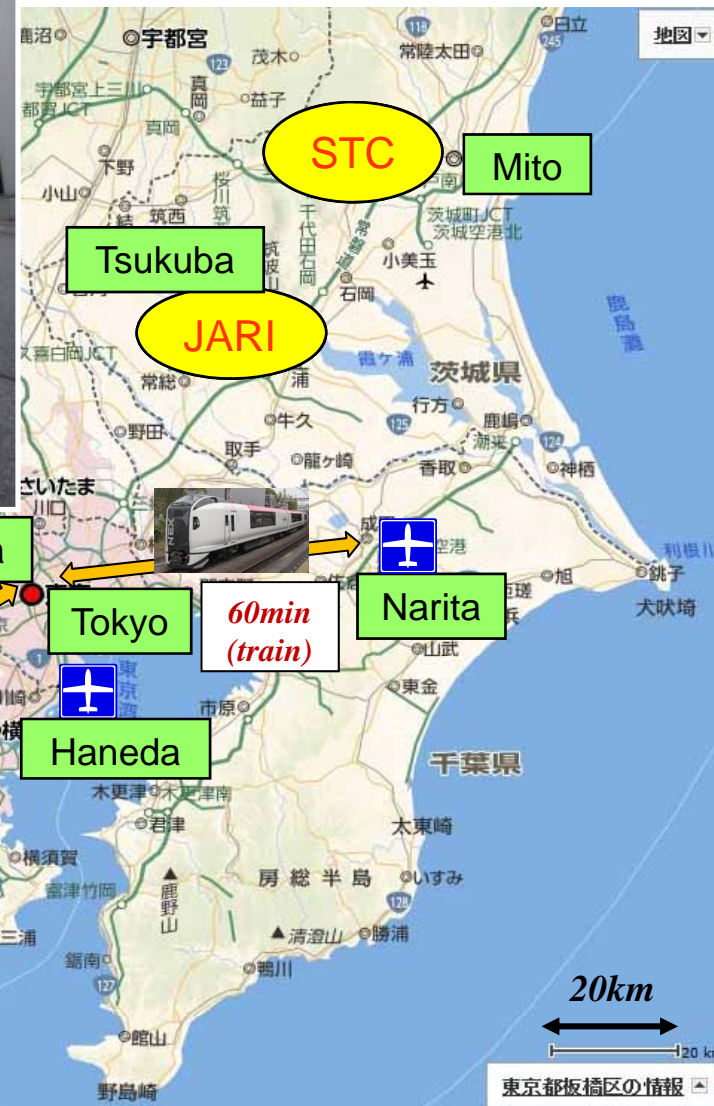
Hydrogen and Fuel Cell Vehicle Safety
Evaluation Facility (Hy-SEF)

Schedule for Training of 1.+3.+6.: EV related items



Day	Time	Contents	Hotel location
Moving day		Narita or Haneda → Tokyo (→ Tsukuba)	Tokyo or Tsukuba
Day-1: Tue.	AM	Lecture: EV standardization and regulation, Battery standard test method, Charging infrastructure standardization	Same as above
	PM	Practice: EV charging test or Battery performance test	
Day-2: Wed.	AM	Lecture: EV safety Technical visit: HySEF (Hydrogen and Fuel Cell Vehicle <u>S</u> afety <u>E</u> valuation <u>F</u> acility)	Same as above
	PM	Technical visit: Same as above	
Moving day		(→ Tsukuba) → Tokyo → Narita or Haneda	

Introduction for Training of 2. CNG conversion program



Introduction for Training of 2. CNG conversion program



HKS (http://www.hks-power.co.jp/bi_fuel/)



**CNG car #1: Toyota Probox Van 1.496L, AT, (Engine: 1NZ-FE, 75.0 x 84.7mm)
cf. Gran Max: 3SZ-VE, 1,495L, 72.0 x 91.8mm, (Toyota Lite Ace in Japan)**



Fuel supply system



Injector



Steel CNG tank



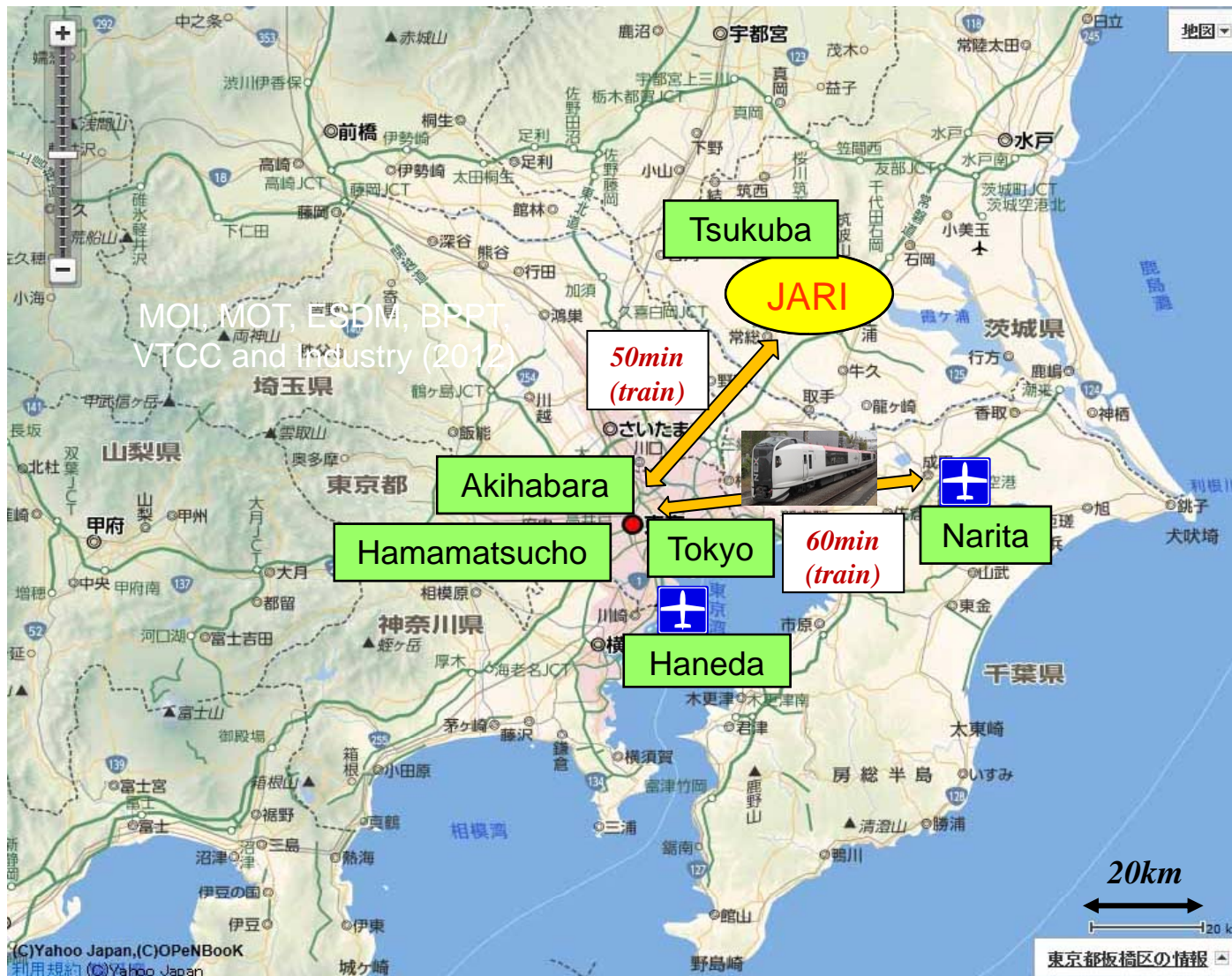
**Check of ECU
signal by PC**

Schedule for Training of 2. CNG conversion program



Day	Time	Contents	Hotel location
Moving day		Narita or Haneda → Tokyo → Shin-Fuji	Near Shin-Fuji
Day-1: Tue.	AM	Guidance and visit to HKS factory	Same as above
	PM	Lecture: Overview of CNG vehicle and converter kit	
Day-2: Wed.	AM	Practice: Converter kit installation	Same as above
	PM	CNG vehicle test drive	
Day-3: Thu.	AM	Practice: Safety and performance check of CNG vehicle	Same as above
	PM	Discussion and summary	
Moving day		Shin-Fuji → Tokyo → Narita or Haneda	

Introduction for Training of 5. ISO 26262



Introduction for Training of 5. ISO 26262



1. What is "Functional Safety" for automobile?

Absence of unreasonable risk due to hazards caused by malfunctioning behaviour of E/E systems: ISO 26262 Part 1.

Vehicle OEMs are making intensive effort on it and suppliers are being required to comply with this standard by RFQ.

2. Motivation of the training

Obtaining basic understanding and knowledge of functional safety, and being functional safety engineer to spread this new philosophy into each country.

<Note> E/E: Electric/Electrical, RFQ: Request for Quotation

Introduction for Training of 5. ISO 26262

Curriculum (preliminary) is as follows:

**Two days lecture, one day exercise and one day
controllability test with malfunctioning vehicle**



Lecture in Tokyo



Test drive in Tsukuba Research Facility

Schedule for Training of 5. ISO 26262



Day	Time	Contents	Hotel location
Moving day		Narita or Haneda → Tokyo	Tokyo
Day-1: Tue.	AM	Introduction and Lecture-1: Background of ISO 26262	Same as above
	PM	Lecture-2: Uniqueness of ISO 26262	
Day-2: Wed.	AM	Lecture-3: Activity compliant to ISO 26262 -1	Same as above
	PM	Lecture-4: Activity compliant to ISO 26262 -2	
Day-3: Thu.	AM	Exercise-1: Method of item definition and hazard analysis item risk assessment	Same as above
	PM	Exercise-2: Execution of item definition and hazard analysis item risk assessment	
Day-4: Fri.		Move to Tsukuba and controllability test drive with malfunctioning vehicle	Tsukuba
Moving day		Tsukuba → Tokyo → Narita or Haneda	

Thank you for your attention.

**If you have any comments and questions,
please feel free to contact me: Takeshi Fujii.**

mailto: tfujii@jari.or.jp

Tel: +81-29-856-1112