CHAdeMO Technical Working Group Meeting

HPC Protocol SWG

CHAdeMO association
SUBARU Corporation
Kazumasa Arai

Role of this SWG

- **Resesrch of communication protocol for future DC charging (ChaoJi)**

  - Research and propose communication protocol for ChaoJi.

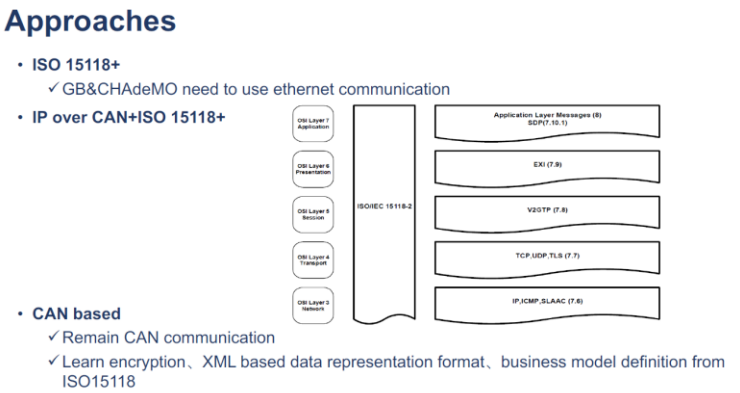
  - Create a roadmap for the electric vehicle charging protocol

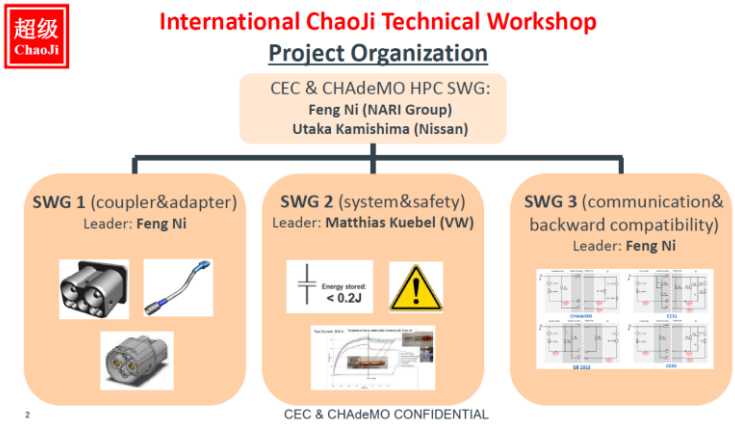
  - Cooperation with ChaoJi (Japan-China Work shop and International ChaoJi TWS SWG3)

ChaoJi

CHAdeMO

Proposal from CEC (China Electricity Council)





- New communication protocol proposal applied to ChaoJi

  Introduce a new Protocol that can support new functions (PnC, V2X, ACD, etc.)

  Three candidates
  - Ethernet
  - IP over CAN
  - CAN based

- International ChaoJi TWS

  The new protocol will be discussed at International ChaoJi TWS SWG3.

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Mission

Research and propose the new protocol for future function from the physical layer to application layer

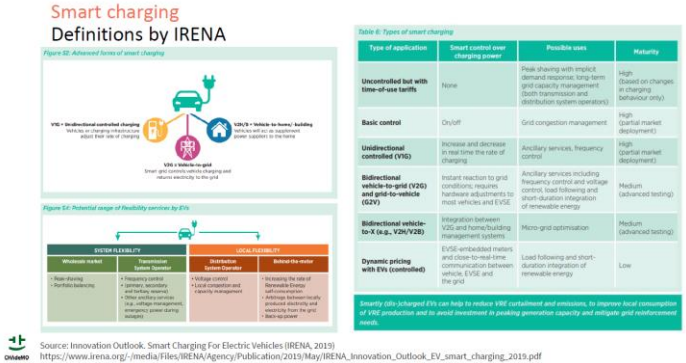
- Research and analysis of future functional use cases
- Functional analysis of each use case
- Communication test

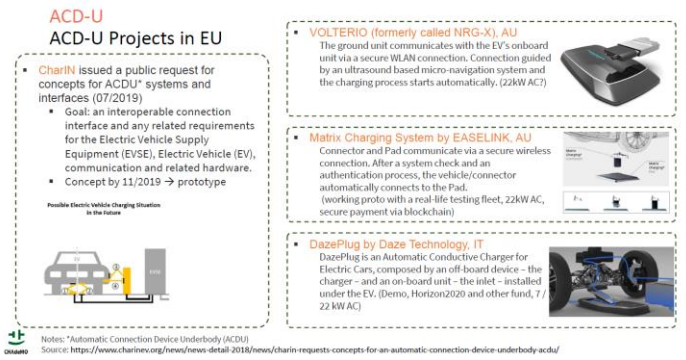
Reserch and analysis of future functional use cases

- Summarize future new charging features in Europe, Japan, China and North America

- Europe

  Research PnC, V2X, Smart Charge and ACD information



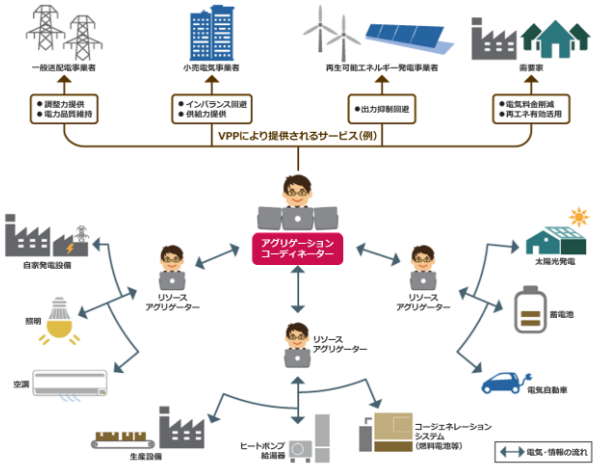


E-mail questionnaire survey to related parties (January 2021)

Information gathering and analysis of future functional use cases

- Survey of Japan and China
  - The survey items are under consideration

- Japan
  - Case study of VPP, V2X, and so on
  - Market demand for PnC, ACD, and so on
    - -> Interview survey of related parties

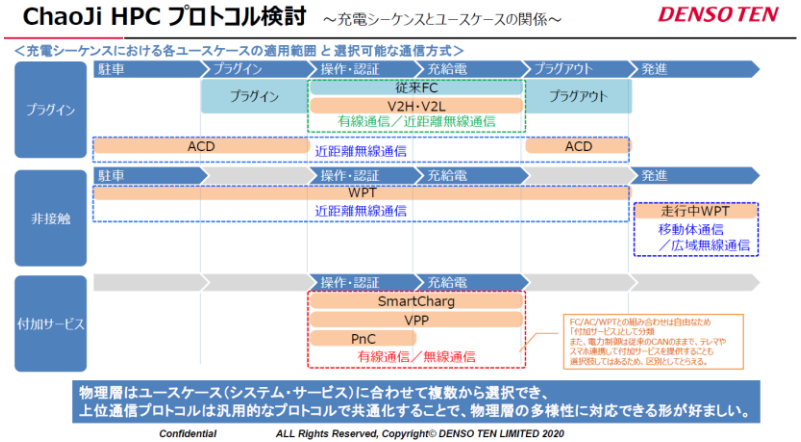


Cited from Ministry of Economy, Trade and Industry, Agency for Natural Resources and Energy

- ◆ Topics
  - Prime Minister Suga declares that Japan aims to achieve carbon neutrality by 2050

Cited from NHK (Japan Broadcasting Corporation)

Functional analysis of each use case



- Clarify the functional requirements and performance requirements of each use case
- Summarize the characteristics of each communication protocol (physical layer)
- Association of communication method with the scope of each use case in the charging sequence
- Relationship with physical layer, data format, standard (ISO)

Communication test

- Communication test from physical layer to application layer
  - Communication test to determine new physical layer
  - This year, we will narrow down the candidates for the physical layer and test next year.
  - Candidate of physical layer

    Ethernet : BroadR-Reach（100Base-T1）, 100Base-Tx, and so on

    Wi-Fi : IEEE802.11n、802.11ac, 802.11ax, and so on

Timeline

		2020									2021		
		4	5	6	7	8	9	10	11	12	1	2	3
Information researching and analysis of future functional use cases	EU	Determine the survey content			Coordination with the European Secretariat			Confirmation of survey information and determining the content of the hearing			E-mail questionnaire survey		Summarize
						Research and summarize							
	CH	Discussion at International ChaoJi TWS SW3											
	JP	Discussion at International ChaoJi TWS SW3 and Protocol SWG											Summarize
Functional analysis								◆ 12.10	◆ 13.11	◆	◆	◆	◆ Summarize
Test									Determination of physical layer to be tested and test content				
Protocol SWG		◆ 16.4			◆ 10.7	◆ 4.8	◆ 1.9	◆ 12.10	◆ 13.11	◆	◆	◆	◆
International TWS SWG3				◆ 29.6		◆ 18.8	◆ 30.9	◆ 21.10	◆ 23.11	◆	◆	◆	◆

Thank You!

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