Promotion of DSRC Multiple Applications of Japan

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1. Features of Japanese DSRC

(1) Features

- Use DSRC for ETC
- Used for multiple purposes
- Synchronized and interactive communication
- Internationally standardized (ITU proclaimed)

1. Features of Japanese DSRC

(2) Correlative comparison of three regions

region	Japan	Europe	North America
ETC	**5.8GHz Active ASK 2 channels**	5.8GHz Passive	915MHz Active／Passive
DSRC General purpose	**5.8GHz Active ASK／QPSK 7 channels (added in 2001)**	5.8GHz Passive	5.9GHz Active (a study is underway On IEEE 802.11p)

2. DSRC Forum Japan

(1) Goals and Members

Founded: January, 2004

Goals：Stakeholders of DSRC service strive for the widespread use

Rationale for actions：Coordinating with ITS related organizations and industries

inaugural meeting (January,2004)

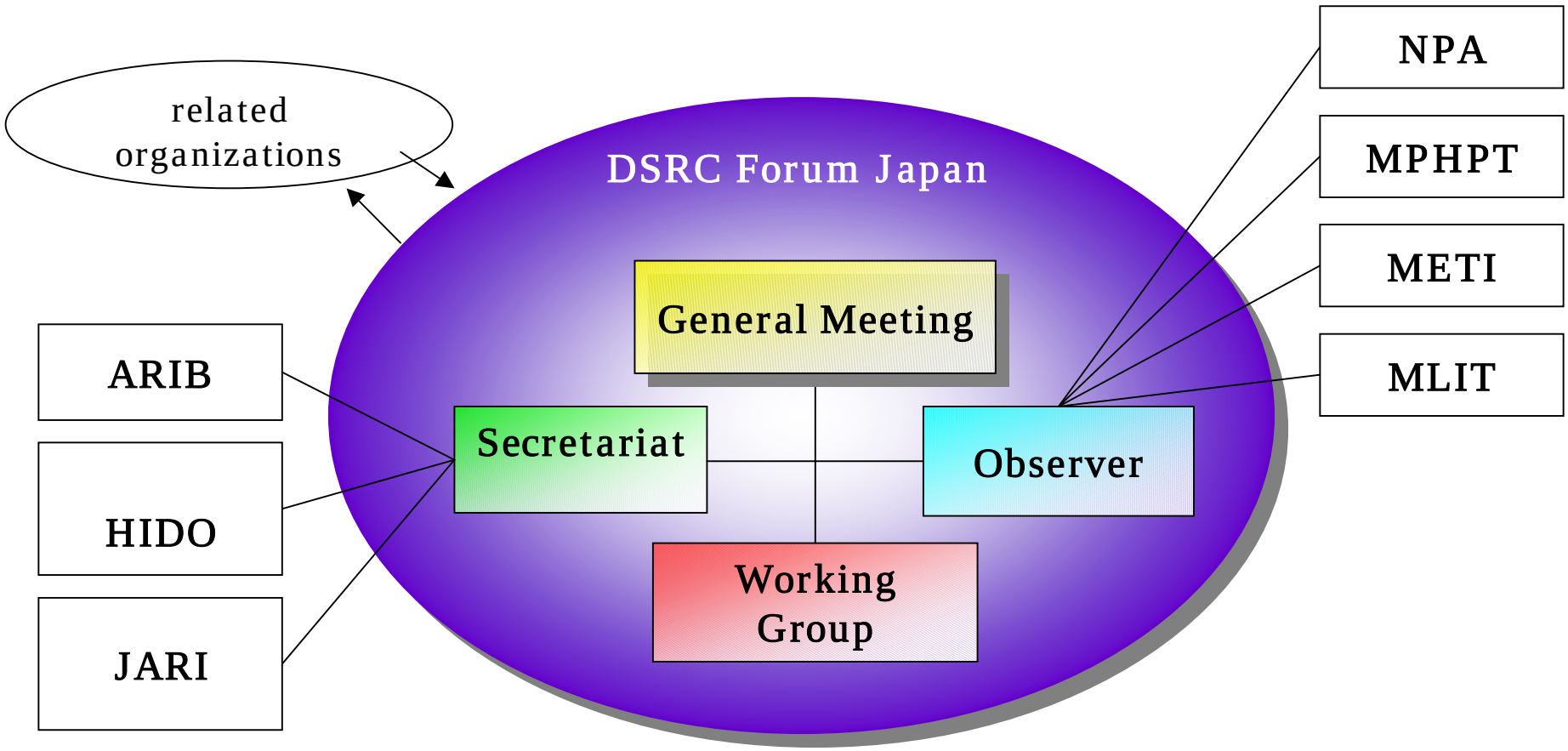
Membership：

Those who are interested in DSRC services:

automotives, electric, parking lot companies, banking, credit companies, trading corporations, advertising, publishing companies (213 entities)

2. DSRC Forum Japan

(2) Organization



2. DSRC Forum Japan

(3) Action items

1. Set up visions and action plans

   Demonstration programs during the ITS World Congress and on Aichi Exposition

2. Review operational issues aiming at the widespread use

   Cross-sectional connectivity and interoperability

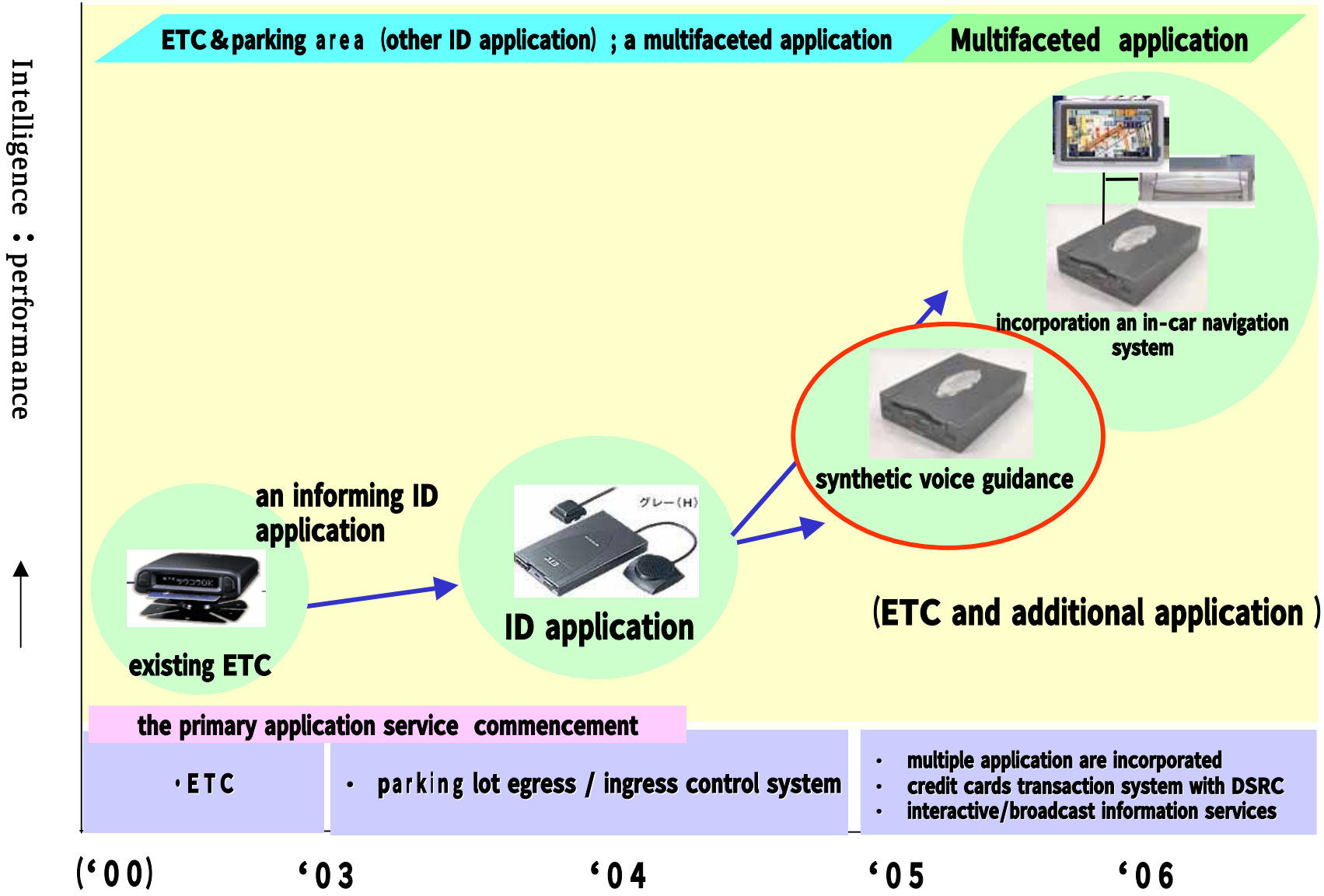
3. Proposal on measures to enhance quality of service

   Standardizations and deregulations

4. Gathering user's desires and conducting public relations, etc.

2. DSRC Forum Japan

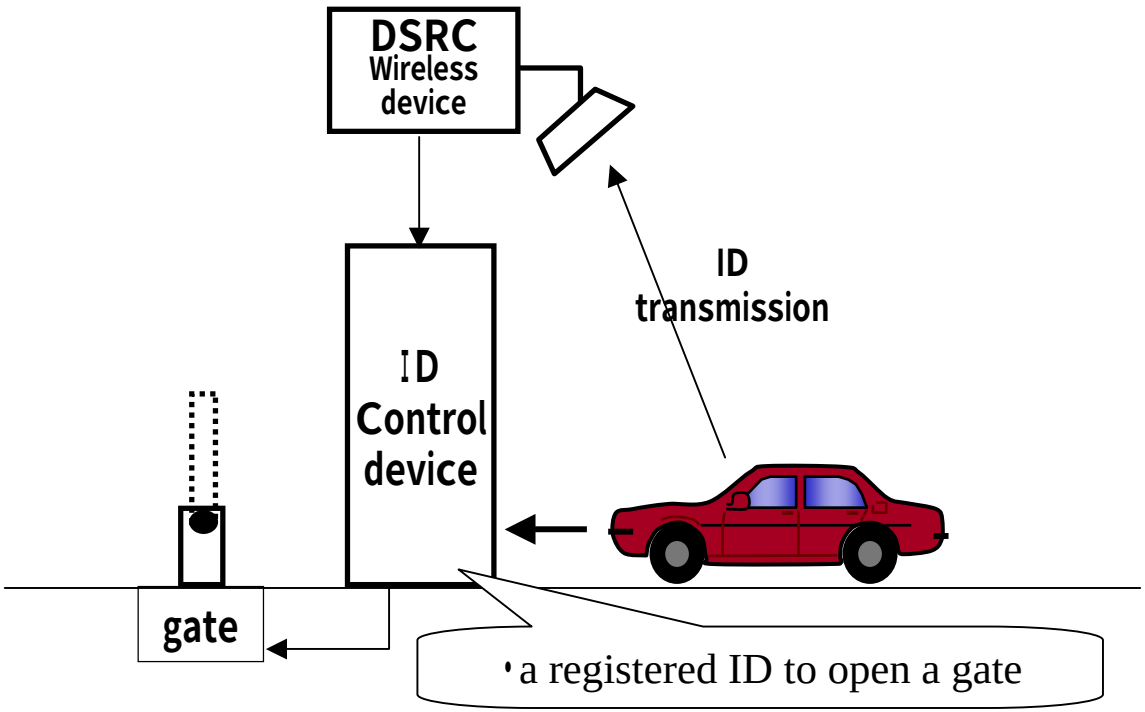
(4) A scenario to develop OBU



(5) Service with ID (1/2)

- ID:
  - Each OBU of ETC is assigned with a unique ID
  - OBU responds with its ID by request from a roadside unit

- Benefit:
  - already marketed 3.5 million ETC OBUs can migrate to the future services



2. DSRC Forum Japan

(5) Service with ID (2/2)

services		ID data
Egress/ingress control	Monthly payment for lot rental	Subscribing or not
	Hourly payment for lots	Time
	Gate control at factory, etc	Registered or not
Transaction	Hourly payment for lots	A way of payment, time
	Gas station	A way of payment, time
	Drive-through facility	A way of payment, time
Customer manage-ment	Parking subscribers or officer's lot use	Customer data
	Gas station	Customer data

(6) Expecting outputs in this fiscal year

DSRC business guideline with ID (HIDO)

DSRC parking service guideline (HIDO)

DSRC transaction guideline (JARI)

DSRC-SPF (Security Platform) operational scheme (JARI)

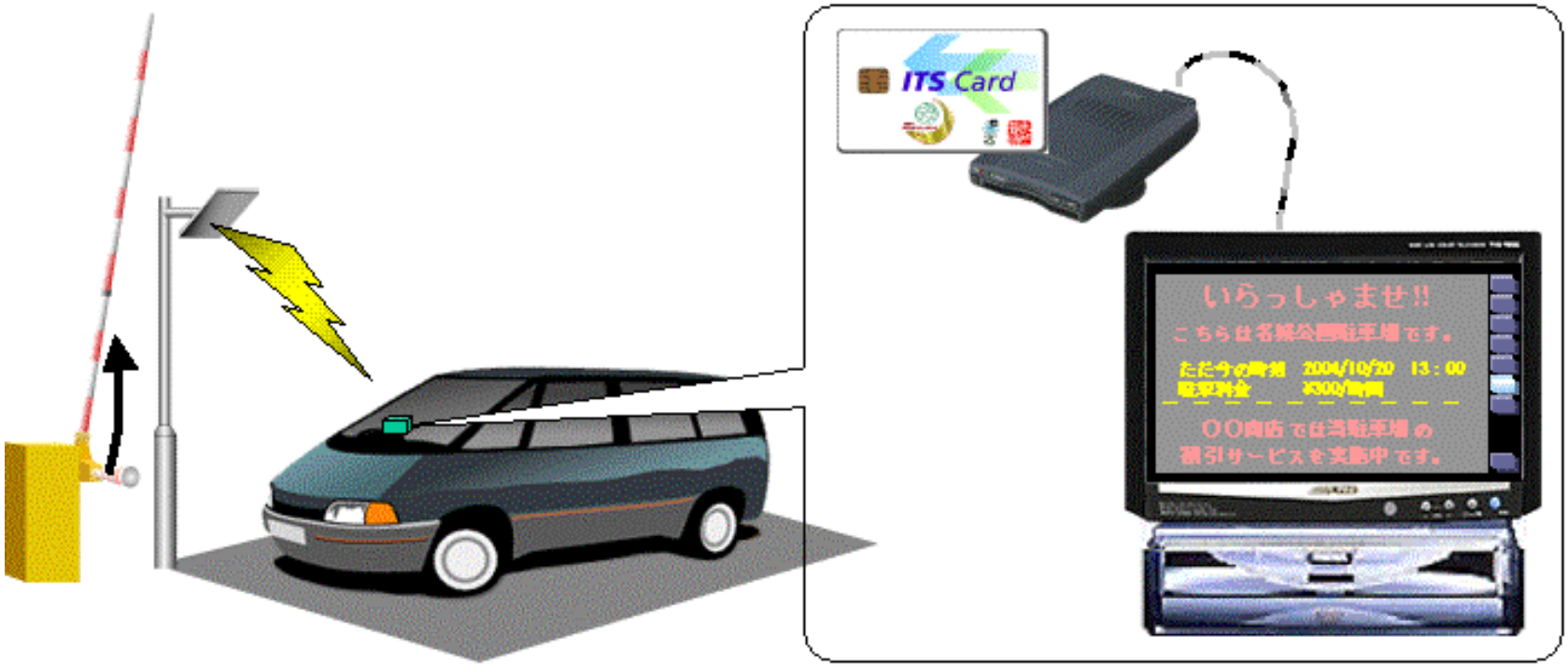
DSRC roadside infrastructure operation planning (HIDO)

Basic application interface specifications (JARI, ARIB)

In-car navigation interface specifications on DSRC (HIDO)

3. Demonstration during ITS World Congress

(1) DSRC parking demonstrations in Meijyo Park (1/3)



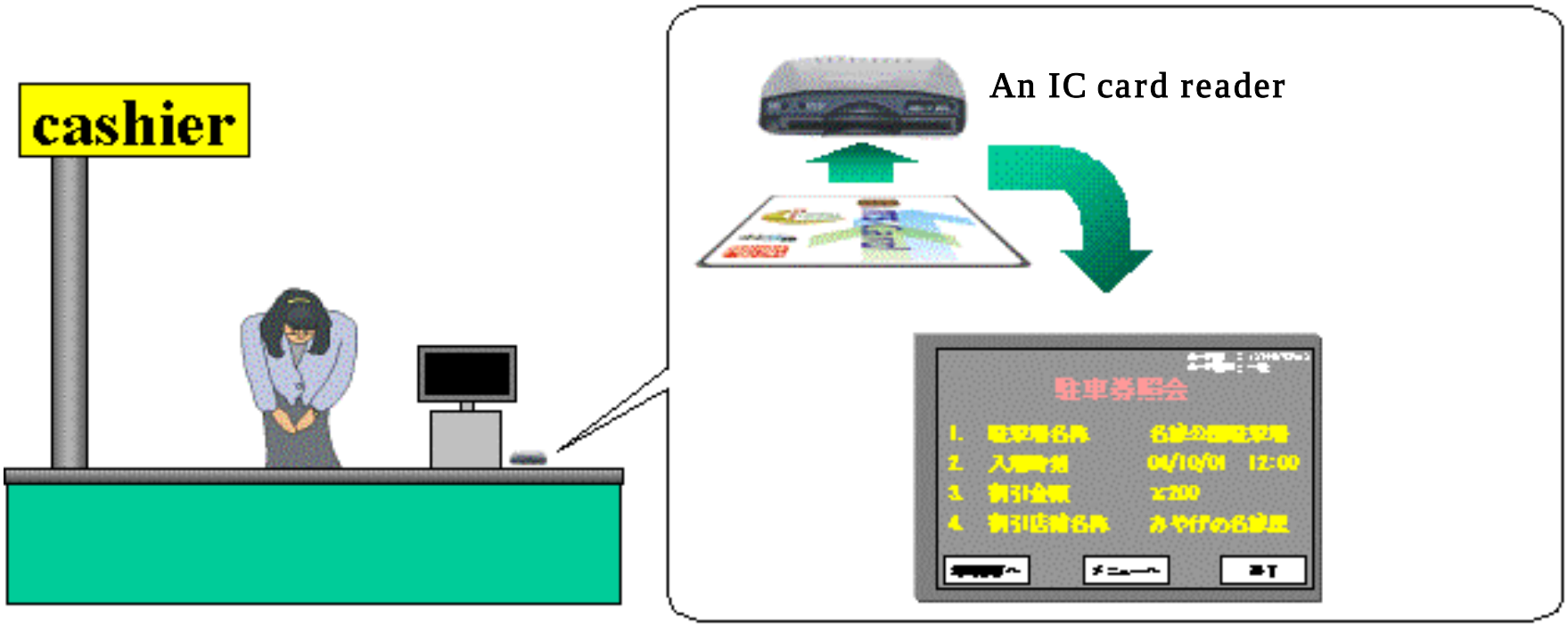
◆Slick egress/ingress parking control through roadside-vehicle communications

◆The required parking information (egress/ingress time and a charging system) is available on screen of an in-car navigation system

◆The security platform is installed

3. Demonstration during ITS World Congress

(1) DSRC parking demonstrations in Meijyo park(2/3)

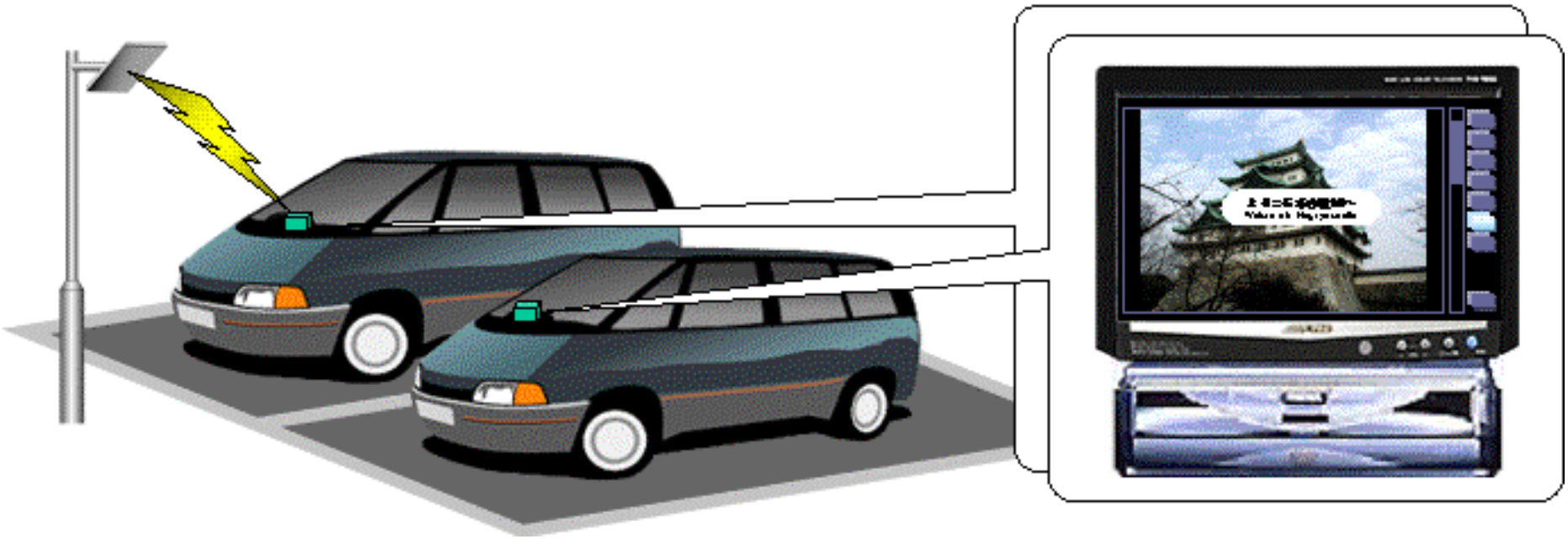


◆A prepaied card with IC is used both as a parking coupon and for shopping of the alliance, expecting diversified services payment

◆ Parking discount charge is offered in cooperation with the shops

3. Demonstration during ITS World Congress

(1) DSRC parking demonstrations in Meijyo park(3/3)

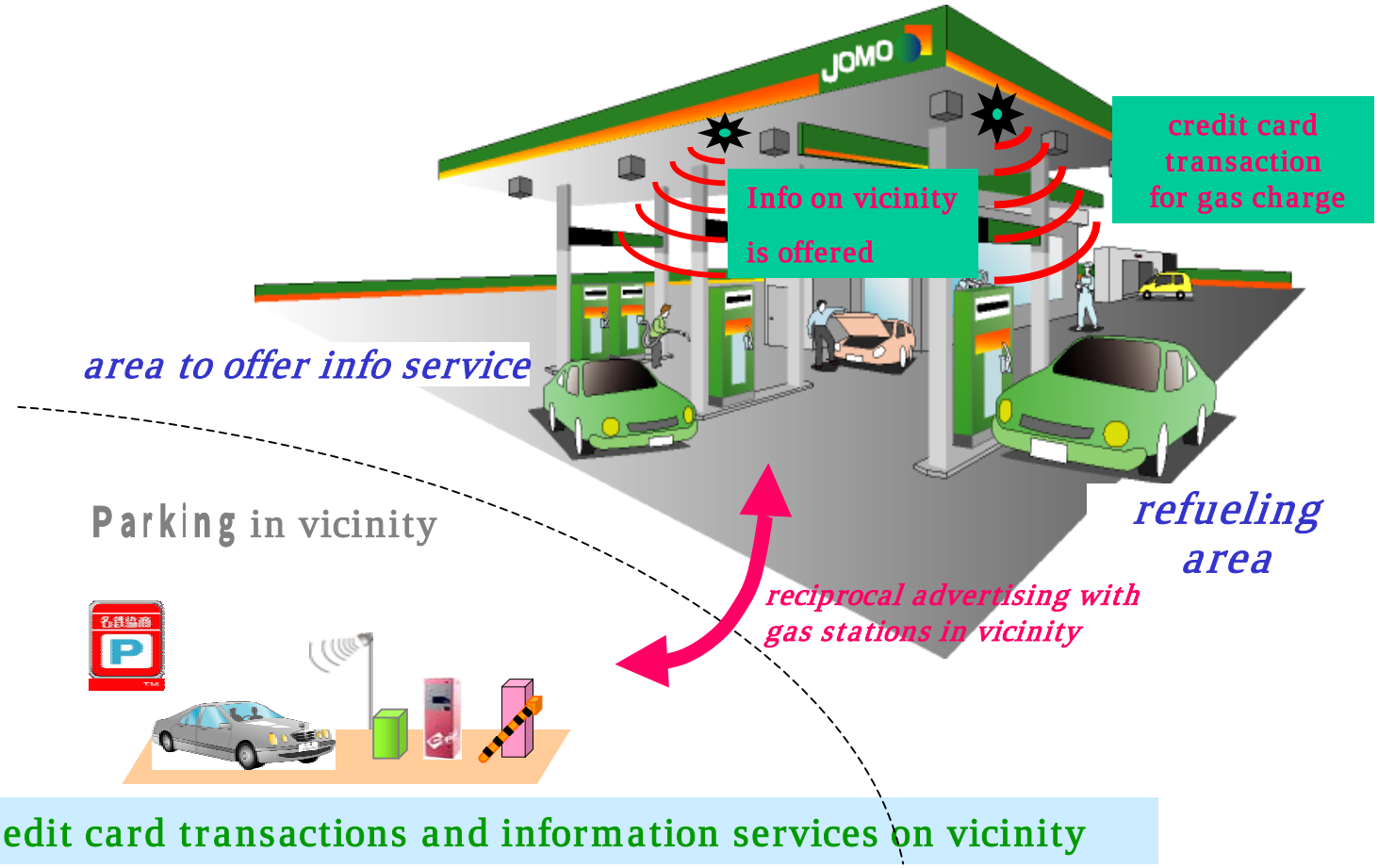


◆locality guidance responding to the needs or inherent features

◆Internet connectivity onboard

3. Demonstration during ITS World Congress

(2) Test on credit card transaction at gas station



Credit card transactions and information services on vicinity

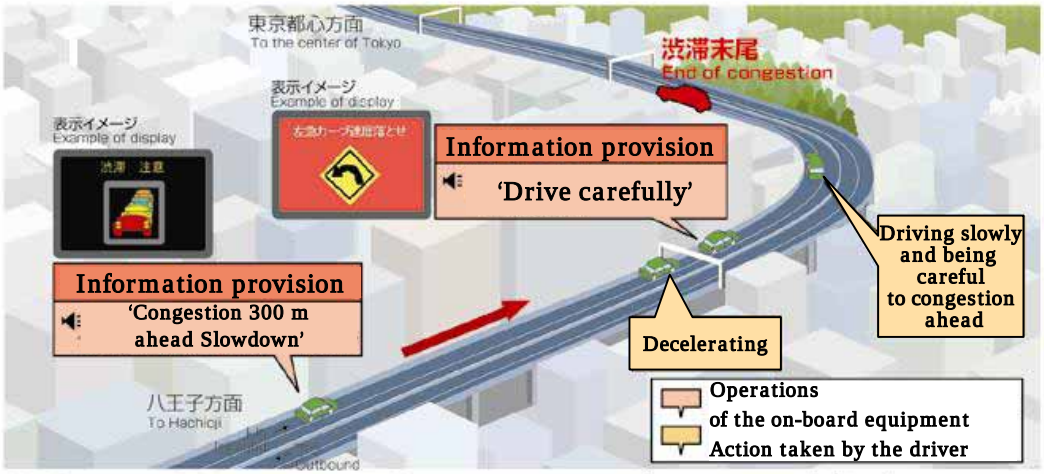
◆Cashless payment using an IC credit card

◆Vicinity information service offering

3. Demonstration during ITS World Congress

(3) Vehicle operation assistance system

(Advanced cruise-assist Highway System)



Schematic diagram of AHS service for detecting obstracles ahead

Providing information and danger warning are effective

Providing danger warning to drivers

Demonstration on Higashi-meihan expressways, Kamiyashiro junction

4. Future challenges

(1) Challenges

1. Approach to prove cross-sectional connectivity, interoperability, and authorization

2. **System e**volving reflecting opinions from the general public, vendors

3. Seamless migration to the next generation units

4. Further development study on ITS communication related areas including vehicle operation assistance

5. Study on a role and sphere of DSRC communications