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News Letter

Smart Communication Experiment

Intelligent Transport Systems Division

The 5.8 GHz active system DSRC that can offer various services.

The 5.8 GHz active system DSRC (Dedicated Short Range Communication) can transmit and receive interactive, large-volume data and it is a key ITS technology to realize various services. Also it is the international standard approved by ITU-R (the Radiocommunication Sector of the International Telecommunication Union). In Japan, ETC (Electronic Toll Collection System) has already been deployed throughout the country by using this technology as national uniform

standard. Moreover, as for uses other than ETC, it is actively pursued to apply the DSRC technology to such services as information provision at service areas along expressways, electronic payment and information provision at gas stations, entrance and exit management at parking lots. Those services, which are offered by using the 5.8 GHz DSRC system, are called "Smart Communication Services", and actions toward practical deployment have started in full swing.

"Smart Communication Platform" is the technology that offers various services on a single on-board equipment.

The key technology to provide Smart Communication Services on a single on-board equipment is Smart

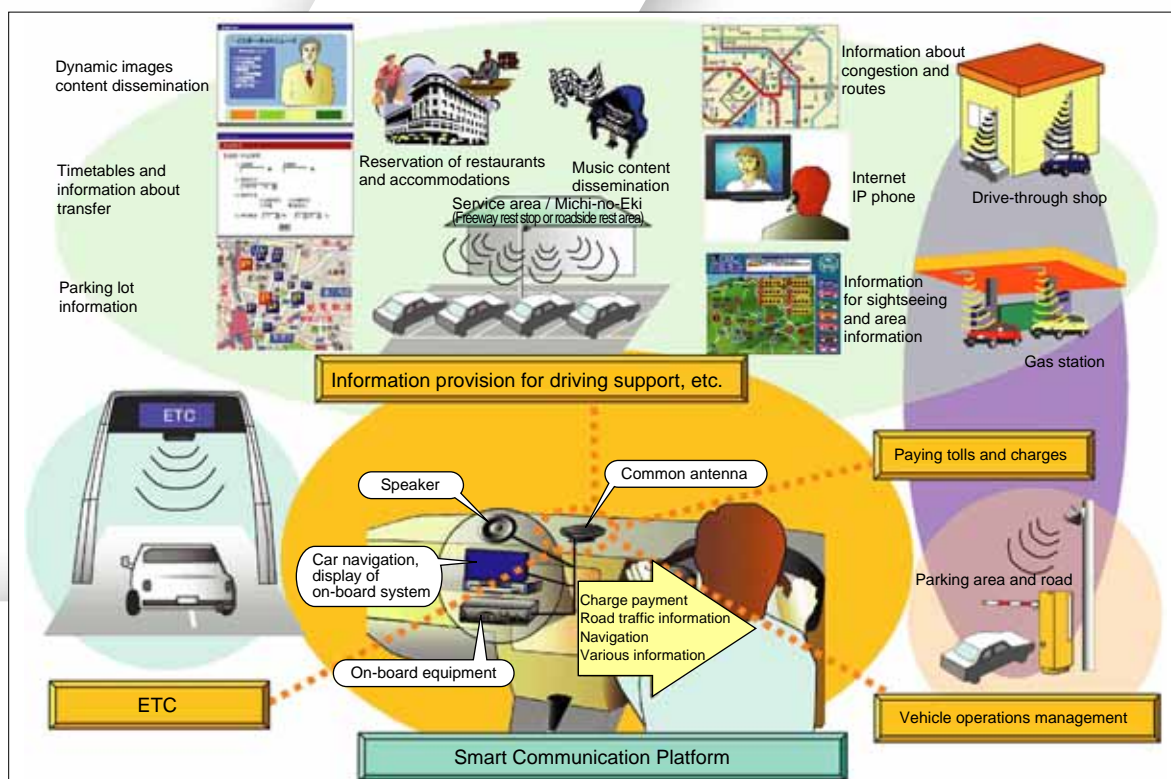


Figure1 Smart Communication Platform

Communication Platform. NILIM has lead establishment of this platform, and will provide infrastructure support to realize various services that are planned by the public and private sectors.

The beginning of various services : Start of Smart Communication Experiment.

Smart communication experiment, conducted from January 29 to February 2, 2003, at a service area on expressway, test the provision of services succeeding ETC using the 5.8 GHz DSRC. In this experiment, the Smart Communication Platform was actually installed and various driving support information, including dynamic images, were transmitted to vehicles parked at the service area (Moriya Service Area), from a roadside antenna so that drivers in that area could actually experience it.

The result showed that the services are highly needed and thus effective. NILIM is actively going to continue studies to implement the service in cooperation with the private sector.

The Third World Water Forum

Water Management and Dam Division, Masahiko Murase

The Third World Water Forum was held on March 16 to 23, 2003, around Lake Biwa and Yodogawa River Basin in Kyoto, Shiga, and Osaka Prefectures. Over 24,000 people from 182 countries and regions gathered at the forum, and discussed 38 topics and five regional issues during the 351 sessions. These issues revolved around balancing increasing human requirements for appropriate water supplies and improved health and sanitation with food production, transportation, energy and environmental needs. NILIM exhibited its researches at "Water EXPO" in Osaka, hosted a special session of the First International Conference on Hydrology and Water Resources in Asia Pacific Region (APHW2003), which was held before the forum, and provided technological supports for the Greater Tokyo region pilot case study of the World Water Assessment Programme (WWAP) and the International Flood Network (IF Net).

(1) Water EXPO

Water EXPO was held on March 18 to 22 as a main project of "Water Fair (in Osaka)", which was a part of the Third World Water Forum. NILIM produced an exhibition to showcase its researches and exchange information and knowledge. Eight divisions (River Environment, River, Coast, Water Management and Dam, Marine Environment, Airport Terminal, Erosion and Sediment Control, and Flood Disaster Prevention) jointly displayed information panels and models, and explained them at the exhibition site.



Photo1 Exhibition at Water EXPO

(2) NILIM Special Session at APhW2003

Before the Third World Water Forum, APhW2003 was held on March 13 to 15 in Kyoto. This international conference was held by the Asia Pacific Association of Hydrology and Water Resources, which was established in September 2002, to discuss topics specific to the Asia-Pacific region. NILIM invited 11 specialists from Asian nations to the special session, who described the water problems in their countries, including the history and background. The session was concluded by agreeing to continue exchanging information.

(3) WWAP

WWAP is jointly conducted by 23 organizations of the UN as comprehensive assessment of water. On March 22, the first World Water Development Report, as the first results of the assessment, was published in the Third World Water Forum. In this report, pilot case studies are regarded as an important challenge for various water issues. NILIM has actively supported one of the pilot case studies, Greater Tokyo region case study, with the River Bureau of the Ministry of Land, Infrastructure and Transport etc.

(4) IF Net

On March 18 and 19, intensive sessions on floods were held at the Third World Water Forum. As a result, it was decided that an International Flood Network (IF Net) would be constructed by the Ministry of Land, Infrastructure and Transport to mitigate flood damages throughout the world. It was proposed to predict floods in areas for which rainfall data are insufficient, such as in developing nations, using global rainfall monitoring data from satellites. NILIM will support the flood prediction system in cooperation with related organizations.



Photo2 Floods Opening Plenary

Study on methods for constructing gateway spaces for improving regional value

Airport Terminal Division, Kenji Ueshima

Airport terminals and their access roads (hereafter referred to as "gateway spaces") provide the gateways and first impressions based on which visitors judge the values and images of the region, and are an important backbone with which residents form such values. The construction of gateway spaces increases the value of regions, and effectively revitalizes not only the region but also surrounding villages. The Airport Terminal Division has

investigated methods for constructing gateway spaces that effectively increase the values of regions. Before full-scale investigation, the landscape potentials of gateway spaces were investigated. Using landscape indices and programs for analyzing landforms, the spatial characteristics of all airport terminals in Japan and their access roads were analyzed. Field surveys were also conducted to identify problems. The results and future directions of construction are described below.

(1) Positions of airplane observation decks

The attractiveness of airplane observation decks was investigated by analyzing the landscape indices and conducting field surveys. From platforms on the roofs of airport terminal buildings, airplanes can be seen very far away with the visual angle of approximately 8 degrees. At some airports, people gather at the places where they can get good views of the air planes, suggesting that sites from which people can view airplanes close-up need to be analyzed and constructed.

(2) Spatial constitution of terminals to provide spectacular views

Although most airports face attractive landscape resources such as mountains and sea, there are terminals from which visitors cannot see the landscape resources when they reach airports, and so the potentiality of airport terminal is not utilized. The spatial constitution of terminals should be improved to provide visitors with attractive views.

(3) Spatial constitution of access roads

Although access roads to air terminals are the gateway to regions, most roads have not been constructed from such a viewpoint except for Kumamoto and Miyazaki Airports. Moreover, the majority of recently constructed airports are located in mountains, and there are few spectacular sights from the access roads. Although the roads to some air terminals have the potential for beautiful views of the cities and coast, the potential is not effectively used. The spatial constitution of such access roads should be improved to better utilize the resources.



Photo3 People naturally gather for good views of airplanes.

Establishment of a system for revising technical standards based on the Building Standard Law and Housing Quality Assurance Law

Wataru Gojo, Head of the Standards and Accreditation System Division, Building Department

The Housing Bureau of the Ministry of Land,

Infrastructure and Transport (MLIT) and the National Institute for Land and Infrastructure Management (NILIM) have discussed systems for smoothly revising the technical standards of the Building Standard Law and the Housing Quality Assurance Law. A new system started in January 2003, in which NILIM is in charge of preparing drafts of the technical standards.

Since the revision of the Building Standard Law in 1998, introduction of performance-based technical standards has been promoted, to enable various design solutions and materials to be used.

The performance-based technical standard system consists of 1) standards that state the required performances, 2) verification methods for examining whether buildings satisfy the required performances, and 3) examples of solutions that satisfy the required performances (see the Figure2). The Housing Performance Indication System, which started in 2000 based on the Housing Quality Assurance Law, is based on the same principle.

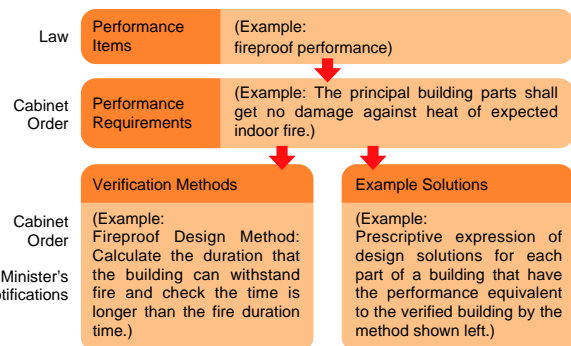


Figure2 Structure of the performance-based technical standards (example)

For the performance-based system to be fully effective, verification methods and example solutions should be constantly reviewed and revised in line with technology development by the private sector. A system for revising technical standards was established, in which NILIM is in charge of preparing drafts of new technical standards with the cooperation of related organizations.

The Building and Housing Performance-based Code Review Committee was established in MLIT. The committee consists of people of learning and experience, and is discussing revision of the standards.

At the request of the Ministry, NILIM prepares the drafts of new technical standards. The Building and Housing Departments, with the cooperation of the Building Research Institute, set up the Building and Housing Performance-based Code Drafting Committee, which functions as working groups of the Ministry's Review Committee. During preparation of the drafts, information and opinions are to be exchanged with the private sector and other sectors at technical committee meetings of the Council for Building and Housing Performance-based Codes and Standards. A contact point has also been established in cooperation with the Council to collect proposals on the revision of technical standards from the general public.

NILIM has supported MLIT in developing technical standards, and this role of NILIM became clearer under the new system. To accomplish its role, NILIM will also actively carry out related research activities.

The 2nd Japan/US Governmental Conference on Drinking Water Quality Management and Wastewater Control

Hiroaki Morita, Head of the Wastewater System Division, Water Quality Control Department

The 2nd Japan/US Governmental Conference on Drinking Water Quality Management and Wastewater Control was held on October 21 to 23, 2002, at Tokyo Mita Kyoyo Kaigijo. On October 24, the members visited the Misato Water Purification Plant and Ariake Sewage Treatment Plant of the Tokyo Metropolitan Government.

Mrs. Sally Gutierrez and twelve other representatives from the US attended the meeting. From Japan, 12 wastewater specialists and 11 city-water specialists participated. Recent issues concerning city water and wastewater treatment in Japan and the US were actively discussed in the congenial gathering, and 32 studies in 13 fields in total were presented. On the last day, the discussions were summarized, and it was agreed to hold the next meeting in 2004 in the US.



Photo4 Members of Conference



Photo5 Pond of Reclaimed Water (Ariake Wastewater Treatment Plant)

RESEARCH REPORT of National Institute for Land and Infrastructure Management (January-March, 2003)

No	Title of Paper	Names of Divisions
6	A Study on Design Methods of Barrier-free at Exterior Space -Problems and its Solution Proposals for Barrier-free Designs at Ports, Harbors, and Coasts-	Airport Terminal Division
7	Application of Recycled Asphalt Concretes in Airport Pavement Surface Courses -Investigation with Laboratory Tests-	Airport Facilities Division

TECHNICAL NOTE of National Institute for Land and Infrastructure Management (January-March, 2003)

No	Title of Paper	Names of Divisions
25	Annual Research Report 2000 of Traffic Environment Division	Road Environment Division
55	Counter measure data of salt damage on concrete bridges -examination about counter measure of salt damage on concrete bridges based on real research-	Bridge Division
56	Annual Report of Advanced Road Design and Safety Division in FY 2001	Advanced Road Design and Safety Division
59	Actual Motions and Motion Model of Large-Sized Quay Crane in Container Handling	Coastal Zone Systems Division
60	An Analysis on the Mode/Route Choice Behavior in Domestic Unit-Load Freight Transportation	Port Systems Division
61	Analytical Study on Earthquake Resistant Evaluation Method for Pile-Supported Wharves	Port Facilities Division
62	Optimum Estimation of S-wave Velocity Structures by Use of the Microtremor Array Observation	Port Facilities Division
63	A Study on the Performance-based Design of Quay Walls under Berthing Condition	Port Facilities Division
65	Landscape and Ecology Division, Annual Research Report (17th)	Landscape and Ecology Division
66	Annual Report of Research Activities, Earthquake Disaster Prevention Division, 2001	Earthquake Disaster Prevention Division
67	The Present Situation of Government Program for the Satoyama Conservation -From National Local Self-governing Community Questionnaire-	Landscape and Ecology Division
74	Lake Kasumigaura in the old days -Pictures of Lake Kasumigaura before 1965 (Syowa 40)-	Landscape and Ecology Division
79	Various Viewpoints to Consider Scale of Public Investment	National Institute for Land and Infrastructure Management Public Investment Project Team
80	Eisuke ISHIKAWA's Lecture and Interview "Circular Social Life System and Social Infrastructure Management in the EDO"	Construction Economics Division
82	Report of Evaluation Sub Committee of NILIM in FY 2002 Evaluation Committee of NILIM	Research Administration and International Cooperation Division
85	The Questionnaire Inquiries about the Informations during Flood Disaster	Construction Economics Division

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We publish "2003 Annual Report of NILIM" to show our research activities and accomplishments, and you can see its contents on our website, www.nilim.go.jp. English version will be available in this summer.



National Institute for Land and Infrastructure Management
 Ministry of Land, Infrastructure and Transport
 Asahi 1, Tsukuba, Ibaraki, 305-0804, Japan
 (Tachihara) Tachihara 1, Tsukuba, Ibaraki, 305-0802, Japan
 (Yokosuka) Nagase 3-1-1, Yokosuka, Kanagawa, 239-0826, Japan
 TEL: +81-29-864-2675 FAX: +81-29-864-4322

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