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Press Release

T-Engine Forum
YRP Ubiquitous Networking Laboratory

Continuous Expansion of Feasibility Study Experiments

The T-Engine Forum/ YRP Ubiquitous Networking Laboratory (Location: Shinagawa, Tokyo, Chair: Ken Sakamura, Professor, the University of Tokyo) has been conducting research and development of ubiquitous ID technology which automatically identifies physical objects and locations, and provides services using related information towards the realization of a ubiquitous computing society.
In 2005, feasibility study experiments for “Ubiquitous Location Information Systems”, “Ubiquitous Food Information Infrastructure Systems” and ubiquitous systems in general industries based on this ubiquitous ID technology are and will be expanded in the future .
Below are some major feasibility study experiments.

Free Mobility Assistance Project

The Ubiquitous ID Center has conducted feasibility study experiments in the following areas in cooperation with the Ministry of Land, Infrastructure and Transport as part of the Free Mobility Assistance Project. The Center has also conducted feasibility study experiments in many other areas throughout Japan, such as Tokyo and Aomori prefecture. The Center is planning to conduct feasibility study experiments in various areas including Kobe Airport and Shinjuku, etc.

Kobe (Free Mobility Assistance)

(1) The Opening Ceremony for the Full-Scale Feasibility Study Experiments of the Free Mobility Assistance Project

On June 19, the opening ceremony for the "Free Mobility Assistance Project and Kobe Feasibility Study Experiments" was held in grand style at the Kobe City Hall with Mr. Sato, the Vice-Minister for Engineering Affairs of the Ministry of Land, Infrastructure and Transport and Mr. Yata, the Mayor of Kobe City, in attendance. In these experiments, large-scale feasibility studies were carried out using forty thousand ucode tags and wireless markers set up throughout Kobe. Also at the opening ceremony, the concept model for ubiquitous information stations on street corners, the "ibox" were made public.

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The ibox is an information station with intelligent functions that serves as road signs, information signs at intersections and information signs around areas of railway stations. Currently, the YRP Ubiquitous Networking Laboratory has been carrying out research on satellite utilization with the independent administrative institution, Japan Aerospace Exploration Agency (JAXA) and National Institute of Information and Communications Technology (NICT). A parabolic satellite antenna for communication with JAXA's engineering test satellite VIII (ETS-VIII) is installed in the ibox, which has a function to report the status of damage in disaster areas and to request assistance.

(2) The 10th Challenged Japan Forum 2005 International Symposium

From August 18 to 19, "The 10th Challenged Japan Forum 2005 International Symposium" was held at the Kobe Fashion Mart. This international symposium promotes employment for the disabled by using the latest advanced IT, and supports their independence and participation in society. Participants from domestic and overseas governments, local governments and welfare groups were present, such as Mr. Kitagawa, Minister of Land, Infrastructure and Transport and Mr. Otsuji, Minister of Health, Labour and Welfare. At the site, demonstrations were conducted to provide opportunities to experience Free Mobility Assistance and many people experienced the “Ubiquitous toilet”, which is an application of ubiquitous technology.

(3) Kobe Feasibility Study Experiments (1st stage)

From August 24 to September 21, the first stage feasibility study experiments were conducted in Kobe. After having visually impaired people actually experience the route guidance service between Kobe Flower Road and Kobe Lamp Museum, their opinions on overall information provisions system, the interface (devices and audio guidance) and contents (guidance contents and timing.) were collected.

(4) Kobe Feasibility Study Experiments (2nd stage)

From November 14 through December 9, the second stage feasibility study experiments were conducted in Kobe. After having visually impaired people, wheelchair users and foreigners (who speak English, Chinese or Korean) actually experience the route guidance service in the “Sanchika” underground shopping mall, Flower Road, the Former Foreign Settlement, Sannomiya Center-gai, Motomachi Shopping Street, Kamomeria and Meriken Park, their opinions were collected.

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EXPO 2005 AICHI JAPAN

(1) Feasibility Study Experiments for the "Free Mobility Assistance Project" at EXPO 2005 AICHI JAPAN

The first expo in the 21st century, EXPO 2005 AICHI JAPAN, was held from March 25 under the theme of “Nature’s Wisdom”. At the EXPO site, feasibility study experiments were conducted as part of the "Free Mobility Assistance Project" promoted by the Ministry of Land Infrastructure and Transport. In the Seto Area, electronic tags were embedded in approximately 1,000 locations to provide information on present locations and barrier-free services, etc. Prior to the start of the experiments, the Chair, Sakamura explained the purpose and schedule of the experiments to many guests in attendance, including Mr. Sato, Vice-Minister for Engineering Affairs of the Ministry of Land, Infrastructure and Transport, Mr. Hasegawa, a trustee of the Japan Braille Library and guests from Nagoya International Culture Center for the Blind. In the public experiments conducted following the explanation, Mr. Hasegawa and guests from Nagoya International Culture Center for the Blind checked the speech contents from visually impaired people’s point of view as monitors, and the usability was modified on the spot. Monitor surveys were continuously conducted and collected opinions were fed back into the system.

(2) Feasibility Study Experiments using testers gathered by advertising at EXPO 2005 AICHI, JAPAN (Seto Area)

From June 7 through September 9, feasibility study experiments using testers gathered by public advertising were conducted at EXPO 2005 AICHI, Japan (Seto Area). In the Seto Area, ucode tags and wireless markers were embedded in more than 1,000 locations, roads and braille blocks, etc. Using these tags and markers, navigation in the pavilion area, information about visitor destinations, and information on barrier-free facilities, were provided using the Ubiquitous Communicator (UC). Prior to the start of the experiments, on Monday June 6, Prime Minister, Mr. Junichiro Koizumi toured the pavilion at the Expo, and the Chair, Sakamura explained the purpose of the experiments and outlined the systems.

(3) Feasibility Study Experiment for the EXPO 2005 AICHI JAPAN-Ubiquitous Sightseeing Guide at EXPO 2005 AICHI JAPAN (Nagakute area)

From August 1 through September 9, feasibility study experiments for "the EXPO 2005 AICHI JAPAN - Ubiquitous Sightseeing Guide" were conducted at Expo 2005 AICHI JAPAN (Nagakute Area) and UCs were lent out to visitors and surveys were conducted.

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ucode tags and wireless markers were installed at various locations within the site and users could obtain information regarding pavilions, restaurants, and directions to their destination by using the Ubiquitous Communicator (UC). All information was available in six different languages; Japanese, English, Chinese, Korean, French and Spanish.

Hokkaido (Ubiquitous Symposium)

(1) "Ubiquitous Computing Symposium in Hokkaido" and "Ubiquitous Computing Feasibility Study Experiments at Akarenga" in Sapporo

On January 25th, 2005, the "Ubiquitous Computing Symposium in Hokkaido" was held in Sapporo, Hokkaido. The keynote speech, given by the Chair, Sakamura, was well received by the capacity audience. Ubiquitous Computing Feasibility Study Experiments also started at the "Akarenga ("Red Brick", the former Hokkaido Government Building)", and, the Chair, Sakamura and some guests cut the ceremonial ribbon at the opening. The experiments were conducted until March 11th, jointly by the Hokkaido Prefecture Government, the Hokkaido Regional Development Bureau of the Ministry of Land, Infrastructure and Transport, Sapporo City and the Independent Administrative Institution, Civil Engineering Research Institute of Hokkaido. The main purpose was to conduct research on the weather resistance of devices in cold, snowy regions. In addition, during this period, Ubiquitous Communicators were lent to tourists and citizens at the "Akarenga" to enable them to experience a ubiquitous computing society and to get their opinions on it.

Asakusa

(1) "Asakusa Ubiquitous Sightseeing Guide" Feasibility Study Experiments

Feasibility study experiments on the "Asakusa Ubiquitous Sightseeing Guide" which utilizes Ubiquitous ID Technology, were conducted from April 18 to the end of May. Prior to the start of these experiments on April 12, an opening event and public demonstrations were held in Kinryuzan Sensoji Temple and on Nakamise Shopping Street with Mr. Kitagawa, Minister of the Ministry of Land, Infrastructure and Transport, Mr. Hamauzu, Vice-governor of Tokyo and the Chair, Sakamura in attendance. In these experiments, ucode tags and infrared markers were set up in 80 places in the Asakusa district and by holding a Ubiquitous Communicator (UC) over the ucode tags and infrared markers, information on facilities, etc. was provided in the form of text, photographs or moving images. The information was displayed in English, Chinese and Korean. These experiments were conducted by the Ministry of Land, Infrastructure and Transport, the Sightseeing Guide System Promotion Committee Asakusa District

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Chapter and the YRP Ubiquitous Networking Laboratory as major supporters, and UCs were lent out to guests from collaborating hotels in the Asakusa district.

Ueno (Tokyo Ubiquitous Technology Project)　Tokyo Metropolitan Government

(1)　Ueno E-Navigation Experiment

From October 13 through November 30, the "Tokyo Ubiquitous Technology Project / Ueno E-Navigation Experiment", a series of feasibility study experiments for the sightseeing guide that uses Ubiquitous ID technology were conducted in Ueno-Onshi Park and Ueno Onshi Zoological Garden.

In these experiments, Tokyo Metropolitan Government set up ucode tags and radio wave markers at major points within the Park and Zoological Gardens in cooperation with the Free Mobility Assistance Project implemented by the Ministry of Land, Infrastructure and Transport. By using Ubiquitous Communicators, visitors including foreigners received directions to their destinations, introduction of model routes and information regarding the historical origins of popular sights and animals in the zoo, etc.

(2)　Ubiquitous Technology Exhibition in Akihabara

During this period, the "Ubiquitous Technology Exhibition in Akihabara" was held on the second floor of Akihabara Daibiru Building and the present and future aspects of the Ubiquitous technology used in the experiments at Ueno Onshi-Park were introduced.

(3)　Symposium

On November 10, a symposium for the “Tokyo Ubiquitous Technology Project” organized by Tokyo Metropolitan Government was held at the Auditorium in the Heiseikan at Tokyo National Museum. Tokyo Metropolitan Government conducted feasibility study experiments in the Ueno Onshi-Park and Ueno Onshi Zoological Gardens and held a technology exhibition in Akihabara until November 30 in order to promote city planning by utilizing information on cutting-edge technologies, such as IC tags. Furthermore, in order to widely promote the significance of these experiments and the outlook of a ubiquitous society, a keynote speech and a panel discussion led by the Chair, Sakamura were conducted. The panelists included Kayo Aoyama (Freelance announcer), Hisakazu Oishi (Director of Japan Institute of Construction Engineering), Nobuyuki Okayama (Professor, Rikkyo University) and Yoshio Tsukio (Emeritus Professor, the University of Tokyo)

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Aomori Prefecture

(1) Feasibility Study Experiments for the "Yuki-Navi Aomori Project-Spring" in Aomori

In anticipation of the "Yuki-Navi Aomori Project", which will be carried out by Aomori Prefecture and the Ministry of Land, Infrastructure and Transport during the winter of 2005, the "Spring Feasibility Study Experiments for the Yuki-Navi Aomori Project" began in Aomori city on Monday, April 11. In these feasibility study experiments, tests were conducted on Mt. Hakkoda in order to verify in advance that electronic tag can be operated in winter season environments. A ceremony was held on the same day in order to announce this project to the citizens. In the morning, the Chair, Sakamura provided guidance on the verification test site on Mt. Hakkoda and later a Free Mobility Assistance demonstration utilizing location information systems was held at the Yanagimachi intersection in the city. The demonstration ended successfully with Mr. Mimura, the governor of Aomori prefecture, participating.

The verification tests for the spring feasibility experiments were conducted until the middle of May 2005 and full-scale experiments started in the autumn of 2005.

(2) Free Mobility Assistance Project at "The 2nd Ubiquitous Fair 2005" Aomori

From June 21 through 22, “The 2nd Ubiquitous Fair 2005" was held in Aomori City and the Free Mobility Assistance Project was introduced. In Aomori Prefecture, the "Yuki-Navi Aomori Project" was planned as part of the Free Mobility Assistance feasibility study experiments in cold regions for the winter period of 2005. At the fair, an experience corner was set up so that the citizens could experience the Free Mobility Assistance system prior to the experiment. During the event, many people including Mr. Mimura, Governor of Aomori Prefecture, Mr. Sasaki, Mayor of Aomori City, and disabled people, visited the exhibition, and showed great interest in "The Future Ubiquitous City, Aomori". A keynote speech and a panel discussion led by the Chair, Sakamura were conducted in the adjacent "PALULU Plaza Aomori". The large audience listened with enthusiasm to the future vision of ubiquitous technology. Many high school and university students visited this event, and the message of the importance of participating in society with a positive vision was delivered to the youth who will lead the society in the future.

Future Plans

(1) “Social experiments for Ubiquitous Information Distribution Systems” in Shinjuku Ward

In late December 2005, as part of the social experiments conducted by the Shinjuku ward government, experiments that provide information, such as public information and

sightseeing guidance and disaster relief information, using ucode tags that are embedded in information plates on street lights, etc. will be conducted. In these feasibility study experiments, the usability of information plates with embedded ucode tags will be verified in relation to society.

(2) Feasibility study experiments for the “Yuki-Navi Aomori Project 2006/Winter” in Aomori

From January through February 2006, full-scale feasibility study experiments will be conducted regarding the following issues in cold, snowy regions on Yanagimachi street in Aomori City.

- Experiments for system operations in various types of snowy environments
- Verification of possibilities for guidance using infrared markers.
- Verification of possibilities for use of the system to improve the environment for pedestrians in winter.
- Verification of possibilities for creation of contents in cooperation with the region.

(3) Kobe Airport Ubiquitous Feasibility Study Experiments

At Kobe Airport that will open in February 2006, devices that identify locations (ubiquitous markers and ucode tags) will be attached to the ceilings, floors and walls in the airport terminal. Feasibility study experiments that provide airport terminal-specific services using these devices will be conducted.

In addition to the above, in 2006, feasibility study experiments will be conducted in over 20 areas, such as Ginza, in cooperation with the Ministry of Land, Infrastructure and Transport, Tokyo Metropolitan Government, local governments and private companies.

Food Traceability that realize the Safety and Security of Food

Start of feasibility study experiments for “Ubiquitous Food Information Infrastructure Systems”

Starting in 2005, feasibility study experiments for “Ubiquitous Food Information Infrastructure Systems” that use Ubiquitous ID Technology promoted by the T-Engine Forum commenced in cooperation with CO-OP Sapporo (Location: Sapporo, Hokkaido, Administrative director: Takashi Matsumura), MITSUKOSHI, LTD. (Location: Chuo, Tokyo, President: Kunio Ishizuka), Summit, Inc. (Location: Suginami, Tokyo, President: Hiroshi Takata) and others. These feasibility study experiments were conducted as part of the “2005 Ubiquitous Food Safety and Security System Development Activities” of the Ministry of Agriculture, Forestry and

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Fisheries of Japan.

Last year, the T-Engine Forum conducted “Development and Verification of Integrated Food Traceability Systems that Use Ubiquitous ID Technology” (As part of Ministry of Agriculture Forestry and Fisheries “2004 Food Traceability Development Activities”) experiments using fruit and vegetables, meat, everyday household products, and processed food. This year, based on the results from the experiments conducted last year, we securely related food production history, process history, distribution history and sales history to individual food items (actual goods) by utilizing ubiquitous computing technology. We effectively managed such information using information systems in order to realize food traceability systems to supply food more safely and securely. Furthermore, as a secondary effect, we developed general-purpose and multi-purpose infrastructure systems for food distribution efficiency and food reliability improvement, food sales promotion activities in a shop and production support in the production stage and conducted feasibility study experiments for such systems.

In these feasibility study experiments, various types of food items, including farm products (vegetables and fruit), livestock products (beef, pork and chicken), seafood products (domestically cultivated fish) and processed food were handled. Cutting-edge ubiquitous computing technology, such as the UC-phone which is a mobile phone with RFID reading capability, battery-operated active tags, and uTAD data format standard that ensures the consistency of data between micro sensor networks and distribution EDI systems were used. The establishment of expert systems in production sites, automation of data collection, rationalization of food distribution, provision of food information that matches individual profiles and the establishment of third party audit systems were attempted and the results were evaluated.

Please note that these experiments used the latest ubiquitous technology which is a result of the “Research and Development of Ubiquitous Network Technology” project (micro chip network) finaced by the Ministry of Internal Affairs and Communications and “Research and Development of Basic Network Protocols that Realize Ubiquitous Computing Environments” project financed by the National Institute of Information and Communications Technology. The two projects have been performed by the YRP Ubiquitous Networking Laboratory that has been carrying out research and development of the projects.

In addition, the “Ubiquitous Food Information Infrastructure System Committee” was launched within the T-Engine Forum as an organization that is responsible for

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the evaluation, control and adjustment of overall activities. A cooperative system composed of the Ubiquitous ID Center, the Ministry of Agriculture, Forestry and Fisheries of Japan, the University of Tokyo, and the Ubiquitous MD Research and Council was established. Experiments for information recorded in production sites and feasibility experiments in the processing, distribution and sales stages will be conducted from autumn and winter this year respectively.

Distribution and Sales Support in the Apparel Industry

Start of feasibility study experiments to aim for full-scale introduction of uID technology with AOYAMA TRADING, the largest men's clothing shop in Japan

The YRP Ubiquitous Networking Laboratory and AOYAMA TRADING co., ltd. are going to launch feasibility study experiments using ubiquitous ID technology, of which standardization is promoted by the Ubiquitous ID Center.

The experiment covers the process ranging from production to sale of the suits sold by AOYAMA TRADING co. ltd. with a view towards practical application in the future at stores.

The notable features of the experiments are as follows;

- Japan’s first integrated product management by RFID (ucode tag) from factories to stores, across borders between Japan and overseas.
- The multiple use of a single tag ranging from distribution management, quality control management to a product information provision service at shops.
- Proactive involvement by AOYAMA TRADING co., ltd. in these experiments assuming the eventual practical application of the technology.