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To the Press

YRP Ubiquitous Networking Laboratory

The Concept Model for Ubiquitous Information Station, “ibox”, made open to public at the opening ceremony of the Kobe Full-scale Feasibility Study Experiments for the Free Mobility Assistance Project

The YRP Ubiquitous Networking Laboratory (Shinagawa, Tokyo, Director: Ken Sakamura, Professor of the University of Tokyo/Professor of the JAXA Deep Space Exploration Center/Chairman of the T-Engine Forum/Chairman of the Ubiquitous ID Center) which is the research laboratory of ubiquitous computing has been promoting the Free Mobility Assistance Project* in cooperation with the Ministry of Land, Infrastructure and Transportation. The aim of this project is to provide information related to locations, and offers sightseeing guidance, providing directions and other useful services. This service is made possible by assigning unique numbers, called “ucode” to various locations in cities and streets. Then we acquire “ucodes” from RFID tags, or by means of infrared signal, and radio waves, etc., with a portable device called the “Ubiquitous Communicator” (UC for short). UC then offers information related to the location identified by ucode.

At the opening ceremony of the Kobe Full-scale Feasibility Study Experiments that took place at the Kobe City Hall on June 19th, the concept model for ubiquitous information stations, “ibox”, was made public.

The ibox is an information station with intelligent functions that serves as road signs, information signs at intersections and area guide in front of railway stations. The ibox itself can provide directions and information on adjacent areas. In addition, it can quickly download the latest information on its adjacent areas to an approaching UC. This downloading shortens the time it takes to collect information after acquiring a ucode and reduces communication costs in the long run.

The YRP Ubiquitous Networking Laboratory has been conducting research on the use of satellites with the Japan Aerospace Exploration Agency (JAXA). This ibox has a parabolic satellite dish for communications with the Engineering Test Satellite ETS-VIII provided by JAXA, and we will conduct concept demonstrations to show how its support functions can be used in case of disasters. Regarding the ibox’s use of a satellite, JAXA stated, “The

ETS-VIII that will be launched in the fiscal year 2006 is a mobile communications satellite that has been developed jointly with the National Institute of Information and Communications Technology (NICT) and has two of the world's largest deployable antennas (17m), which enables devices to communicate bi-directionally with low power consumption. This feature will be a big advantage not only in normal times, but also for example, in case of disasters when disaster relief support information must be provided via various devices such as the ibox in situations where other communication infrastructures can not be used or where sufficient power is not supplied. It is important to widely prepare facilities required on the ground in order to use satellites, and we expect that many iboxes will be set up for the Free Mobility Assistance Project and will serve as a satellite communication infrastructure encouraging the use of satellites."

[Features of the ibox ubiquitous information station]

(1) Area information guide device that supports various languages and large fonts

The ibox is a ubiquitous information station that is set up on signposts, intersections, near stations, public facilities and major buildings, and is a device that provides various information, such as guidance on adjacent areas and directions to your destinations. If a Ubiquitous Communicator or eTRON IC card**, with your choice of options including language type, font size, audio guidance preference, is brought close to an ibox, the user information will be given in the preferred forms.

(2) Downloading real-time information to the Ubiquitous Communicator

The ibox has a function to download information on adjacent areas to the Ubiquitous Communicator***, a Free Mobility Assistance portable information device. The latest information is always stored in the ibox by means of communication network, and when a Ubiquitous Communicator comes close to the ibox, the latest information can be downloaded to the Ubiquitous Communicator. The Ubiquitous Communicator then can, for example, search for optimal routes based on the downloaded information or when users walk around with them, can acquire ucodes attached to locations in its adjacent area and display associated basic location information from the downloaded information. It is also possible to acquire detailed information on these locations as needed by means of additional communication. Downloading essential information makes it possible to not only obtain associated basic location information even in bad communication environments, but also to reduce communication costs.

(3) Satellite communications function useful in case of disasters

The ibox has a satellite communications function. It will serve as a base for providing disaster relief support information using satellite communications in situations where communication infrastructures such as telephone networks, cellular phones, and the Internet etc., can not be used in case of disasters. The ibox displays information necessary in disaster relief operations, such as the location of evacuation shelters and where food is supplied. When you hold a Ubiquitous Communicator or an eTRON card over an ibox, you can send information about your safety to family members and receive information on their safety in return. In addition, disaster information can be collected from surrounding sensor networks to enable you to immediately understand the extent of the damage.

We intend to promote research and development towards the practical application of the ibox through feasibility study experiments for the Free Mobility Assistance Project.

* The goal of the Free Mobility Assistance Project is to build an environment where the necessary information to participate in society such as “travel routes”, “methods of transportation”, “destinations” etc can be accessed “anytime, anywhere and by anyone” in order to achieve a “universal society” built by everyone exercising their abilities and supporting each other. This project has been advanced through wide-range cooperation from involved parties, including related ministries, such as the Ministry of Land, Infrastructure and Transportation, the Ministry of Internal Affairs and Communications, local governments, private enterprises, NPOs and others.

** eTRON IC card has encryption and authentication functions that enable users to safely store information and communicate with each other. It is based on the eTRON security architecture.

*** A part of the achievements of the “Research and Development of Basic Network Protocols to Achieve Ubiquitous Computing Environments” commissioned by the NICT, and the “Research and Development of Ubiquitous Network Technologies / Ultra-Tiny Chip Networking Technology” commissioned by the Ministry of Internal Affairs and Communications are included in this research and development of UC.

