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Nippon Telegraph and Telephone Corporation
Honda Motor Co., Ltd.

NTT , HONDA, DEVELOP NEW ONBOARD INFOTAINMENT SYSTEM

Tokyo, October 16, 2001 - Nippon Telegraph and Telephone Corporation (NTT) and Honda R&D Co., Ltd. today announced that they have developed a "Next-generation Onboard Infotainment System" that allows transmission and reception of telephone calls and e-mail and other information to and from vehicles while driving, without taking one's hands off the steering wheel.

NTT and Honda R&D have been collaborating with each other on this "Vehicle-network telecommunication system" since last November, seeking to create a more user-friendly system for use while driving, based on the latest technologies developed exclusively by the two companies.

NTT's state-of-the-art network and human interface technologies, and Honda R&D's advanced onboard infotainment technology are the heart of the new system, which aims to give the driver and passengers to have access to real-time information anytime, anywhere [See [Figure](#)].

The detailed features of the system are as follows:

1. "Area-oriented Information Provision Service" -- supplies the most appropriate information in accordance with the vehicle's location and time of day.
2. "Customized Information Retrieval Service" -- enables prompt collection of the required information through a simplified operational procedure.
3. "Driver's Mail Service" -- allows the driver to read and reply to an e-mail while driving, without taking one's hands off the steering wheel.
4. "Convenient Mobile Telephone Service"-- ensures telephone call reception anytime, anywhere.

To support these services, NTT and Honda R&D have also developed the following technologies [See [Table](#)]:

1) Information Provision Technology according to Vehicle Location and Time:

The vehicle communicates with the network to inform its location each time the vehicle enters a new information provision area. The information provision server on the network predicts the vehicle's route based on the information forwarded by the onboard communication system.

Then, the server provides the vehicle with timely information which is selected in accordance with the current location and matching the driver's previously registered preferences.

The information provider enables customers to register their desired information according to location and time of day for which information is desired.

As a result, the driver and passengers will have easy access to very detailed information on shops, restaurants and other services in the area in which their vehicle is currently located, based on the time of day.

2) Onboard HMI (Human-Machine Interface) Technology is voice dialogue technology utilizing the network :

The dialogue system utilizes both vehicle and network, using voice recognition and voice synthesis technologies to provide the driver with more relaxed, easier operation. Two technological innovations by NTT Research Center are adopted for the voice recognition and synthesis technology for the network side. VoiceRex ^{*1}, a voice recognition engine and FinalFluet ^{*2}, a voice synthesis engine, both ensure that when used in conjunction with each other, there is a high voice recognition ratio even when using an ordinary telephone line, together with a voice which is easily understood thanks to the natural intonation that the latter engine guarantees. Additionally, an integrated dialogue scenario at the network side enables highly flexible communication.

3) Information Management Technology According to the Driving Environment:

The system continuously predicts road conditions ahead and checks the real-time driving environment.

When the vehicle is approaching a sharp curve while the telephone is in use, the system informs both the driver and the person on the other end of the line that there might be a temporary interruption in communication until the vehicle resumes normal driving conditions.

Additionally, when an e-mail is delivered, regardless of driving conditions, the system reads out only the important points of the e-mail, so as not to distract the driver.

For text reading, the Intelligent BIFF ^{*3} developed by NTT Research Center is incorporated. It selectively extracts the important sentences from the e-mail to facilitate an easy and convenient understanding of the e-mail received.

Based on this newly developed system, the NTT-Honda R&D alliance plans to continue further development of a series of new infotainment services with harmonious vehicle-network communication, and aim at the development of practical applications and testing starting from 2002.

<Terminology>

***1: VoiceRex:**

VoiceRex is a comprehensive software library that integrates several functions including single and compound voice recognition of unspecified talkers, identification of a talker, as well as adapting to surrounding noises. The most important attribute in relation to the onboard information/telecommunication system lies in its highly precise voice recognition ability that will allow for a wide range of applications.

*** 2: FinalFluet:**

FinalFluet is a text-based voice synthesis system. It generates a high-quality and natural tone by using approximately 60,000 types of vocal fragments.

*** 3: Intelligent BIFF:**

Intelligent BIFF is an e-mail management system that prioritizes e-mails according to their contents and summarizes them prior to transmission. (BIFF means a "Mail Arrival Notification Function".) The e-mail summarization is ensured by the important sentence extraction technology, one of many results of the natural language processing research programs performed by NTT Research Center.

- [Next-generation Onboard Infotainment System](#)
- [Key Technologies for Services](#)

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