

FOR IMMEDIATE RELEASE

**Development of AR and 3D data processing based
remote work support system**

Enabling operator and supervisor to view on-site work progress in real-time

Tokyo, December 10, 2013 – Hitachi, Ltd. (TSE: 6501) has developed a work support system using augmented reality (AR) and 3-dimensional (3D) data processing to enable supervisors to support on-site operators working in remote locations, such as overseas plants. The remote work support system developed uses 3D data processing to enable the operator and supervisor to share work progress in real-time, and displays advice or instructions from the supervisor to the operator using AR. The technology developed not only provides highly precise work support to the operator but can also contribute to addressing the issue of transferring technology and technical skills from experienced veterans, whose numbers are expected to decrease in the future.

With increasing globalization, the employment and training of engineers and technicians is a major issue for companies starting up new business, especially in developing countries. In recent years, technology for remote work support systems which make full use of IT is gaining attention as a means to support local operation and train local staff, instead of just deploying company-trained staff overseas. In particular, AR can enhance real world visual information by directly adding information to the objects as well as directly display instructions or necessary information in the operator's field of view. As it is not affected by blind areas which is an issue with surveillance cameras and, compared to spoken instructions, can directly identify position, AR is considered an effective support tool to reduce human error. Hitachi developed work support technology used AR and 3D processing, and technology to directly display instructions from a supervisor to a operator based on highly-precise real-time shared view of work progress conducted in complex constructions such as plant sites. Details of the technology developed are as below.

1. Real-time supervision of work progress based on 3D data processing

In order to determine whether a task has been completed appropriately, technology was developed to rapidly extract the difference in 3D data obtained from the work site view and 3D data of completion generated from the design blueprint and work manual. As a result, it is possible to determine in real-time (1-2 seconds) as to whether the work is progressing in an appropriate way.

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2. Real-time information sharing between remote locations using AR

Technology was developed to enable AR images, such as work instructions or related information, to be overlaid on the operator's field of view, and for this to be shared in real-time between the operator and a supervisor in a remote location. Further, the supervisor is able to use target facilities or objects appearing in the AR image as a search key to find manuals or specifications, to call up related information to be overlaid on the AR image to assist the operator.

The next step will be repeated pilot tests before applying the technology developed to remote work support for developments overseas by companies.

About Hitachi, Ltd.

Hitachi, Ltd. (TSE: 6501), headquartered in Tokyo, Japan, is a leading global electronics company with approximately 326,000 employees worldwide. The company's consolidated revenues for fiscal 2012 (ended March 31, 2013) totaled 9,041 billion yen (\$96.1 billion). Hitachi is focusing more than ever on the Social Innovation Business, which includes infrastructure systems, information & telecommunication systems, power systems, construction machinery, high functional material & components, automotive systems and others.

For more information on Hitachi, please visit the company's website at <http://www.hitachi.com>.

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