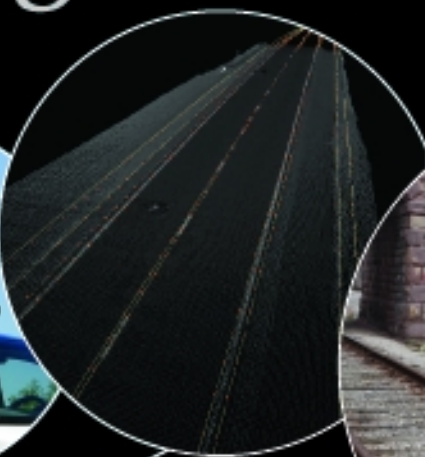


# Engineering surveying *showcase* 2010

ISSUE ONE



## SPECIAL REFERENCE FEATURES:

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common human  
interface**

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infrastructure:  
the end of static  
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**Laser Scanning  
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**Survey data collection:  
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**Virtual site visits a reality**

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*and much more!*



# 360° camera makes virtual site visits a reality



Mark Wynne, 3D business unit director of global environmental engineering consultants MWH, describes how they are using the Spheron 360-degree panoramic scanner camera package to capture in just one site visit all the photographic and spatial data needed to create a "virtual" site visit.

BY CREATING a virtual site visit MWH have been able to reduce the number of site visits for different design and engineering teams and also the number of repeat visits. Additionally, any type of document can be linked to any pixel in any part of the site, allowing it to serve as a one-stop-shop for all project information. This enables really effective collaboration into the project workflow between the various disciplines, because every discipline can see the data from other disciplines in the one location as they "walk" through the virtual site. The application can also be used across the web and / or a network. Additionally, the camera is used to capture 3D spatial data that can be exported to CAD to enable early start on the outline design, saving time and money and also for as-built data capture at the end of a project.

**Access to the impossible**  
At MWH we use the Spheron HDRI camera and SceneWorks image management software for a wide range of applications on a day-to-day basis. As clients come to

understand the versatility of the package we are asked to undertake jobs, which might otherwise not be possible. A major benefit of the package is the health and safety application of using it in locations where it might otherwise be harmful for our staff to have long-term exposure to the site, for example nuclear power stations. Our work in decommissioning sees the camera being placed on site to capture imagery. This saves the need for engineers and technicians to repeatedly enter hazardous locations and be subjected to risks. Tags in the imagery allow reports and annotation to be quickly and easily produced and managed.

**Reduced site visits mean reduced carbon footprint**  
Because the information captured by this new technology is so easy to use and interpret, it is giving us the added benefit of reducing our carbon footprint. We are able to massively reduce the personnel needed to visit site and the number of times we need to visit. In the past each design discipline might have

visited the site. The other major advantages of this system are that it is so visual and all the disciplines can hang their data from the visual front end. It is proving to be a great project communication tool, something we hadn't fully appreciated when we made the investment. As a global engineering company it also allows site imagery to be shared easily to facilitate collaborative working worldwide if necessary. This is down to the quality of the images captured. Architects are using our service more and more as they realise the benefits of being able to visit the site remotely during the planning stages of

development. Site measurements can be verified in SceneWorks quickly and easily. Similarly, additional elements such as tree height, nearby locations and time of day lighting conditions can all be captured and taken into consideration. Using the built-in GPS of the camera allows us to produce visually verified photo-montages.

**3D Flythrough animations**  
Another advantage to architects and developers comes when we are asked to recreate the scene in 3D for imagery and fly-through animations. The high dynamic range image captured by the

*MWH are also using the Spheron camera and software to save on site visits and accessing hazardous areas.*



**The Spheron 360° process**

Capture

View

Populate

Extract

Click & Tell

The camera captures 26 versions of a scene, each with a different f stop.



camera is read by our 3D modelling package giving us the ability to accurately recreate the exact lighting conditions of the area. This produces unbelievably realistic final images that are usually indistinguishable from the real thing.

The camera is proving a good investment because it is not only improving the way we operate but bringing key benefits to us and our clients in communication, carbon reduction and data management – all fundamental business requirements for MWH.

#### About MWH

MWH is a private, employee-owned firm with approximately 7,000 employees worldwide. The company provides water, wastewater, energy, natural resource, program management, consulting and construction services to industrial, municipal, utility and government clients in Europe, the Americas, Middle East, India, Asia and the Pacific Rim. MWH has worked in the UK for over 160 years and has designed built and managed many of the largest, most innovative and technologically advanced projects around the world. For more information:- or visit [www.mwhglobal.com](http://www.mwhglobal.com)



## A perfect spherical every time

Spheron-VR is a high tech German-VR company that was only established in 2000 but, through its unique product, already has a global reach.

Its products are based around a camera, but this is no ordinary digital camera. It is a 50-mega pixel camera with 360° horizontal coverage and complete overhead coverage. In fact the only part of the all-round view that you cannot see is that part obscured by the tripod. Spheron calls these images "sphericals". It takes 35 seconds to capture a low-resolution image or only a few minutes to capture an entire scene at high resolution.

This is impressive, but the camera's unique feature is High Dynamic Range (HDR). For each pixel in the image, the camera records the RGB values for 26 F-stops and stores this in a 32-bit data structure.

This means that, back in the office, all the necessary data has been recorded to enable the user to adjust the image to see objects that on a conventional image would be under- or over-exposed just by selecting data from a higher or lower F-stop.

The tripod incorporates a vertical bar so that images can be taken from two positions 600mm apart in the vertical to generate a 3D model. The processing software then enables the user to take distances off the model.

For more information, contact:



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