



University  
of Glasgow

# Compostella

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New high-precision position measurement technology being developed at the University of Glasgow is poised to deliver much improved performance in scientific and industrial equipment at a fraction of the cost of existing systems.

Most measuring systems currently in use rely on devices that only move along straight lines or rotationally. However, many systems (such as robotics), require motion in multiple directions, making measurement difficult.

The Compostella system, which was originally conceived by Prof John Weaver, is being developed in the School of Engineering. It uses an optical device that creates an extraordinarily precise projection onto a digital camera. Computer software then analyses the resulting image and calculates the position of the optical device with a precision thousands of times smaller than the width of a human hair.

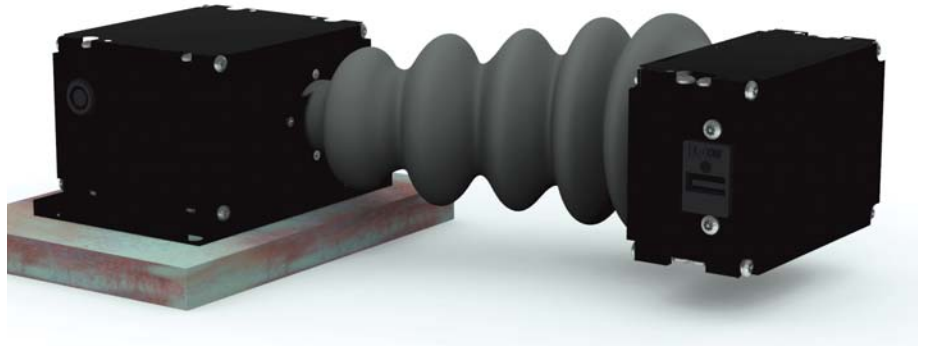
Traditional distance measurement technology measures either a single straight line or an angle – this is called one degree of freedom. The Compostella system measures six degrees of freedom simultaneously, thus producing far more comprehensive and accurate measurements.

High precision measurement is a key component in many billion-pound industries, so the Compostella system has the potential to be applied to a wide range of uses. A new spin-out company is being formed to develop the system with plans to start introducing them to the market in 2011. Compostella will provide a product that will result in a significant reduction in manufacturing costs across a wide range of industries.

The Compostella system will be applied to a range of uses, including manufacturing tools, microscopes, robotics and telescopes. The researchers believe their technology can deliver similar results to high end measurement tools but in a more compact, lower power and easier to use device.

In the future it could also be used to help civil engineers monitor cracks in buildings or bridges, allowing them to intervene and take preventative action before the structure becomes dangerous.

“Our system has the resolution of very expensive laser based measurement technology, but uses lower cost components,”



*A CAD image of the prototype system.*

said Dr Phil Dobson who together with Dr David Burt, Dr Stephen Thoms and Prof John Weaver is developing the Compostella system in the School of Engineering. He added: “In addition, because it measures six degrees of freedom, it provides much more information than existing systems”.

The team have recently been joined by Graham Failes who, in his role as CEO, is helping drive the project towards a successful commercial outcome.

The researchers have received funding from Scottish Enterprise and the Knowledge Transfer Account funded by the Engineering and Physical Sciences Research Council (EPSRC).

Compostella is named after the Spanish site of pilgrimage Santiago de Compostella and the legend that Bishop Theodomir navigated his way there using the stars.

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### Contact:

Dr Phil Dobson  
Phil.dobson@glasgow.ac.uk  
0141 330 4314