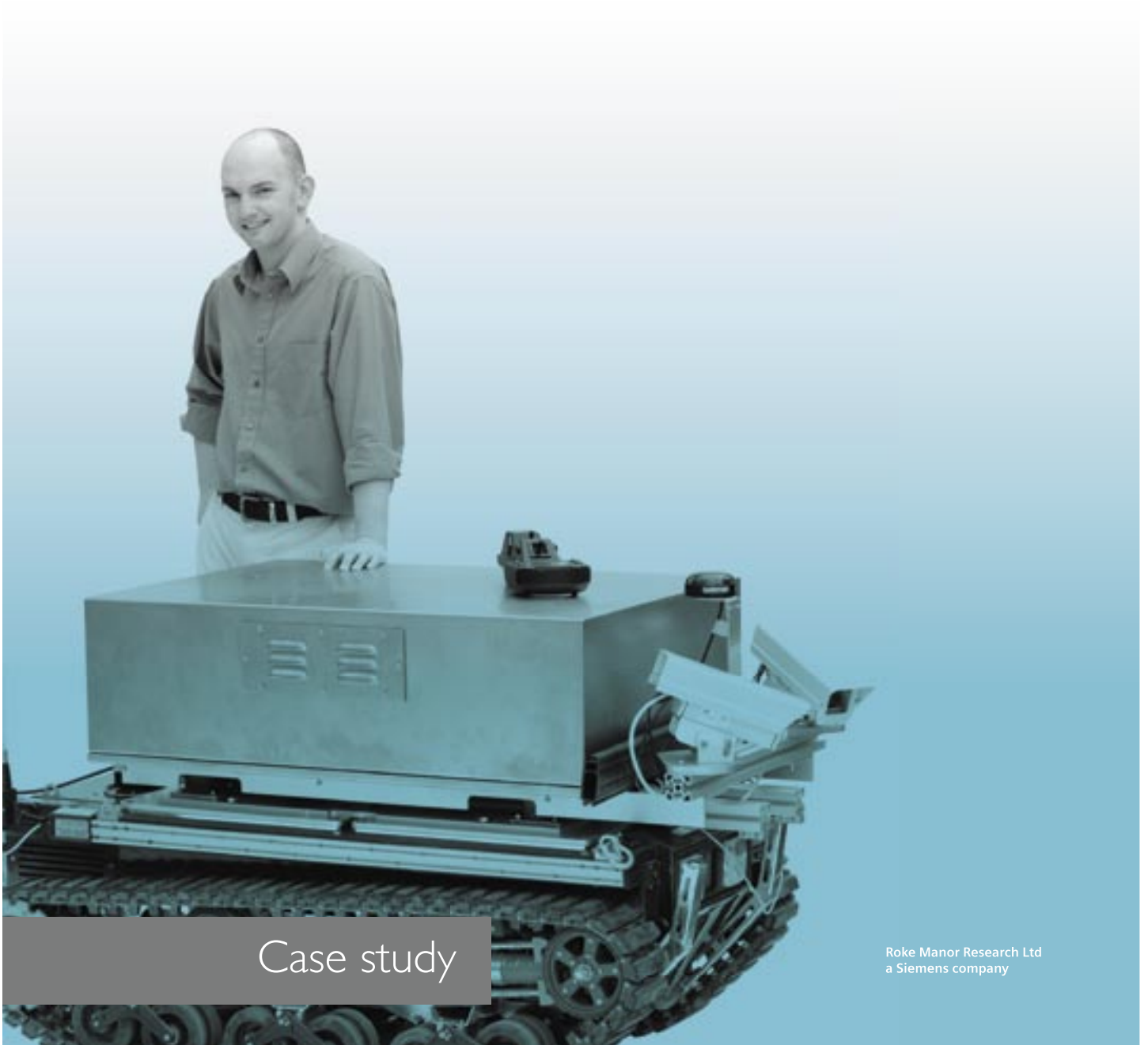


Control of Autonomous Ground Vehicles

Improving factory automation for Siemens A&D by using a radio based location system to control Autonomous Ground Vehicles.



Case study

Roke Manor Research Ltd
a Siemens company

Background

Siemens is one of the world's largest electrical engineering and electronics companies. It provides innovative technologies and solutions which benefit customers in 190 countries. Founded more than 150 years ago, the company is active in the areas of Information and Communications, Automation and Control, Power, Transportation, Medical, and Lighting. Siemens Automation and Drives (Siemens A&D) is the world leader in factory automation and is constantly striving to improve its products and services in new and innovative ways.

Challenge

The movement of Autonomous Ground Vehicles (AGVs) in a factory controlled by fixed ground sensors that locate and correct the position of the AGVs. This method, although highly accurate, requires a costly and inflexible network of ground sensors to be installed.

Siemens A&D required a more flexible solution, therefore improving functionality and ease of installation in a factory. They approached Roke to investigate whether the latest radio based location systems could identify and control the AGVs without the need for a network of sensors. If it could, it would allow the introduction of a cost-effective, accurate and flexible alternative to ground sensors.

Solution

Roke performed an initial study to find suitable location technologies, the outcome of which identified Ultra Wideband (UWB) as having the potential to meet the control requirements of AGVs. Using performance trials in factory environments at Siemens A&D and Rolls Royce, a number of UWB supplier technologies were tested. The results were then analysed by our UWB and location system technical teams to see which solution offered the best performance for our customer.

It was also important for Siemens A&D to be aware of the regulations of this new technology. With our expertise we helped them understand the UWB regulations and European standards that would affect the deployment of a UWB-based AGV control system.

Result

The work undertaken by Roke:

- Offered Siemens A&D key information about the achievable performance of radio based location for their specialist application
- Provided specialist understanding of the technology and in-depth evaluation to look at all the options quickly
- Enabled Siemens A&D to decide whether to provide radio based location for the factory automation market
- Offered technical consultancy to support Siemens A&D in their decision making process.

If you would like to find out more about Autonomous Ground Vehicles or Roke's capabilities in wireless communications and sensors, please contact us.

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