LARGE SCALE ASSEMBLY

Introduction

Using the latest equipment and techniques we work with industry to improve the assembly of large, difficult to handle components. We specialise in assembly innovation for high value, low volume components across all industry sectors.

We can review your current practices and identify areas that could be made more efficient. This might involve finding ways to speed up assembly processes, guarantee quality and eliminate waste.

Our large scale assembly capabilities are housed in the newly-opened landmark Rolls-Royce Factory of the Future within the University of Sheffield's Advanced Manufacturing Research Centre (AMRC) with Boeing. Our established engineers and researchers combine with modern premises to provide a reputable centre for assembly R&D and the most up-to-date assembly technologies. We offer you the opportunity to view machinery demonstrations and make use of our advanced equipment, facilities and know-how.

Simulation

At our large scale assembly centre we use Delmia Quest software with a state of the art 4 x 2m virtual reality system to simulate factory, assembly and automation. Using this technology is a cost-effective way of maximising work flow and enhancing lean manufacturing.

By creating a virtual model of your assembly line you can plan everything, from a single component to an entire factory, including people and ergonomics as well as machinery and equipment. Simulation enables you to model different scenarios off-line and determine whether adjustments will deliver the required results, all without disrupting production.

Metrology

We can help you to achieve consistently accurate positioning using the latest metrology technologies. Currently used in positioning the main body of Boeing 787 fuselage assembly, we use Metris Indoor GPS (iGPS) to conduct large scale positioning, with the ability to customise working volume. We also use the API Laser Tracker 3 and the Metris laser radar with its large scale line, single point scanning and up to 60m range.

For small to medium scale metrology we use equipment such as:

- GOM ATOS 3D non-contact optical scanner with versatile measuring volume
- Konica Minolta 3D non-contact laser scanner with up to 2.5m measurement area
- GOM TRITOP photogrammetry system with up to 10 x 10m^2 measuring area
- Metris LK Evolution high precision CMM

Automation

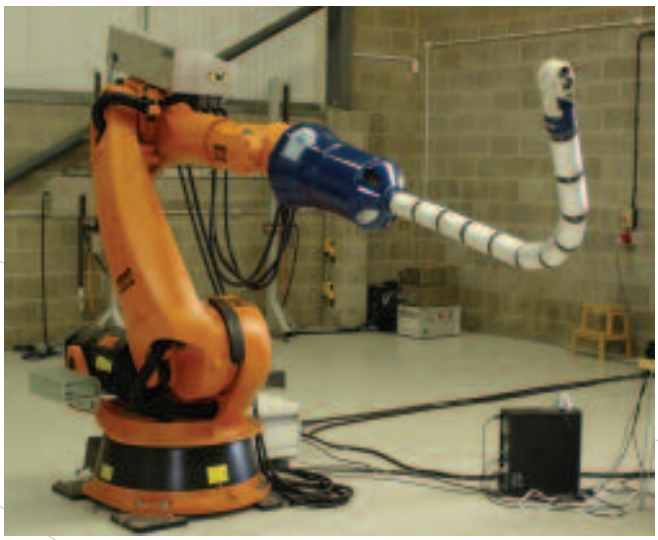
At CECA we can help you to make the most of automation technologies and experience. Automating processes and using robotics can increase productivity and consistency and enable humans to achieve advanced capabilities.

We have expertise in vision and inspection systems such as the Cognex DVT vision recognition system, used in assembly inspection to reduce errors. These systems are also used in part recognition and manipulation, identifying parts as they move through the assembly line and re-positioning them for the next part of the process. Where location and positioning is automated, accuracy and speed is improved even more.

Our automated fixturing capabilities can help you to reduce set-up time and assembly fixturing. By developing reconfigurable and automated fixtures, components of different shapes and sizes can be held by the same vice with minimal adjustment time.

For demonstrations and for testing prototype automated systems we have several robots on-site, including:

- OC Robotics snake arm robot for accessing places that are difficult to reach by humans
- Mitsubishi 3kg robot
- Kuka 16kg robot



Training

Our training offers you the opportunity to share our knowledge of assembly processes and practices. We also provide training on the use of specific machines used in large scale assembly.

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