PaR Systems, Inc. began supplying remote manipulators to government research facilities in 1961, and introduced the first industrial gantry robot in 1981. More than 50 years later, PaR has grown to become a world leader in providing intelligent solutions for critical applications in a variety of industries. The company’s family of gantry robots, telerobotic manipulators, and robotic crane systems is vital to industries where heavy, high-precision payloads and varying work envelopes present distinct challenges. With thousands of automation systems and material handling equipment installations around the world, PaR has built a reputation for dependability and reliability. This is why it’s the manufacturer of choice for systems that handle hazardous and radioactive materials.

Until 2005, PaR Systems primarily used AutoCAD® 2D and MicroStation® wireframe design tools to develop its systems. However, as the complexity of its challenges grew, so did market demands to deliver more sophisticated systems within shorter time frames. “We reached the point at which we had to get into the 3D realm just to get the job done,” states Lead Systems Engineer Jeff Konop. “Time is the driving point of pressure in our market, and we must find ways to help us deliver high reliability cranes and robotic systems to a strict schedule.”

After reviewing available 3D packages, PaR Systems chose SolidWorks® solutions, implementing SolidWorks Standard CAD, SolidWorks Professional design, SolidWorks Premium design and analysis, SolidWorks Simulation Professional analysis, SolidWorks Workgroup PDM product data management, and SolidWorks Composer technical communication software. More recently, the company acquired SolidWorks Enterprise PDM and DraftSight® 2D drawing software, which significantly reduces the costs of maintaining 2D applications.

**Challenge:**
Respond to customer demands for shorter lead-times in the development of robotic systems cost-effectively.

**Solution:**
Implement SolidWorks Standard CAD, SolidWorks Professional design, SolidWorks Premium design and analysis, SolidWorks Simulation Professional analysis, SolidWorks Enterprise PDM product data management, DraftSight 2D drawing, and SolidWorks Composer technical communication software.

**Results:**
- Met market demands for shorter lead-times
- Eliminated costs related to 2D and part searches
- United five engineering groups under one revision scheme and workflow
- Facilitated collaboration and design reuse

PaR Systems relies on SolidWorks design, analysis, PDM, and technical communication solutions to develop its robotic crane systems, like those that will be used to clean up the Chernobyl nuclear site.
“Ease of use and the complete integration of solutions are why we chose SolidWorks,” recalls Mechanical Engineering Manager Scott Schank.

**Visualizing large assemblies**

With SolidWorks, PaR Systems’ engineers can more efficiently visualize large assemblies, enabling the company to meet market demands for more complex equipment and systems, and shorter lead-times. “The customer is always interested in how it all works,” Schank explains. “With SolidWorks we can visualize the top-level assembly, drill down to locate parts, and detect any potential interference.

“We make use of all of the SolidWorks design visualization and communication tools,” he continues. “When we need to interact with the shop floor, procurement, or management, we have them open the files with eDrawings®. We are also planning to use SolidWorks Composer to create assembly procedure instructions. Our plan is to create videos on how to assemble a piece of equipment.”

**Uniting five engineering locations**

In October 2011, PaR Systems implemented the SolidWorks Enterprise PDM product data management system, migrating over 100,000 files to its vault, which unites two business groups in Shoreview, Minnesota, and one each in Brunswick, Georgia; Iron Mountain, Michigan; and San Diego, California. “We’ve realized systemwide improvements by unifying our operations into a single PDM system,” Schank stresses. “All of our groups are now on a common revision scheme, which facilitates collaboration and design reuse.

“In some instances, the time required to find and open files has also been dramatically reduced,” he adds. “Opening a large top-level boat-handling assembly used to take an hour and a half. With SolidWorks Enterprise PDM software, it now takes 15 minutes. Each of our engineers is also saving an hour a week by not having to manually search for files. Now, they just type in a part number and find the file in a few seconds. Phase I of our implementation is complete, and we anticipate additional benefits when we finish phase II and incorporate additional workflows.”

**Tackling the Chernobyl cleanup**

Using the complete set of SolidWorks integrated solutions—including design, analysis, PDM, and documentation—PaR Systems delivers on the industry’s most challenging projects, such as the cleanup of the contaminated Chernobyl nuclear power plant in Ukraine. PaR is designing and manufacturing the Main Cranes System for the project, which integrates two bridge cranes, two trolley hoists, a mobile tool platform, runway rails and conductor bars, and a remote control and video monitoring systems for operating cranes in a radioactive area.

“The systems will become contaminated with radioactive material as they function,” Schank states. “They have to be reliable because it will be very difficult to service them once they are in place. SolidWorks gives us the integrated tools that we need to make sure that they will do the job while requiring only minimal service.”