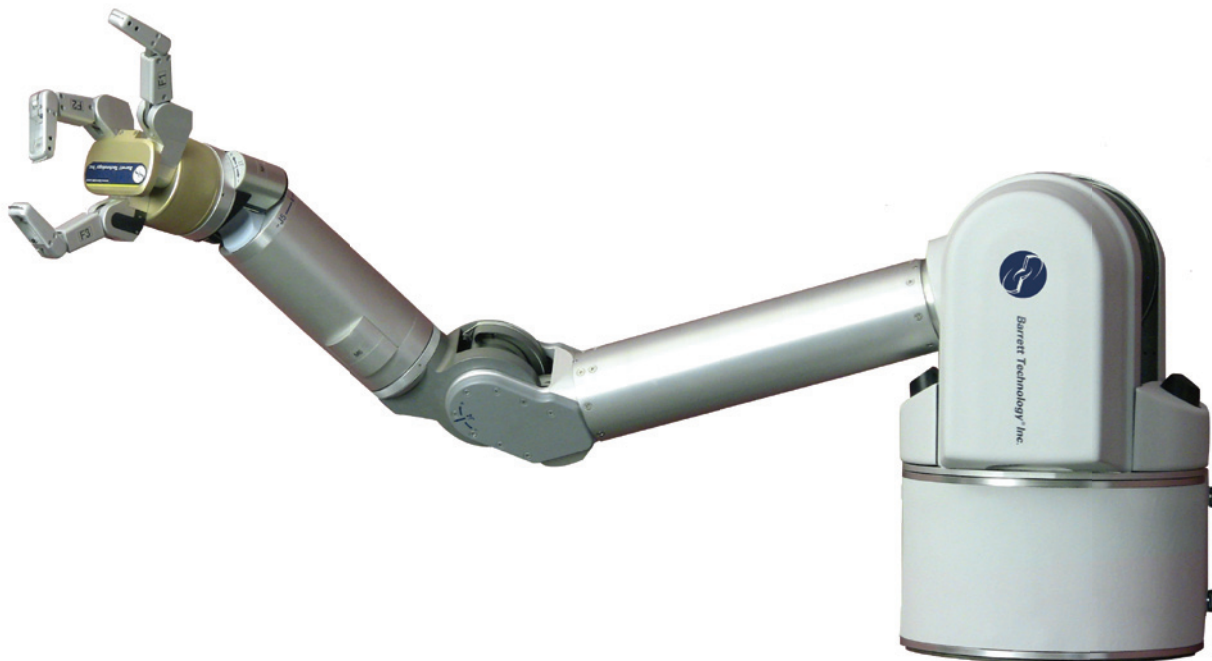


# Barrett Technology, Inc.

INNOVATING THE WORLD'S MOST ADVANCED ROBOT WITH SOLIDWORKS



As the first SolidWorks licensee, Dr. William Townsend credits the software for helping his company create the world's most advanced robot, the WAM robotic arm.

## CHALLENGE:

Choose a strategic 3D development platform that would help the startup company develop advanced robotics technology and sustain growth.

## SOLUTION:

Implement the SolidWorks 3D development platform and take advantage of integrated simulation, communication, and data management applications.

## RESULTS:

- Shortened design cycles by 75 percent
- Reduced manufacturing costs by 50 percent
- Cut design review time by 50 percent
- Developed the world's most advanced robot

When Dr. William Townsend set out to create the world's most advanced robot, he realized that attaining his goal would depend on making a strategic decision about a design platform. Barrett Technology, Inc., the company that President and CEO Townsend founded, has succeeded in achieving its objective. *The Guinness Book of World Records* lists Barrett's WAM™ robotic arm as the most advanced robot in the world, the WAM Arm has become a fixture in most major universities, and the BarrettHand™ now adds multi-fingered grasping functionality to the WAM Arm.

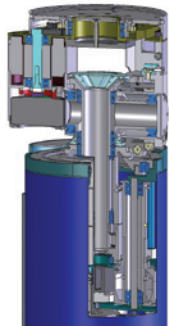
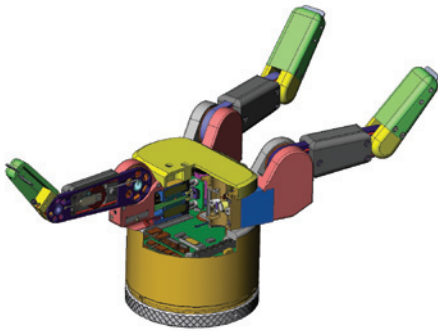
The company's success, however, was not assured when Barrett was using line drawings and 2D design tools. Because of the high level of precision and tight tolerances required to create advanced robotic systems, the company's engineers needed better tools for visualizing and simulating its complex mechanisms. According to Townsend, making the right choice on a 3D CAD system was an important step.

"As a startup company, a system's price/performance is a major consideration," Townsend recalls. "But the selection of a design platform can have ramifications beyond the design task at hand. We wanted to invest in a tool that not only would meet our immediate needs, but also would embody our future vision and strategy for 3D technology - a system that would sustain our company in the years to come. That's why we adopted SolidWorks® software."

Barrett became the first SolidWorks licensee on September 6, 1995. The company chose SolidWorks software, which Townsend discovered through his work at the Artificial Intelligence Lab – now called the Computer Science and Artificial Intelligence Lab (CSAIL) – at the Massachusetts Institute of Technology (MIT), because it offered the best long-term solution, took advantage of the Windows® environment, and was easy to learn and use. Townsend also believed that the SolidWorks vision and strategy would most closely parallel Barrett's design needs.

*“SolidWorks provided a big boost and helped us to sustain our growth pattern through greater design productivity and flexibility.”*

**Dr. William Townsend**  
President and CEO



The success of its early adoption of SolidWorks CAD software led Barrett Technology to do the same for new SolidWorks applications, such as SolidWorks Enterprise PDM.

“Someone might say, ‘You are crazy to be the first customer of a new CAD system,’” Townsend notes. “But we understood the SolidWorks business plan and realized how powerful the SolidWorks application would become. We knew that SolidWorks would someday sell a million copies - and, indeed, SolidWorks broke through the million-copy mark in 2009.”

### **The right CAD system sustains growth**

By becoming the first SolidWorks customer, Barrett pinned its R&D effort on its belief in the SolidWorks design solution. Townsend says it was a gamble that has paid off big – Barrett has emerged as the robotics technology leader and has continued to grow and increase its revenues, while controlling costs.

“SolidWorks provided a big boost and helped us to sustain our growth pattern through greater design productivity and flexibility,” Townsend stresses. “As a result of embracing SolidWorks software early on, we are now four times as fast in creating designs and twice as fast in reviewing designs and validating their effectiveness.”

With SolidWorks, Barrett has built value in its design innovation and flexibility rather than through investments in expensive capital equipment, allowing the company to cut its manufacturing costs in half.

### **Managing robotic design data**

Along the way, Barrett has taken advantage of new SolidWorks applications, capabilities, and enhancements. For example, the company embraced the SolidWorks product data management (PDM) solution as an early adopter of SolidWorks Enterprise PDM software.

“We became increasingly efficient with SolidWorks, so much so that we faced revision control and data management challenges,” Townsend explains. “As we had with SolidWorks, we became one of the first users of SolidWorks Enterprise PDM software, on which our entire company now relies. Some of our parts are up to revision number 80, and the SolidWorks PDM solution enables us to keep track of all our valuable design data.”

### **Staying ahead of the competition**

In addition to supporting Barrett as the robotics technology leader, SolidWorks is helping the company maintain its leadership position by staying ahead of the competition. “SolidWorks gave us an incredible jump that allowed us to run circles around our competitors in Europe and Asia and gave our company traction,” Townsend points out. “Even though many of our competitors have followed suit by moving to SolidWorks, we still have an advantage because the reach of SolidWorks provides us with greater opportunities to work with engineers, vendors, and partners.

“One example is our ability to attract young engineers who already know SolidWorks from local universities, such as MIT and Harvard. We are able to bring in new talent and infuse fresh ideas without missing a beat,” Townsend adds.



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