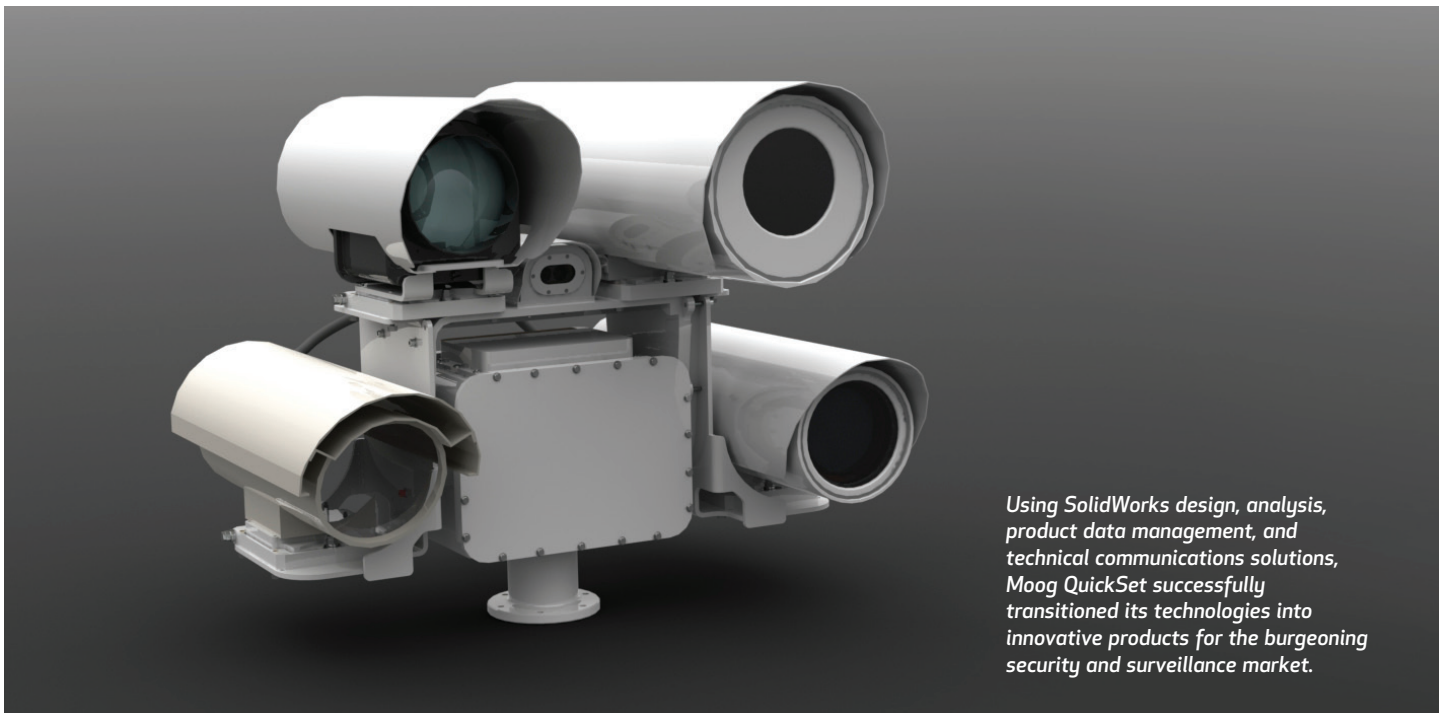


MOOG QUICKSET

Creating advanced security and surveillance systems with SolidWorks solutions



Using SolidWorks design, analysis, product data management, and technical communications solutions, Moog QuickSet successfully transitioned its technologies into innovative products for the burgeoning security and surveillance market.

What do cameras that follow the launch of NASA rockets; monitor activity along the US-Canadian border from atop the Cape Disappointment, Washington, lighthouse; and enhance the night vision of military vehicle drivers in Afghanistan all have in common? They rely on pan, tilt, and zoom (PTZ) camera and sensor positioning systems from Moog QuickSet.

Building upon its success in broadcasting—where 95 percent of mobile news vans use Moog QuickSet systems to position antennas during live broadcasts—the company adapted its technology to a range of surveillance and security applications following the 9/11 terrorist attacks in 2001. Today, Moog QuickSet is the leading designer, manufacturer, and integrator of PTZ camera and sensor positioning systems and integrated surveillance systems and components, such as those used at airports, rail stations, and shipyards, and for perimeter intrusion detection.

According to Mechanical Engineering Manager James R. Lutz, Moog QuickSet decided in 2001 to transition from manual 2D drawings to 3D integrated design. “Right after 9/11, our owner had the vision to realize that the security and surveillance market was about to explode,” Lutz recalls. “To take advantage of this opportunity, we had no time to take baby steps into 3D. We had to energize product development and embrace 3D.”

Moog QuickSet standardized on SolidWorks® solutions, implementing SolidWorks Professional design and SolidWorks Premium design and analysis software. The company has since added SolidWorks Simulation Premium and SolidWorks Flow Simulation analysis, SolidWorks Enterprise PDM product data management, and 3DVIA Composer™ technical communications software.

“We chose SolidWorks because it’s the most capable and cost-effective 3D platform,” Lutz explains. “Since our initial foray into 3D, we’ve added integrated solutions to simulate product performance, and manage and communicate design data. SolidWorks solutions have played significant roles in helping us capitalize on emerging market opportunities.”

Challenge:

Accelerate and expand development of rugged, precise positioning systems to take advantage of emerging opportunities in security and surveillance markets.

Solution:

Implement SolidWorks Professional design, SolidWorks Premium design and analysis, SolidWorks Simulation Premium and SolidWorks Flow Simulation analysis, SolidWorks Enterprise PDM product data management, and 3DVIA Composer technical communications software solutions.

Results:

- Shortened design cycles by 66 percent
- Doubled product offering
- Eliminated 90 percent of manufacturing errors
- Grew annual revenue more than 100 percent over past 10 years

Faster, better design

Moog QuickSet's transition into security and surveillance markets grew annual revenue by more than 100 percent over the past 10 years, and led to a dramatic surge in new product development. With SolidWorks tools, Moog QuickSet has reduced its design cycles by two-thirds, doubled its product offering, and eliminated 90 percent of manufacturing errors, resulting in more innovative, higher-quality products.

"We leverage a host of SolidWorks design tools. We use assembly configurations, which are based on load capacities, to automate design. We route cabling and wire bundles with SolidWorks Routing. CircuitWorks™ lets us integrate mechanical and electrical designs. Motion simulations let us see how our products move," Lutz points out. "Because of the efficiencies we've gained using SolidWorks solutions, we now demand that all Moog QuickSet vendors have SolidWorks in order to work with us."

Simulating a range of physical phenomena

Electromechanical motion control systems for security and surveillance purposes must be rugged and reliable. With SolidWorks simulation tools, Moog QuickSet can simulate design performance under a wide range of physical conditions. This leads to fewer performance errors, better products, and lower manufacturing costs.

"We conduct a lot of shock and vibration analysis," Lutz notes. "Precision is a key requirement for positioning systems, so we have to make sure that our designs will perform well without incurring the expense of lengthy prototyping and testing. The ability to do FEA (finite element analysis) on the fly lets you know that you have a valid design.

"SolidWorks Flow Simulation is an important tool for analyzing thermal dynamics and the impact of wind loads," Lutz adds. "Some of our products are used for coastal harbor protection or in airports, and must be able to withstand hurricane-type winds. Using SolidWorks simulation tools, we know if a design will perform under varying structural, thermal, and wind loading conditions."

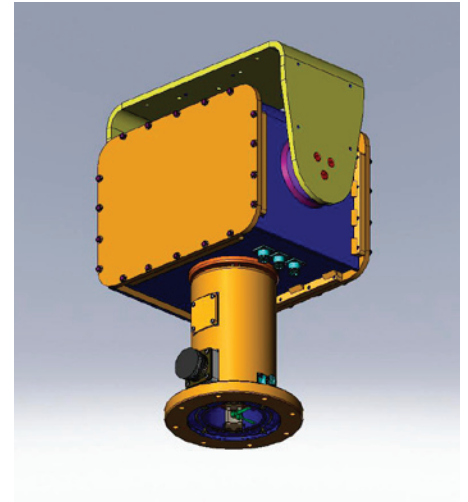
Managing, visualizing, and communicating design data

The move to SolidWorks solutions included software that has helped Moog QuickSet improve the management, visualization, and communication of design data. The company uses the SolidWorks Enterprise PDM system to manage product data and automate development workflows, and eDrawings® files to communicate with vendors. The addition of 3DVIA Composer technical communications software supports a seamless transition to modern product communication.

"It's amazing how much the vision that SolidWorks has for its design and engineering tools matches the vision our owner had when we moved to 3D," Lutz says. "SolidWorks has made product development more streamlined and our jobs easier. That affords us more time to keep up with technology development in our industry and remain at the forefront in terms of innovation."

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James R. Lutz
Mechanical Engineering Manager



Moog QuickSet uses SolidWorks design automation tools—including SolidWorks Routing to route cables and wire bundles, and CircuitWorks to integrate mechanical and electrical design—as well as SolidWorks shock, vibration, motion, thermal dynamics, and wind-load analysis capabilities to develop its products.



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