ALDEBARAN ROBOTICS

USING SOLIDWORKS SOLUTIONS TO INNOVATE ROBOTS THAT HELP PEOPLE

Aldebaran relies on SOLIDWORKS design, analysis, mold simulation, and product data management solutions to develop robots that are helpful and fun.
Since the early days of science fiction, robots have suffered under a stigma of intimidation and dread created by such indelible pop culture images as the ominous red eye of HAL 9000 and the skull-grinning menace of The Terminator.

Yet once you step away from science fiction and enter the real world, the potential for leveraging robotic technology to help people is huge. Robots can serve as helpers, companions, and friends. They can fulfill unique functions in educational settings. However, in order for people to overcome the entertainment-driven stigma, robots must be cute, nonintimidating, and fun. They must also emulate humans in appearance and behavior.

Humanizing and commercializing robots is the mission of Aldebaran Robotics. The French robot manufacturer's introduction of the NAO® robot—the most advanced humanoid robot to date—represents a quantum leap forward in robot technology. Developing the NAO robot required the vision of Aldebaran's founder, the talents of the company's staff, and access to an integrated 3D development environment.

According to Founder/CEO Bruno Maisonnier, Aldebaran chose SOLIDWORKS® software for design, surfacing, simulation, plastic injection molding analysis, product data management (PDM), and visualization because the intuitive, integrated design and engineering platform provides the company with the tools it needs to transform Maisonnier’s vision for humanoid robots into actual products. “Because our robots will help people, they must be useful and cool,” Maisonnier stresses. “To transfer the ideas in our minds into actual robots, we need a powerful 3D solution like SOLIDWORKS.”

Aldebaran utilized SOLIDWORKS Premium design, SOLIDWORKS Simulation Premium analysis, SOLIDWORKS Plastics injection molding analysis, and SOLIDWORKS Enterprise PDM product data management software in the development of the NAO robot.
“We had overheating problems in the head and the torso,” Munier notes. “Because we have to create torque for the robot to walk or pick up objects, when it is so densely packed with components, simulation tools are invaluable.”

“SOLIDWORKS Simulation allows us to make sure that the parts are strong enough yet as light as possible. This is extremely important because NAO has to carry his own weight, battery, and motors. Every gram saved is critical,” adds Mechanics & Design Engineer Ludovic Bouchu. “SOLIDWORKS Plastics injection molding analysis software ensured that our plastic-injection parts are produced quickly, accurately, and cost-effectively.”

**RESEARCHING ROBOTIC TREATMENTS FOR AUTISM**

Aldebaran’s introduction of the NAO robot as an open platform has also contributed to its acceptance. For example, researchers at the University of Notre Dame in Indiana are using NAO in the treatment of autism.

“Whether people use NAO to help kids with autism or assist the elderly with basic tasks, one thing is certain,” Maisonnier contends. “People like our robot. They are not intimidated by it, and SOLIDWORKS helped us achieve our goal.”