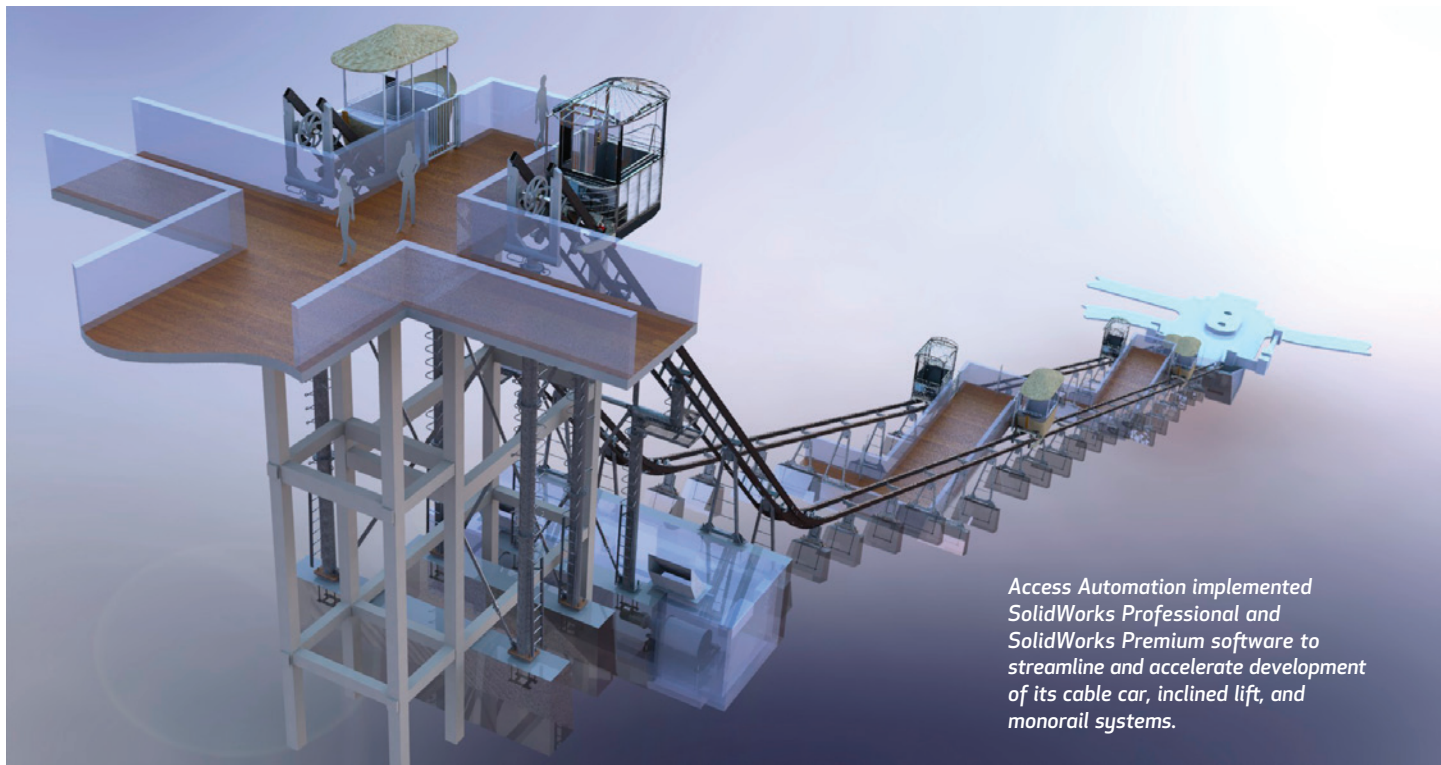


# ACCESS AUTOMATION LIMITED

Innovating contour-hugging cable cars and inclined lifts with SolidWorks



*Access Automation implemented SolidWorks Professional and SolidWorks Premium software to streamline and accelerate development of its cable car, inclined lift, and monorail systems.*

Access Automation Limited builds cable car, inclined lift, and monorail systems for traversing steep hills and cliffs with minimal disruption to the natural topography. Unlike conventional inclined lifts, which travel in a straight line up a slope, the company's systems can change direction and gradient. They can even curve around physical obstacles, such as rocky promontories or large trees. The versatility of these systems is ideal for facilitating discreet, convenient access to and travel around rugged, picturesque hillside properties.

For two decades, the New Zealand-based firm has designed, manufactured, and installed hundreds of lift systems in its native New Zealand and throughout the Asia Pacific region, primarily serving prestigious hotel and resort operators, such as Ritz-Carlton, Bulgari, and Pansea. Until 2004, Access Automation used manual drawings to develop its systems. However, as its volume of business grew and the complexity of its projects increased, the company looked to 3D design to streamline system development, according to Director Mark Galvin.

"Working with architects, engineers, and surveyors, as well as municipal planners and permitting authorities, we increasingly needed to communicate the visual impact of our proposed installations," Galvin explains. "In addition to presenting our concepts for approval prior to production, we needed to more efficiently design our systems, more accurately manufacture components, and more consistently complete issue-free installations. To achieve these goals, as well as create more innovative concepts, we needed 3D development tools."

After evaluating the Pro/ENGINEER® and SolidWorks® 3D CAD systems, Access Automation chose SolidWorks, implementing SolidWorks Professional design and SolidWorks Premium design and finite element analysis (FEA) software. "The main reason that we chose SolidWorks is that it was recommended by our local universities and polytechnic institutions," Galvin recalls. "We believed that SolidWorks would transform the way we work and enable us to produce more complex systems. We have been delighted with the results."

## Challenge:

Develop innovative, contour-hugging inclined lift systems that can change direction and gradient more efficiently, accurately, and cost-effectively; and clearly communicate complex 3D designs to customers and municipal planners prior to sign-off.

## Solution:

Implement SolidWorks Professional design and SolidWorks Premium design and analysis software.

## Results:

- Cut design time of large rail bend sections by 50 percent
- Reduced manufacturing time of large bend sections by 25 to 30 percent
- Improved ride quality and fabrication accuracy
- Reduced rework and design problems on prototypes

## Accurate design to geographic contours

With SolidWorks design software, Access Automation can import a variety of architectural plans and topographic survey data, then design the most efficient rail or lift system to precisely match the topographic contours of each specific project. "Depending on the site, we may have to turn corners, change gradients, or use long sweeping curves," says General Manager Darin Phillips-Brown. "The advantage that we have with SolidWorks is that we can use topographic data to develop an accurate, finished design, which we can show to clients and municipal planners, before fabricating rails or machine components."

"When designing new prototype bogie mechanisms we can now easily check for clearance issues or other design problems before producing parts, which is more cost-effective and helps to accelerate the entire process," Phillips-Brown adds. "Also, with the large rail bend sections that many of our jobs require, the use of SolidWorks has reduced our design time by approximately 50 percent, cut bend fabrication time by 25 to 30 percent, and improved ride quality."

## Simulating lift performance

Using SolidWorks Premium simulation tools, Access Automation engineers can also evaluate design performance, not only to validate safety but also to increase speed, boost payloads, and optimize material usage. Design Manager Rob Mardell says that while he initially used SolidWorks simulation software to satisfy safety and building code specifications, he now uses the tool to refine and improve system performance.

"We need to analyze the structural performance of different types of components, from rails to car frames," Mardell notes. "With SolidWorks simulation tools, we can assess where we can remove material or where we need to beef a part up. Optimizing the strength-to-weight of cable car systems is important for reducing both capital and ongoing operating costs for our customers."

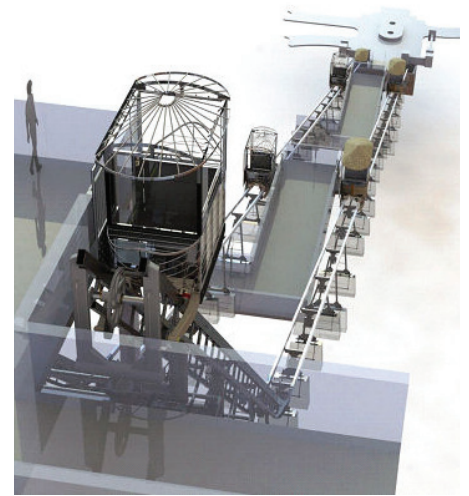
## Greater confidence in installations

When system manufacturing takes place in New Zealand and installation occurs as far away as Bali or Vietnam, having an accurate design that leads to a smooth installation is paramount. With SolidWorks solutions, Access Automation has greater confidence that the finished design will work. "It's hugely expensive to have to rectify design issues on-site," Galvin stresses. "SolidWorks gives us the confidence—the comfort factor—that we have addressed and resolved any issues prior to installation."

For example, the company recently designed and installed a system of twin 140-meter inclined lifts, which follow changing gradients atop a series of 12-meter columns at a beach resort in Central Vietnam. "SolidWorks was a key tool in us being able to deliver this complex job on time and budget," Galvin contends. "Because of SolidWorks there was very little chance of interpretation errors—we had considered all aspects—and the installation proceeded without a hitch."

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Mark Galvin  
Director



SolidWorks simulation and visualization tools enable Access Automation to minimize performance issues and exceed customer expectations.



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