

MAKO DESIGN + INVENT GROWING DESIGN AND ENGINEERING CONSULTANCY FOR STARTUPS AND SMALL MANUFACTURERS WITH SOLIDWORKS SOLUTIONS

Case Study



MAKO Design + Invent has relied on SOLIDWORKS integrated solutions to carve out a portion of the product development consulting market focused solely on startups and small companies, such as the firm that markets the PetBot, an amazing robotic toy that allows owners to have a full-on remote conversation with their pets, watching them through a camera and even rewarding the pet with a treat dispensed from a phone.

Challenge:

Establish and grow a design, engineering, and product development consultancy tightly focused on the startup and inventor market.

Solution:

Implement integrated SOLIDWORKS solutions, including mechanical design, electrical design, PCB design, simulation, visualization, manufacturing, inspection, and technical communications solutions.

Results:

- Reduced time to market by 50 percent
- Cut product development costs in half
- Decreased volume of prototyping required by 50 percent
- Slashed volume of defects and rework in half

MAKO Design + Invent CEO Kevin Mako was still in high school in 1999 when he founded the company that bears his name. He was section class president in the Honours Business Administration (HBA) program at the Richard Ivey School of Business at the University of Western Ontario (UWO) when he incorporated the business. An additional study in supply chain management at the University of Hong Kong provided the product development and manufacturing insights and experience that helped him build a world-class design, engineering, and product development firm tailored to the needs of small businesses, startups, and inventors.

Unlike many top design consultancies that focus on large manufacturers, MAKO has tailored its services to help small companies and innovators develop their products from idea to store shelves, all in a high-quality, cost-effective, and timely manner. With its focus on a large part of the market that has been underserved and its commitment to operational efficiencies, the design firm has flourished and grown since its inception. Today it operates four offices across North America: Austin, Texas; Miami, Florida; San Francisco, California; and Toronto, Ontario.

In order to offer world-class product development services to small businesses and startups, MAKO must leverage operational efficiencies to a larger degree than most design consultancies to keep its services affordable. These services range from in-house industrial design, mechanical engineering, and electrical engineering to patent referral, prototyping, and manufacturing. The company also provides business strategy, product strategy, marketing, and sales and distribution services for all consumer product categories.

With more than a dozen awards, 20 industry/academic/incubator partners, and 1,500+ products worked on, MAKO has changed the game for developing successful, quality products for small businesses, inventors, and startups. CEO Mako attributes the company's success and growth to its philosophy of leveraging technology in the most efficient ways possible. "When I started

the company, many people told me that we wouldn't be able to provide global-caliber design work to startups," he recalls. "Yet I knew that if we attracted, hired, and retained top talent, and leveraged integrated software tools that are either networked across our offices or based in the cloud, we could achieve the operational and product development efficiencies that would make our services significantly less expensive than conventional design firms and more attractive and affordable to our targeted portion of the market."



"SOLIDWORKS PCB provides the simplest, most efficient method for designing, engineering, and producing PCBs and electronics, along with mechanical housings and related parts. Through its more collaborative, iterative process, SOLIDWORKS PCB gives us the flexibility that we need to innovate while maintaining product performance and reliability."

— Kevin Mako, CEO

An important aspect of MAKO's more efficient approach to product development is utilizing an integrated design and engineering platform with a clear strategy for moving into the cloud. MAKO chose the integrated SOLIDWORKS® 3D product development system as its primary development environment—implementing mechanical design, electrical design, printed circuit board (PCB) design, simulation, visualization, manufacturing, inspection, and technical communications solutions—because of its global reach, range of integrated applications, and pathway to the 3DEXPERIENCE® WORKS cloud-based platform.

"My experience in Hong Kong revealed that the majority of manufacturing service providers and many product manufacturers use SOLIDWORKS software," Mako explains. "Whenever a manufacturing company receives a product design from a client, they almost always convert it into a SOLIDWORKS file for production. In short, SOLIDWORKS is the global standard for the mass manufacture of consumer products, and more designers and engineers know how to use it than don't, which makes it very easy to collaborate with external vendors, partners, and clients. This is why we implemented SOLIDWORKS tools, so we deal with native files that work with many applications and can create manufacturable designs as efficiently and cost-effectively as possible."

FAST, COST-EFFECTIVE PATH TO PRODUCTION

Using integrated SOLIDWORKS solutions, MAKO provides a faster, more cost-effective approach to refining ideas, napkin sketches, and product concepts into innovative, manufacturable designs, cutting both time to market and development costs by 50 percent. According to Mako, helping clients launch quality products in half the time is critical to grabbing market share and becoming an attractive target for acquisition by large, international manufacturers.

"Speed to market and cost efficiency have become critical to success, especially for small businesses and startups," Mako stresses. "The fact that SOLIDWORKS solutions are integrated and work seamlessly with each other is very valuable to us because it enables us to consistently deliver quality, innovative products faster and at lower cost than previously possible."

IMPROVING QUALITY, SLASHING REWORK

Using integrated SOLIDWORKS design and simulation solutions, MAKO not only doesn't sacrifice quality in exchange for time and cost savings; the company has actually improved quality, cutting prototyping requirements, defects, and rework by 50 percent. "Without access to integrated SOLIDWORKS tools, a product design typically requires about five or six rounds of prototyping to validate performance," Mako notes.

"With the various SOLIDWORKS Simulation tools at our disposal, we've cut the number of prototypes required on our projects down to two or three rounds," Mako continues. "In addition to controlling prototyping costs, integrated SOLIDWORKS tools have enabled us to improve quality across the board by cutting the number of defects encountered and related rework in half."

BOOSTING ELECTRONICS DEVELOPMENT WITH SOLIDWORKS PCB

With a growing number of new products requiring electronics and printed circuit board (PCB) design and production, MAKO's most recent SOLIDWORKS solution acquisition is SOLIDWORKS PCB design software, which integrates mechanical and PCB design capabilities into a single collaborative design environment. "Roughly half of the products that we develop require electronics design, such as the PetBot, an amazing robotic toy that allows owners to have a full-on remote conversation with their pets,

Focus on MAKO Design + Invent
VAR: CAD MicroSolutions, Cambridge, Ontario, Canada

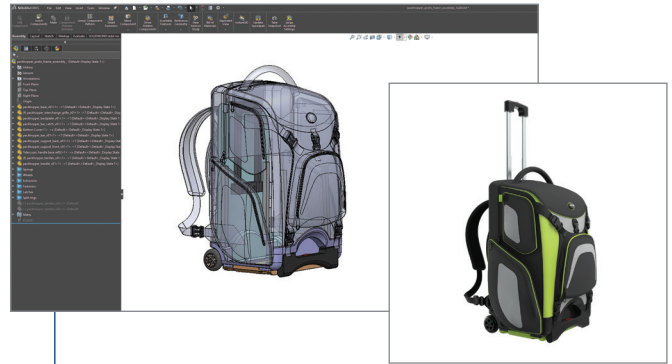
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watching them through a camera and even rewarding the pet with a treat dispensed from a phone.

"SOLIDWORKS PCB provides the simplest, most efficient method for designing, engineering, and producing PCBs and electronics, along with mechanical housings and related parts," Mako adds. "Through its more collaborative, iterative process, SOLIDWORKS PCB gives us the flexibility that we need to innovate while maintaining product performance and reliability."



Using integrated SOLIDWORKS mechanical design, electrical design, PCB design, simulation, visualization, manufacturing, inspection, and technical communications solutions, MAKO can more quickly and cost-effectively refine designs for startups and small businesses, helping them bring innovative products like the Red-Dot-Award-winning ROVER Packhopper shown here to market.

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