

Nimrod Racing

Customer Success Story

Autodesk® Alias® Design
Autodesk® Inventor® Professional
Autodesk® Design Review

With the help of Inventor and Alias Design software, we're reaching our goal of establishing a reputation for high-quality, high-performance engineering. The software supports our growing business, helping us to showcase our sophisticated technical skills to potential customers throughout the world.

—Andras Szasz
Executive and Lead Engineer
Nimrod Racing

Toy racers.

Nimrod Racing thrills hobbyists with the customized radio-controlled toy cars it creates using Autodesk® Inventor® Professional Software and Autodesk® Alias® Design software.



Project Summary

Founded in 2006 and based in Budapest, Hungary, Nimrod Racing develops radio-controlled (RC) toy cars and parts, from ideation to manufacturing. The company's cars are custom-made for enthusiasts seeking lush styling, high performance, and speedy development cycles. Owners hail from Australia, New Zealand, the United States and several European and Middle Eastern countries, and spend anywhere from \$750 to \$7,500 USD on their Nimrod Racing cars. Many owners race their cars in global competitions.

From the outset, Nimrod Racing has relied on software from Autodesk to speed the product development cycle, reduce physical prototyping, and facilitate communication with passionate customers. With Autodesk Alias Design software, Nimrod Racing develops concept models and high-quality class-A surfaces. Moving beyond 3D to Digital Prototyping, Nimrod Racing uses Autodesk Inventor Professional software for 3D mechanical design, product simulation, and design communication. With the help of Autodesk software, Nimrod Racing has been able to:

- Deliver compelling imagery that demanding customers appreciate
- Reduce physical prototyping by about 40 percent
- Grow by 100 percent in just under four years

The Challenge

Ranging from one-tenth to one-fifth of the size of real cars, Nimrod Racing's toy cars can reach 110 kilometers per hour and include about 800 parts—each designed and manufactured by Nimrod Racing's engineers. "Our cars have a special chassis and engine because of their size," explains Andras Szasz, executive and lead engineer at Nimrod Racing. "These aren't just small versions of real cars. We have to custom design every component."

Nimrod Racing's hobbyist customers play a major role in these designs, expecting to help shape the way their cars will look and perform. "It's really important that our customers be part of the design team," says Szasz. "Part of the thrill of this hobby is the feeling of ownership. We need to collaborate very closely with our customers no matter where they are located."

And while cost is not usually a factor for these customers, time is. "Our customers don't want to wait," says Szasz. "We're always looking for ways to finish our cars faster, while maintaining the highest quality."

Autodesk®

Nimrod Racing relies on Digital Prototyping to cut back on physical prototypes and speed product development.

The Solution

The design process begins when a customer commissions a toy RC car from Nimrod Racing. "Sometimes customers with fancy cars ask us to build toy versions of their cars," says Szasz. "In that case, we'll scan the car to get the body shape. Other customers ask us to make toy versions of street cars, such as Porsches or Ferraris."

Whether they start with a scanned car or a blank sheet, Nimrod Racing's team completes the initial design for the car's shell in Autodesk Alias Design software. "We often do 30 or more iterations with our customers before we finalize the look," says Szasz. "With Autodesk Alias Design, it's quick and easy to make changes without starting over."

But Szasz points to the superior surfacing capabilities as the primary reason customers rely on Autodesk Alias Design. "For class-A surfacing, we think Alias is the best," he says. "The surfaces we create are of such high quality that we use them to create tooling."

Digital Prototyping Advantage

While designers work on the car's body in Autodesk Alias Design software, Nimrod Racing engineers design the chassis and all other internal parts in Autodesk Inventor Professional software. Integrating the conceptual and engineering designs into a single digital prototype, Nimrod Racing's team collaborates to finalize the best possible design. "Because we can communicate between Alias and Inventor, it's easier for us to do the surface design and engineering in parallel to work through issues," says Szasz. "For example, we can easily see if heavy parts hit the bonnet or body, and quickly solve the problem."

In fact, performing simulations helps Nimrod Racing confirm that its designs meet the reliability and performance standards its customers expect. Simulations also reduce physical prototyping and

mistakes, speeding product development time. "By simulating our cars digitally, we reduce the potential for part failures," adds Szasz. "We also don't have to make as many physical prototypes, which are quite expensive and time-consuming."

And when the company must change elements of the design, the process is fairly painless. "Without Autodesk Inventor Professional, it would be a nightmare if a customer decided mid-process that he wanted to change the wheel distance. You'd have to recreate 60 percent of the car," explains Szasz. "But with Inventor, I just have to change one number and every related part automatically updates. It saves us tons of time."

Building Better, Lighter Cars

Using the finite element analysis (FEA) capabilities in Autodesk Inventor Professional, Nimrod Racing tests parts to find the right balance between strength and weight. "We use FEA to test shock absorber arms for strength and stiffness," says Szasz. "They must be able to absorb all the shocks from the ground. But if they're too heavy, the car will bump, making it unstable. FEA lets us identify where we have extra material, helping us to reduce weight while meeting our strength requirements."

Visualization Involves Customers

Throughout the product development process, Nimrod Racing communicates regularly with customers by sending digital prototypes as DWF™ files along with a link to download Autodesk® Design Review software, a free* DWF viewer. "Our customers can see the whole car in 3D," says Szasz notes. "They can even rotate it and zoom in on specific areas. It makes the design review process so much easier, and reassures our customers that we're making progress on their cars."

Nimrod Racing also uses Digital Prototyping data to create short videos that highlight performance



features such as gear and shock movement and the steering process. "We've even made some assembly videos," says Szasz. "Our customers are technical fans who want to maintain their own RC cars. They love to view videos that detail how easy it is for them to assemble and disassemble their cars."

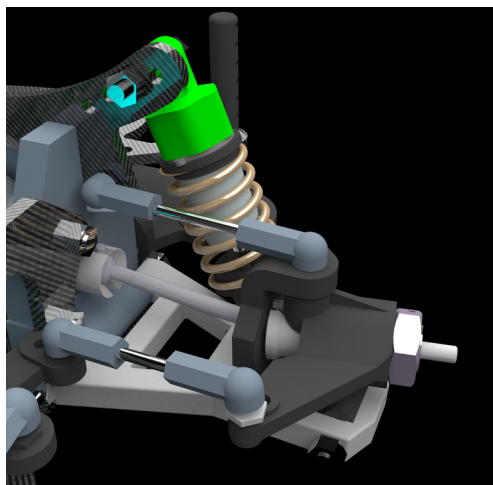
The Result

With the help of Autodesk software, Nimrod Racing has reduced physical prototyping by about 40 percent since it started designing and manufacturing toy RC cars. The company also has expanded by 100 percent. "At the beginning, we made toy cars for fun," says Szasz. "Now, it's a viable business that grows every year."

Szasz concludes, "With the help of Autodesk Inventor Professional and Autodesk Alias Design, we're reaching our goal of establishing a reputation for high-quality, high-performance engineering. The software supports our growing business, helping us to showcase our sophisticated technical skills to potential customers throughout the world."

For More Information

To find out how Autodesk Inventor software can help you increase innovation, reduce physical prototyping, and cut costs, visit www.autodesk.com/inventor.



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