



# Fly High with Rapid Prototyping

TOY STATE DRONES SOAR WITH STRATASYS 3D PRINTERS

*“Time is our greatest enemy, and with the Stratasys F370, we can spare more resources to tackle other complex designs and save logistic and prototyping costs and time. Developing a drone used to take up to a year or longer, and now we have it down to around 8 months.”*

*– Guy Nickless, Toy State International*

## CASE STUDY



The Stratasys F370™ 3D printer enables Toy State to tackle complex designs and save prototyping costs.

## POLYJET AND LATEST FDM TECHNOLOGY WORKING TOGETHER

With a launch of more than 200 new toys a year aimed at preschoolers, young children and hobbyists, designers at Toy State International Ltd. (Toy State), have a real need for speed in their design to prototype timeline. Streamlined design and quick production turnaround schedules are critical for the design team who generate new ideas, sketch concepts and create models of early designs and functional prototypes in real plastics for performance testing.

Already a user of a Stratasys PolyJet™ 3D Printer, Toy State continued to strive to reduce modeling labor, cut costs and launch new products in a more timely fashion. “We used PolyJet mainly to create tools or some concept models, but for functional prototypes we still relied on sub-contractors. Consequently, the process was not optimized; it was lengthy and more expensive,” said Nickless.

With highly intricate designs in the works, Toy State sought a tool that could create precise prototypes in materials similar to their end-use parts, while maintaining the strength to withstand functional tests. The answer? FDM and the new Stratasys F370™ 3D Printer.

## A Tool For Every Project

The release of the Stratasys F370 was just the right solution for Toy State. “You can’t use the same type of tools for every single project,” said Guy Nickless, R&D director at Toy State. “For concept models and small tools that need fine surface details, PolyJet was great for us. But for something where weight is an issue, creating thin walls coupled with the need for it to be produced using materials strong enough to withstand repeated performance tests, FDM and the Stratasys F370 is a perfect match.”

Toy State, an industry leader in manufacturing lights-and-sound and radio-controlled toy vehicles, wanted to create a drone strong and stable enough to withstand wind in mid-air while still being light enough to fly, even after embedding electronic components. The team needed to produce small parts that snapped together while facilitating the ideal arrangement of motors, battery cases, covers and other parts. With the Stratasys F370, Toy State was able to 3D print prototypes that fit all the desired requirements, including the ability to print with ABS or PC-ABS plastics, which possess similar production-grade material properties as their end products.

“We were all surprised at how easy and intuitive the Stratasys F370 is to use,” said Nickless. “All we need to do is prepare the CAD file, import it to the GrabCAD Print™ software and sync it to the printer. With just a few presses of different buttons, the drone gets prototyped in PC-ABS.” With the Stratasys F370 incorporated into the design and verification process, the team is now empowered to be more responsive to projects in a collaborative environment.

## Connecting Team Members with GrabCAD Print

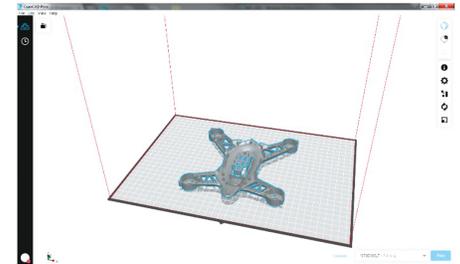
Plus, with cloud-connected GrabCAD Print, the team can monitor print status, check material consumption and manage print jobs via their computers or smart phones. This makes it easier to fit 3D printing into an engineer’s daily work as well as the R&D team’s design verification schedules.

Adding the Stratasys F370 into their workspace helped Toy State move prototyping in-house for a more streamlined design verification process, and the team plans to expand their 3D capabilities by training modelers to be fluent in 3D design.

“The future is here,” Nickless said. “Things are more digitized than ever before, and we need to keep up, not just to stay on schedule but also to stay competitive in the market. Without 3D printing, we would have trouble providing timely sales samples to our customers. Stratasys provides us with just the right tool and we are grateful for that,” concluded Nickless.



Toy State design team 3D printed frame of a drone with high precision and strength using PC-ABS material.



GrabCAD Print allows designers to convert CAD files and send to printer.

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