This fully-functional 3D printed prototype tested in real conditions, enabled AIJU to verify and validate designs faster than ever before.

Play Lab

Children's Product Design Simplified With Full-Color, Multi-Material 3D Printed Prototypes

Founded 30 years ago, Spanish research technology center AIJU specializes in the development of toys and children's leisure products. The company brings together design and manufacturing experts to help diverse businesses in the industry be more competitive.

> "With our Stratasys J750, we 3D printed the entire working prototype in one go with all the color specifications our customers required, while reducing the production time by 40%."

Nacho Sandoval
AIJU

stratasys

Case Study

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"We advise companies such as toy brands, plastic product manufacturers, sports companies and molding manufacturers on becoming more efficient along the supply chain," said Nacho Sandoval, Head of Prototyping at AIJU.

To help reduce costs and lead times for its customers, AIJU taps into the latest cutting-edge technologies. Much of their work involves prototypes and injection molds for child products, but complying with rigorous industry quality standards can be challenging when introducing new technology. "Children's products are very much protected by the law," said Sandoval. "The production quality standards are strict and it's extremely complicated for companies who want to innovate. As a result, we have to be extremely selective when it comes to adopting new innovations within product development."

Precision prototyping in multiple-materials

In the company's quest to further innovate product development, AIJU invested in PolyJet™ 3D printing in 2005. According to Sandoval, the ability to 3D print parts in multiple-materials opened up a whole new set of applications, while eradicating time-consuming assembly processes associated with previous methods.

"Our Connex™ 3D Printer not only helped us improve the precision, but we significantly reduced prototyping lead times," said Sandoval. "We make a lot of plastic boxes to store food and before the Connex, this was a laborious job. We had to separate parts and 3D print each one individually to obtain two types of plastic textures. Now we can print the entire container in one go, mixing rigid and flexible materials, enabling us to slash lead times and produce better quality products."

Nacho Sandoval, Head of Prototyping at AIJU, with the Stratasys J750 3D Printer.

This 3D printed prototype for a swimming float was produced in full color in a mix of rigid and flexible materials, all in a single print, using the Stratasys J750 3D Printer.

The 3D printed ‘kZoomi’ float prototype mimics the final product with unrivalled realism thanks to the Stratasys J750.

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AIJU also uses PolyJet 3D printing to produce silicon and injection molds. “This enables us to validate products more accurately than ever before by testing in final production materials. Producing faster, shorter runs and more innovative product lines is paramount to staying competitive,” said Sandoval.

Streamlining product development

Due to an increase in demand for realistic, complex prototypes, AIJU invested in a Stratasys J750™ 3D Printer – the world’s only 3D printer with the ability to combine full color and multiple materials in a single print.

“Our main objective was to improve the precision and finish of our prototypes, and the Stratasys J750 has surpassed our expectations,” said Sandoval. “It has enabled us to completely streamline prototype production from several steps to only one. Previously we had to 3D print the parts, paint them by hand and then assemble each part to obtain the final prototype. Now we can produce a full-color, multi-material prototype in one single print, transforming the economics of our entire design process.”

The team was recently tasked with prototyping an electronic product comprised of rigid, flexible and translucent parts in diverse colors. Using previous methods, it would have been an extremely complex job. “With our Stratasys J750, we 3D printed the entire working prototype in one go with all the color specifications our customers required,

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while reducing the production cost by 30%," said Sandoval.

This also enabled AIJU to work closely with kZoomi's new pool float designed to help individuals with swimming difficulties. The team 3D printed functional prototypes in multiple materials, enabling them to test the float in real conditions and improve the buoyancy and hydrodynamic design. The streamlined prototyping process allowed AIJU to verify the design with the customer in just six days.

"kZoomi tried alternative prototyping methods, however the results were very poor. It was impossible to get the right colors and the high resolution needed for the handles. An accurate and smooth finish is essential for the end-user to feel comfortable with the final product. Also, without the Stratasys J750, the manufacturing cost would have been far more expensive and the lead times much longer."

Stratasys Headquarters

7665 Commerce Way,
Eden Prairie, MN 55344
+1 800 801 6491 (US Toll Free)
+1 952 937-3000 (Intl)
+1 952 937-0070 (Fax)

1 Holtzman St., Science Park,
PO Box 2496
Rehovot 76124, Israel
+972 74 745 4000
+972 74 745 5000 (Fax)

stratasys.com
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