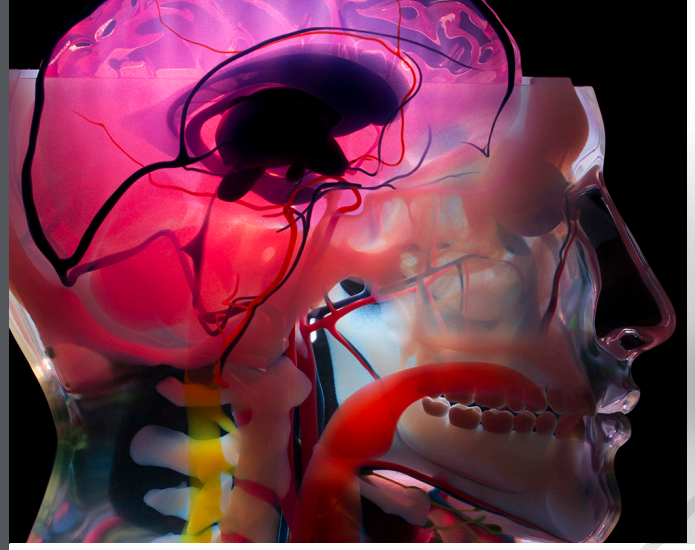
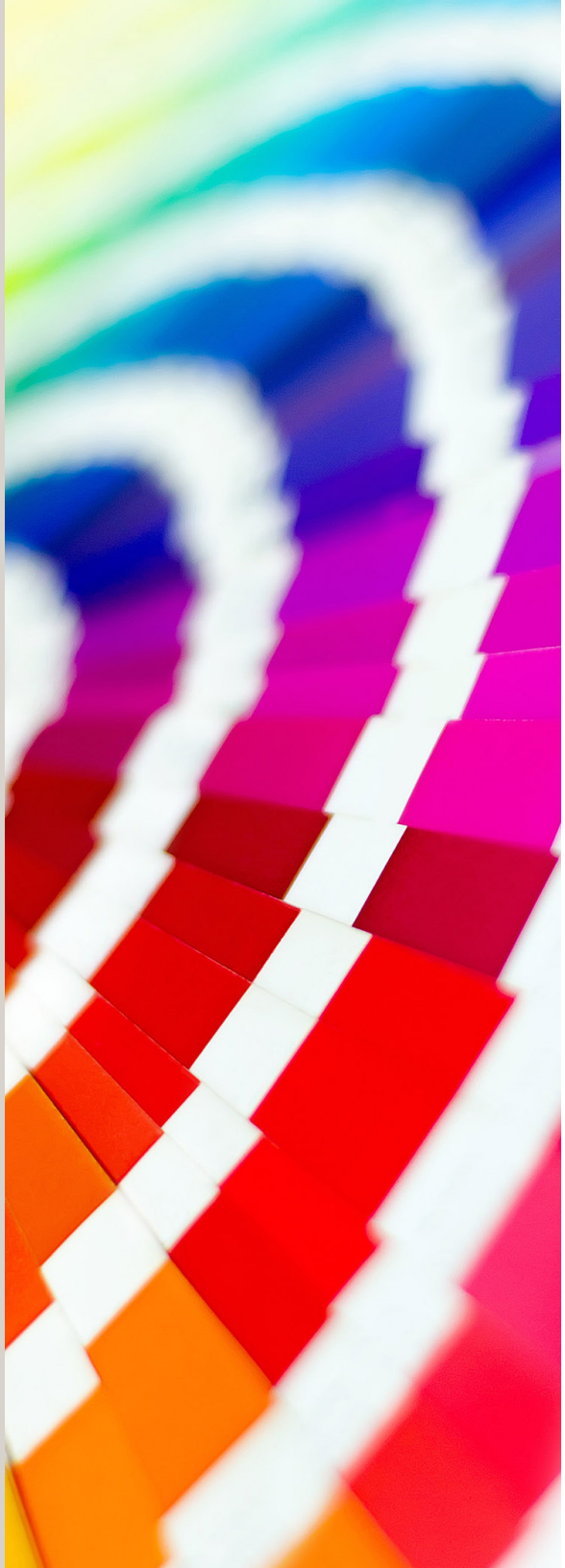


stratasys

Elevating Design With 3D Printing

How Highly Realistic 3D Printed Modeling Benefits Design, Health Care and Education

E-Book



Introduction

Designers, educators and the medical community arguably share a common desire: to find better tools that help them solve their challenges in a more creative, nimble and cost-effective way.

Additive manufacturing, widely known as 3D printing, can be one of those tools. It can make the impossible possible with the ability to manufacture complex parts not achievable with traditional processes. The additive process can create models, prototypes, tools and some finished products faster and with fewer constraints. Some 3D printing processes that include color and multiple materials are capable of producing results with lifelike realism.

Although a 3D printer won't solve all of the world's problems, the right printer can radically change the design process, ultimately resulting in better products. It can bring about more effective medical tools. And it can foster new, insightful research.

In the rest of this eBook, we'll look at how 3D printing with highly realistic models benefits consumer product design, medical outcomes and education, and a select group of 3D printers that help make it all happen.

Creating Better Products, Faster

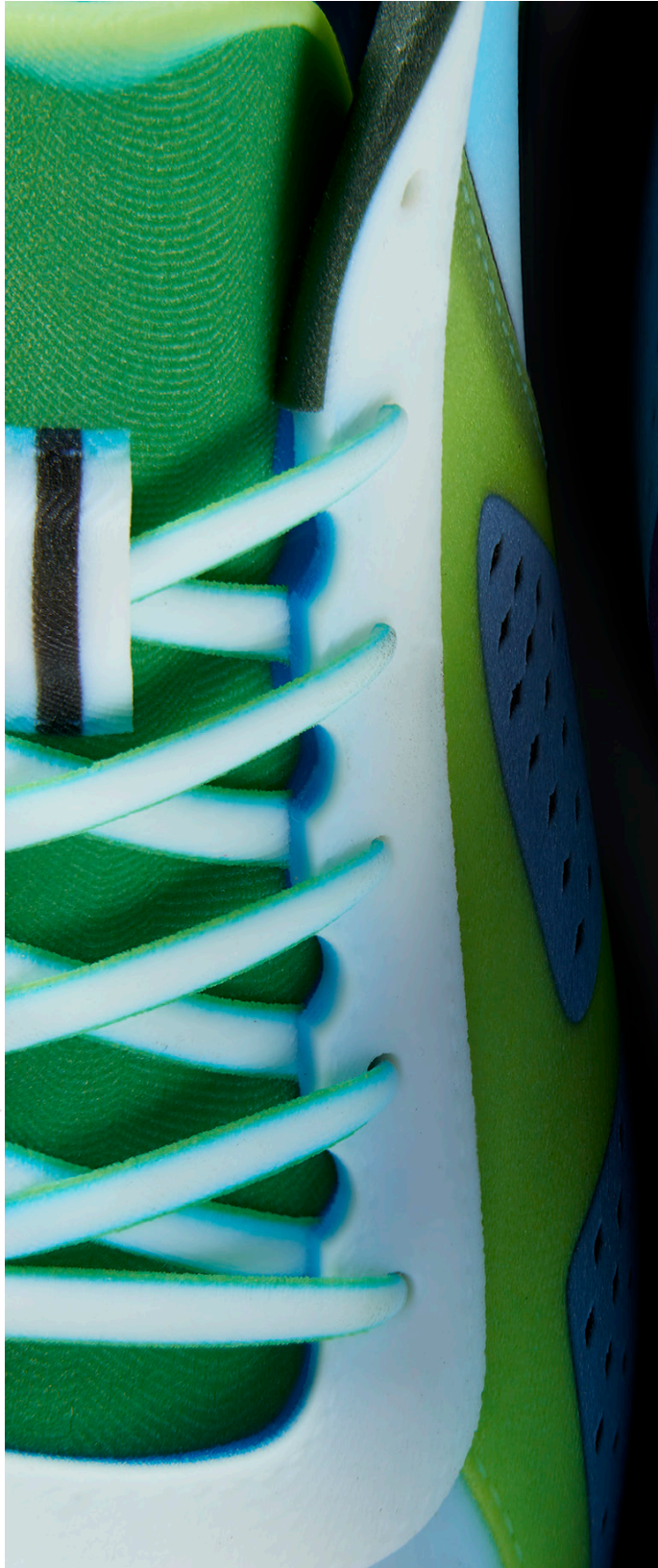
Consumer products make up a significant portion of the world's economic trade volume. Put another way, almost everything you touch on a daily basis, from a toothbrush to the shoes on your feet, falls under the umbrella of a consumer product.

Highly Realistic Prototypes Make For Better, Faster Designs

The design department within the **Adidas Group** is constantly refining the design of its sports shoes, requiring highly realistic models with multiple materials. Thanks to in-house 3D printing, these models can now be produced at a much faster pace. Designers can refine their design multiple times, quickly detect and eliminate errors and reach the final design in days or weeks versus months.

Before adopting 3D printing, the Adidas Group relied on technicians to hand-build models and functional prototypes using specialized tools. 3D printers now run around the clock, reducing the need for costly labor.

The combination of speed, realism and accuracy enables the Adidas Group to build and evaluate models in just several days, compared to their previously lengthy mold-making process. This helps the design team meet their goals and ultimately create a better product in less time.



Creating Better Products, Faster

In much the same way, **Thermos Company** relies on realistic prototypes 3D printed with multiple materials to deliver products faster and for less cost.

To capture all the necessary requirements and arrive at the right design, Thermos needs to continually iterate and refine its designs, making multiple prototypes. It used to outsource this work but with turnaround time taking three to five days per design, Thermos decided to purchase several 3D printers. The result? Thermos cut the prototyping process down to hours instead of days and did so at about one fifth the cost of outsourcing.

Beyond the time and cost savings, 3D printing helps Thermos make better products.

Designs are quickly changed and parts re-printed to achieve the optimal configuration. The process is also easy to use and doesn't require additional, highly trained personnel. According to Thermos, the process is simple enough for inexperienced engineers to use.

Versatile 3D printers give Adidas and Thermos the agility to excel in a competitive marketplace, through faster product design, development and validation.

Improving Medical Outcomes and Economics

As 3D printing technology evolves, its use in the medical field continues to grow. Medical device manufacturers, hospitals, doctors, medical researchers and educators can all benefit.

Rapid Prototyping And Product Development

Rapid prototyping and product development are key areas where 3D printing helps medical device manufacturers. In-house 3D printing produces prototypes much more quickly and usually for less cost than traditional manufacturing methods, particularly when it replaces outsourcing. This speeds up the entire development process because designs can be changed and parts re-printed quickly. This iterative but fast feedback loop gets products to clinical trial and to market faster.

Anatomical Models For Surgery Prep And Education

Scanning technology such as computed tomography (CT) and magnetic resonance imaging (MRI) lets doctors visualize a patient's anatomy. 3D printing is the natural extension of this scanning technology, providing the ability to create anatomical models in intricate detail. These models can then be used for surgical preparation and training as well as educational aids for medical students.

Precise structural detail and gradual color gradients are combined on this rigid model of the human heart.

Improving Medical Outcomes and Economics

Perhaps the most remarkable example of this application involves modeling a patient's specific anatomy, including pathology. This allows doctors to study the best approach, prior to surgery, resulting in shorter operating times and better post-operative results.

3D printed models are also helpful in training doctors on medical procedures and new device testing. Training models can mimic the look and feel of living tissue and can integrate instructional elements, such as labels or contrasting colors. These models can be produced on demand, avoiding the challenges associated with cadaver storage and availability.

Improving Medical Outcomes and Economics

Surgical Guides, Prosthetics And Orthotics

Additive manufacturing is also an optimal solution for prosthetics, orthotics and surgical guides because it's easily tailored to the individual's specific needs. This makes treatment more precise, resulting in fewer post-operative complications and faster recovery. 3D printed prosthetic devices cost a fraction of typical solutions, in part because of the lower costs associated with additive manufacturing. They are personalized to the individual's needs and in the case of growing children, replaced with new devices, as needed, for much less than traditional solutions.

Laboratory Tools, Jigs And Fixtures

Using 3D printed manufacturing tools like jigs, fixtures and other production aids streamlines the work process and helps shorten the product development cycle. Lab tools in the form of pipet racks, gel combs and other small parts can often be 3D printed for a fraction of the cost of what medical suppliers charge. They can also be tailored to the specific job needs making them a more versatile option.

Increasing Knowledge and Understanding

The Engine of Innovation

Research is the fuel that powers development of the innovative products and services we enjoy today. Universities and higher educational institutions perform a significant portion of the research that forms the basis of these advances. In the U.S., 31% of the total research (applied and basic) is performed by universities, including 56% of basic research.

Research institutions need the best tools, resources and technology available, and 3D printing is a key tool that gives the educational community the power to innovate.

Empowering Minds and Educating for Real World Applications

The University of Virginia is recognized as a leader in aerospace studies because of its commitment to hands-on learning. The school started with one 3D printer and has since acquired several, sufficient to establish a rapid prototyping lab. The university makes the lab easily accessible, which draws attention from students both inside and outside the engineering program.

The creation of the 3D printing lab made it possible for a collaboration with leading aerospace engine manufacturer, Rolls Royce, resulting in a $2 million grant. Rolls Royce has high praise for UVA graduates' ability to understand crucial design concepts and knowledge of how to correct design errors. According to UVA professors, the 3D printer plays a big role in teaching students smart design.

Increasing Knowledge and Understanding

From UVA's perspective, the value of 3D printing in an academic setting is that it teaches students to design and build for real world applications. Access to 3D printers gives students the ability to bring their designs to life, see how they work and understand if they meet design goals and solve problems. As a result, the students are better prepared to enter the workforce, equipped with the skills to tackle the challenges faced by industry.

Singularity University uses 3D printing to empower students to develop knowledge aimed at solving some of the biggest global challenges. The university's mission is to expose students to cutting-edge technologies.

Singularity University uses 3D printers to elevate the students' typical learning model from just thinking and writing to actually putting their ideas into tangible form. The 3D printer lets students hold their ideas in their hands.

According to Singularity faculty, driving students' creativity is the greatest value this technology provides.

Pushing The Boundaries Of Research And Understanding

The Anthropological Institute of the University of Zurich (UZH) uses 3D printing to advance its research and understanding of human evolution. One example is its use of 3D modeling and 3D printing to enhance the investigation of Neanderthal brain evolution.

An important tool in anthropological study is the ability to accurately replicate fossils. They are too fragile to be handled frequently and too valuable to risk damage or destruction from repeated examination. The ability to scan the fossils and reproduce accurate models for reconstruction and study using 3D printing is an invaluable tool for UZH researchers.

3D printing also lets archeologists study fossils in new ways. Using scanning technology, researchers digitally slice fossil bones, obtaining imagery and data invisible to the eye. This information is used to create 3D models of the interior bone structure.

The accuracy and fine details that are possible with 3D printing, combined with the ability to scale fossil reproductions up or down as needed let UZH researchers find answers to questions and push the level of knowledge and understanding in archeological study.

Setting the Standard in 3D Printed Realism

More Than Just an Effective Tool

It's clear that 3D printing makes innovation possible. The decision then becomes not *if* you should invest in 3D printing, but rather which 3D printer will best serve your needs.

3D printing isn't new and there are many printers capable of colored models. But only the **Stratasys J826™**, **J835™** and **J850™** have the unmatched realism many projects demand.

In the medical space, the J750™ Digital Anatomy™ printer gives medical device companies and healthcare professionals unprecedented realism for device development and surgical training.

Perhaps the best way to understand how the J8™ Series printers can benefit you is to see how their breakthrough technology offers real solutions, using scenarios from the medical, educational and consumer product industries. What follows is a series of challenges these industries typically face and how the J8 Series addresses those problems.

Challenge:

Filmmakers, like **LAIKA**, that specialize in stopmotion animation and special effects rely on tools that can rapidly turn ideas and sketches into realistic physical models and props. Existing forms of powder-based 3D printing lack the capacity for color or the color is limited and inconsistent. Textures are coarse and material characteristics change with variation in humidity. Post-processing is also lengthy and messy.

The Stratasys J8 Series Solution: *With over 500,000 colors and the ability to print in multiple textures, all in a single print, the J8 Series printers stand alone. This type of 3D printing technology is LAIKA's choice for the realism their industry demands.*

Consistent, reliable color gives designers and rapid prototyping managers the ability to create models in virtually unlimited shades without concern for variation due to ambient conditions associated with powder-based processes. And GrabCAD Print™ software makes it easy to go from CAD model to 3D printed part. This eliminates the STL file conversion process, a valuable time saver for stop-motion animators who create enough models to support over a million different facial expressions. Finally, postprocessing with soluble support is a clean, hands-off, time-saving process.

Setting the Standard in 3D Printed Realism

Challenge:
Automotive manufacturers use 3D printing technology to prototype interior panels and consoles. Some auto makers have used an SLS process, which provides single-color, single-material output. But for the full visual effect, these kinds of prototypes require post-processing to add color and soft-touch textures, to give designers an accurate representation of their design in a fullscale mockup.

The Stratasys J8 Series Solution: *Texture maps that simulate wood grain, dials, LCD displays and any other desired image or pattern are produced in one print operation, in any color. The multimaterial capability also lets designers incorporate various surface treatments to simulate soft textures and leather, without the need for post-processing.*

The ability to create prototypes with full color, simulated leather and soft materials, including woodgrain or other texture mapping right out of the printer, saves time and labor. When the goal of rapid prototyping is to reduce development time, J8 Series printers accelerate that process by eliminating secondary operations. They give designers the ability to turn their vision into tangible results, quickly and with incredible realism. This enables faster creative decisions and ultimately accelerates time to market.

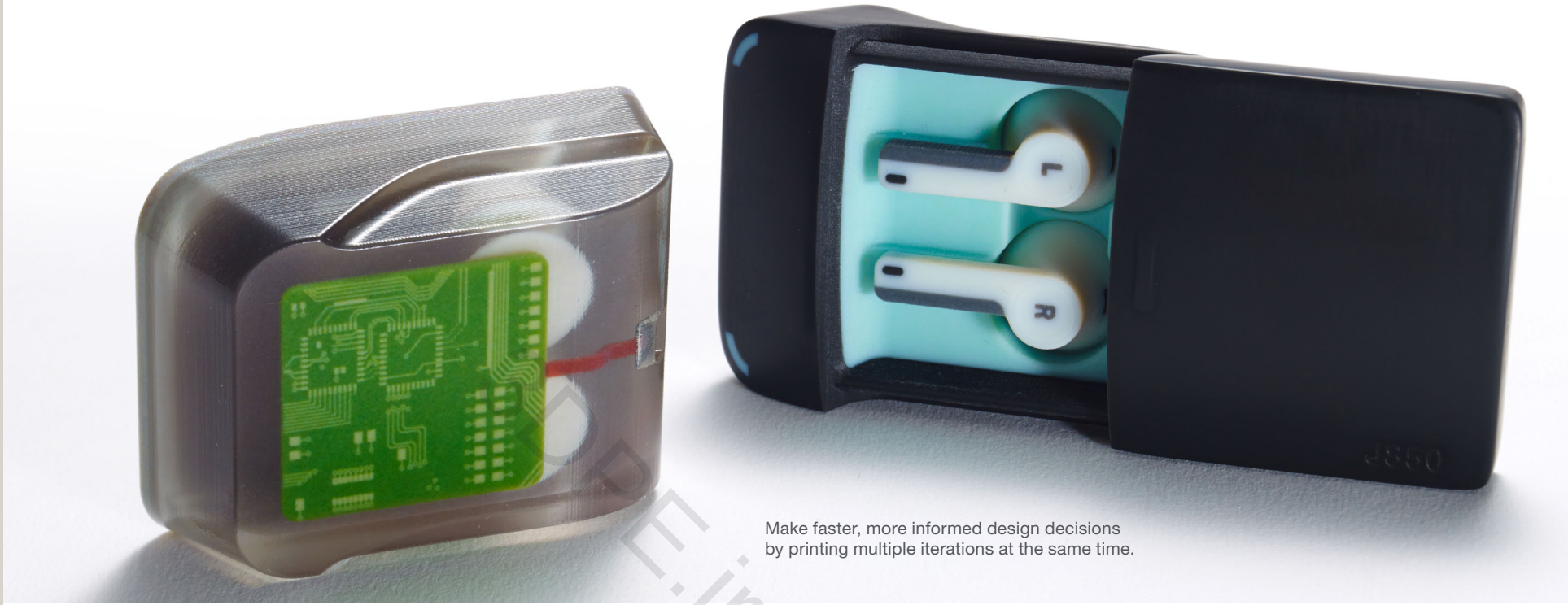
Setting the Standard in 3D Printed Realism

Challenge:
A surgeon's skills rely on practice and hands-on training for mastery of existing and new surgical procedures. However, traditional training methods don't provide sufficient opportunities with anatomically-realistic tools to gain this proficiency in a low-risk environment. Current 3D printing technology is capable of producing anatomical models, but this technology is limited because it doesn't offer flexible, tissue-like materials that reproduce the organs with realistic pathology and detail.

The Stratasys J750 Digital Anatomy Solution: *Realistic, 3D printed anatomical training models with colored, flexible materials and hollow channels and chambers that realistically simulate actual human tissue. Faster print times reduce the time to print the models.*

Anatomical models 3D printed in realistic, detailed, multi-textural materials let physicians learn and train with models that more closely replicate human tissue with realistic biomechanical accuracy. It allows them to practice multiple times in a realistic but no-risk setting. This enables research hospitals to maximize learning resources and helps training surgeons become proficient on delicate and state-of-the art procedures.

Other 3D printing technologies produce colored models, but not with variable flexibility and the option for clear, translucent or opaque characteristics in the same model. With some 3D printers, the color is not consistent and the amount of post-processing is time-consuming and/or messy, or involves hazardous materials.



Make faster, more informed design decisions by printing multiple iterations at the same time.

Setting the Standard in 3D Printed Realism

Challenge:

A consumer products designer needs realistic and convincing concept models and prototypes to win the customer's approval and support for the design. She needs several models, each with different characteristics to aid the customer's decision. The rapid prototyping manager needs to produce them in a time and cost-efficient way. Existing 3D printers offer color but some lack consistency and produce fragile models with a rough surface finish. Making several different variations of a model is also time consuming, particularly if only one version of the model can be produced at a time.

The Stratasys J8 Series Solution:

Seven-material capacity minimizes material changes and enables the creation of models with incredible realism, including multimaterial printing. Super High Speed print modes increase the rate of production and depending on model size, several different variations can be printed in a single production run.

The capacity to load seven materials into the printer means the prototyping manager can load the materials he typically uses most, minimizing the need for changes when printing a variety of models. When a change is needed, larger-capacity 4 kg material cartridges result in less waste, saving time and material. This capability, combined with the generous tray size, allows him to make several different models with unique qualities in a single print job, creating prototypes faster and helping meet product development targets.

Prototyping consumer packaging is a perfect fit for the texture-mapping capability of J8 Series printers. The ability to add labels on models and print multiple iterations simultaneously lets designers make decisions more quickly and get products to market faster.

Setting the Standard in 3D Printed Realism

Challenge:
Universities need cutting-edge technology like 3D printing for research purposes and to attract top academic talent. This need is often shared across multiple departments, each with different goals and objectives. The result is often piecemeal acquisition by multiple departments of different types of technology with different learning requirements, limiting use and widespread adoption.

The Stratasys J8 Series Solution: *Full-color, multimaterial versatility to service creative needs from art to science and the easy-to-use functionality that accommodates new and experienced users of 3D printing.*

The versatility of J8 Series printers eliminates the need for multiple forms of technology and the requirement to learn how to use each of them. It simplifies the process of obtaining, using and maintaining these assets. It's also a perfect solution for establishing multi-disciplinary centers that service diverse departments within the university. Rather than purchase and support multiple technologies to cater to various departmental needs, J8 Series technology leverages the investment with the capability to support multiple departments, maximizing use and lowering cost.

These are just a few examples of how the J8 Series and J750 Digital Anatomy printers offers solutions to real problems and creates opportunities for improving the status quo in design, medical care and education.

This perfume bottle concept model printed on a J850 combines clear, colored and opaque elements created in a single print.

Reinventing Invention
Case Study

To create our favorite products, a team of designers, engineers and marketers go through countless design iterations, striving to build something consumers will covet, identify with, and use daily. From the light switch to the mobile phone, every desirable product results from inspiration, hard work and collaboration.

The team at **Synergy**, a product development company in Netanya, Israel, relies on the J750, the predecessor to the J850 printer, to transform bright ideas into viably manufacturable, marketable products.

“The first time the entrepreneur sees his idea and feels it in his hands, is a crucial moment. We need to give him the most realistic prototype possible,” said CEO Michael Librus. Dream designs can be rendered onscreen quickly, but functional prototypes can take weeks of investment in labor and outsourcing – especially when products have complex designs and diverse materials. Design ideas are embraced, refined or abandoned based on the look and feel of a prototype. So to hasten and sharpen that crucial decision-making, Synergy depends on the Stratasys J750 3D printer.

Stratasys PolyJet technology played a key role in Synergy’s redesign of a keypad for an emergency-response system used in the automotive aftermarket industry. The project meant producing multiple designs for the panel, which mounts above the rearview mirror, to test which would best fit the car’s interior and pass ergonomic and mechanical testing. Each iteration included soft-touch buttons, backlighting, graphics, a housing and internal connections to the electronic panel.

Before J8 Series multimaterial technology, Prototyping Manager Omer Gassner would have tapped several vendors to create a single keypad panel prototype: CNC machining and water printing for the body, casting for the light pipes, sanding for smoothness and then silicone engraving and additional printing for the buttons. It would have taken ten days to two weeks to create, at a cost of $700 per unit. With PolyJet multimaterial technology, it took just hours and cost $200 per unit.

Stratasys PolyJet technology gave Synergy’s designers the ability to prototype with multiple images to refine this phone charger sleeve design.

It would have taken ten days to two weeks to create, at a cost of $700 per unit. With PolyJet multimaterial technology, it took just hours and cost $200 per unit.

Printing multiple versions of this keypad saved Synergy days in development time and reduced the cost by 70% per item.

Reinventing Invention
Case Study

How Does The Stratasys J750 Compare with Traditional Methods To Prototype the Keypad Panel?	Cost	Lead Time
CNC machining plus post-processing	$700	Up to 2 weeks
Stratasys J-Series	$200	1 day
Savings	**$500 (71%)**	**9 business days (90%)**

Tamar Fleisher, Synergy art director, said clients appreciate the realism and responsiveness that the technology adds to product development. "Now our customers can make instant decisions about the ergonomics of a product – about the touch and feel – as well as test how it fits into its environment," Fleisher said. "The ability to simulate light transfer on the panel meant my client could decide about every detail of the design. And if a design change was needed I could go to my computer, make the design change and print it in a matter of hours."

Leveraging the Technology for Optimal Benefit

The versatile capabilities of the J8 Series let users do what they do best in a more time and cost-efficient way. More significantly perhaps, it provides a platform to develop new solutions, better products and inspired research by the designers, educators and doctors who use it.

Consider the scenario of a consumer electronics company that designs and manufactures portable earbuds. Achieving the best design happens much faster by leveraging the Super High Speed print mode and DraftGrey™ material, available on the J835 and J850, to quickly produce multiple concept models in a single print. Then, the best ideas can be refined with CMF models to mimic the final product by 3D printing them using the multicolor, multimaterial capability.

This has a positive impact on multiple departments and the overall product development process. For example, the engineering, design and rapid prototyping departments benefit from the quick feedback loop made possible through multiple prototypes produced in-house and overnight. This shortens the development cycle and gets new products into customers' hands more quickly.

The marketing department uses the hyper-realistic prototypes to communicate more effectively in promotional efforts and for user feedback on concept models for future products. Focus groups get to see and touch models that are virtually identical to final production parts in the way they look and feel.

Manufacturing takes advantage of the 3D printer to create specialized jigs, fixtures and other manufacturing aids quickly, with the ability to adapt and change tooling as the product design evolves. Tools are "stored" digitally and printed as needed, saving on storage space.

With this kind of broad-based application, the justification for a 3D printer gets easier because more departments benefit. In many cases, a 3D printer is purchased for one or two specific purposes. However, owners consistently report that once in-house 3D printing is adopted, it's used for a wider range of purposes, as people see and leverage its potential.

Realism, Productivity, Throughput

As the only true full-color, multimaterial 3D printer, J8 Series printers address the need for the highest degree of realism achievable from a 3D printing process. The printers' speed and capacity gives designers more time to iterate and provide more realistic models earlier in the design process, improving communication and decision-making. That ultimately results in better products.

The J850 - with Pantone® Validated color capability.

Doctors and medical engineers have the means to create hyper-realistic, patient-specific medical models for surgical planning, improving patient outcomes. Researchers, like those at MIT's Self-Assembly Lab, have the ability to program different material properties into a part's geometry, bringing 4D printing closer to reality.

Incredible Part Realism

A hallmark of the J8 Series is its full-color capability. The ability to 3D print with various colors is not new, but previous offerings forced users to sacrifice either color range or part quality. J8 Series printers change this by producing smooth parts with over 500,000 colors.

This color range is made possible because these printers operate with all of the colors in the CMYK color process plus white, enabling a virtually endless palette of shades to choose from. What's more, the printers are PANTONE Validated™, making the PANTONE MATCHING SYSTEM® available for the first time in a 3D printing solution. Choosing a Pantone color is a simple one-click operation, giving designers a valuable tool when communicating with color in the design process.

Color textures and gradients are also possible. Color texture capability means rigid opaque parts can be 3D printed with a variety of realistic patterns like wood grain, woven composites or even photographs and illustrations. Gradients allow a transition zone between colors that blend one into the other.

Realism, Productivity, Throughput

Models produced on the J8 Series can combine color with a variety of other material characteristics. VeroClear™ and VeroUltraClear™ materials provide a range of transparencies, from slightly translucent to completely clear. Rubber-like Agilus30™ material imparts flexible characteristics in different durometers.

In practical terms that means being able to produce a medical model with hard and soft materials in multiple colors and gradients. Or it could mean being able to produce more CMF models earlier in the design process, enabling better designs and faster product development.

One of the drawbacks of existing color 3D printing processes is the relatively rough surface finish that results. In contrast, J8 Series printers achieve very fine layer thicknesses, as low as 14 microns in High Quality print mode, enabling models and parts with high surface quality and very fine, delicate details.

Create concept models featuring multiple colors, textures and moving parts, all in a single build.

Realism, Productivity, Throughput

Unparalleled Capability

The J8 Series' robust material capacity accomodates input of up to seven base resins. And because PolyJet™ technology creates composite materials through a mix of base resins right on the build tray, the number of material options is far greater than the number of input materials. Those seven base resins yield hundreds of thousands of colors, translucencies and durometers.

Previously, no single 3D printer could deliver full color, smooth surfaces and multiple materials. A shop that wanted to achieve all of these qualities would have had to adopt multiple 3D printing technologies and still resort to extensive postprocessing, such as sanding, painting and bonding. Serving many needs with one system enables businesses to:

- Reduce the amount of rapid prototyping equipment onsite, and its associated overhead and points of failure
- Increase expertise and maximize use through familiarization with a single technology
- Protect investments against changing business needs, both cyclical and unpredictable

Print size is also generous, letting you create ample-sized parts or many smaller parts in one job.

Realism, Productivity, Throughput

Fast, Efficient Workflow And Ease Of Use

Using the printer is easy, starting with GrabCAD Print™ software, which lets you import native CAD files directly so there's no need to spend time converting them into STL files. Simply finish your model, open GrabCAD Print and drag the file in. Then select "print" to start the build. The software lets you easily check printer availability, queues and status, all from one window. And with the mobile app, you can check print status remotely on your mobile device. GrabCAD Print even fixes file problems like open meshes, so you can focus on more productive tasks.

Seven-material capacity is a considerable time and material saver. Multimaterial printers with less capacity need material changes for different colors or material types. This results in printer downtime and wasted material, made necessary to purge the system of the previous material. The larger material capacity lets an operator load their most-used materials and drastically reduce or even eliminate material changes, saving time and resources.

Productivity and design freedom is enhanced with the use of soluble support material. Soluble support can be removed by soaking the models in a cleaning solution, making it a hands-free operation. It also enables the the creation of models with small, intricate passageways and channels because the immersion process easily accesses these areas, which isn't possible with water jet hand cleaning.

Multiple print modes give you optimal print flexibility. High Speed mode creates models quickly using several different materials. Super High Speed mode goes even further, letting you print concept models in a single material for the fastest production possible. High Quality mode provides the most options for using multiple materials, colors and high resolution, for models with the most realism.

Realism, Productivity, Throughput

For rapid prototyping programs, this versatility is an opportunity to meet the diverse demands of your operation without the inefficiencies associated with material changes or the need to invest in, operate and maintain a variety of technologies. You can print realistic prototypes, presentation models, jigs, fixtures, educational and promotional pieces, production parts – or all of the above, with one system.

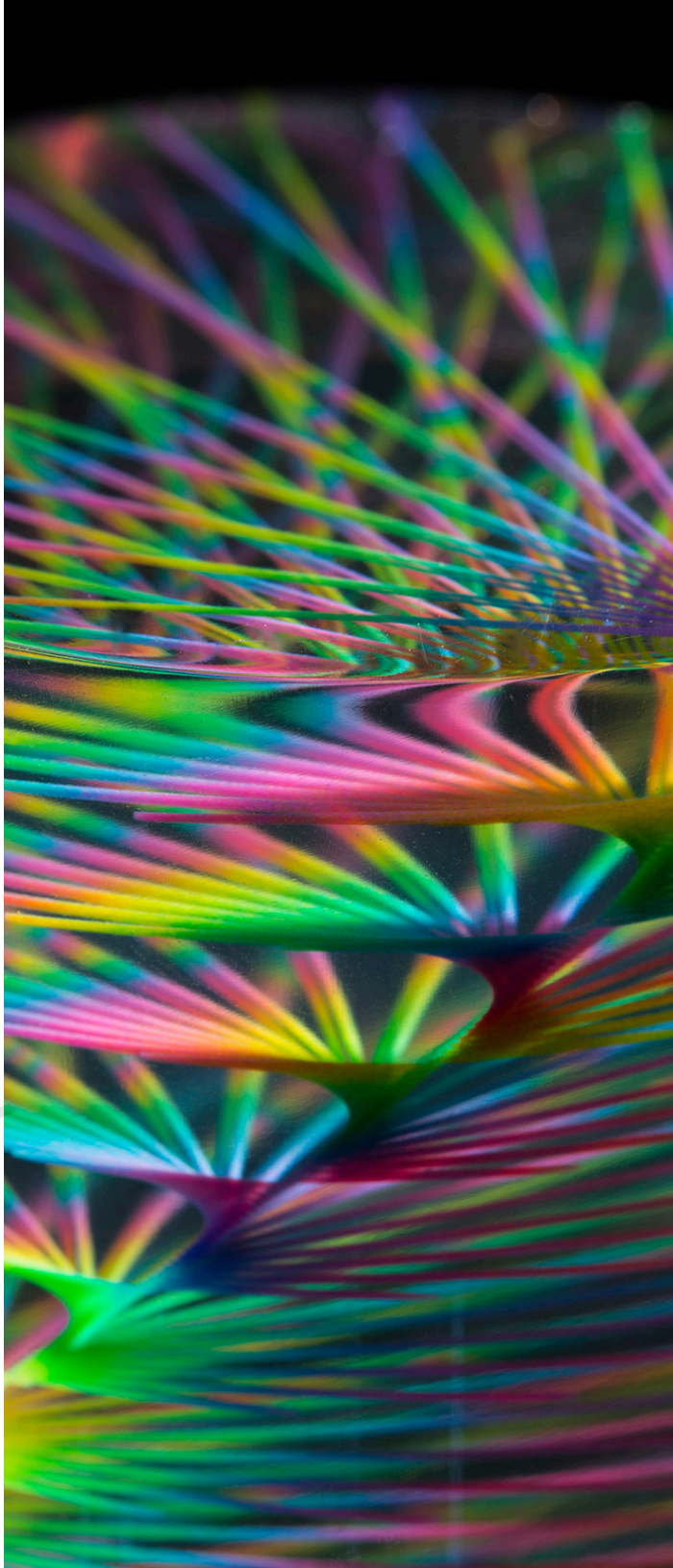
Material versatility also plays a significant role. Digital Materials offer functionality for prototyping and tooling applications. VeroUltraClear™ material replicates glass and acrylic, perfect for prototyping eyewear and lighting. Digital ABS Plus™ simulates durable engineering-grade ABS plastic and is used for prototypes that require a rigid, durable material. Agilus30 is an enhanced flexible material for simulated rubber applications. Superior tear resistance makes it appropriate for tubing and other fluid-flow applications, as well as prototypes involving living hinges and other use cases that need rubber-like characteristics.

Grabcad Voxel Print

GrabCAD Voxel Print™ utility enhances the value of 3D printing as a powerful platform for experimentation, discovery and innovation. Voxel Print is a print utility available on J8 Series printers that lets users control the attributes of their models and parts down to the individual voxel* level, within the complete 3D volume of the part. With GrabCAD Voxel Print, users can create their own model layer slicer or use existing third-party slicers and send that information directly to the 3D printer.

In simple terms, Voxel Print lets users dictate precise color and gradient management, for unparalleled control of a model's appearance. It gives users the capability to control a 3D printed part's internal material properties, something that's not possible with CAD modeling. It enables the development of advanced structures and digital materials.

In total, the combination of the J8 Series printers and GrabCAD Voxel Print gives artists, engineers and researchers unprecedented, voxel-by-voxel control over their 3D printed output.



*A voxel (short for volumetric pixel) is the smallest physical element of a 3D printed structure that defines both its position and physical characteristics.

Realism, Productivity, Throughput

3D printers with these capabilities are powerful tools, enabling creative solutions for diverse challenges that impact the medical, educational and consumer product industries. Regardless of what field you're in, consider the following questions:

- Would your organization benefit from a shorter product development cycle, and better designs through more effective communication?
- Could your caregivers achieve better patient outcomes by using accurate, realistic surgical planning and training models?
- Would your university benefit by attracting the best and brightest students and leading researchers through access to state-of-the art technology?

If you answered yes to any of these questions, the a J8 Series or J750 Digital Anatomy 3D printer can help you achieve these benefits.

For a closer look at these printers, visit the J8 Series and the J750 Digital Anatomy pages at Stratasys.com. Then, contact Stratasys when it's time to start the conversation about how this technology can solve your business and educational challenges.

The Stratasys J850.

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