



News Release

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3D Systems Digital Manufacturing Solutions Aid International Effort to Rehabilitate Abused Toucan Featured in Animal Planet's TOUCAN NATION

- End-to-end solutions enable design and development of 3D printed beak prosthetic for wounded bird
- Story to be featured on Animal Planet documentary *Toucan Nation*, airing Wednesday, August 24, 2016 at 10PM ET/PT

ROCK HILL, South Carolina, August 22, 2016 – [3D Systems](#) (NYSE:DDD)

announced today that its digital manufacturing solutions played a crucial role in the rehabilitation of Grecia, a toucan in Costa Rica that lost the majority of its upper beak as the victim of a senseless act of cruelty. The attack on Grecia not only left the toucan unable to feed and fend for itself, but it sparked a national animal welfare campaign in Costa Rica that spread rapidly across the globe. 3D Systems assisted Grecia's rehabilitation along with [Grupo SG](#), a 3D Systems partner and reseller, by helping to devise a custom prosthetic for the injured toucan using the company's end-to-end digital manufacturing solutions.



Grecia's upper beak prosthetic was printed on the ProX® SLS 500 in DuraForm® ProX PA plastic

Grecia's recovery and the international movement against animal cruelty generated by this attack as well as the efforts in Costa Rica to change animal protection laws are documented as part of the Animal Planet Presents film, *Toucan Nation*. Presented in association with Humane Society International and H/3 Foundation,

TOUCAN NATION premieres Wednesday, August 24 at 10 PM ET/PT on Animal Planet.

Because a toucan's beak is a critical instrument of survival, Grecia's attack not only shattered the hard, hollow portion of the upper beak, but it stripped Grecia of autonomy as well. Following the attack, Grecia was taken to ZOOAVE Rescue Center in Costa Rica, where over 2,500 birds, mammals and reptiles are admitted each year. Although many birds in Grecia's position usually face euthanasia, the veterinarians were moved by Grecia's visible determination to live. Yet given the immense workload of the center, committing to daily nursing and care was not a feasible option. In need of a better solution, the ZOOAVE staff turned to 3D Systems for help creating a 3D printed prosthetic beak.



3D scanning and 3D design software were integral to restoring Grecia's anatomy and autonomy

Alongside a group of Costa Rican product designers, dentists and nanotechnology experts, 3D Systems collaborated with the center to pair the best prosthetic design with the best available materials and technology. In addition to fitting Grecia's residual anatomy, the beak needed to be strong, biocompatible and have a smooth surface finish that would not promote contamination or encourage bacteria growth. These structural and material demands led the team to choose Selective Laser Sintering (SLS) with [DuraForm® ProX PA](#) plastic on the 3D Systems [ProX® SLS 500](#).

Grupo SG took 3D scans of Grecia's damaged anatomy as well as of a reference beak from an unharmed toucan. These scans were then sent to 3D Systems for reverse engineering into an attachable prosthetic beak with custom mechanical components for comfortable wear. Using [Geomagic Wrap®](#) software, 3D Systems transformed the 3D scan data into feature-based CAD models. These models were imported into [Geomagic® Freeform®](#) for organic 3D modeling to combine, add and remove the elements required. Final inspection was performed using [Geomagic® Control™](#) before the file was printed, finished and fitted.

Striking a balance in durability, weight and function, Grecia was outfitted with his new prosthetic beak a few weeks later. Having never approached a design problem of this nature, industrial designer Alfredo González Singleton was pleased with both the process and results. “To be able to join the knowledge with the need using this technology is just fabulous,” Singleton said.

“The flexibility of our end-to-end digital manufacturing workflow is critical in these kinds of applications that venture into uncharted territory,” said Chuck Hull, Co-Founder and Chief Technology Officer, 3D Systems. “We are delighted our technology could play such an impactful and beneficial role to help this cause.”

Grecia is now able to preen and eat without assistance thanks to his 3D printed prosthetic beak and is a favorite among the residents at ZOOAVE Rescue Center.

About 3D Systems

3D Systems provides comprehensive 3D products and services, including 3D printers, print materials, on-demand manufacturing services and digital design tools. Its ecosystem supports advanced applications from the product design shop to the factory floor to the operating room. 3D Systems’ precision healthcare capabilities include simulation, Virtual Surgical Planning, and printing of medical and dental devices as well as patient-specific surgical instruments. As the originator of 3D printing and a shaper of future 3D solutions, 3D Systems has spent its 30 year history enabling professionals and companies to optimize their designs, transform their workflows, bring innovative products to market and drive new business models.

More information on the company is available at www.3dsystems.com