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World's first compact rotary 3-D printer-cum-scanner

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Source: Nanyang Technological University

Summary: The the world's first compact 3-D printer that can also scan items into digitized models. will be delivered to the United States in March. This user-friendly device allows users without much knowledge of 3-D software to scan any item, then edit the digitized model on the computer and print it out in 3-D.

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With production funded by crowdsourcing, the first unit will be delivered to the United States in March.

Nanyang Technological University's (NTU Singapore) start-up Blacksmith Group today launched the world's first compact 3D printer that can also scan items into digitised models.

Named the Blacksmith Genesis, this user-friendly device allows users without much knowledge of 3D software to scan any item, then edit the digitised model on the computer and print it out in 3D.

The all-in-one 3D printer and scanner whose production was financed through a crowdfunding campaign on Indiegogo. com, was unveiled today at the American Association Advancement of Science (AAAS) Annual Meeting in San Jose, California.

The first batch is now ready to be shipped out in March to early adopters who supported Blacksmith Group's crowdfunding campaign.

Innovative design with several firsts

Housed in a black aluminium casing, the high-tech device weighing 6 kilograms features a 2-inch LCD display, Wi-Fi, an integrated SD-card reader and a USB connection for instant printing.

Blacksmith Genesis uses an innovative rotary platform for its printing and scanning, unlike other commercial 3D printers. This patent-pending revolving platform allows for true 360-degrees scanning, and can print items up to 6,650 cm3 (about 6.5 litres), twice the size of those printed by other similar-sized 3D printers in the market.

With a fine resolution of 50 micrometres, the reproductions will be twice as detailed compared to other compact 3D printers. Likewise, scanning of objects with its 5 megapixel camera takes only 6 minutes, twice as fast as other 3D scanners in the market.

Blacksmith Genesis is also the first to feature remote live monitoring and automatic error detection thanks to its in-built camera. This allows users to monitor and control the printing process on their smartphone from anywhere in the world through the Internet.

The device is the brainchild of Blacksmith Group's founders, NTU engineering graduate Dr Alex Pui Tze Sian and Mr Fang Kok Boon. Mr Fang, CEO of Blacksmith Group, said their aim is to make 3D printing easy and accessible to the average consumers.

"We designed Blacksmith Genesis with the average hobbyist in mind. Most 3D printers sold on the market now are not really user-friendly as their 3D models and blueprints usually have to be designed from scratch on the computer.

"However, with our device, 3D printing will be fuss-free as users won't need to design an original work from scratch as they can just use our Blacksmith Sorcerer 3D software. By scanning any physical item, they can immediately copy and print the item or use the digitised object as a base to form their own 3D object."

Start-up mentored by top scientist in 3D printing

"3D printing is a disruptive innovation that has revolutionised the manufacturing and biomedical industries," Prof Chua said. "While low-cost 3D printers are available, they are still very hard to programme and assemble. Having an affordable, high-quality 3D printer that is easy to use is what the market is missing and this is where Blacksmith Group will bridge the gap," he added.

"Blacksmith Genesis with its unique rotary platform design is a great example of how scientists can bring innovations from the lab to the industry and in this case, all the way into consumers' homes. It has always been my wish that 3D printers will be as common as the inkjet and laser printers now found in many homes and offices."

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The start-up had successfully completed their crowdsourcing campaign last August, raising over US$80,000. It is funded by the Interactive Digital Media (IDM) Jump-start and Mentor programme (i.JAM), and the National Research Foundation, Prime Minister's Office, Singapore.

The Blacksmith Genesis is now available for pre-order online at the price of US $2,200, with a flat rate of US $150 for shipping to 70 countries worldwide.

Story Source:

The above story is based on materials provided by **Nanyang Technological University**. *Note: Materials may be edited for content and length.*

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