3-D Printing a Goo Goo

Conceive and build your own tasty designs with sticky food or clay.

If researchers at the Cornell Computational Synthesis Lab have their way, printers bound by the laws of a two-dimensional world could become obsolete. They've developed an inexpensive three-dimensional printer called a fabber that's ready to go to work in your home or classroom.

A fabber enables you to do rapid prototyping safely and inexpensively. Using computer-aided design or geometric modeling software, you design an object—maybe a spare wheel for a toy truck or an innovative toothbrush—you click Print, and your fabber goes to work.

Instead of using ink or toner, the printer uses a variety of gooey substances that harden when exposed to air. In fact, edible things like peanut butter, chocolate, and cheese are popular with fabber aficionados. Whatever substance you choose, the printer methodically builds your 3-D object from the ground up, right before your eyes.

At California's Art Center College of Design, instructor Michael Berman recently ordered a fabber to use with his industrial design students so they can create models. Might a fabber have a place in K-12 education? Absolutely. In fact, the printers have some features that could make them an ideal tool to use in 21st-century classrooms. First, they're inexpensive, and because they can be used with benign substances such as clay and food, fabbers can be used safely by young children.

Perhaps most important, the device is transparent, literally and figuratively. Unlike your inkjet printer, the fabber has a clear case. You can watch everything take place.

In addition, fabbers are open source tools, which means you have access to their design specifications and can modify them and develop your own improvements.

Because of this transparency, fabbers can help children learn about manufacturing, robotics, and engineering—all crucial elements if our economy is going to sustain creativity in manufacturing and technological design.

"It opens up a whole new application space," exclaims Hod Lipson, one of the creative minds behind the fabber. Lipson says he worries that we are losing our ability to invent new technology. "Modern things are difficult to take apart. You can't take your MP3 player apart to see how it works. We're getting detached from technology. It's just this mystical thing."

The fabber could help demystify technology and enable students to enter new realms of technological understanding and creativity. Plus, fabbers are just plain fun.

Want to learn more: Visit the lab's Web site at http://ecsl.mae.cornell.edu. Or you can visit the wiki at fabathome.org and learn how to obtain a ready-to-assemble or pre-assembled fabber.

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