NASA Langley Research Center
Center Innovation Fund

"Touch" Ideas through 3-D Desktop Personal Fabrication

Nancy Holloway

Nancy Holloway in the 3D Desktop Printing Lab

A unique facility has been set up at NASA Langley Research Center thanks to the Center Innovation Fund and a creative idea by researcher Nancy Holloway. It's an additive manufacturing lab that allows researchers from across the Center to fabricate low cost hardware using 3-D desktop printing systems.

The lab currently houses five printers and is equipped with a small drill press, soldering station, hand tools and personal protection equipment. Computer stations with internet access are also set up to enable the downloading and modification of drawing files.

Because this form of additive manufacturing is extremely cost effective, the lab provides users with the ability to make iterative modifications to parts until they work properly. This process helps to ensure successful form, fit and function tests.

Parts created in the lab are also useful for explaining ideas.

"People will talk about a product or throw up a Powerpoint slide to try and describe something, but physically making a part and being able to hold it, touch it and move it around when describing it really aids in communicating the idea of what it is you want to grow, design and build" said Nancy Holloway, Principal Investigator for the project.

Another unique quality of the lab is that clients are allowed to fully hack any of the machines to fit their needs.

"If you want to expand the build volume or put a heater on it so you can extrude higher temperature materials, you can. These are kinds of things you may want to change and we allow you to, so you can produce the results you need" explained Holloway.

An object created in a 3-D desktop printer

The lab's stations can be scheduled in two day blocks, during which the client has full access. The goal is to give people the ability to work around their schedule without worrying about losing access to the lab while they are working on a project.

In the future, the team hopes that they can expand the lab and continue to provide fabrication opportunities to Langley researchers that have not been available to them before.