Beyond the trinkets: Voxel8 shows 3D electronics printer

13 January 2015, by Nancy Owano

Beyond plastic angel paperweights and keychain elves, how complex can complex be in today's output from 3D printers? Voxel8 says they have the world's first multi-material 3D electronics printer, the nature of which can give the imagination a workout.

"Voxel8 3D printer can print a complete quadcopter, including the circuits," said *Geek.com*'s headline about the company announcement. Matthew Humphries of *Geek.com* said the printer can create both the object and the circuitry required to power/control. The company showed the 3D printer at CES; the big deal is that designers and engineers can create three-dimensional parts with embedded circuitry. Voxel8 also announced a partnership with Autodesk to develop Project Wire for creating 3D electronic devices printed on Voxel8's platform. Project Wire is a software tool for designing 3D printable electronic devices, rapidly fabricated using the Voxel8 3D printer. This is a browser-based tool. Project Wire features a library of components, tools for 3D wiring, and integration for printing.

Voxel8 said that "Together with our software partner, Autodesk, we have developed new software for all stages of the 3D printing pipeline, from design through to machine control." The breakthrough is that Desktop 3D printers today are constrained to printing thermoplastics or UV resins. Now, with Voxel8's 3D printer, one can co-print matrix materials such as thermoplastics and highly conductive silver ink.

The desktop 3D electronics printer has dual material capabilities—combining a Fused Filament Fabrication (FFF) printhead with a conductive silver ink printhead. The printer has a l4.3" color touch screen that provides printer status. For advanced users, not only can print parameters be monitored on the touch screen, but also can be dynamically updated mid-print.

This enables customized electronic devices such as quadcopters, electromagnets and fully functional 3D electromechanical assemblies. Now, said the company, you can design the electronics to fit your part, rather than designing the part around the electronics. What is more, the company said their first generation inks were 5000x more conductive than conductive pastes and filaments currently used in 3D printing.

A rep at CES was on hand with a demo unit ,where they printed a quadcopter. The rep told Mike Senese, executive editor of *Make*, that they developed the printer from the ground up; the process involves use of traditional technology along with conductive paste extrusion of their conductive material. "So we co-print both the plastic and the conductive material layer by layer to build up our 3D circuit." (According to the company, they leveraged years of research from the Lewis Group at Harvard University to create highly conductive inks that can be printed at room temperature and integrated with an array of matrix materials.)

The Voxel8 Developer's Kit ($8,999) is available on pre-order. Full details about what are included are

available on the company website. A limited release of the Developer's Kit will be shipped in late 2015.

More information: — www.voxel8.co/

— www.businesswire.com/news/home …oxel8-Launches-World%E2%80%99s-3D-Electronics-Printer-CES#.VLRKiNXF_SY

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