

# 3D Prototyping Technology Cuts Manufacturing Time, Costs

Bowling Green State University



Ceramics are typically manufactured using prototype negative molds. Creating the mold is a time-consuming step that adds extra cost to the manufacturing process.

Faculty at Bowling Green State University (BGSU) in Bowling Green, Ohio, have developed a rapid prototyping technology that uses a digital file to directly create durable ceramic products that can be glazed and fired in a kiln, without the need for a negative mold.

“*This technology eliminates the need for an elaborate manufacturing process while enabling the production of a wide variety of ceramic parts.*”

The construction of ceramic objects from digital models technology was developed in 2005-2006 by John Balistreri, Sebastien Dion and Amber Reed. Funding of \$50,000 was provided by the BGSU Office of Sponsored Programs and Research. The research team invented specific ceramic recipes and binders that, when used in a rapid prototyping machine, produce fully functional and durable ceramic objects. This technology eliminates the need for negative molds in the manufacturing process. It can produce an unlimited variety of precision, inert and heatresistant ceramic parts,

including insulators, gaskets, filters and engine parts.

Architects and designers can create ceramic components directly from digital drawings of portions of walls, floors, and details of custom patterns in 3-D relief without going through an elaborate production process. Archaeologists, paleontologists, and restorers can also use this technology to quickly complete, reconstruct, or repair ancient fossils or artifacts through 3-D scanning and modeling techniques.

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