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Stratasys and Oak Ridge National Laboratory Partner to Advance Additive Manufacturing

Joint Development Initiative Will Focus on Developing Stratasys FDM Technology at Oak Ridge National Laboratory's Manufacturing Demonstration Facility

MINNEAPOLIS--(BUSINESS WIRE)-- 3D printer maker Stratasys (NASDAQ: SSYS) announced today a joint initiative with the U.S. Department of Energy (DOE) at Oak Ridge National Laboratory (ORNL) to develop fused deposition modeling (FDM) additive manufacturing for production use.

One target of the initiative is to develop in-process inspection for fused deposition modeling (FDM) systems that assures part quality and suitability for service. (Photo: Stratasys)

The initiative builds upon a strong collaboration that leverages ORNL's Manufacturing Demonstration Facility (MDF) to foster energy efficient production using additive manufacturing materials and processes. Described in this video, the project aims to develop FDM additive manufacturing technology to make it a mainstream manufacturing process. The project targets two main objectives: 1) development of in-process inspection to assure part quality and suitability for service, and 2) development of carbon fiber reinforced FDM feedstock materials to produce strong, lightweight components.

Weight reduction has a major impact on fuel consumption. For example, on a commercial aircraft, a 500-pound weight reduction results in a quarter-million-dollar savings in fuel costs each year.

The overarching goal of the DOE initiative is to reduce the energy usage of U.S. industry, commercialize new products more quickly, and revitalize the global competitiveness of U.S. manufacturing.

"The research and development done at the MDF allows us to explore innovative ideas in next-generation materials and manufacturing technologies to help U.S. industry," says Dr. Lonnie Love, Distinguished Research Scientist and Group Leader for Automation, Robotics and Manufacturing at ORNL. "The project with Stratasys will lead to commercialization of new products that will ultimately make U.S. manufacturing more competitive and energy efficient."

Beyond reducing energy use via lighter-weight transportation vehicles, the additive manufacturing or 3D printing process itself is more efficient than traditional subtractive manufacturing processes, such as machining parts or machining production tools and molds.

"The additive process can reduce the energy impact of manufacturing," says Stratasys Vice

President of Direct Digital Manufacturing Jeff DeGrange. “It reduces material consumption, waste streams, large investments into metal tooling, warehouse costs and transportation costs. You don’t have to bring in material just to machine 75 percent of it away as with traditional manufacturing. Additive manufacturing deposits material only where it’s needed to grow a part.”

Manufacturing is a major component of the U.S. economy, accounting for 11 percent of GDP ($1.5 trillion), more than 12 million jobs, and 57 percent of U.S. exports. But while U.S. innovation remains strong, most companies don’t have the leading-edge R&D facilities and services that help to commercialize new ideas.

“The initiative with Oak Ridge presents a significant opportunity, particularly in the aerospace and automotive industries, to enable lightweight high performance products to reach the market quicker and at lower costs,” says DeGrange.

Multimedia resources and web links:

Photo 1 Oak Ridge National Laboratory

Photo 2 Stratasys Fortus 900mc Production 3D Printer

Photo 3 Carbon fiber aircraft access door

Initiative Video: video

Fused Deposition Modeling details: FDM

Stratasys Website: www.Stratasys.com

Oak Ridge National Labs Website: http://www.ornl.gov/

Stratasys Inc., Minneapolis, is a maker of additive manufacturing machines for prototyping and producing plastic parts. The company markets under the brands Mojo, uPrint and Dimension 3D Printers and Fortus Production 3D Printers. The company also operates RedEye On Demand, a digital-manufacturing service for prototypes and production parts. Stratasys manufactures 3D printers for Hewlett Packard, which it sells under the brand Designjet3D. In 2011 Stratasys acquired 3D printer maker Solidscape Inc. According to Wohlers Report 2012, Stratasys had a 41.5 percent market share in 2011, and has been the unit market leader for the tenth consecutive year. Stratasys patented and owns the Fused Deposition Modeling (FDM®) process. The process creates functional prototypes and manufactured goods directly from any 3D CAD program, using high-performance industrial thermoplastics. The company holds 380 granted or pending additive manufacturing patents globally. Stratasys products are used in the aerospace, defense, automotive, medical, business and industrial equipment, education, architecture, and consumer-product industries. Online at: www.Stratasys.com

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