Large-scale 3D printing with multimaterials and recycled composites

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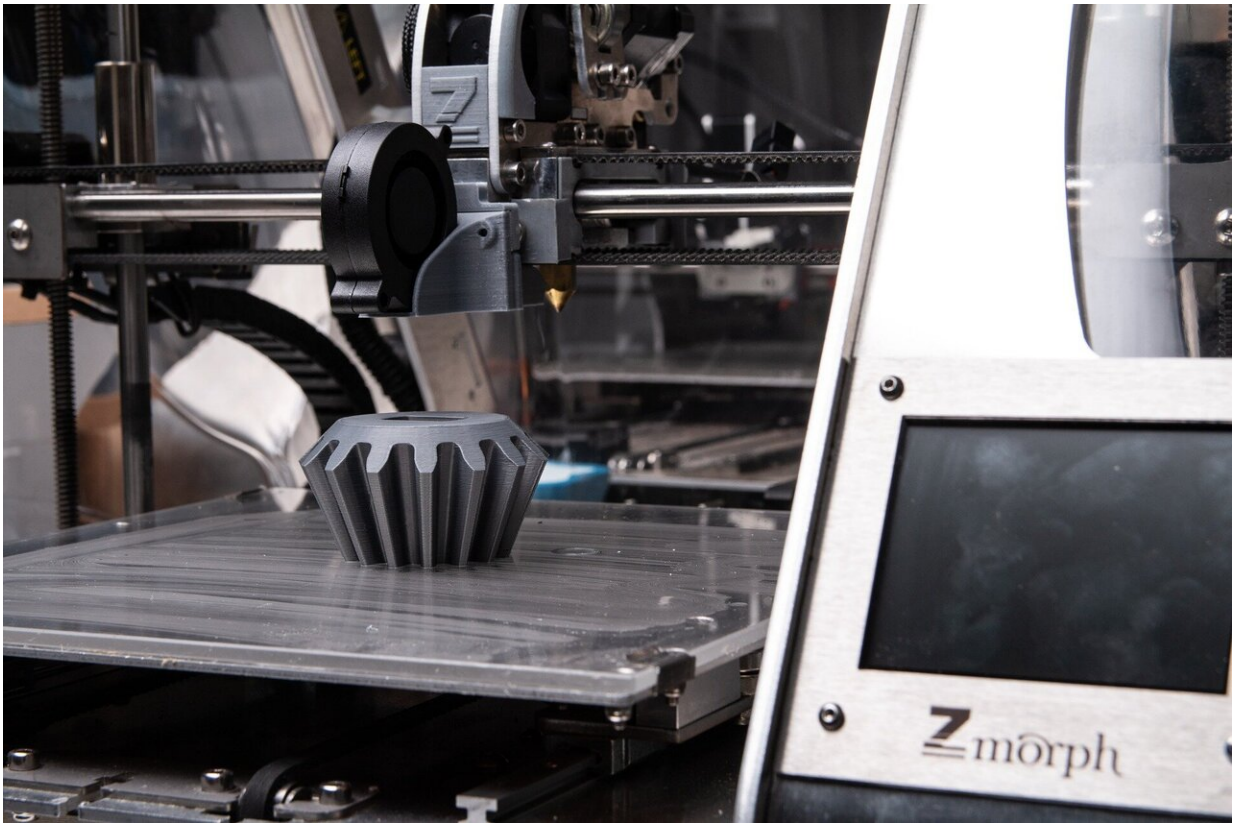

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Oak Ridge National Laboratory researchers, in collaboration with Cincinnati Inc., demonstrated the potential for using multimaterials and recycled composites in large-scale applications by 3D printing a mold

that replicated a single facet of a precast concrete tool.

The team added a dual feed system to the Big Area Additive Manufacturing machine that enabled printing with multiple materials in a single build using one extruder. Within seven hours, the large 3D printer produced a 400-pound mold measuring 10 feet in length made of recycled carbon fiber reinforced thermoplastic and syntactic foam.

Large-scale printing with multimaterials and recycled composites is anticipated to lower the cost of tooling and open opportunities for printing structures with lightweight cores and tailored properties.

"New mechanical responses can be achieved with multimaterial printing such as soft and rigid segments within a part and impact resistant structures," said ORNL's Vidya Kishore.

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