



ON THE ROAD AGAIN

Lightning Hybrids relies on 3D printing to save time, money, and the environment

Pedal to the metal

In a time when people are becoming more conscious of how their choices and behaviors affect the environment, the sight of a large delivery truck or city bus belching fumes can prompt some steely stares. Lightning Hybrids is on a mission to ease that environmental burden by developing a hydraulic hybrid for trucks and busses. The goal of their system is to help the biggest vehicles on the road save fuel, reduce emissions, and save money.

Hydraulic hybrid vehicles, or HHVs, use pressurized fluid as part of their power source. Hydraulic hybrids recover a vehicle's kinetic energy during braking and decelerating, and for trucks and buses, this equals a significant cost savings. But in order to create these hybrids,

"As a small engineering company, we have to move quickly to survive. Redesigns need to happen fast for us to meet our deadlines."

Jonathan Reynolds, Senior Controls Engineer
Lightning Hybrids

Lightning Hybrids needed a quick and efficient way to render parts, and they found that the wait time for metal milling was cutting into their bottom line.

Lightning speed

“As a small engineering company, we have to move quickly to survive,” says Jonathan Reynolds, Senior Controls Engineer. Lightning Hybrids turned to LulzBot to help them reduce manufacturing time for new and redesigned parts.

With their TAZ desktop 3D printer, the engineers at Lightning Hybrids were able to speed up the company’s prototyping to verify parts’ form and fit. Lightning Hybrids capitalized on a common theme found among 3D printing fans – additive manufacturing is faster and cheaper than metal manufacturing.

“If a prototype part came back from an outside machine shop and it didn’t fit, it would push us behind schedule,” Reynolds says. Using TAZ, Lightning Hybrids was able to manufacture those redesigned parts quickly so the company could meet deadlines.

Building a community

Lightning Hybrids can now, instead of spending days waiting for a metal part, print a plastic part in a few hours and check it to make sure it’s exactly right. The company can catch mistakes before spending the time and money to manufacture the final metal product.

Lightning Hybrids didn’t stop finding efficiencies there. They’ve also been able to make a few needed plastic parts using their TAZ instead of tying up time on their mill.

“We’re also big fans of Libre Hardware,” Reynolds says. “As engineers, we’re excited to make unrestricted improvements to the TAZ and then submit them back to LulzBot and the community.”

Faster prototyping, reduced waste, and a healthier environment: TAZ is making a difference in the world, one plastic piece at a time.

Lightning Hybrids At a Glance

www.LightningHybrids.com

Industry

Automotive Hybrid Design

3D printing application

Prototype verification

Key Challenges

High price and lost time sending a design out to be prototyped

Key Benefits

3D printing saves time and money; instead of sending a design out to be built or building it internally with a CNC milling machine, we can create the prototype quickly and efficiently.

3D Printing Software tool chain

Pro/Engineer Creo, Slic3r, Raspberry Pi Using PrintRun

Material(s) used to print

ABS

Operating System/computer system

Windows 7 and Raspberry Pi running Raspbian

For more information on 3D printers, parts, and plastics,

+1-970-377-1111 | sales@lulzbot.com

123 SW 12th Street, Loveland, Colorado 80537 USA

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