

Rapid prototyping and product testing with Ultimaker



"We needed a way to quickly churn out more parts for prototyping. Our Ultimaker machines easily handled printing half a dozen in different colors, which allowed everyone on the team to test the headphones for design, function, and usability."

— **Joe Titlow**,
Head of Sales and Marketing, BOSEbuild

With Ultimaker 3D printers, the BOSEbuild team could achieve extensive testing on a crucial part in the early design stages.

BOSEbuild

discover how your world works

Company

BOSEbuild, a division of Bose Corporation

Industry

Technology

Challenge

BOSEbuild needed a quicker, more cost-efficient way to design and redesign parts for their BOSEbuild headphones, which averaged \$35 per part to outsource and required three days to complete.

Solution

After incorporating Ultimaker into their workflow, BOSEbuild reduced their prototyping costs to a mere \$1-\$2 per part at just a few hours of 3D printing, leaving ample room for product testing.

Results

- Rapid iterations for acoustics tuning
- Wearability for immediate feedback
- Product testing across departments
- Savings from in-house 3D printing

BOSEbuild, a division of Bose Corporation - Introduction

Within the emerging business division of Bose, the BOSEbuild team of engineers, operations, finance, and marketing professionals works to create high-quality products that provide invaluable experiences for children. These products allow children to explore the science behind speakers and headphones, with build-it-yourself kits that educate young minds about the speed of sound and how to maintain healthy hearing. As the BOSEbuild team set out to design their BOSEbuild Headphones, they quickly realized that the yokes, which attached to the ear cups, were a vital part of early product testing and required multiple iterations.

After initially using the Bose prototyping service to create the yoke, the BOSEbuild team saw a need for multiple yokes that would enable product testing across multiple departments. The solution of 3D printing not only saved them about \$30 per part, but it also cut down on waiting time. Instead of waiting three days, the BOSEbuild team had a new yoke in three hours. With Ultimaker on hand, they could create essential prototyped parts quickly and efficiently for testing by the acoustics team, the app team, and the firmware team, expediting early development and design processes.

Challenge

Although they initially used the Bose prototyping service to create their master part, the BOSEbuild team realized they would need more than one yoke to more efficiently test their product. They needed a way to create headphones that looked and felt like the desired end product, with full functionality to work with other parts.

Solution

With the addition of two Ultimaker 3D printers, they were able to create yokes that were flexible enough to survive testing by the app team, firmware team, and acoustics team. With the time saved by incorporating Ultimaker into their workflow, the BOSEbuild team could focus on results while creating the best products possible.

Results

According to Joe Titlow, Head of Sales and Marketing at BOSEbuild, “We needed a way to quickly churn out more parts for prototyping. Our Ultimaker machines easily handled printing half a dozen in different colors, which allowed everyone on the team to test the headphones for design, function, and usability.”

	In-house Ultimaker 3D printers	Outsourcing
Costs per iteration	\$1-2	\$30-\$40
Time per iteration	3 hours	3 days



The ability to 3D print functional prototyped parts allowed the BOSEbuild team to test product usability and improve the overall look of their headphone yoke.



With in-house 3D printing on Ultimaker, BOSEbuild not only cut down on costs but also time, which gave them greater flexibility to iterate product and part designs.



The 3D printed parts meant that early marketing research and immediate feedback from their target audience was possible with functional prototype testing.

About Ultimaker

Ultimaker has been in operation since 2011, and over the years has grown to become a market-leader; creating powerful, professional, and accessible desktop 3D printers with offices in the Netherlands, New York, and Boston, plus production facilities in Europe and the US. Ultimaker's team of over 300 employees continually strives to offer the highest-quality 3D printers, software, and materials on the market to accelerate the world's transition to local digital manufacturing.

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