

Quick and cost effective custom parts for urban farm hydroponics system



“Professional desktop 3D printers are so cost effective now that you don’t need to look at the cost per part beyond the cost for filament. And it is affordable to build small production batch runs with printed parts, something that five years ago was impossible.”

— Andrew Shearer, CEO / Co-Founder, Farmshelf

Ultimaker 3D printers made it possible for Farmshelf to install and maintain functioning beta units of their automated hydroponics systems in public view at Grand Central Station (New York City)



Company
Farmshelf

Industry
Urban Tech Startup, Hydroponics, Urban Agriculture

Challenge
Farmshelf’s flagship product had significant engineering requirements for mounting brackets, cable and air management, and plant housings; which could not be accomplished with off-the-shelf parts. Given the quantity of customized iterative parts required while validating their solution, traditional fabrication methods would have been too expensive for the company to sustain growth.

Solution
Using Ultimaker’s professional desktop 3D printers, Farmshelf can continue evolving custom part designs, while also meeting production demands for active experiments and beta units already in the field.

Results

- Tough functional prototypes, suitable for long growing cycle tests
- Affordable onsite solution for custom design iteration and production needs
- No obstacle to demonstrating functioning beta units to end users and investors

Farmshelf - Introduction

Locally grown food is better for our health and for the environment, though most of it travels over 1,500 miles between farm and consumption. To cut back on transportation time, the Farmshelf team is creating a way for individuals to grow their own food where they live, work and commune: a fully-autonomous, highly productive urban tech farming solution. Cultivating produce worthy of a farm-to-table restaurant—within a footprint the size of a freestanding bookcase—was achievable once they sought a solution to common production problems. Using Ultimaker 2+ professional desktop 3D printers, Farmshelf iterate designs and harvest entire sets of hundreds of functional custom parts, which would not have been easy or affordable to produce using any other fabrication technologies.

Challenge

Traditional custom parts and low-quantity manufacturing methods require initial setup costs for each individual design. Materials and service costs for meeting production needs on new Farmshef units, along with requirements to plan ahead and anticipate future supply demands, all required considerable upfront investment in parts. Additionally, common manufacturing solutions for producing sets of custom parts were not an option until product development was complete and full production scale had begun.

Solution

Ultimaker professional desktop 3D printers allowed Farmshef to continue evolving custom part designs, while also meeting short-run production needs for early adopter units already installed in full public view. Incorporating Ultimaker into their processes provided a cost-friendly solution that streamlined the testing and prototyping stages of production.

Results

The Farmshef team were able to produce tough, functional prototypes suited to their long growing cycle tests, while enjoying a more affordable way to iterate custom parts. Ultimaker desktop 3D printers met their low-volume production needs as they continued to build and deploy more beta units to highly visible public sites. Without access to professional desktop 3D printing, the unique opportunities presented by this innovative product may never have seen the light of day.



Producing inexpensive desktop 3D printed custom parts permits immediate testing for entire growth cycles — to validate a design pathway based on real-world data.



Having on-site part design and production in the same facility eliminates the delays associated with traditional manufacturing and parts sourcing.



3D printing sidesteps obstacles that restrict the form and function of traditionally manufactured products, encouraging teams to use their design freedom to tackle tough real-world problems.

About Ultimaker

Since 2011, Ultimaker has grown to become a leading brand, creating accessible, professional desktop 3D printers. The company has offices in the Netherlands, New York, and Boston, with production facilities in both the U.S. and Europe. With a growing team of over 200 employees, plus over 24,000 active community members, Ultimaker strives to deliver the highest-quality 3D printers, software and materials, without compromise.

General inquiries: info@ultimaker.com
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