MakerBot

METHOD | Case Study

Solarlytics is on a mission to take the solar power industry to new levels by advancing solar cell efficiency.

ADVANCING SOLAR TECHNOLOGY WITH THE HELP OF 3D PRINTING

California-based startup Solarytics uses the MakerBot METHOD platform to create optimized testing rigs for its cutting-edge solar panel technology

THE CUSTOMER

Solarlytics is a 5-year-old startup in Livermore, California that specializes in improving the output of existing in-place solar panels. The company is developing a new technology that provides a significant uplift in solar energy output from existing solar panel infrastructure. It is working toward developing a product for the market and is currently engaged in research, testing, and product engineering.

THE CHALLENGE

The process of loading oddly-shaped and heavy (80+lbs) solar panels onto a testing rig is both awkward and labor-intensive. Previously, this process required multiple personnel and lots of space for testing to take place. There was also the risk of damaging and scratching the solar panel by dragging it to and from the flash test machine.

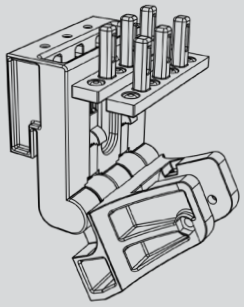
Co-founder Doug Raymond and his team started out with cheaper desktop 3D printers, but quickly found the trial and

KEY TAKEAWAYS

- Stealth-mode startup on a tight budget turned to 3D printing for fast part development.
- CNC machining of wheel clamp fixture for moving delicate 80lb solar panels would have cost around $10,000 per iteration.
- Adopting METHOD and METHOD X allowed Solarytics to produce the same parts in days instead of weeks and at less than $100 per part.

SOLAR PANEL WHEEL CLAMP ASSEMBLY

CAD to Part Time	48 hrs
Part Cost	$83
Size	12cm x 10cm x 10cm
Printed on	METHOD X
Model Material	MakerBot ASA
Support Material	Stratasys® SR-30



error of calibration and reprinting to be extremely time-intensive and frustrating. Complex assemblies with tight tolerances were nearly impossible to print. The alternative of outsourcing for the part could cost up to $10,000, a price that would not allow for multiple iterations.

THE SOLUTION

In early 2019, the team invested in a MakerBot METHOD 3D printer based on its ability to print complex geometries with dissolvable support material.

Says Doug Raymond, engineer and co-founder of Solarlytics, "The beauty of the METHOD is [that] you start the print at the end of Friday and when you're back in the office [on Monday], it's completely printed. The METHOD is a step above other 3D printers we've used."

After their initial success with METHOD, Doug's team invested in a second printer, this time opting for the METHOD X Manufacturing Workstation, which had the ability to print higher-temp materials such as ABS and, more interestingly, ASA – a UV-resistant form of ABS. Using the METHOD, Solarlytics' engineers can create the drawing in the CAD system, send it to the printer, and execute a perfect print in one round, instead of three or four attempts.

THE PRINTS

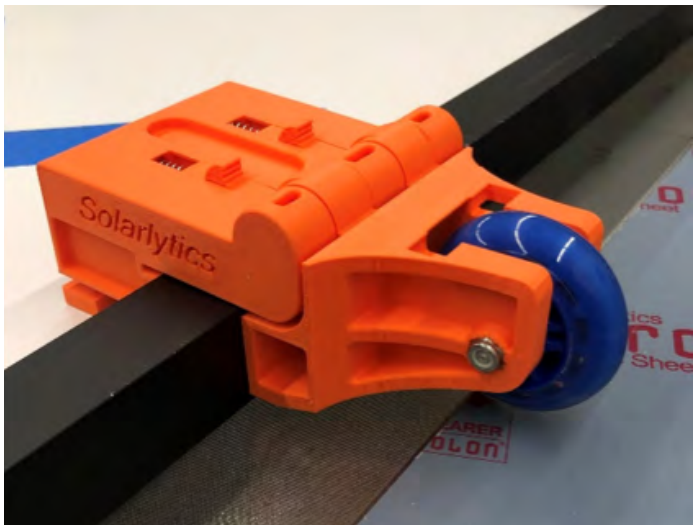
The wheel clamp assembly Solarlytics engineers designed and manufactured on METHOD allows a single person to roll the solar panel onto the flash test machine, easily position it, and perform testing. It prevents having to drag and possibly scratch or damage the solar panel and requires much less space, protecting the equipment and the system.

The ability to print with Stratasys® SR-30 soluble supports allowed Solarlytics engineers to design the wheel clamp assembly as one complex part, which would have been impossible to machine because of its internal bearings and pivot point.

	Outsourced Machining	METHOD in-house
Total Cost	$10,000 ▲	$83 ▼
Total Time	20 days ▲	2 day ▼

SOLARYTICS uses MakerBot METHOD and METHOD X to maximize solar panel efficiency.

Learn more at MAKERBOT.COM/METHOD



An early version of the 3D printed wheel clamp assembly showcased a print-in-place hinge with additional parts attached with metal fixtures.

Version 4 of the wheel clamp assembly called for further removal of material enabled by Stratasys SR-30 dissolvable supports.