



Printed, finished prototype

FORMLABS CASE STUDY:

From the Drawing Board to 200 Meters Undersea

COMPANY:

Paralenz

TECHNOLOGY:

Form 2 Desktop 3D Printer

APPLICATIONS:

- ✓ Prototyping
- ✓ Functional testing
- ✓ User testing
- ✓ Fundraising
- ✓ Communication with manufacturers

The team behind the Paralenz dive camera has been involved in product development and design consulting for more than 15 years. Their durable, easy-to-use underwater action camera delivers high-quality footage, even from extreme depths.

Paralenz uses the Form 2 every day to create prototypes that look, feel, and work like final products, and throughout the entire development process, from designing to testing to coordinating with manufacturers abroad.

Purchasing the Form 2 significantly cut down Paralenz's prototyping costs, paying back their initial investment in the printer and its materials multiple times over. Keep reading to learn how.

WHY THE FORM 2?

Paralenz senior product designer Michael Trøst explains why Paralenz chose the Form 2:

Reliability We used to start three machines just to make sure that one worked. The Form 2 is the first 3D printer we dare rely on. So far we've had maybe one failed job out of more than 200.

Ease of Use Our other machines required a lot of maintenance; you have to do cleaning and take them apart every so often. The Form 2 is very easy to use.

Precision It's crucial that our prototyping tool emulate our final manufacturing process — testing all parts for form and fit with the Form 2 gave us confidence moving into production.

RAPID PROTOTYPING FOR FIT, FEEL, AND FUNCTION

Paralenz used the Form 2 to print different sizes of models to evaluate volume, weight, and ergonomics. They tested the prototypes with divers, and iterated and gathered feedback on different versions of individual pieces of the camera. Altogether, Paralenz cycled through seven or eight different designs, all of which were 3D printed.

“The Form 2 saves us time because it’s closer to being finished straight out of the machine. FDM models take about three times as long to get a high-end finish, and with many parts the same finish is impossible. Before we’d also have to do lot of tasks by hand or by CNC milling, which require additional skills.”

Because the product is so compact, the team also spent a lot of time figuring out how to optimize the design, while making sure that it accommodated all the required features. For example, they went through 20-25 iterations of housings using the Form 2 in a matter of a few months.

IMPROVING COMMUNICATION WITH MANUFACTURERS

Communication and coordination errors with manufacturers in other countries, especially when talking about in-depth technical details, can be very costly; even the smallest miscommunication can set back development by a week—critical missteps by much longer. To make the dive camera, Paralenz used 17 different suppliers that all make custom parts; so it was vital to ensure that everyone was on the same page.

Paralenz used the final 3D printed prototypes and parts to make it easier to communicate the product and its intricacies to each manufacturer. It was especially beneficial to tangibly demonstrate parts that had to fit together, instead of just showing 3D models.