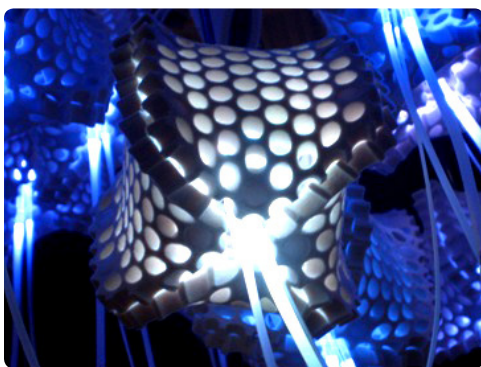




RGB 'Baby Fish Tides'



Lit by LUXEON LEDs

Lumolar's Fish-Shaped Accent Lights Swim to Life with Future Lighting Solutions Navigating the Way

Lumolar's biomorphic 'Baby Fish Tide' LED luminaires floated onto the lighting scene in 2008, looking like tropical fish lit from the inside. The nautically inspired lampshade hatched straight out of the imagination of Canadian architects Mark Tholen and Catherine Lin, but they needed help executing the lighting portion of the project. Future Lighting Solutions initiated the duo into the world of LED application development, identified critical components for the job, paired them with an engineering firm to build the board and color-changing system, and provided advice throughout the engineering process. The result: three product awards, a second career as lighting designers, and accent lights that can evoke effects ranging from Chinese lanterns to the aurora borealis.

SPAWNED BY SUSHI

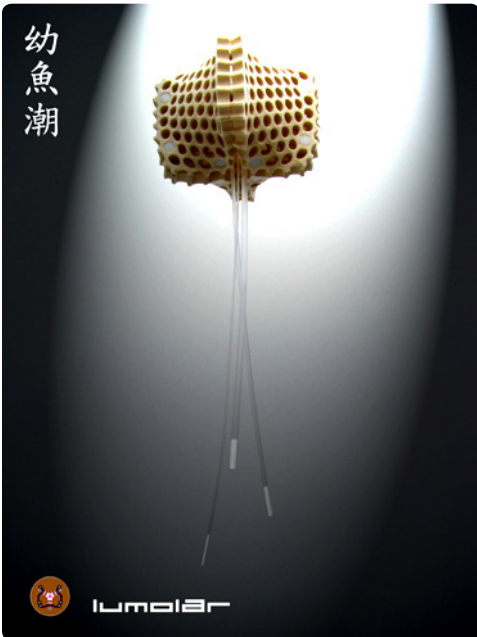
The project started when Toronto-based Tholen and Lin were hired in 2006 to design a sushi restaurant. Their plan called for hanging three fish-shaped, color-changing fixtures over each table and suspending 21 more over the sushi bar. They fashioned the lampshades out of naturally fire-retardant industrial felt left over from automotive assembly processes, creating fish-like physiques with spiny protrusions. Then they tackled the challenge of illuminating their marine-inspired creations.

"We needed a light source that could fit in a very small space, we knew that a conventional mechanical color-changing strategy with filters wouldn't work, and we wanted a technology that would be as environmentally sustainable as the de-cycled felt we were using for the outer shell," Tholen recalled. "Power LEDs were the answer on all three fronts."

Tholen quickly narrowed the search to LUXEON Rebel LEDs from Philips Lumileds (www.philipslumileds.com) because of their ultra-compact footprint. He also built his own custom optic to direct light through holes in the felt created when automotive manufacturers stamp out circles of fabric for gluing purposes.

“LEDs were uncharted waters for us when we started this project. Future Lighting Solutions served as mentor, matchmaker and technical adviser. Their contributions were invaluable in bringing our Soft Shell fixtures to market.”

Mark Tholen | Principal, Lumolar



'Soft Shell' lampshade

At that point the restaurant project fell through, but Tholen and Lin were too enamored of the fixtures that were emerging on their workbench to abandon that part of the undertaking. That's when they turned to Future Lighting Solutions for help.

FOLLOWING FUTURE'S LEAD

Future personnel evaluated the architects' needs, schooled Tholen in LED essentials like drive currents and thermal management, and referred him for technical and manufacturing assistance to electronics engineering firm YunusTech (www.yunustech.com) - a Future Lighting Solutions Network Integration Member headquartered near Lumolar in Mississauga, Ontario. Then the extended team went to work.

First, Future steered the designers to Cypress Semiconductor's EZ-Color controller as their RGB color mixing platform because of its rapid development capabilities, eliminating the need for Lumolar or YunusTech to hunt for a solution on their own or develop one from scratch. Next, Future and Cypress engineers trained YunusTech on the Cypress system, a hardware/software combination that includes an embedded visual design tool based on Cypress' PSoC (Programmable System-on-Chip) technology enabling the controller to be programmed without manual coding.



Installed at IDEX 2008

Armed with that knowledge and Cypress development kits obtained from Future, YunusTech's Erdem Bilaloglu and his team developed an LED color-mixing driver using the Cypress EZ-Color chip, a master board that can control up to 90 fixtures from a central point, and software that allows users to design light sequences utilizing a drag-and-drop GUI.





Award-winning design

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In addition, the YunusTech team designed an RGB LED light engine containing three LUXEON Rebel LEDs running at 700mA apiece and used Future's online Usable Light Tool to be sure the solution they were proposing would have adequate light output.

"Lumolar wanted these fixtures to change color to create different moods, so we needed absolute control over the colors and intensity," Bilaloglu said. "Future was instrumental in guiding the development of the color-mixing application, from pointing us to the Cypress platform to resolving various issues in the development process. We consulted with their engineers every step of the way."

THE TIDE ROLLS IN

Lumolar (www.lumolar.ca) unveiled the 'Soft Shell' Baby Fish Tide fixture series in January 2008 at the Passagen show in Germany in a space appointed with 50 lamps shimmering with constantly changing color. A few months later the fixtures washed ashore in Canada at IDEX 2008, showcased in the Lumolar booth as well as dangling in a 30-unit cluster above a champagne bar sponsored by the design magazine Azure. They were offered both in white and RGB versions, according to customer needs.

In short order, the series won an Award of Excellence from the Ontario Association of Architects, a Best of Canada 2008 award from Canadian Interiors Magazine, and a Design Exchange Award 2008 from the Toronto Design Exchange.

While it was the unusual look of the fixture that garnered the prizes, the product's sustainable design is equally important from Tholen's perspective. That includes the 80,000-hour life span, 80% energy savings over conventional lighting technologies, and mercury-free construction enabled by LUXEON Rebel LEDs. "We have an eco-friendly light engine as well as an outside shell made of materials that otherwise would go to a landfill. It's hard to get any 'greener' than that."

Tholen and Lin are now working on second-generation versions of their Soft Shell series that will include new shapes as well as remote color-changing capabilities with no need for computer-connected components. YunusTech, meanwhile, is marketing the color mixing system created for Lumolar for use by other lighting designers at www.luxzil.com. For both, Future Lighting Solutions served as a guide through the sometimes-choppy waters of solid-state luminaire development.

