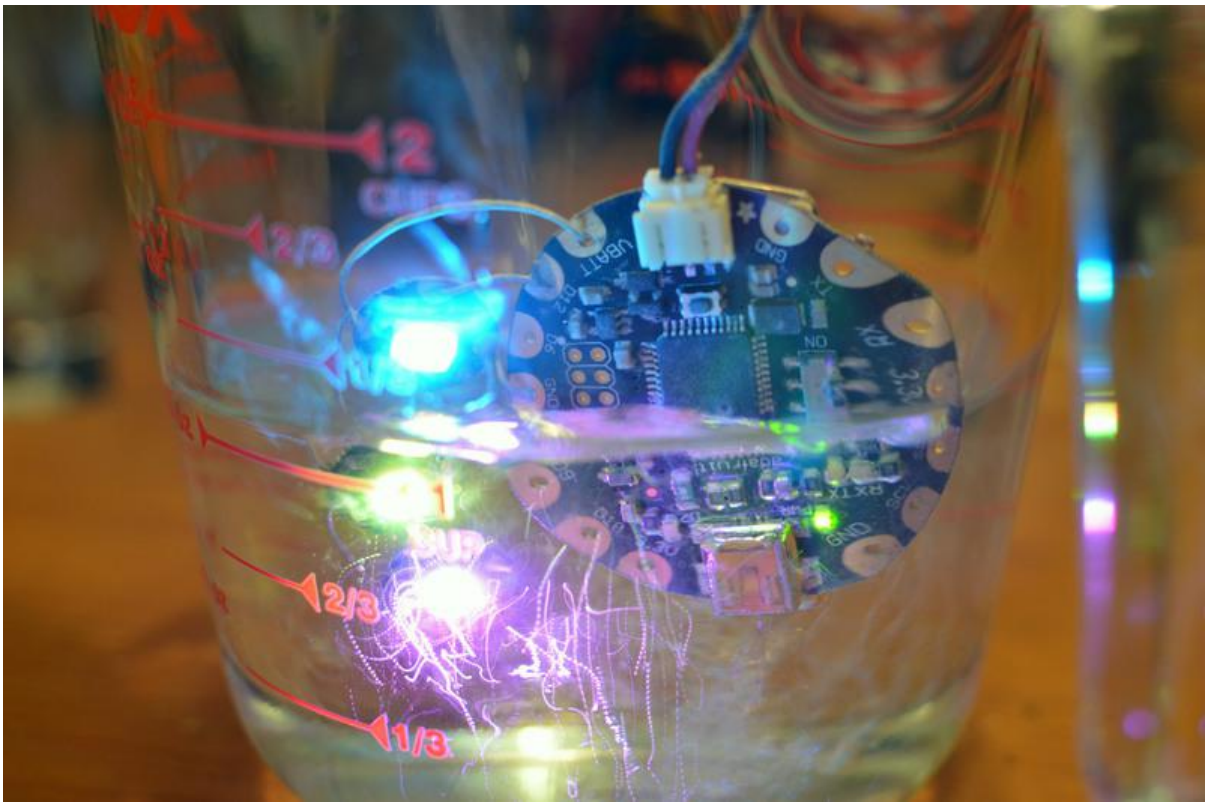
Experimenting with NeverWet + Electronics

Created by Becky Stern



https://learn.adafruit.com/neverwet-electronics

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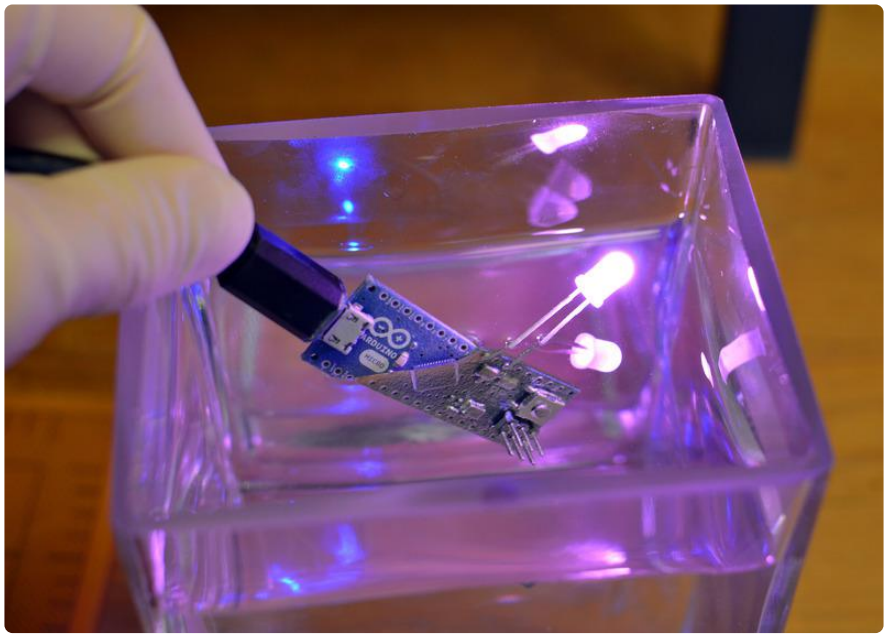
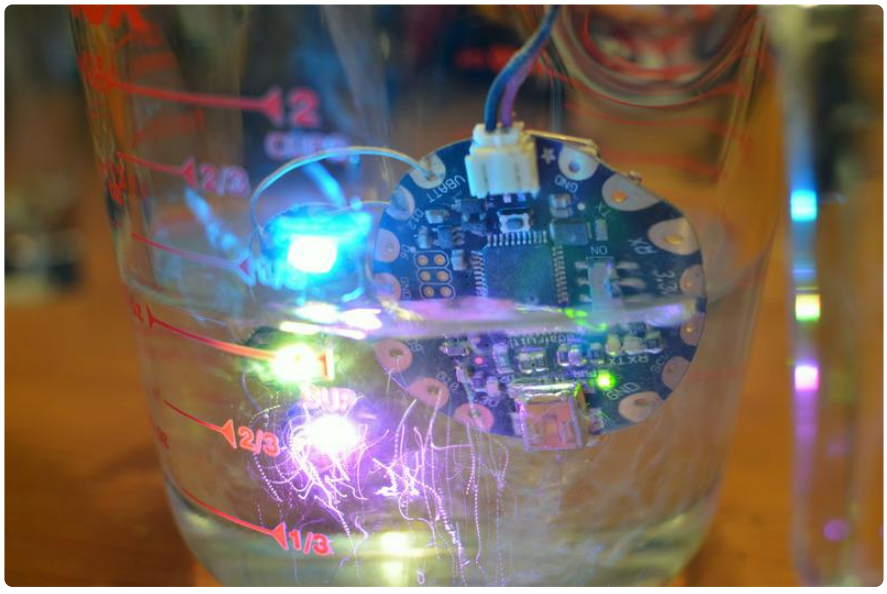
Overview

We recently tried out Rustoleum's NeverWet, a new spray-on hydrophobic coating for all kinds of surfaces. It's not recommended for electronics, but we decided to (safely) experiment with some circuits!



DO NOT ATTEMPT THIS AT HOME! Waterproofing electronics is not the intended purpose of NeverWet, and Adafruit is not affiliated with Rustoleum. We're professionals who followed proper safety precautions when conducting the following experiments.



Applying NeverWet to electronics

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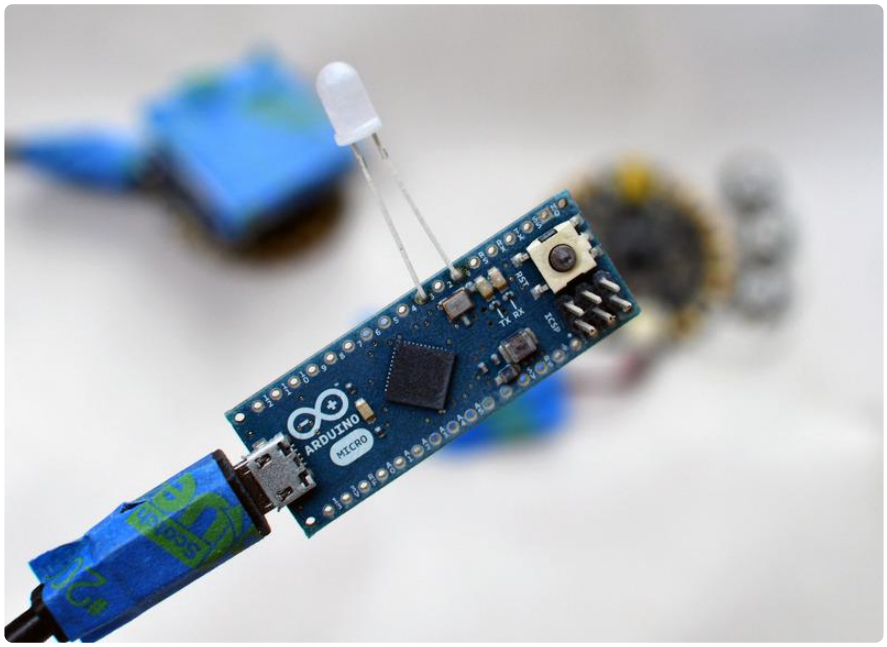
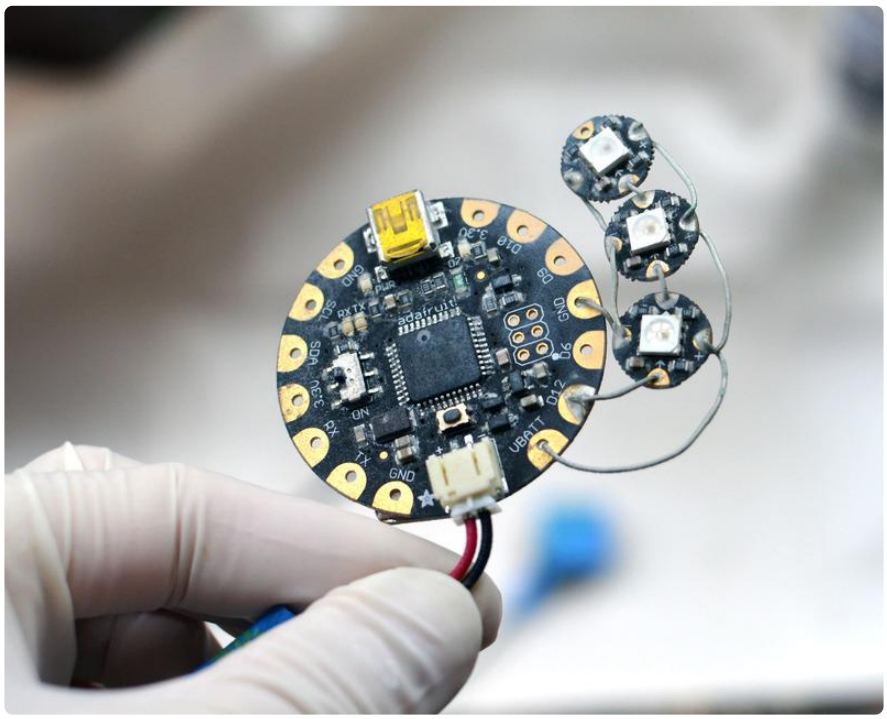
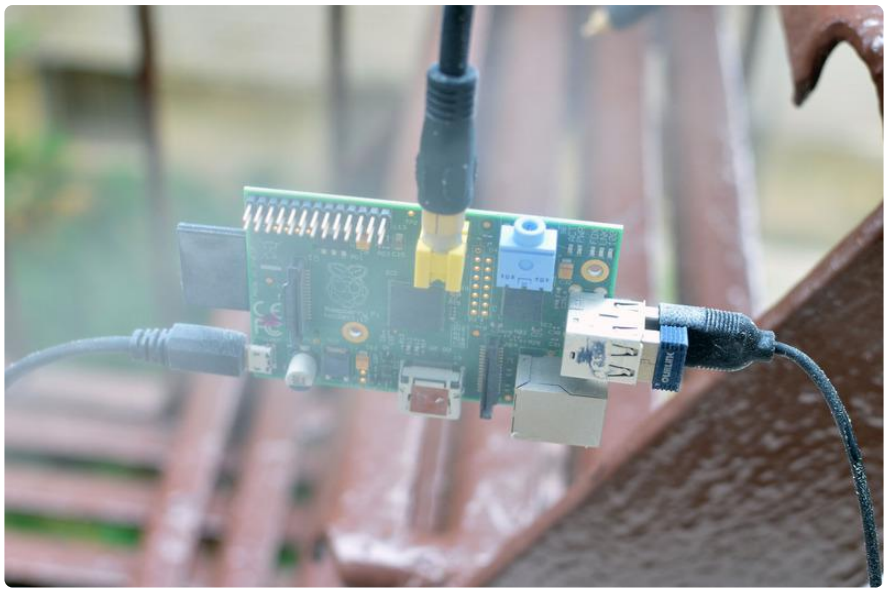
First we connected USB and other cables to our circuits, so the connections would be sealed. Painter's tape comes in handy for covering areas that don't need coating.

NeverWet is a two-step spray and is a respiratory and skin hazard, and it's flamable. We prepped our well-ventilated outdoor area for overspray, set up a fan pointing away from the body, and put on gloves.

Following the manufacturer's instructions, we sprayed on multiple layers of base coat, letting it dry between coats.







We followed up with several layers of top coat in the same manner. We noticed a white chalky appearance to the top coat. When it was completely dry, we noticed some of the white chalky powder would come off on our hands, so we continued handling the circuits with gloves.

Results!

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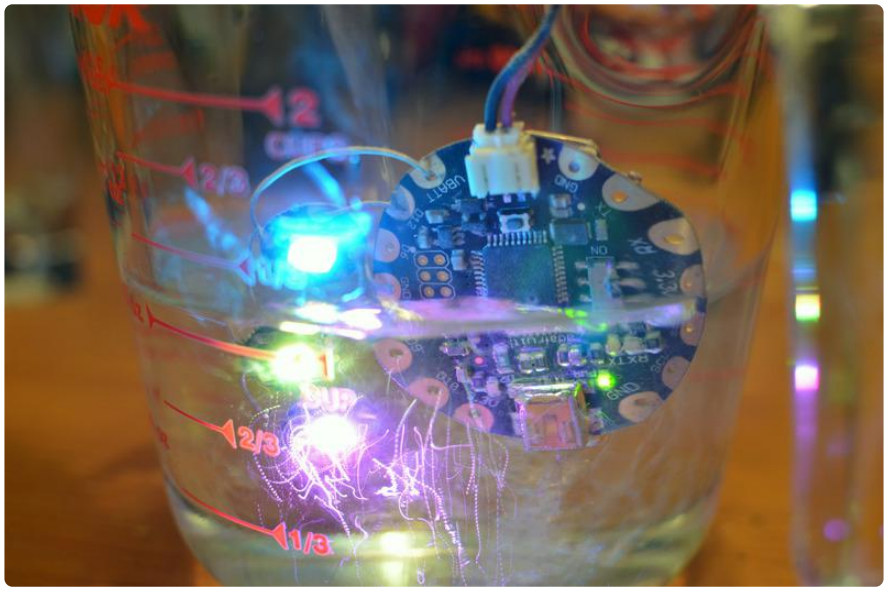
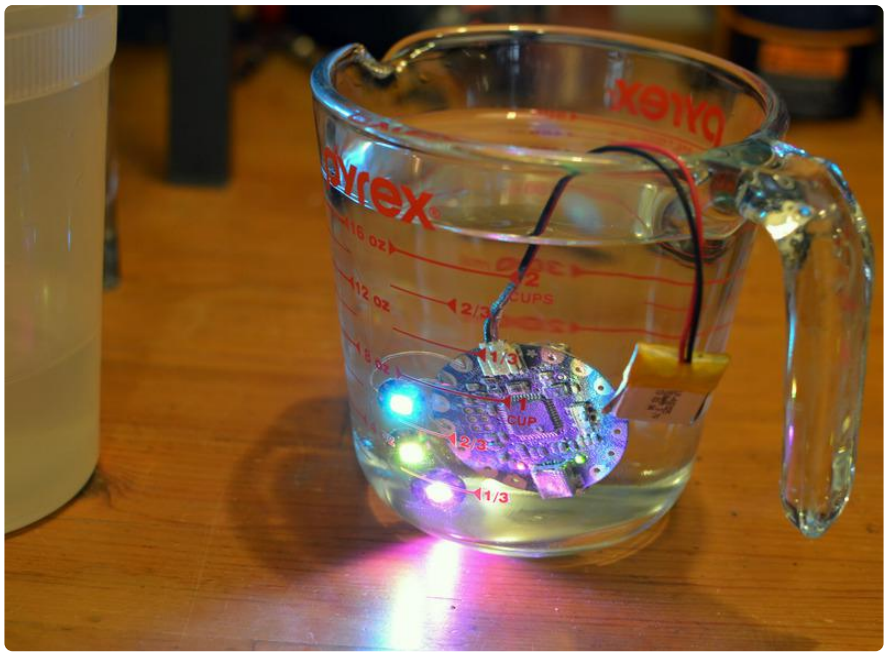
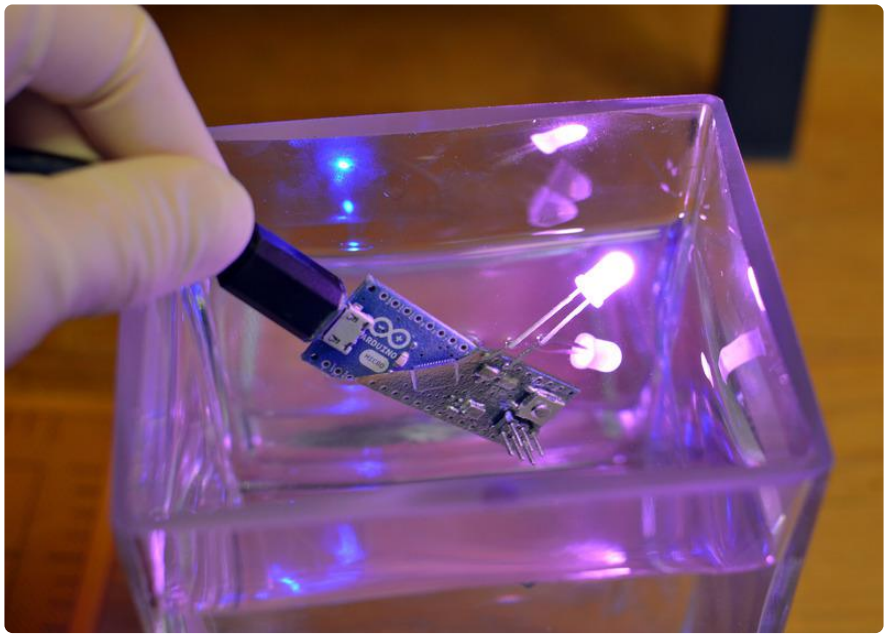


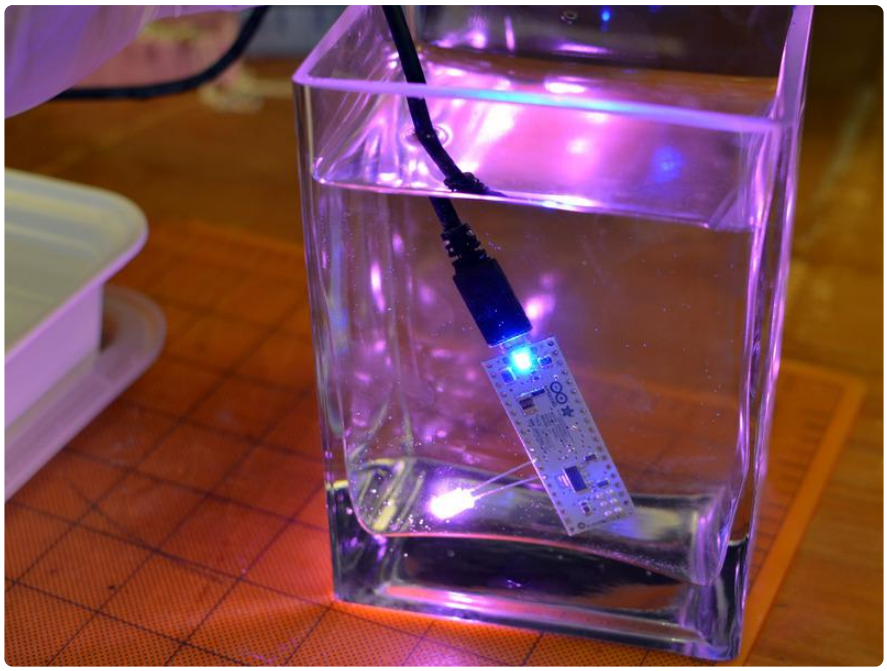
Underwater FLORA!



This FLORA LED brooch coated with NeverWet lasted about four hours in this container of NYC tap water. We did not submerge the battery.



This Arduino Micro was powered by a nearby laptop's USB port.



The "Wet Raspberry," as we're calling it, booted ok the first time, then it lost connection to the SD card.

Our Citi Bike Helmet project fared pretty well when tested with a garden hose--thanks Phil for being such a good sport!

The coating poses an issue for charging the battery, as disconnecting it "breaks the seal." Its UV sensitivity means we'd have to reapply the coating frequently. The white chalky appearance and powdery feel might not work for all applications or uses, however overall we had fun experimenting!