Glowing Smokey Skull

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https://learn.adafruit.com/glowing-smokey-skull

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Overview

Easy DIY Halloween Props

In this project, we'll use an Adafruit Circuit Playground to light up a cheap halloween prop. This oversized skull also spews out misty cool fog using a humidifier. This DIY project doesn't require any soldering so it's very beginner friendly.

Electronic Halloween!

Using a mister is clean and safe for the kids so it's cool for them to play with it and okay if they put their hands in it. I think adding electronics to cheap halloween props is a lot of fun and great way to introduce DIY projects to your friends and family. The Circuit Playground has lots of sensors on board so you can make it interactive.

Circuit Playground NeoPixels

The Adafruit Circuit Playground (http://adafru.it/3000) features 10 smart RGB NeoPixel LEDs that can fade between many colors. It ships with preprogrammed rainbow effects, so there's no programming required! It's a great way to get started with DIY electronics and LEDs.

Parts, Tools and Supplies

You'll need a few handy tools to help building this project. All of the parts are available to purchase using the links below.

- Hot glue gun
- Screwdriver ()
- Hobby Knife
- Dremel with cut-off wheel and drill bit

1 x Candy Bowl Skull Halloween Skull Candy Bowl - Hyde and Eek! Boutique™	https://www.target.com/p/halloween-skull-candy-bowl-hyde-and-eek-boutique-153/-/A-52307136
1 x Mist Maker Hudmifier Color Changing 12 LED Mist Maker Fogger Water Fountain Pond Fog Atomizer Air Humidifier	https://www.amazon.com/dp/B00GSKCW70/
1 x Adafruit Circuit Playground Circuit Playground Classic	https://adafruit.com/products/3000
1 x Mounting Putty Tack Mounting Putty Tack	https://www.amazon.com/dp/B001F57ZPW/
1 x Flush Diagonal Cutters Hakko!	https://www.adafruit.com/product/152
1 x Pocket Screwdriver It's pocket sized!	https://www.adafruit.com/product/3284

Circuit Playground Setup

Circuit Playground

You can program the Adafruit Circuit Playground by following the tutorial. There's a ton of great example programs you can upload easily using The Make Code Website () or Circuit Python for more advanced programming.

Circuit Playground Learning Guide

3D Printed Case

You can optional 3D Print our Circuit Playground case to make it easier to power it on and off using a battery and switch. This will protect the board and make it easier to toss into just about any object.

3D Printing Case for Circuit Playground

Assembly

Remove Screws

Start by looking for the screws located on the back of the skull. There are 6 machine screws that are counterbored and secure the pieces – You need a screwdriver with a long shaft to remove them. Keep the screws handy as we'll need to reuse them when putting it back together.

Separate Parts

Carefully pull the two halves apart and remove the cover and bowl. The candy bowl features a lip that slides in and out of the edges from the two halves. We won't need the bottom cover so we can discard it for now.

Mark A Pilot Hole

Grab the candy bowl piece and locate a good spot for the wire to come out from. I picked a spot near the lower bottom of the bowl. You'll want to familiarize yourself with the orientation so you can mark a spot relate to the front and back facing side.

Drill Hole

Use a rotary power tool with a drill bit to make a pilot hole. Then, switch out the bit for a larger tool – We need to make a larger enough hole to fit the plunger that is installed on the power cable. You can use an x-acto blade to cut through the plastic.

Test Hole Size

You'll want to do a few test fittings to ensure the connector and plunger from the power cable can fit through the hole.

Install Cable

Insert the connector from the power cable through the inside of the candy bowl and pull the wire all the way through until the plunger reaches the hole.

Install Plunger

Press the plunger through the hole until the flange is flush with the surface of the candy bowl. If you can't squeeze the plunger through, you'll need to make the hole wider.

Watertight Seal

To make sure we don’t get any leaks, It’s a good idea to add hot glue around the edge of the plunger to give it a watertight seal.

Test For Watertightness

Add some water to the candy bowl and see if there's any leaks. If you find it starts dripping, you'll need to empty out the bowl and add some more hot glue. You want to make sure we don’t get any water out and potentially on the electronics.

Secure Ultrasonic Humidifier

You can add a few pieces of mounting putty to the humidifier to secure it to the bottom of the candy bowl – This will prevent it from floating and moving around once inside with water.

Install Water Diffuser

I suggest installing the water diffuser to avoid water droplets from getting outside of the candy bowl and onto your tables surface. It may or may not be included with your humidifier. You can fashion your own with aluminum foil – It's a little that platform suspends over the top of the humidifier and blocks waters droplets.

Rejoin Pieces

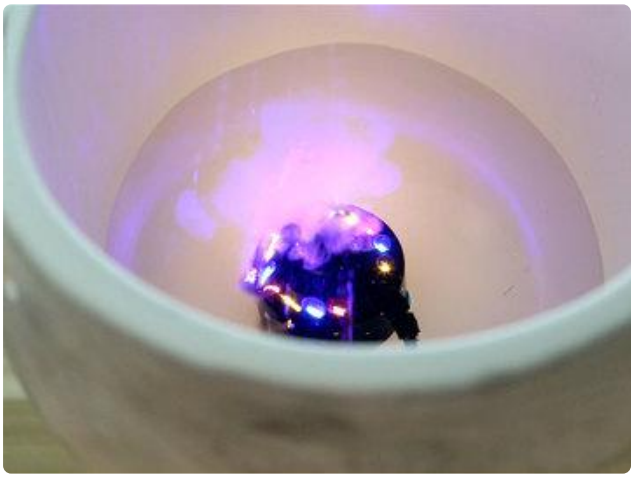
Put the parts back together but leave out the bottom cover. Slide the candy bowl back onto the two halves and orient so they fit back together. Insert and fasten the machine screws back to secure the parts.

Make a Notch

I used a cut off wheel to make a two notch on the bottom of the skull. Then, I used a pair of cutters to remove a piece of plastic. You can use this cutout for the power cable to fit through so it doesn't get kinked when it's placed down. A bit of hot glue can be used for strain relief.

Add Water

Now you can add water to the candy bowl and test it out! You'll need enough to fully submerge the ultrasonic humidifier. You'll need to plugin the connector from the humidifier to the power adapter that was included. It should instantly light up and spew out mist – That's how you'll know if it has enough water.



The Mist

You'll find the fog tends to build up inside the candy bowl when there's very little or no air to blow out the mist. You can use a fan or even a light draft from your own breath is enough to stir out the fog. You might even be able to add a sort of mesh over the water and house candy! Just make sure it's well secured or you might have soaked candy ;-)

Make It Glow

You may find the LEDs from the humidifier just isn't bright enough to fully illuminate the entire skull. For that, the Circuit Playground's super bright LEDs will make the whole thing glow! There's plenty of room inside the skull for a multitude of different light sources.