



Han Solo Blaster Cosplay

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Overview



A Han Solo costume can usually be pieced together easily by going in ones closet or shopping at a thrift store. A checklist:

- White long sleeve shirt
- Black pants
- Boots
- Black vest
- Scruffy look (optional Hey! I'm not scruffy!)

Picture credit: Lucasfilm (fair use credit Wikipedia)

The only piece left is Han's iconic blaster pistol. Nearly any black gun shaped prop may be used. If you'd like something more screen accurate but still inexpensive, this project is for you.

A really good and inexpensive prop base is the "Han Solo (tm) Blaster Pistol" sold by Rubie's Toys at [retailers \(https://adafru.it/efq\)](https://adafru.it/efq) for \$10 to \$20. It is an officially licensed toy of Lucasfilm, Ltd. The issues with this toy for a costume are two-fold:

- It makes more of a 1950's slow pistol sound
- It's molded in white and orange plastic

Several Adafruit parts are perfect to get an authentic sound. A bit of paint makes the prop a more realistic color.



Modifying toys to look more like firearms may be governed by the laws of your locality. Check your local laws and be sure that when the prop is used, authorities do not mistake it for a real firearm.

Disassembly and Paint



The toy is held together by several screws and some glue. To remove glued parts, you can try careful prying. If they remain stubborn, CAREFULLY use a hot air gun or focused hair dryer on the following parts, prying very carefully when hot:

- Barrel rear end cap
- Barrel top "screwed" straps (two of them)
- Barrel top cap

Try heat, then careful prying, with repeated applications. Do not burn yourself on hot plastic parts. Avoid deforming the plastic if at all possible.

When you have those pieces off and the screws removed, an additional trigger hammer piece will come off the rear, save this also. The barrel seemed stubborn, so I left it glued and just pried the halves up from the rear to work on the interior.



There are many [pictures of Han's blaster on the Internet \(https://adafru.it/Cew\)](https://adafru.it/Cew) to provide you color choices. Many of them appear to vary the color of the barrel end.

Choose the paint colors you like. Spray paint specifically made for plastic makes a good base. Let the paint dry thoroughly before handling.

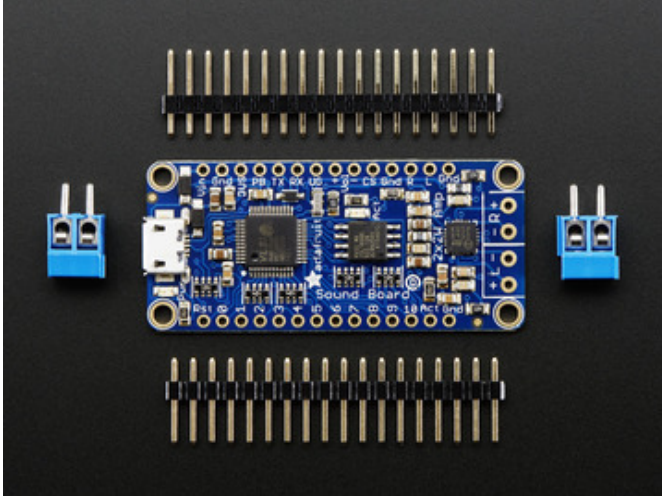
You will probably want to leave the barrel tip orange per local laws on gun replicas.

You can add weather and wear details.

The amount of "screen accuracy" is always something of an art ranging from simple to expensively complex. A majority of replicas on Etsy and eBay, that are authentically colored, start with the Rubie's toy and add "value" via some paint.

If you want to take "screen accurate" to the Adam Savage extreme, look on <http://www.therpf.com/> (<https://adafru.it/aHd>) although such accuracy can escalate the cost and build time significantly.

Wiring the New Electronics



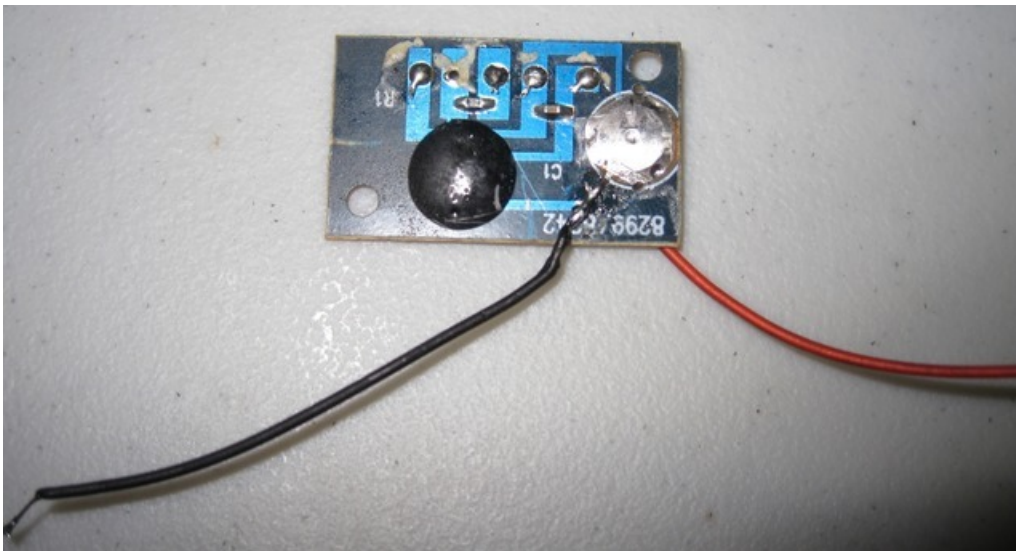
The Adafruit Audio FX Sound board with amplifier is a perfect one-part solution for adding more realistic sound to the project.

The Rubie's toy comes with sound. But the native sound is highly disappointing - more of a tinny handgun sound rather than a Star Wars blaster. Using the Adafruit sound board allows one to choose what sound(s) are used.

When this project was built for Halloween 2014, the Adafruit Audio FX Sound Boards with integrated amplifiers were not available, so the original added an Adafruit amplifier to an unamplified board (which is fine also).

The design uses a trigger to the audio board and reuses the toy's speaker for output.

The existing toy circuit board makes a good trigger switch for the new circuit. Fabricating a new trigger-activated switch is fine but reusing the existing board is less expensive and works well. Remove the board along with the red and black wires. The black wire may be removed from the board (cut it about 3 inches long).

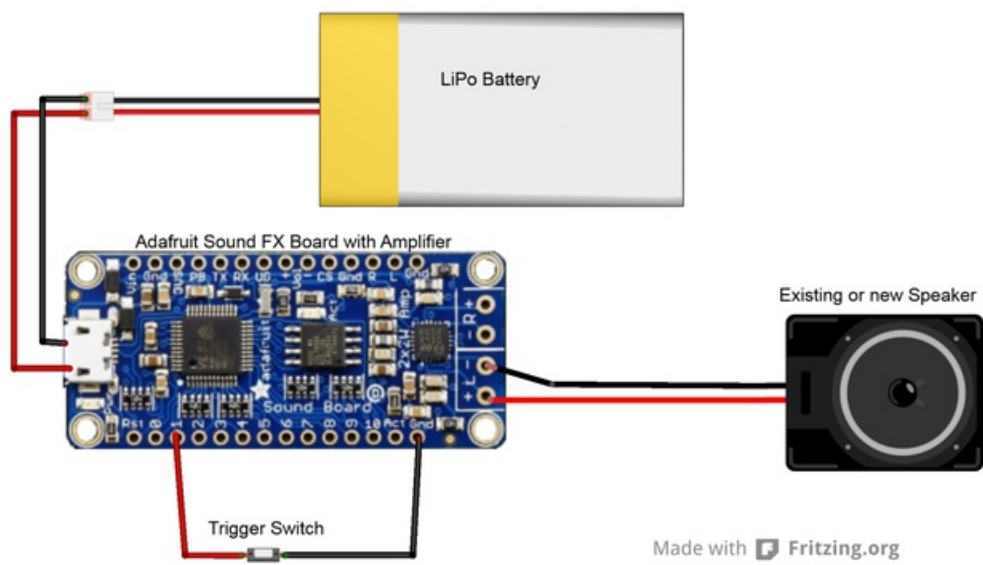


Scrape a bit of the blue solder mask off carefully, exposing a copper trace, near the silver membrane trigger switch. Solder a wire to the exposed trace. It helps to tin the trace and wire with solder before connecting them together. The red wire should remain connected where it is.

Build the circuit shown below using the [Adafruit Sound FX Board with Amplifier \(http://adafru.it/2210\)](http://adafru.it/2210). The trigger shown is the one modified above.

On the bottom of the amplifier board, solder on a [JST connector \(https://adafru.it/e2T\)](https://adafru.it/e2T) for power (more later).

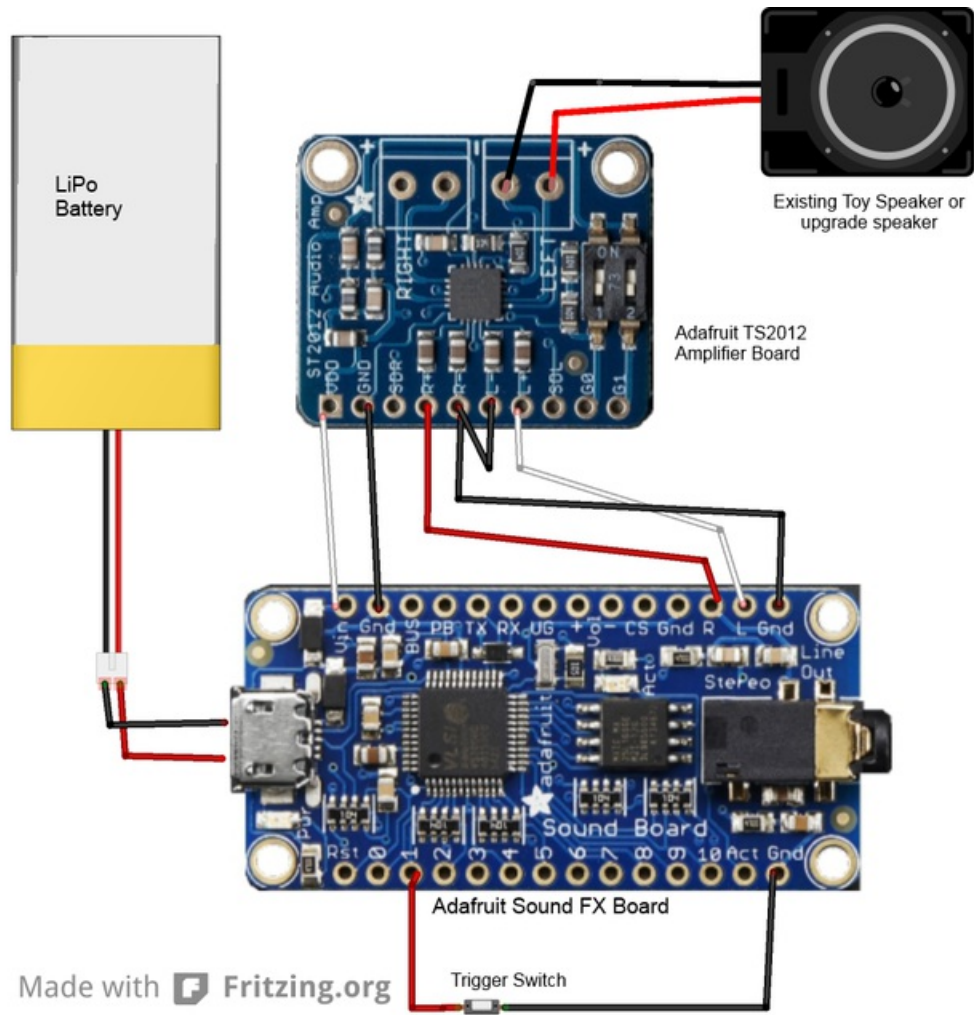
The speaker in the toy was reused for the new build. If you want a better sound, you can source a better speaker, but be careful of size and mounting options.



Circuit with the Adafruit Sound FX board with integrated amplifier.

If you have the Adafruit Sound FX board without amplifier (like I had), you can add an additional amplifier board. I used the [Adafruit TS2012 amplifier \(http://adafru.it/1552\)](http://adafru.it/1552) set to maximum amplification.

Just like the circuit above, the Sound FX board below has a JST connector soldered to the bottom of the board to provide circuit power.



Circuit with an Adafruit Sound FX Board and external amplifier.

Sound and Circuit Test

The sound of the original toy was very poorly chosen by the manufacturer. I made sure my colleagues agreed that I was not being a perfectionist or forcing a mod where one is not needed. You can paint the original toy and call it good, but when the sound comes out it does not sound like Han's blaster in the movies.

For loading a new sound onto the Sound FX board, you can look on the Internet for a suitable wav file. While I cannot post my favorite file as some sounds may be copyright, I did find the [Kiwi Nuts Web site \(https://adafru.it/efs\)](https://adafru.it/efs) valuable. When you find the effect you want, play it and be sure it plays out the left speaker on your computer like you want it to sound in the prop.

Make a copy of the file, naming it T01.wav (that is T zero one dot wav). This will play once when activated on the Sound FX pin 1 (which we connected the trigger switch to). Other types of behavior may be achieved (repeat, chained files, etc.) by adjusting the name of the wav file as noted in the [Sound FX board tutorial \(https://adafru.it/e8Q\)](https://adafru.it/e8Q).

Without a LiPo battery connected to the board, plug the Sound FX breakout into your PC via a USB cable. The board will show up like a flash memory (thumb) drive. Copy the T01.wav sound file to this drive (which will place it onto the Sound FX board). Then disconnect the Sound FX board (in Windows, use the "Safely Remove USB Device" icon in the lower right of the screen). That's it, the sound is loaded. That was easy.

Test

Now power the circuit with a charged LiPo battery. Activate the trigger switch (you can press firmly on the silver bubble on the original trigger circuit board).

- If you hear the sound loud and clear, congratulations, continue to the next page.
- If you hear the sound and it is not loud, be sure the amplifier is set to provide maximum amplification.

If you do not hear any sound:

- Be sure the speaker is hooked up to the amplifier outputs.
- Be sure the Sound FX board is getting power from a fresh LiPo battery.
- Be sure you loaded the sound file onto the Sound FX board per the [Sound FX tutorial \(https://adafru.it/e8Q\)](https://adafru.it/e8Q).
- Check the wire connections per the [Wiring the New Electronics](#) page.
- If all looks well, it could be the trigger board. Take a jumper wire (bare at both ends) and connect between ground and the Sound FX trigger pin 1 (one and not zero or another pin). If this works, be sure the soldering of the trigger board is good. You can always use another switch assembly for the trigger but modding the original saves components and it fits in the plastic housing without adjustment.

Final Assembly

Power



I had initially wanted to use the 3 volts the original battery holder provides with 2 AAA batteries. I could not get the circuit to work with only 3 volts. So I decided to use the [Adafruit 150mAh LiPo battery](https://adafru.it/dYY) (<https://adafru.it/dYY>). To connect the battery, I removed the AAA battery tab on the upper right and drilled a hole. I used a [JST extension cable](http://adafru.it/1131) (<http://adafru.it/1131>) to connect the Sound FX Board (via the JST connector soldered onto its backside) through the hole to the battery compartment.

The 150 mAh battery fits in the battery compartment after breaking a bit of the plastic that separates the two AAA batteries.

You will want a LiPo battery charger handy to top-up the battery. If you plan to use the prop for a long stretch, a larger battery may be better or a spare battery to swap. While I did not have an off/on switch, adding that would help save battery power.

Final Assembly

Solder the speaker wires to the amplifier outputs. I used the mono output from the left side which worked well.

Place the electronics back into the body of the prop with the trigger board placed back in the groove it was pulled from. Feed the battery extension through the hole and attach it to the Sound FX Board. Be sure the trigger assembly is reconnected to its spring (if it came loose) and that it presses the silver blister on the switch board. Connect the battery before assembly, to be sure it works. If not, pull the electronics out for retest. If working, get the board stowed into the prop.

For plastic reassembly, insert the rear plastic piece under the barrel rear (is this some sort of hammer? I don't know), and place the screws in to hold the halves together.

Place the parts you removed with the heat gun (end cap, barrel cap, two straps) back on the barrel assembly. They may snap on or you might have to use glue. If they were misshapen during removal, you might use a dremel to shave the plastic a bit.

Have Fun!

If it works, go have fun with your new prop!

