

## Talking Skull Build - Rocky Mountain Haunters Gathering 2023

Build design by Cagney Smullin

### Created by Cagney Smullin

#### Parts needed:

- Little bits i21 microphone
- Little bits 011 servo
- Little bits p3 usb power
- 1 aux splitter
- 2 aux cords
- 1 wireless speaker with suction cup
- 1 usb 2 port plug
- 1 female, 1 male spt1 plug
- 1 length of spt1 cable
- 1 mini mp3 player with tf memory card
- 1 bucky skull
- 1 usb light
- 1 small screw and 1 tiny screw for the servo

#### Parts/tools needed

- Lamp base (needs at least 4-5" clearance at the top for the jaw to operate.)
- Drill with 3/16 and 5/16 drill bit
- Twine or wire for attaching the jaw (see step 10)
- Stain or paint if you want to age the skull
- Mini phillips screwdriver

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**Step 1:** Take apart your lamp base to remove the bulb socket. Keep all components because most will be reused.

Usually this can be accomplished easily by just unscrewing the socket and cutting the wire.



**Step 2:** Take the cap off the bottom of the bulb socket. It should just pop off the bottom with some leverage from a flathead screwdriver.

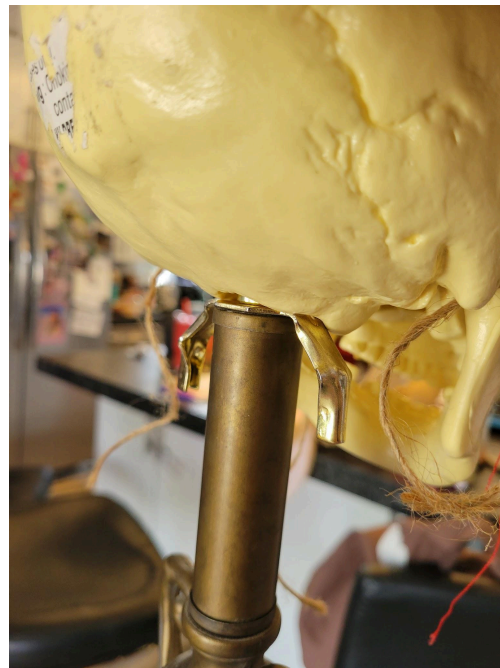


**Step 4:** DO NOT REMOVE THE LAMP WIRE YET! Learn from my mistakes :) We are going to replace the lamp wire, but the easiest way to re-wire is to tape the end of your new wire to the end of the old wire and THEN pull the old wire out. This will run the new wire through without it getting stuck. Especially for taller lamp bases, this is your best bet.

(Not pictured because I only thought of this after I struggled to re-wire!)

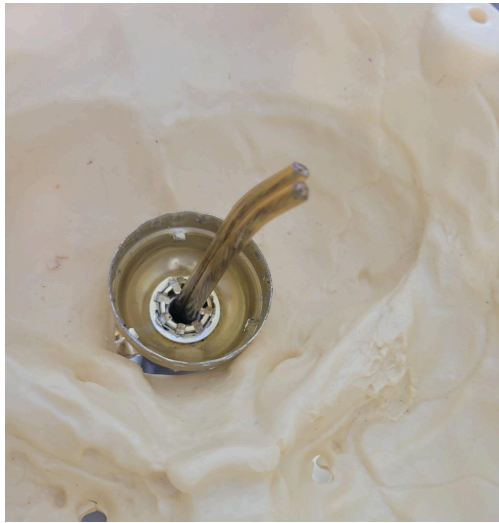
**Step 5:** After you have run the new wire through, cut to the length you want. Then add the male socket at the bottom of the lamp post.

**Step 6:** Put your skull base on the lamp, reusing the lamp pieces to secure it in the position you want. You may need some additional washers to make the skull sit correctly.

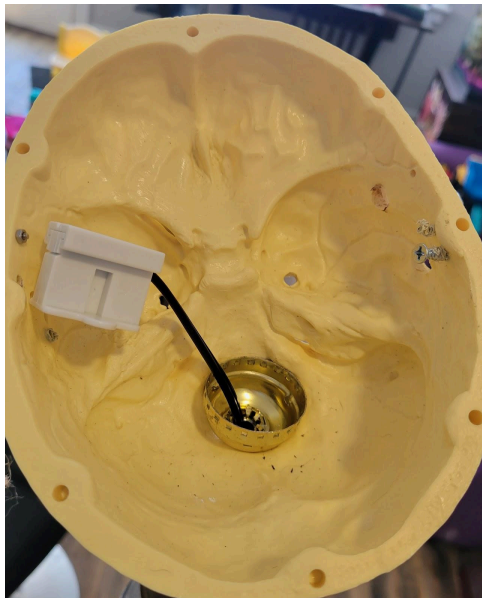


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**Step 7:** Screw the bulb socket cap on to secure it.

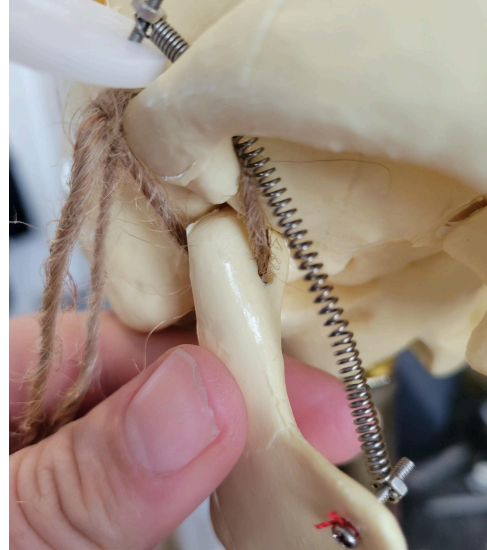


**Step 8:** Attach the female socket to the wire once the skull is attached.

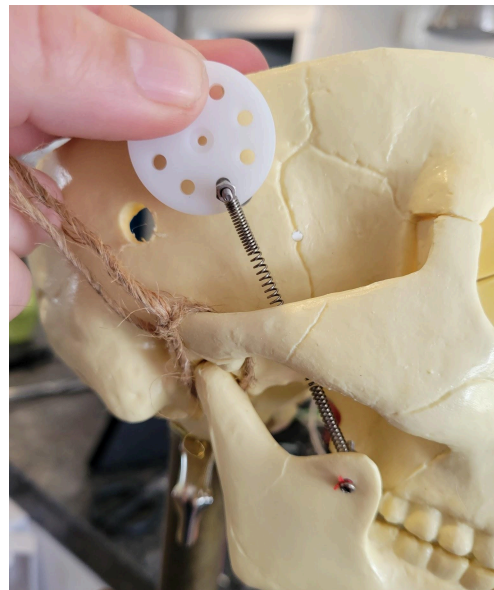


**Step 9:** You are going to remove the two springs that connect the jaw to the skull base. Keep track of the tiny screws and nuts because you will need them! You can leave the right (the skull's right) spring attached to the jaw.

**Step 10:** Drill a hole in the end of each side of the jaw with the 3/16 drill bit. Thread through some of the twine and tie the jaw to the skull base.



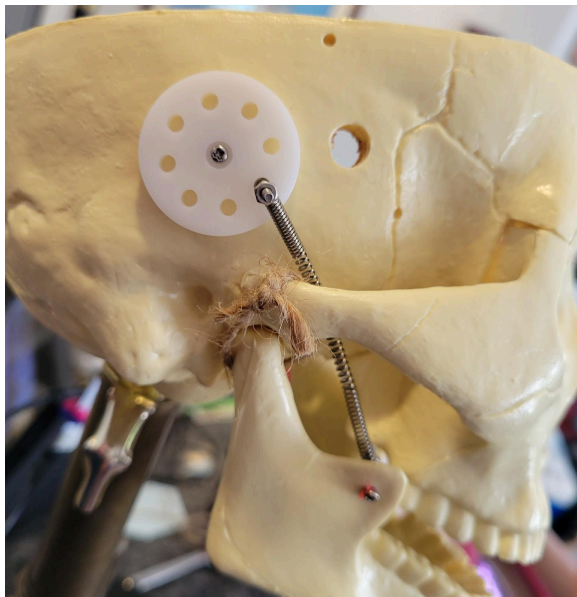
**Step 11:** Once the jaw is attached you are going to attach the spring to your motor hub for your servo. Do this using the screw from the skull that you removed earlier. Put the head of the screw on the side of the hub that will be against the skull.



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**Step 12:** Position the hub where you want it to go. The spring will be tight for right now. Keep in mind it will need to be back a little bit because the skull is thicker in some places than others and you need a thin spot. Once you have your position, mark it and drill it with your 5/16 drill bit. Check your fit with the hub. It should have enough room so it can turn easily.

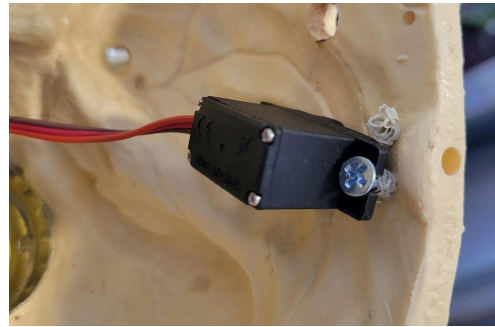
**Step 13:** Put the servo motor on the inside of the skull with the cord on the bottom. Dry fit your hub to your motor through the hole you just made and add a screw in the middle of the hub to hold them together.



(ignore the 2nd hole in this picture. That was a mistake - and example of where not to drill)

Now you need to stretch your spring to get the amount of movement you want from your jaw. Stretch a little at a time and test by turning the hub on the servo. If you stretch too much it's hard to undo. Good thing you have a spare spring!

**Step 14:** Add a screw on the inside to keep the servo from spinning.



**Step 15:** Next you are going to attach the suction cup to the top of the skull. Super Glue worked best for me, but you could also use some small screws. Make sure it's fairly centered so you have room to screw the speaker on once attached.



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**Step 16:** Screw your speaker on and plug in the aux cable.

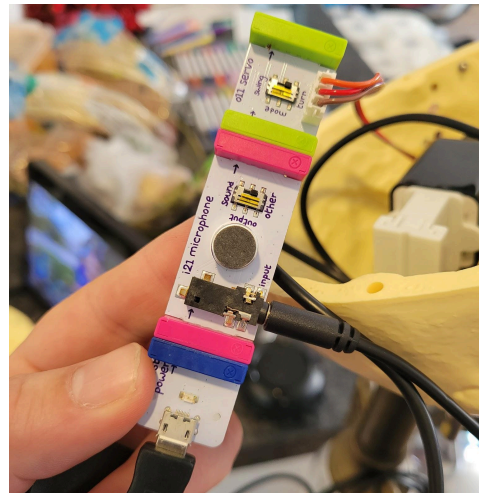


**Step 17:** Plug your aux splitter into the mp3 player and plug the speaker aux cable into one of the ports. Then get another aux cable and plug into the remaining port.

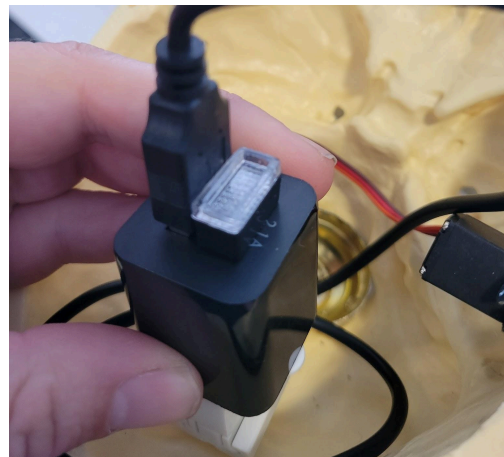


**Step 18:** Put your little bits parts together in this order (power, microphone, servo). They should just magnet together. Plug the remaining aux cable end into the microphone bit. Plug the power cable into the end.

There is a small slider on the microphone bit - slide it to "other" and also one on the servo, slide it to "turn".



**Step 19:** Plug in your usb 2 port plug into the power inside the skull. Plug the usb power cable for the little bits into one port. You can plug in the usb light into the other port to add light to your skull, or use it to plug in the charger for your mp3 if you are worried about it not staying charged.



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**Step 20:** Plug into power, turn your speaker and your mp3 on to do a test run and make sure everything works as you want it.

When you are done, wrap the cables as neatly as you can and fit everything inside the skull. It does fit, it's just a little cramped!

You are done!!



A tip for sound. You get the best motor action by turning the sound all the way up on the mp3 player. Then adjust the actual volume of the audio on the speaker itself.

If you are adding different tracks in the future, make sure to edit your audio to be very loud to get the best action out of your skull. You can google various sites that will help you do this if you don't have audio programs. Just search for "sound file increase volume" or something similar.