Let's Code Halloween
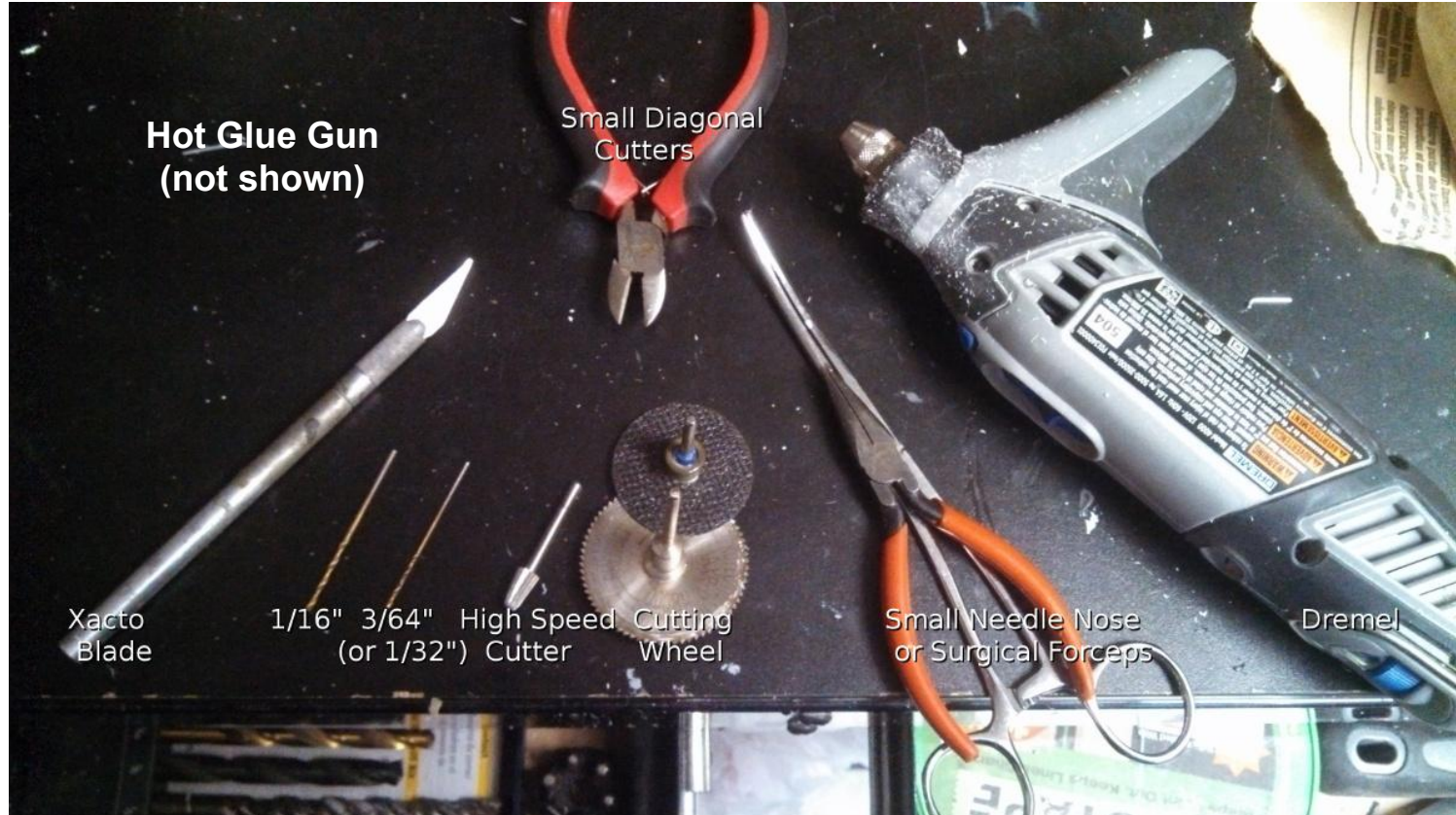# Talking Skull Workshop
Part-2 - Hardware Hacking Guide

- Required Tools
- Skull / Jaw-Servo Mod
- Jaw Demo Video
- Inline Resistors & LED Eyes
- Hardware Mounting`

Parts 1 & 2, parts list & source code all available at:
https://github.com/LetsCodeBlacksburg/arduino-talking-skull

Required Tools

Hot Glue Gun (not shown)

Small Diagonal Cutters

Xacto Blade

1/16" 3/64" (or 1/32")

High Speed Cutter

Cutting Wheel

Small Needle Nose or Surgical Forceps

Dremel

Skull Jaw Mods

Cut Out Back of Skull

Remove Jaw's Right Tab

Shave/Flatten Jaw Tab

Shave down the right jaw tab down so servo screw can go through the jaw and into the servo axle.

Drill Out Right Jaw Hole

Bad Positioning: Don't mount the servo flush with the hole. Angle it so the servo axle is perpendicular to the surface of the jaw's flattened mount point.
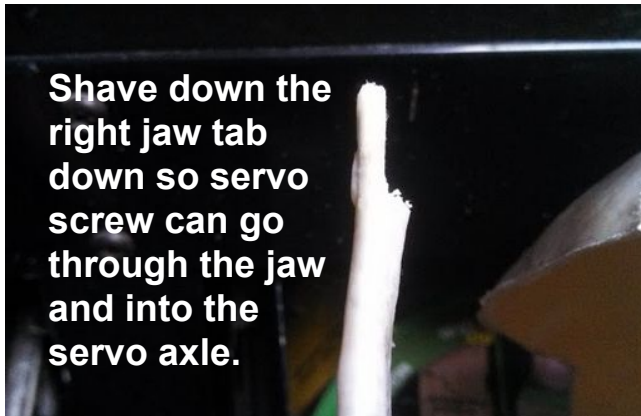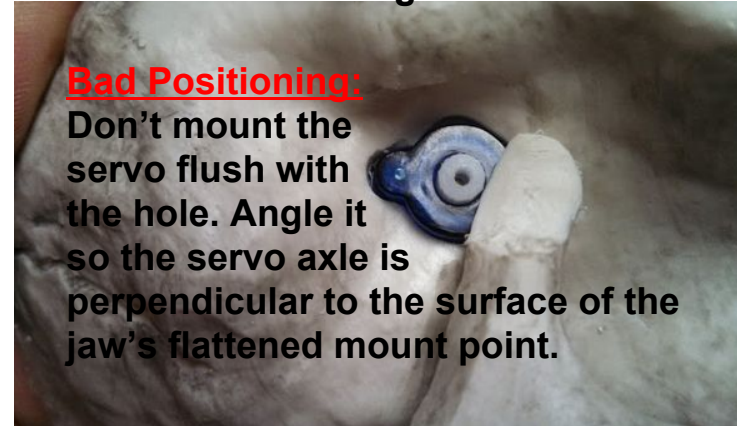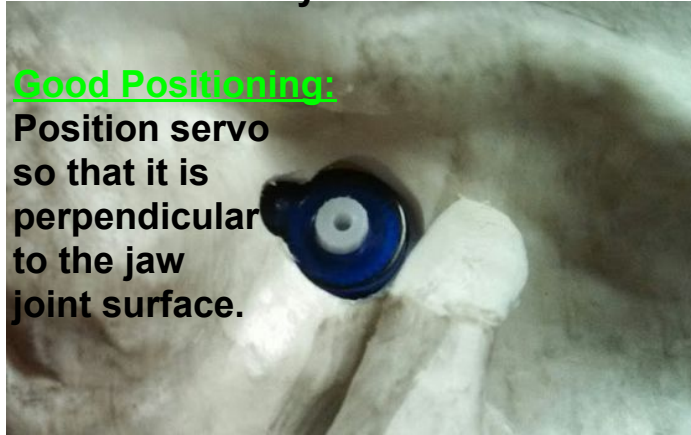
Skull Jaw Mods

Correctly Position Servo
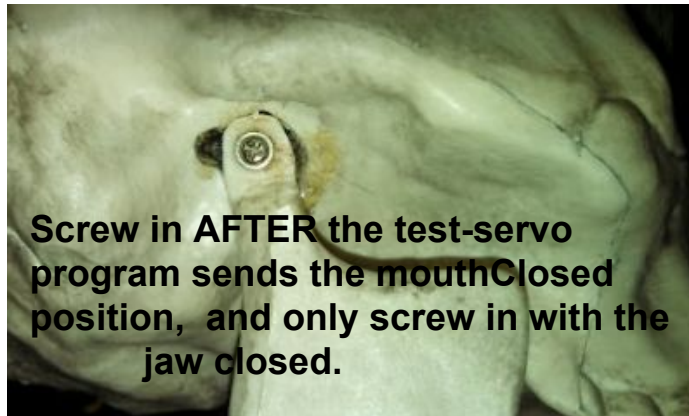
<u>Good Positioning:</u>
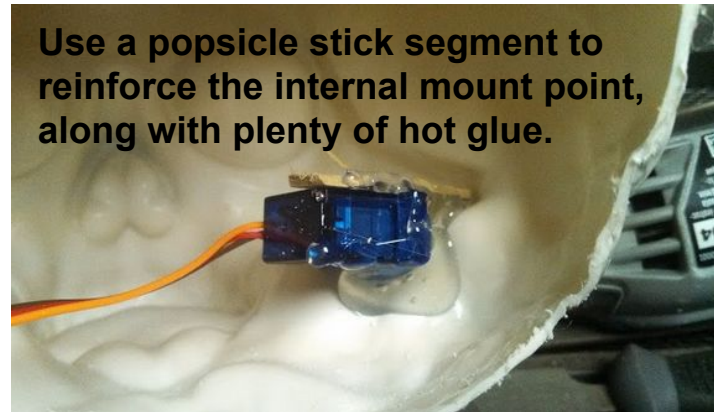**Position servo so that it is perpendicular to the jaw joint surface.**

Glue & Mount Servo

Drill 1/32 Screw Hole & Mount Jaw

Screw in AFTER the test-servo program sends the mouthClosed position, and only screw in with the jaw closed.

Structural Hot Gluing Internally

Use a popsicle stick segment to reinforce the internal mount point, along with plenty of hot glue.
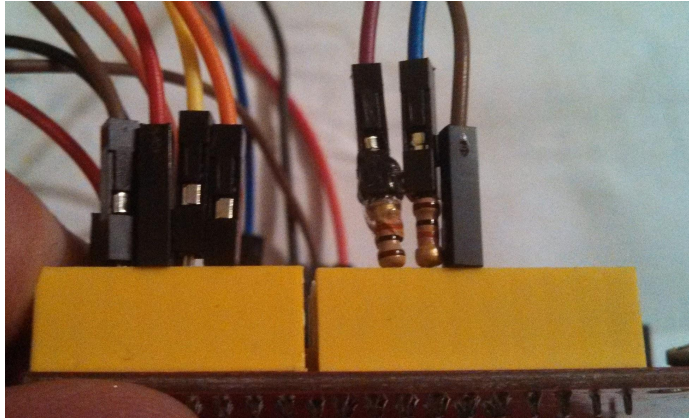
Jaw Functionality Demo

Inline Resistors

LED Eyes

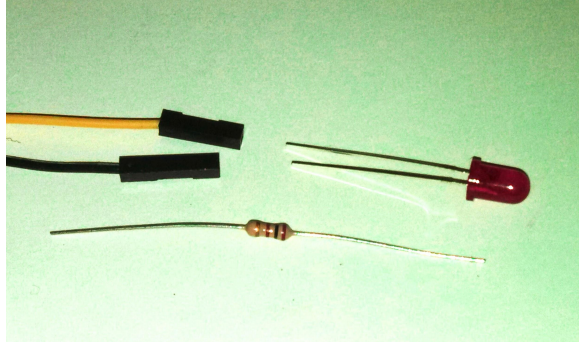## 1k Resistors for MP3 TX/RX Lines

100ohm LED Eye Resistors

Trim & Fold Resistor LED Leads

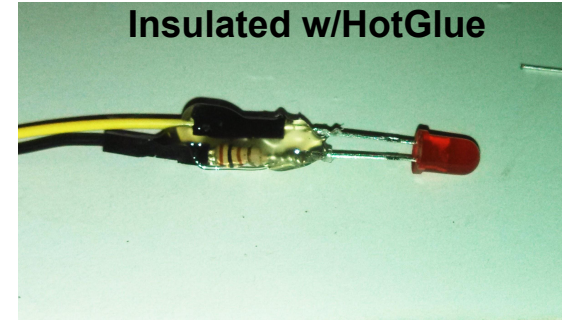## MP3 TX/RX Lines Mounted(10&11)
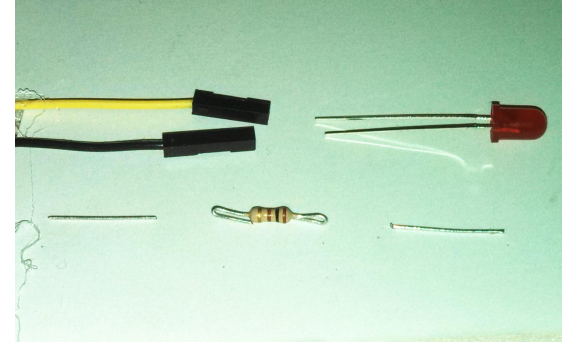
Insert Resistor & LED Into F Wire
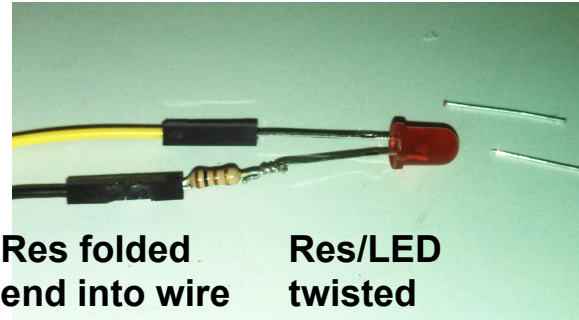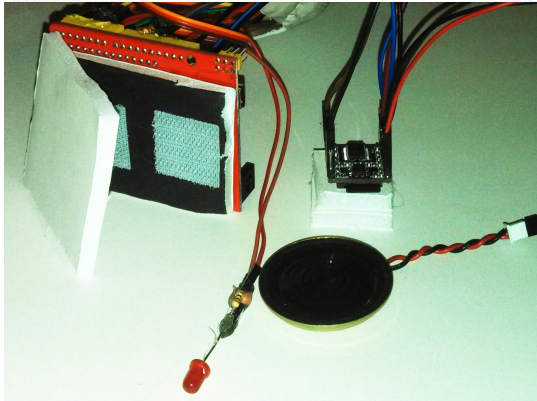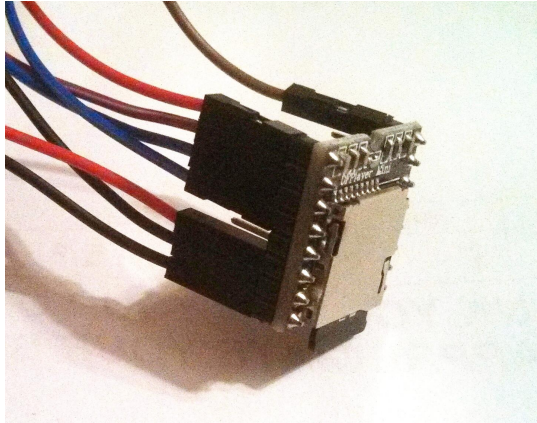
Res folded end into wire

Res/LED twisted

Held In Place & Insulated w/HotGlue

Arduino & MP3 Board Installs

DFPlayer Direct Wired

Modular Foam Board/Velcro Mounts

Speaker

Funduino Microcontroller

LED Eye

Ping Distance Sensor

DFPlayer Mini MP3