# VOICE SWITCH

Version 1.1

An accessible voice activated switch using a HUZZAH32 – ESP32 Feather Board and an Amazon Echo.

Milador

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Github Repository: https://github.com/milador/VoiceSwitch

## Components

1. HUZZAH32 – ESP32 Feather Board (1 x)
2. ADAFRUIT NON-LATCHING MINI RELAY (1 x)
3. FEATHER HEADER KIT FML (1 x)
4. BATTERY LITHIUM 3.7V 350MAH (Optional) (1 x)
5. CONN JACK MONO 3.5MM PNL MNT (1 x)
6. HOOK-UP WIRE (1 x)
7. HEX NUT 0.197" NYLON M2.5 (2 x)
8. MACH SCREW PAN SLOTTED M2.5X0.45 (2 x)
9. ECHO DOT OR OTHER ALEXA ENABLED DEVICE (1 x)

## Hardware Setup

### Enclosure design

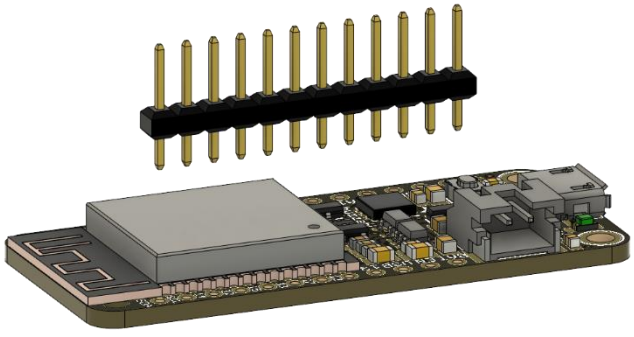
The enclosure/housing files in STL format can be downloaded from GitHub repository under Hardware directory.

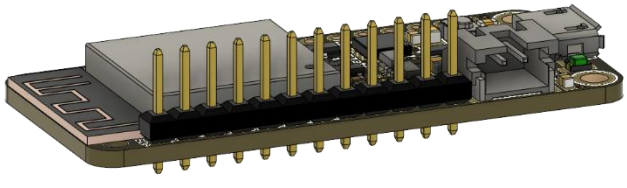
https://github.com/milador/VoiceSwitch/tree/master/Hardware/Enclosure

Please print the following STL files:

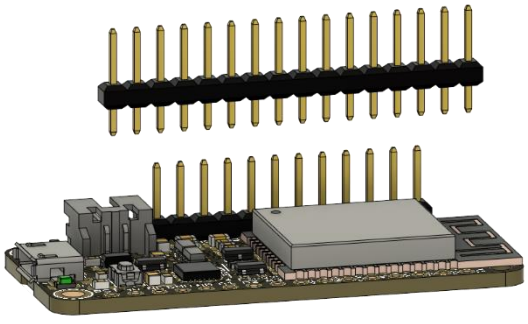
- 1 x VoiceSwitch_Top_Top.stl
- 1 x VoiceSwitch_Bottom.stl
- 1 x VoiceSwitch_Battery_Holder.stl (Optional)

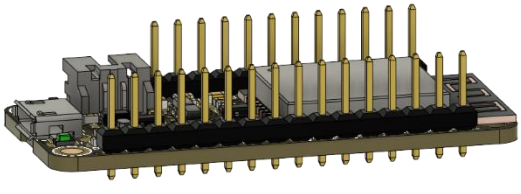
## Assembly



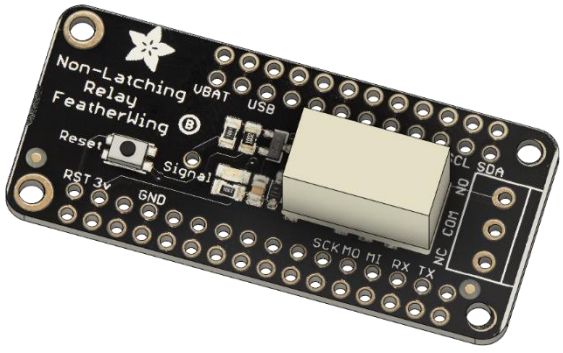


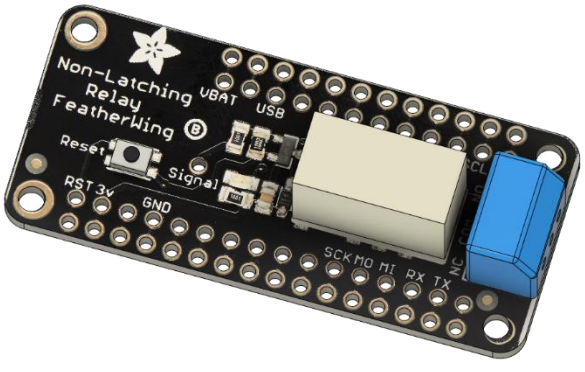
**Step 1: Position and solder the 12-position male header on HUZZAH32 board x 1.**



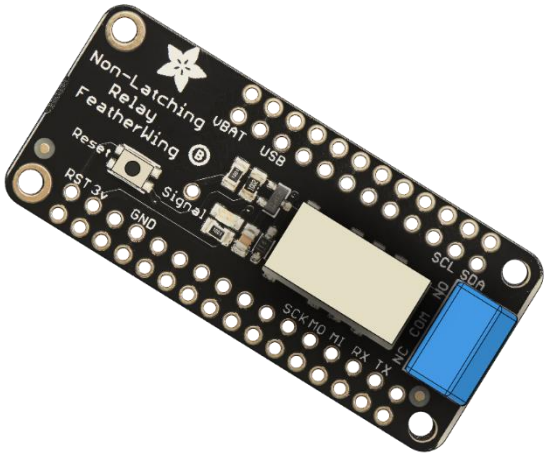


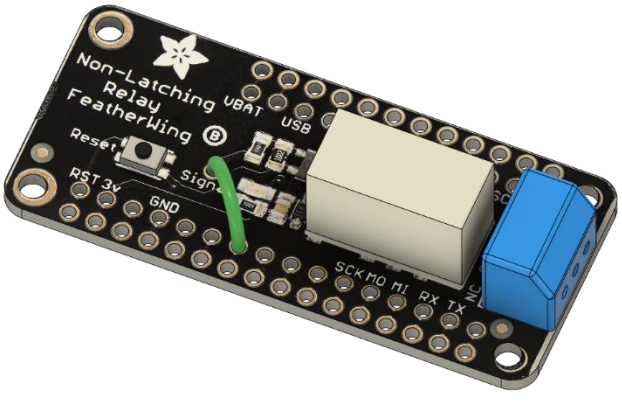
**Step 2: Position and solder the 16-position male header on HUZZAH32 board x 1.**



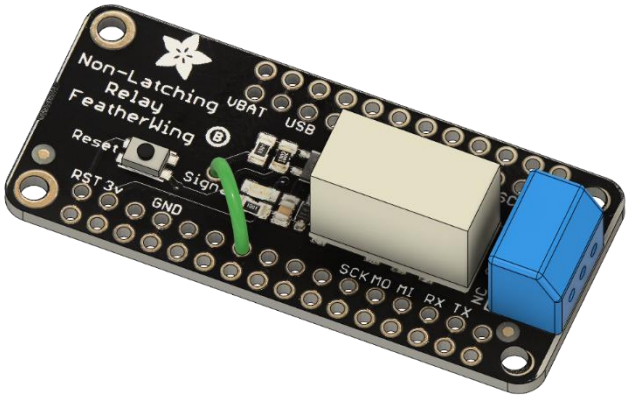



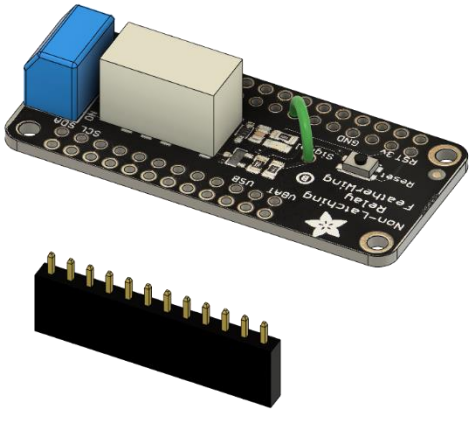

**Step 3: Position and solder the 3 pin Terminal Block of the Relay Feather Wing.**



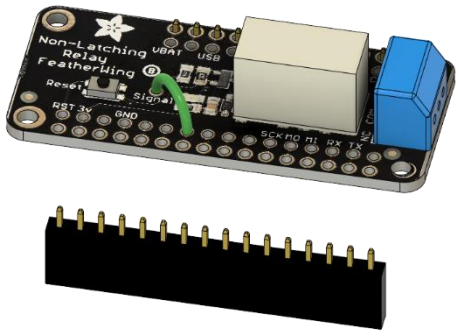



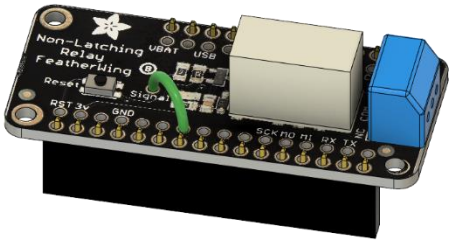

**Step 4: Solder a wire from “Signal” pin to “A2” pin of the Relay Feather Wing.**



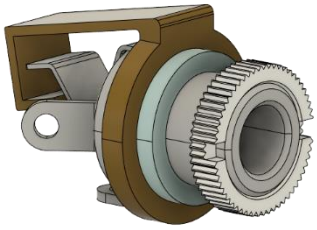



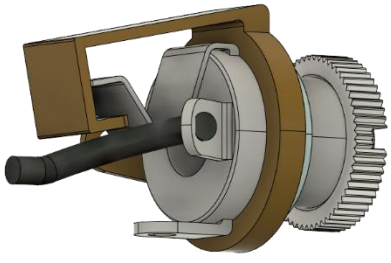
**Step 5: Position and solder the 14-position female header on the bottom of Relay Feather Wing.**



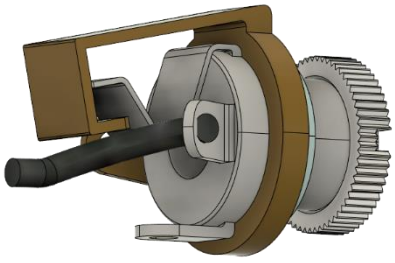



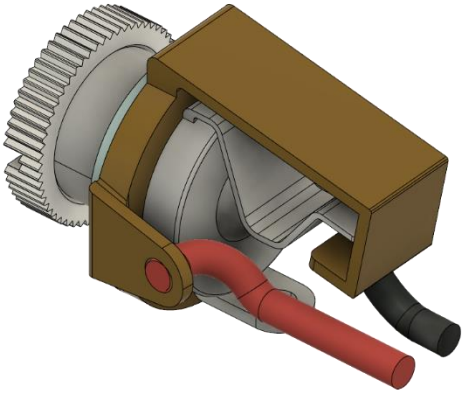

**Step 6: Position and solder the 16-position female header on the bottom of Relay Feather Wing.**



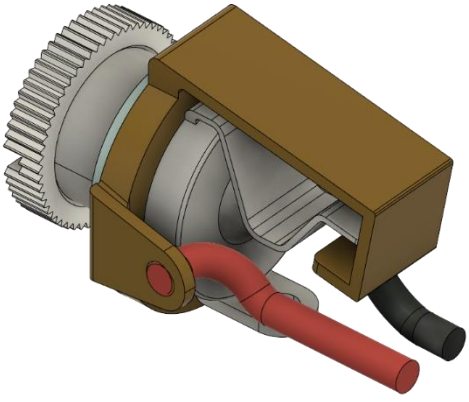


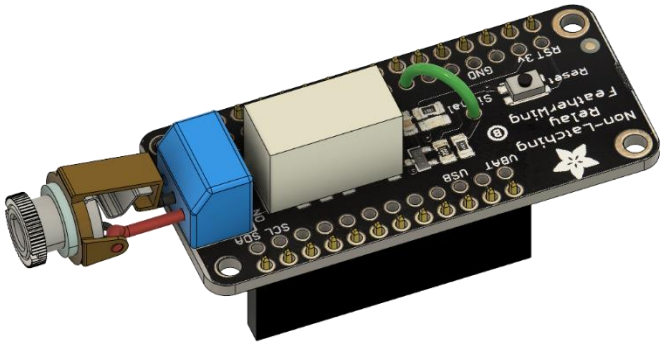
**Step 7: Solder a wire from “Sleeve” of 3.5mm Jack.**



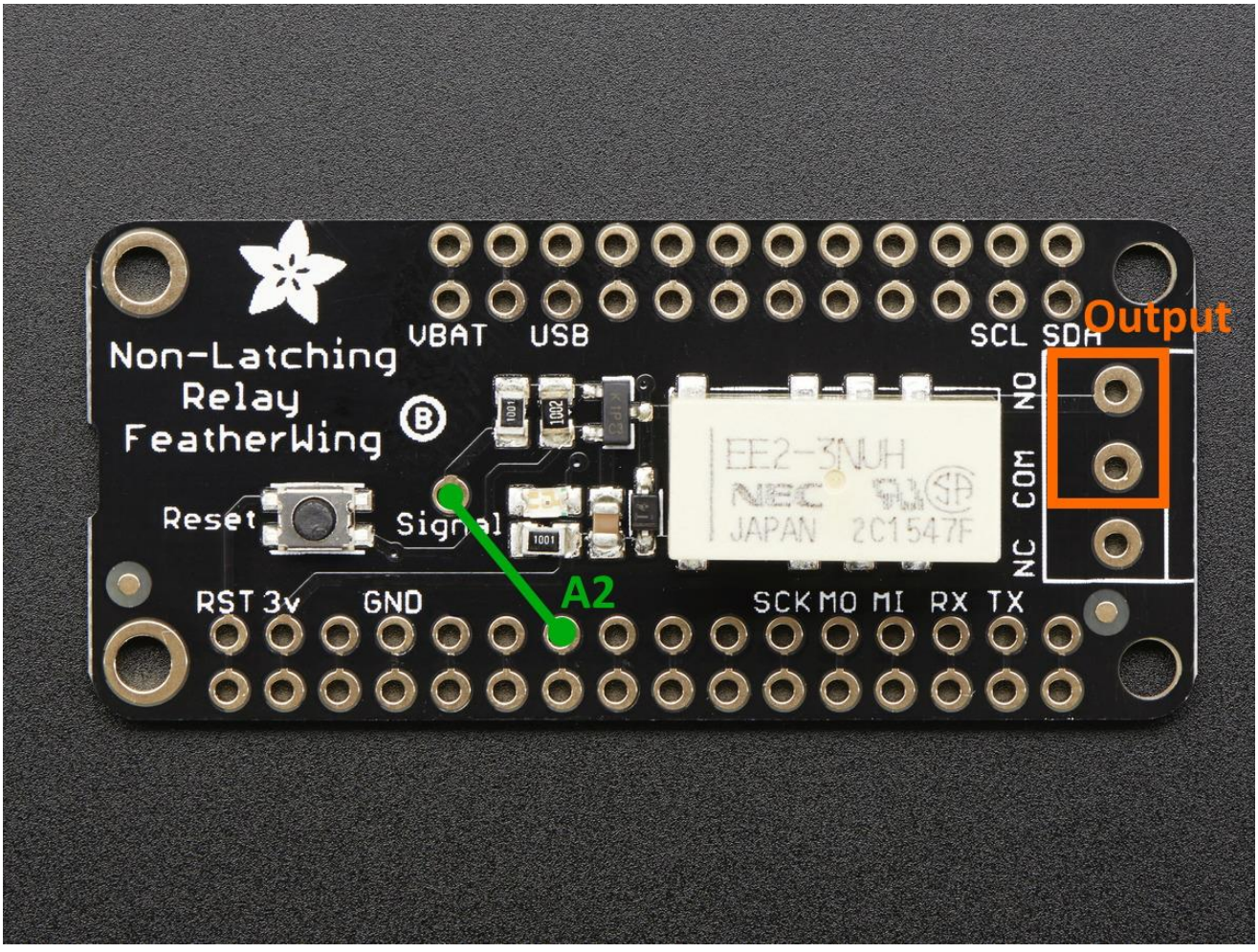


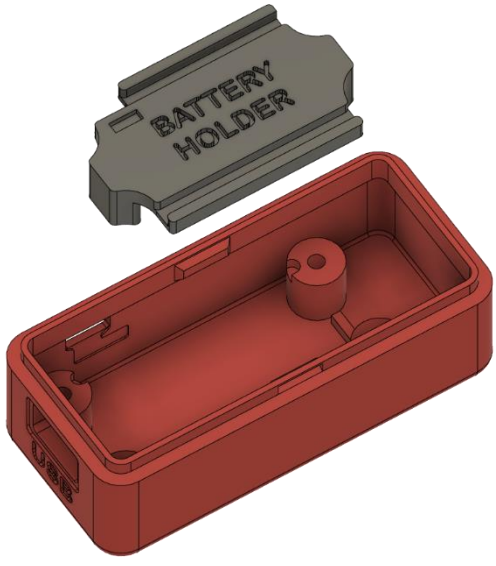
**Step 8: Solder a wire from “Tip” of 3.5mm Jack.**

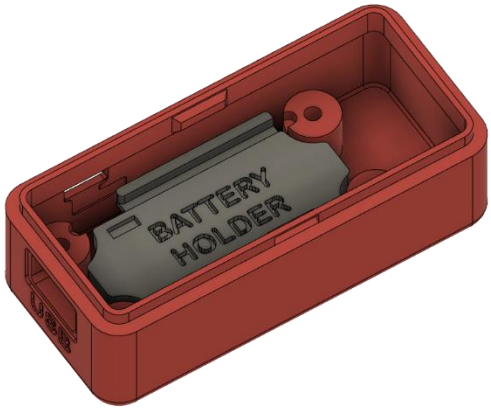




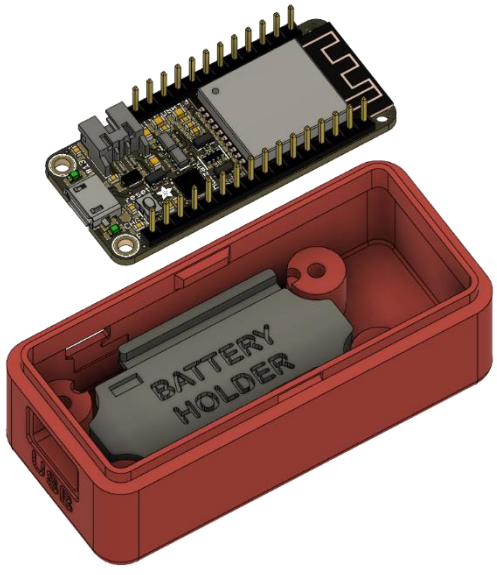

**Step 9: Solder the wire from “Tip” of 3.5mm Jack to “NO” of Terminal Block and “Sleeve” of 3.5mm Jack to “COM” of Terminal Block and.**

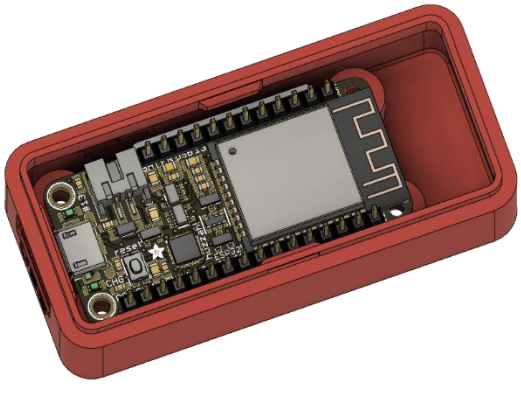

Non-Latching
Relay
FeatherWing
VBAT
USB
SCL
SDA
Output
NO
COM
NC
Reset
Signal
A2
RST
3v
GND
SCK
MO
MI
RX
TX
EE2-3NUH
NEC
JAPAN
2C1547F



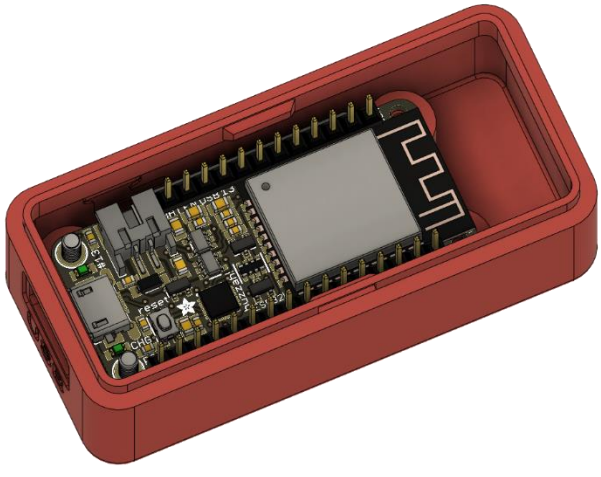




**Step 10: Place the Battery Holder in bottom enclosure. (Optional)**

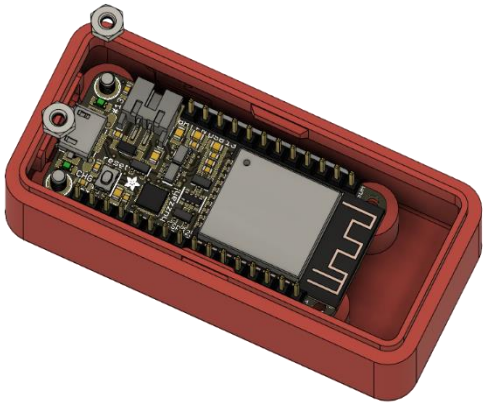


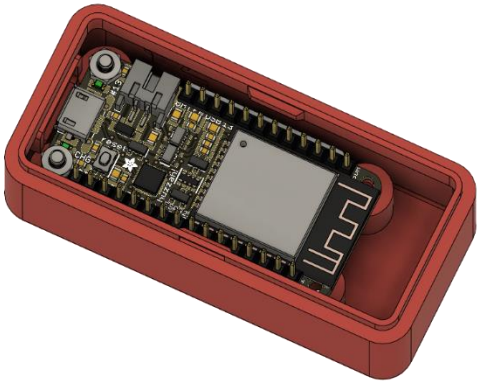



**Step 11: Position the assembled HUZZAH32 board in bottom enclosure.**

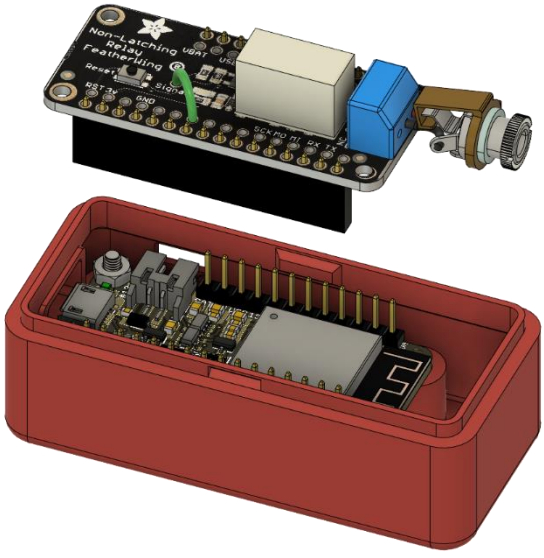


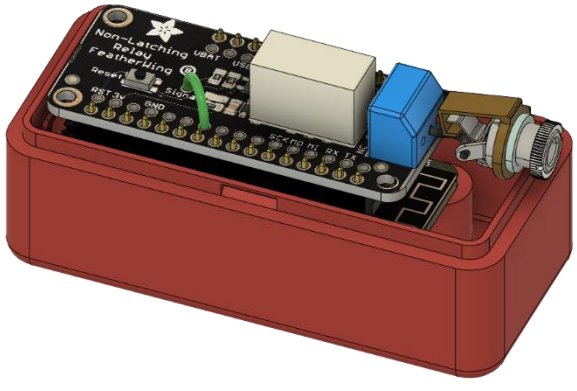
**Step 12: Insert the M2.5 screws under the bottom enclosure and push them through the drill holes x 2.**



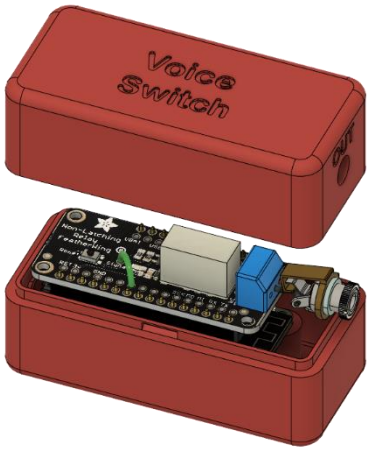


**Step 13: Insert the M2.5 screw nuts and secure HUZZAH32 board by tightening the nuts x 2.**




**Step 14: Stack the assembled Relay Feather Wing over the HUZZAH32 board.**



**Step 15: Insert the top enclosure over the bottom enclosure and snap them together.**

## Software Setup

1. Setup an Adafruit IO account according to the following instructions:
   1.1. Create an Adafruit IO account
   1.2. Create an AIO KEY
   1.3. Copy your Adafruit IO key for later use in the code
   1.4. Create an Adafruit IO feed with name of your switch. I used feed name “Monkey” as an example.
2. Setup your HUZZAH32 – ESP32 Feather Board
   2.1. Download ESP32 library for Arduino IDE and install it according to the following instruction: https://learn.adafruit.com/adafruit-huzzah32-esp32-feather/using-with-arduino-ide
   2.2. Download Adafruit IO Arduino library and add it under Arduino's "libraries" directory. https://github.com/adafruit/Adafruit_IO_Arduino
   2.3. Download Adafruit Arduino library for MQTT support and add it under Arduino's "libraries". directory. https://github.com/adafruit/Adafruit_MQTT_Library
   2.4. Download Adafruit Arduino HTTP Client library and add it under Arduino's "libraries" directory. https://github.com/arduino-libraries/ArduinoHttpClient
3. Setup IFTTT account 3.1. Create an IFTTT account at https://ifttt.com.
4. Create switch on recipe
   4.1. Click on the “New applet” button to create a recipe.
   4.2. Click on the blue this block and select “Amazon Alexa” as a service.
   4.3. Click on “Say a specific phrase” to turn on your switch.
   4.4. Enter the method phrase to activate the switch. I used phrase “Monkey on” as an example.
   4.5. Click on the blue that block and select “Adafruit” as the action service.
   4.6. Select “Send data to Adafruit IO” block.
   4.7. Enter “on” as the Data to save.
   4.8. Click on “Finish” button.
5. Create switch off recipe
   5.1. Click on the “New applet” button to create a recipe.
   5.2. Click on the blue this block and select “Amazon Alexa” as a service.
   5.3. Click on “Say a specific phrase” to turn off your switch.
   5.4. Enter the method phrase to activate the switch. I used phrase “Monkey off” as an example.
   5.5. Click on the blue that block and select “Adafruit” as the action service.
   5.6. Select “Send data to Adafruit IO” block.

5.7. Enter “off” as the Data to save.

5.8. Click on “Finish” button.

6. Setup the VoiceSwitch-Single.ino code

6.1. Open VoiceSwitch-Single.ino file using Arduino IDE.

6.2. Make a copy of your IO_USERNAME and IO_KEY from Adafruit IO account and paste them in the config.h file.

6.3. Replace "your_ssid" with your WiFi's SSID and "your_pass" with your WiFi's password in the config.h file.

6.4. Verify and upload VoiceSwitch-Single.ino code to your HUZZAH32 – ESP32 Feather Board.

7. Make sure the feed data status and status of your device match. You can manually set it to on/off to match it.