



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. **(OPTIONAL)** BATTERY LITHIUM 3.7V 350MAH **(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. **(OPTIONAL)** ECHO DOT OR OTHER ALEXA ENABLED DEVICE **(1 x)**

Hardware Setup

Enclosure design

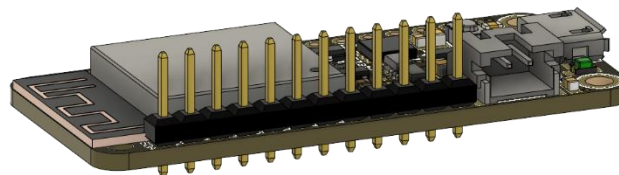
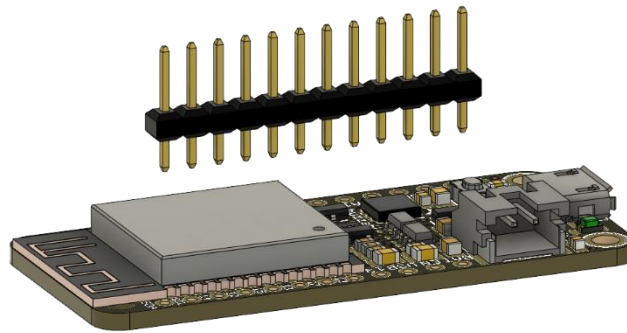
The enclosure/housing files in STL format can be downloaded from GitHub repository under Hardware directory.

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

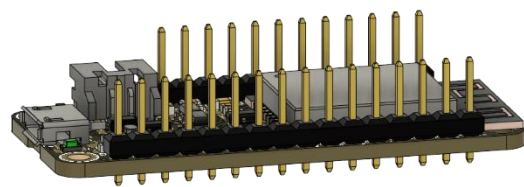
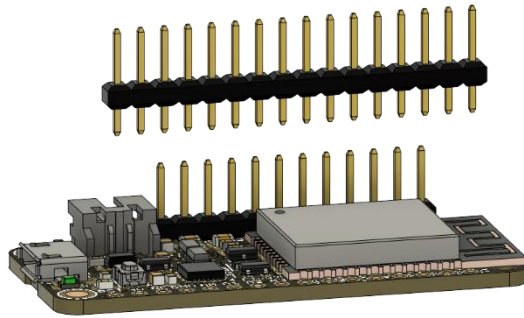
Please print the following STL files:

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

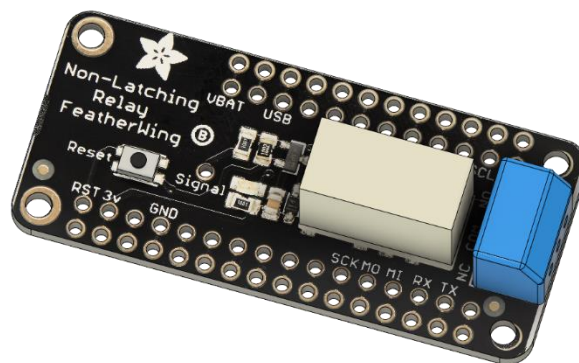
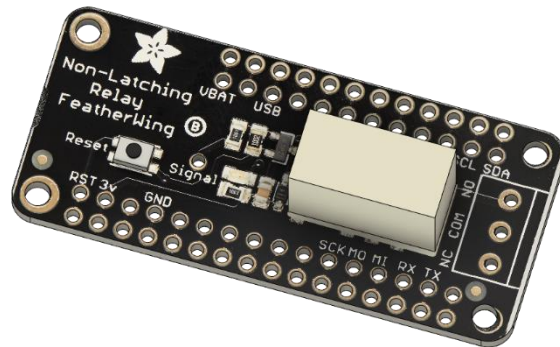
Assembly



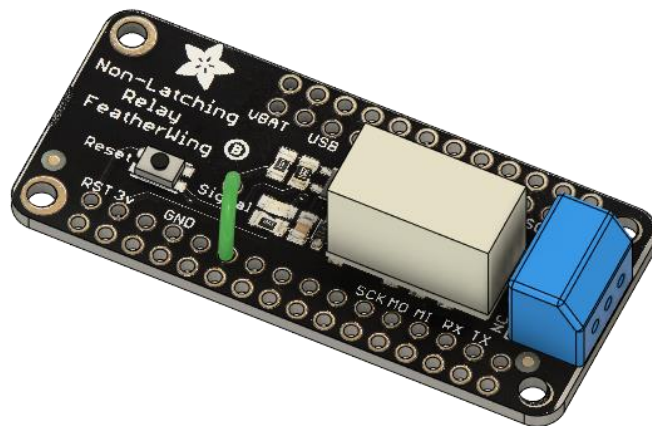
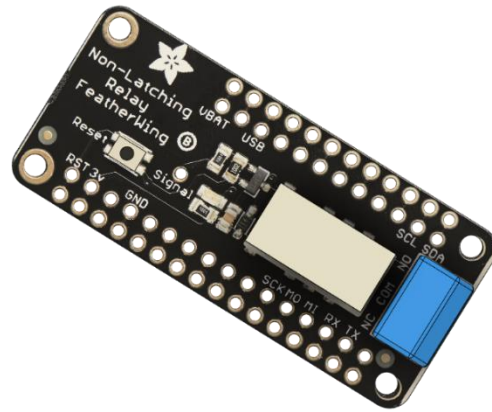
Step 1: Position and solder the 12-position male header on HUZAH32 board x 1.



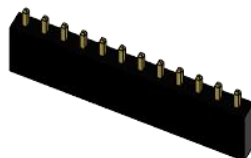
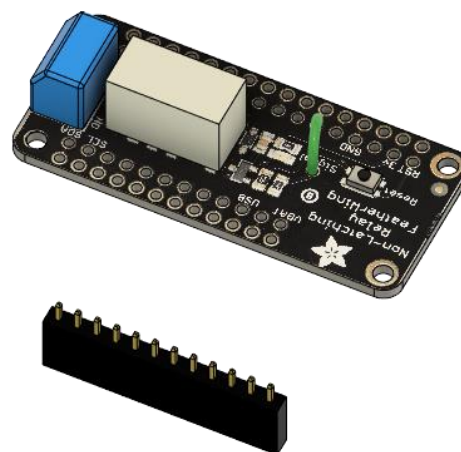
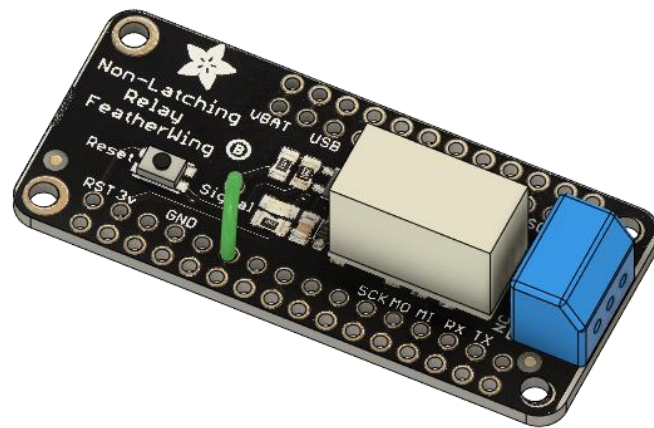
Step 2: Position and solder the 16-position male header on HUZZAH32 board x 1.



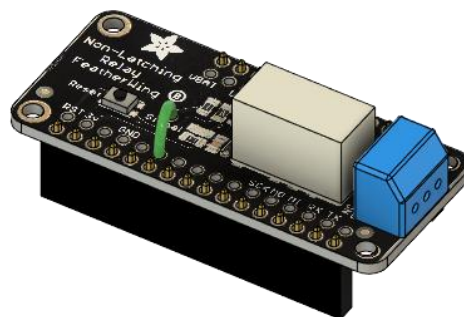
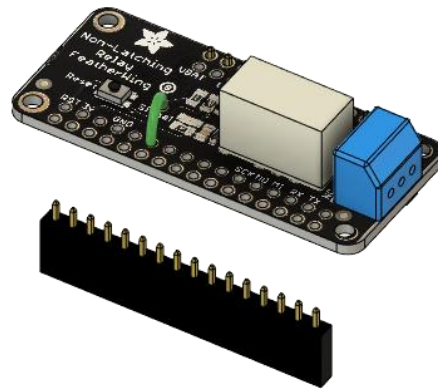
Step 3: Position and solder the 3 pin Terminal Block of the Relay Feather Wing.



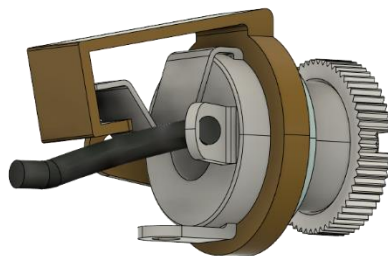
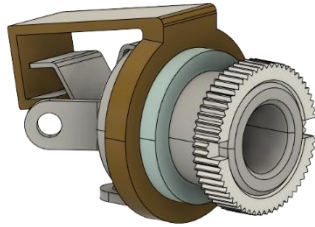
Step 4: Solder a wire from “Signal” pin to “A1” pin of the Relay Feather Wing.



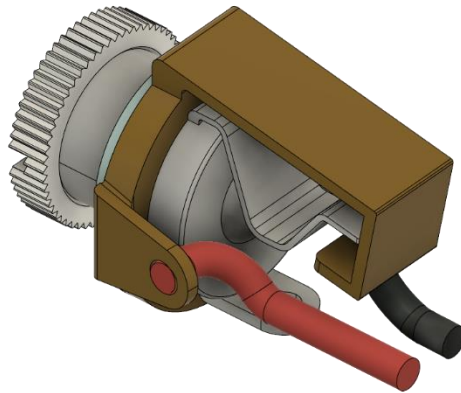
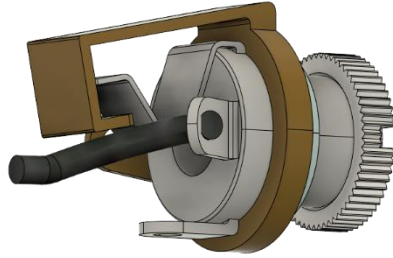
Step 5: Position and solder the 14-position female header on the bottom of Relay Feather Wing.



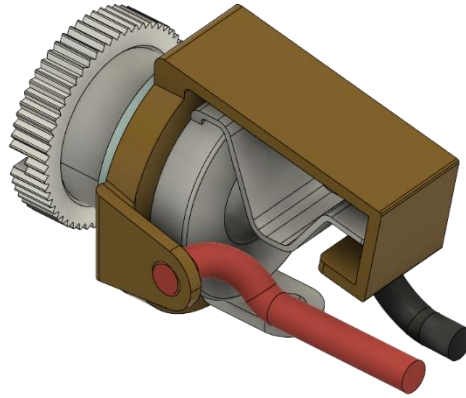
Step 6: Position and solder the 16-position female header on the bottom of Relay Feather Wing.



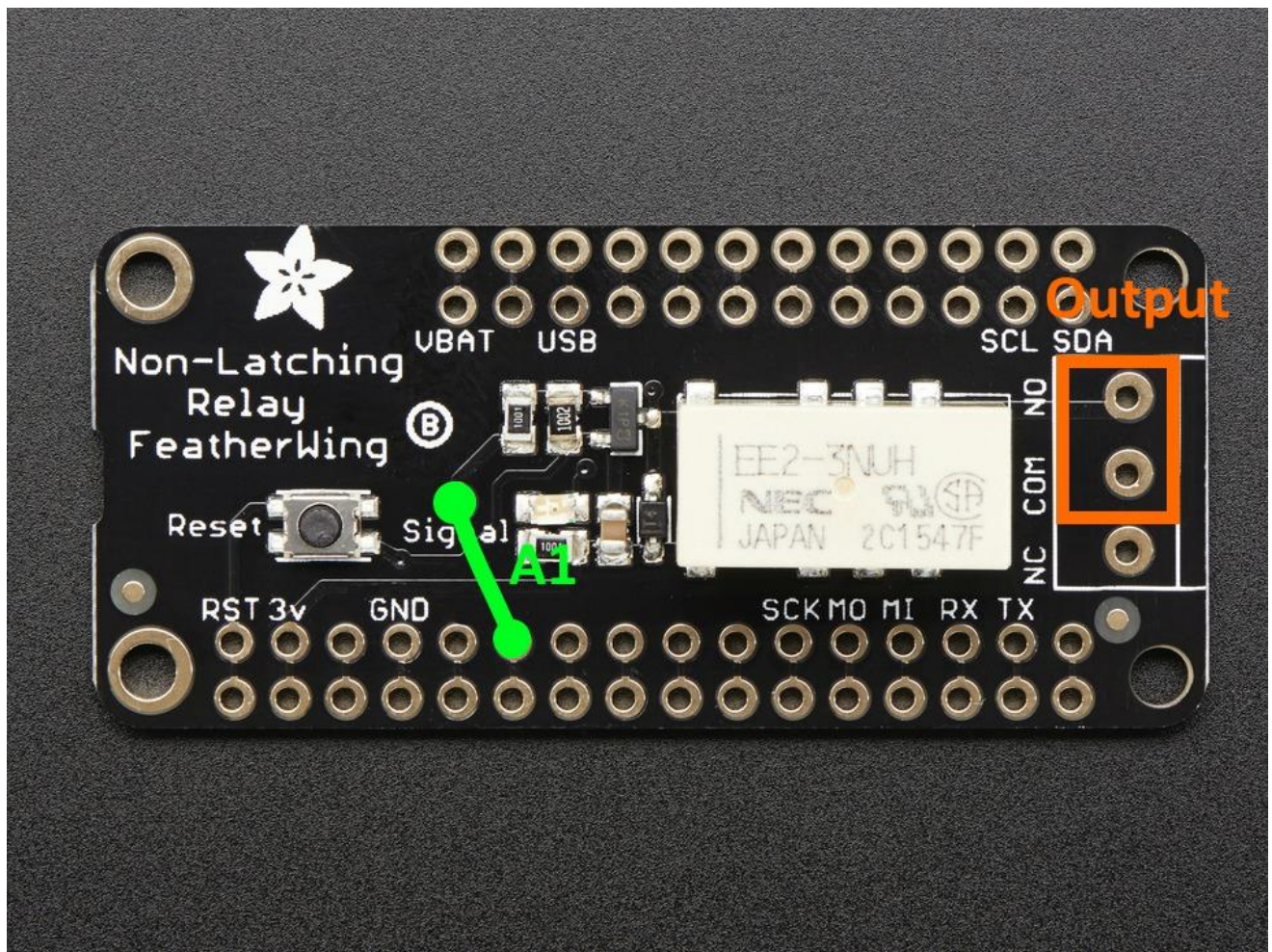
Step 7: Solder a wire from “Sleeve” of 3.5mm Jack.

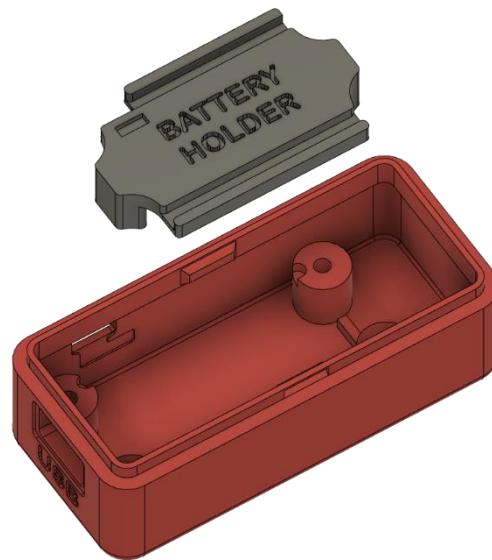


Step 8: Solder a wire from “Tip” of 3.5mm Jack.

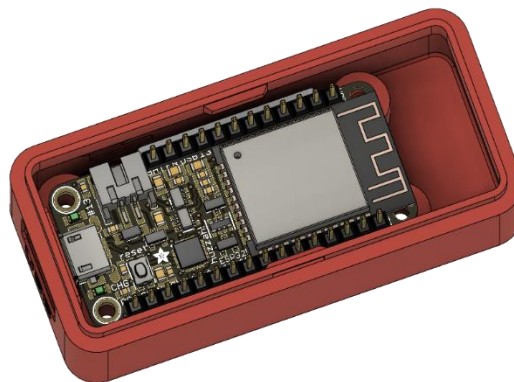
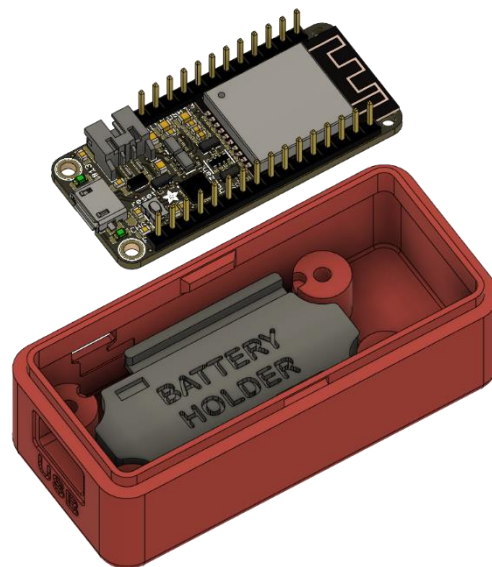


Step 9: Solder the wire from “Tip” of 3.5mm Jack to “NO” of Terminal Block and “Sleeve” of 3.5mm Jack to “COM” of Terminal Block and.





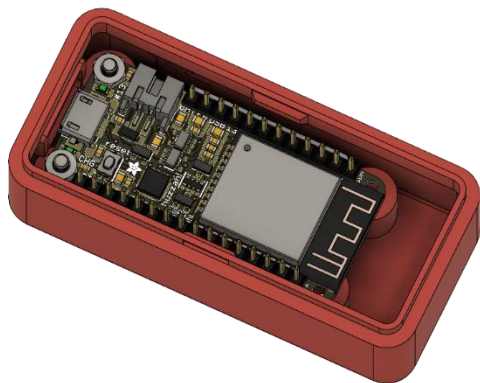
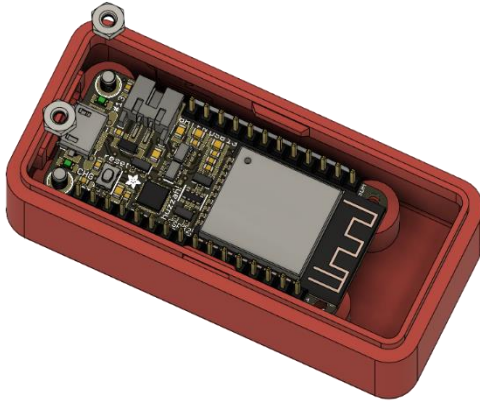
Step 10: Place the Battery Holder in bottom enclosure. (Optional)



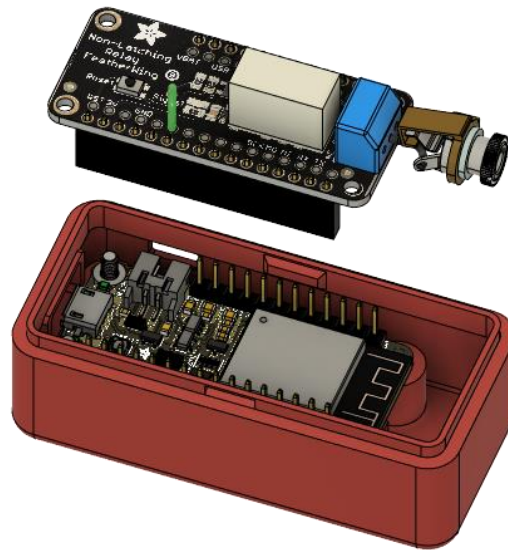
Step 11: Position the assembled HUZZAH32 board in bottom enclosure.



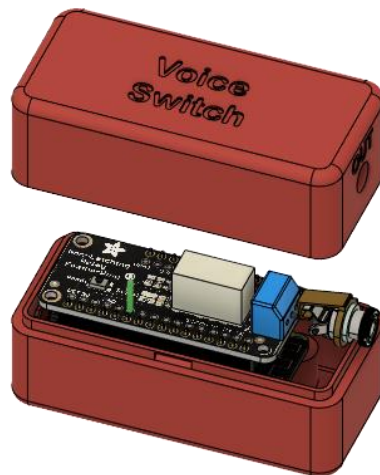
**Step 12: Insert the M2.5 screws under the bottom enclosure and push them through the drill holes
x 2.**



Step 13: Insert the M2.5 screw nuts and secure HUZAH32 board by tightening the nuts x 2.



Step 14: Stack the assembled Relay Feather Wing over the HUZAH32 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 to **libraries** directory under **Arduino** installation path in your computer.
https://github.com/adafruit/Adafruit_IO_Arduino
 - 2.3. Download **Adafruit Arduino library for MQTT** support and add it to **libraries** directory under **Arduino** installation path in your computer.
https://github.com/adafruit/Adafruit_MQTT_Library
 - 2.4. Download **Adafruit Arduino HTTP Client** library and add it to **libraries** directory under **Arduino** installation path in your computer.
<https://github.com/arduino-libraries/ArduinoHttpClient>
3. Setup your Alexa compatible device or Alexa application ([Android](#) and [iOS](#)) on your smartphone.
4. Setup IFTTT account
 - 3.1. Create an IFTTT account at <https://ifttt.com>.
5. Create **Momentary switch** recipe
 - 5.1. Open **Ifttt** application on your smartphone.
 - 5.2. Click on the **Create** button to create a recipe.
 - 5.3. Click on **If This Add** button to add the trigger block.
 - 5.4. Search and select **Amazon Alexa** as trigger service.
 - 5.5. Click on **Say a specific phrase** block to select the trigger phrase.
 - 5.6. Enter the method phrase to activate the switch. I used phrase **Monkey switch** as an example.
 - 5.7. Click on **Then That Add** button to add the action service block.
 - 5.8. Search and select **Adafruit** as action service.
 - 5.9. Select **Send data to Adafruit IO** block.
 - 5.10. Enter **Monkey** feed as the **Feed Name**.
 - 5.11. Enter **switch** as the **Data to save**.

- 5.12. Click on the **Continue** button.
- 5.13. Click on the **Continue** button again.
- 5.14. Review the applet logic and click on the **Finish** button.
6. Create **Switch on** recipe
 - 6.1. Open **Ifttt** application on your smartphone.
 - 6.2. Click on the **Create** button to create a recipe.
 - 6.3. Click on **If This Add** button to add the trigger block.
 - 6.4. Search and select **Amazon Alexa** as trigger service.
 - 6.5. Click on **Say a specific phrase** block to select the trigger phrase.
 - 6.6. Enter the method phrase to activate the switch. I used phrase **Monkey on** as an example.
 - 6.7. Click on **Then That Add** button to add the action service block.
 - 6.8. Search and select **Adafruit** as action service.
 - 6.9. Select **Send data to Adafruit IO** block.
 - 6.10. Enter **Monkey** feed as the **Feed Name**.
 - 6.11. Enter **switch** as the **Data to save**.
 - 6.12. Click on the **Continue** button.
 - 6.13. Click on the **Continue** button again.
 - 6.14. Review the applet logic and click on the **Finish** button.
7. Create **Switch off** recipe
 - 7.1. Open **Ifttt** application on your smartphone.
 - 7.2. Click on the **Create** button to create a recipe.
 - 7.3. Click on **If This Add** button to add the trigger block.
 - 7.4. Search and select **Amazon Alexa** as trigger service.
 - 7.5. Click on **Say a specific phrase** block to select the trigger phrase.
 - 7.6. Enter the method phrase to activate the switch. I used phrase **Monkey off** as an example.
 - 7.7. Click on **Then That Add** button to add the action service block.
 - 7.8. Search and select **Adafruit** as action service.
 - 7.9. Select **Send data to Adafruit IO** block.
 - 7.10. Enter **Monkey** feed as the **Feed Name**.
 - 7.11. Enter **switch** as the **Data to save**.
 - 7.12. Click on the **Continue** button.
 - 7.13. Click on the **Continue** button again.
 - 7.14. Review the applet logic and click on the **Finish** button.

8. Setup the ***VoiceSwitch.ino*** code
 - 8.1. Open ***VoiceSwitch.ino*** file using Arduino IDE.
 - 8.2. Make a copy of your ***IO_USERNAME*** and ***IO_KEY*** from Adafruit IO account and paste them in the ***config.h*** file.
 - 8.3. Replace ***your_ssid*** with your WiFi's SSID and ***your_pass*** with your WiFi's password in the ***config.h*** file.
 - 8.4. Verify and upload ***VoiceSwitch.ino*** code to your HUZZAH32 – ESP32 Feather Board.
9. Make sure the feed data status and status of your device match. You can manually set it to on/off to match it.