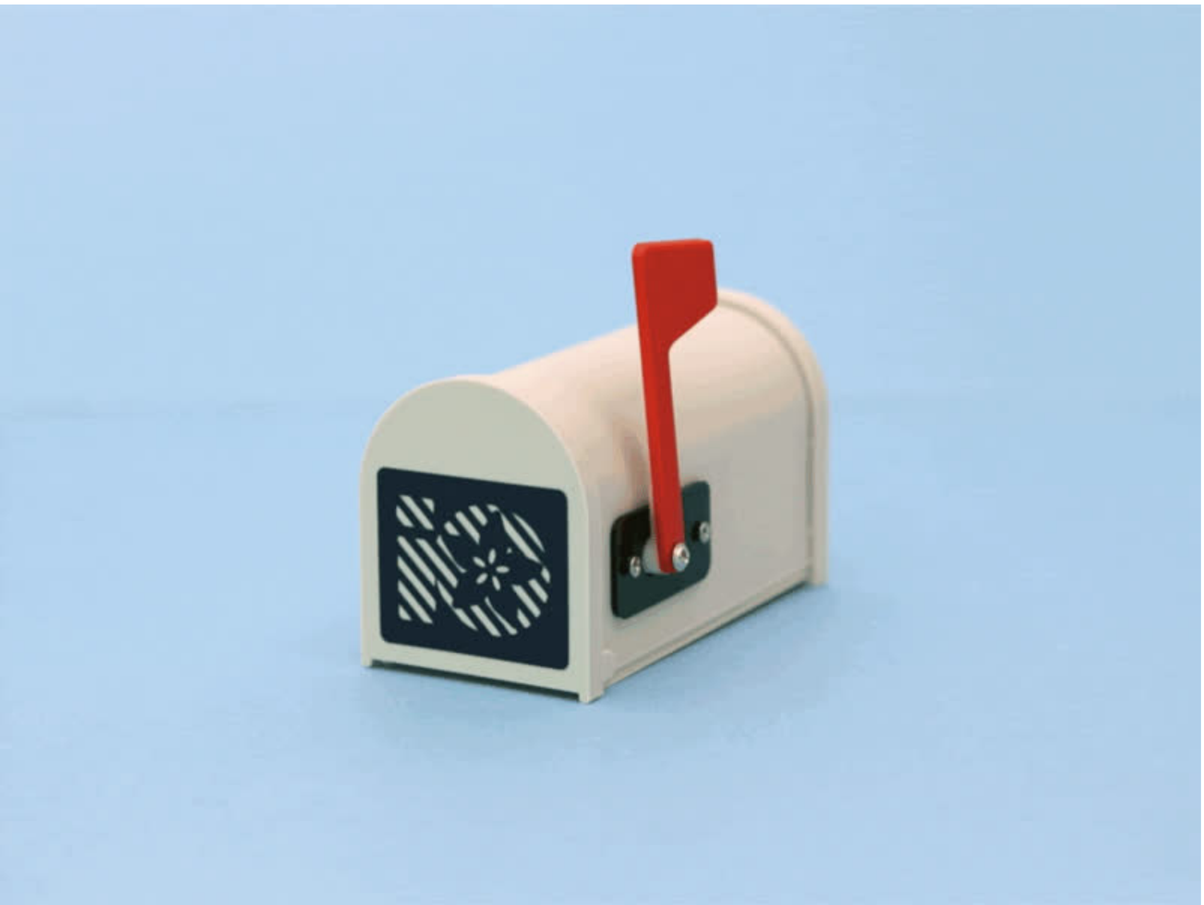
Gmailbox

Created by Brent Rubell



https://learn.adafruit.com/gmailbox

Last updated on 2024-06-03 02:22:33 PM EDT

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Introduction

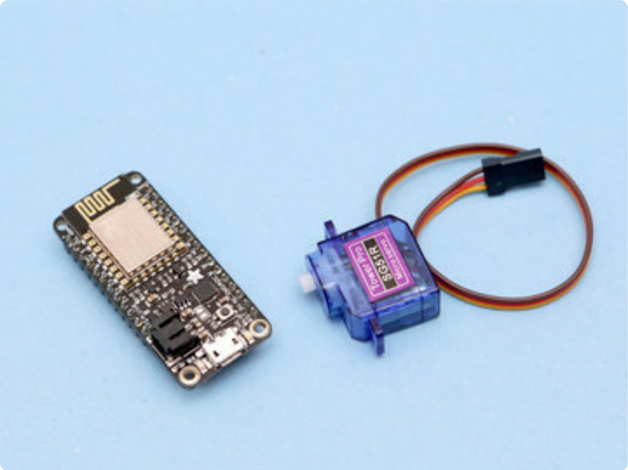
Google implemented changes to their API ecosystem that impacted the Gmail applet on both IFTTT and Zapier This guide is no longer possible as a result of these changes and should not be followed.

Ahhh, the charms of suburbia, mowing the lawn, white picket fences, running barefoot to the mailbox to see if the postal worker already dropped by. Sometimes we wax nostalgic for our childhood. Maybe we've become de-sensitized to the constant work email notification pop-ups on our smartphones.

Wouldn't it be nice to get a friendlier heads up? Do you ever miss the old-school "You've got mail!" sound from your old AOL email client?

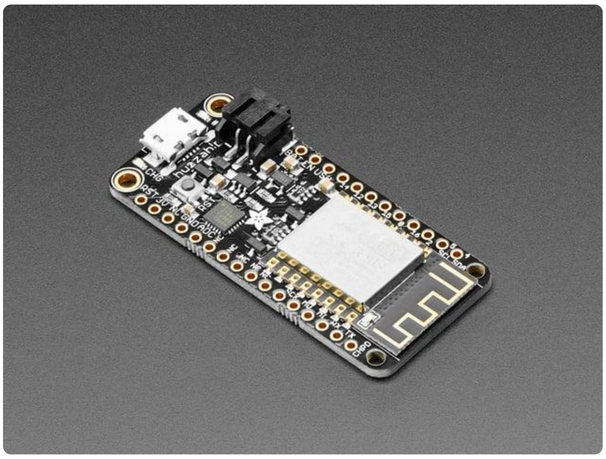
We're going to make a small mailbox to sit on your desk and notify you about incoming emails. When a new email is received, it raises a flag and gently lowers it back down.

It's a fun, easy, introductory project to the Internet-of-Things by making things move using Adafruit IO (https://adafru.it/fsU) with IFTTT (https://adafru.it/iOe).



Parts

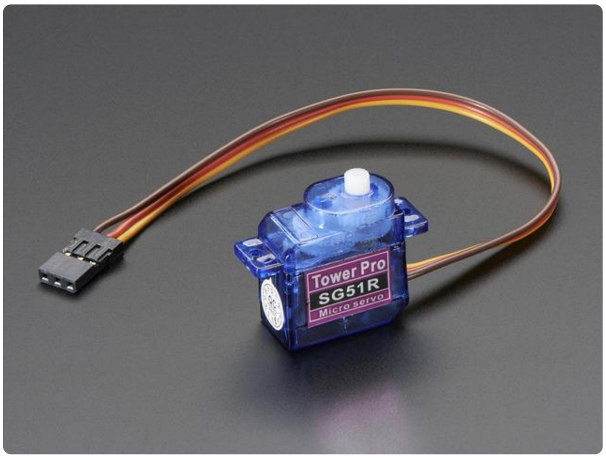
You'll need the following parts to complete this guide.



Adafruit Feather HUZZAH with ESP8266 - Loose Headers

Feather is the new development board from Adafruit, and like its namesake, it is thin, light, and lets you fly! We designed Feather to be a new standard for portable microcontroller...

https://www.adafruit.com/product/2821



Sub-micro Servo - SG51R

This is just about the cutest, tiniest little micro servo we could find, even smaller than the 9-gram micro servos we love so much. It can rotate approximately 180 degrees (90 in...

https://www.adafruit.com/product/2201

Supplies

Wire and handy supplies for soldering.

1 x Silicone Cover Stranded-Core Wire https://www.adafruit.com/product/2517

This wire is soft and flexible enough to go into the enclosure for your Gmailbox

1 x Solder Wire https://www.adafruit.com/product/734

Solder Spool - 1/4 lb SAC305 RoHS lead-free / 0.031" rosin-core - 0.25 lb / 100 g

Tools

To build your Gmailbox, you'll need access to the following tools. Don't have something listed? Pick it up from the Adafruit shop.

1 x Wire Strippers https://www.adafruit.com/product/527

Hakko Professional Quality 20-30 AWG Wire Strippers

Adjustable 30W 110V soldering iron

1 x Soldering Iron Adjustable 30W 110V soldering iron	https://www.adafruit.com/product/180
1 x Panavise Panavise Jr.	https://www.adafruit.com/product/151
1 x 3D Printer Ultimaker 2+ 3D Printer	https://www.adafruit.com/product/2673

Hardware

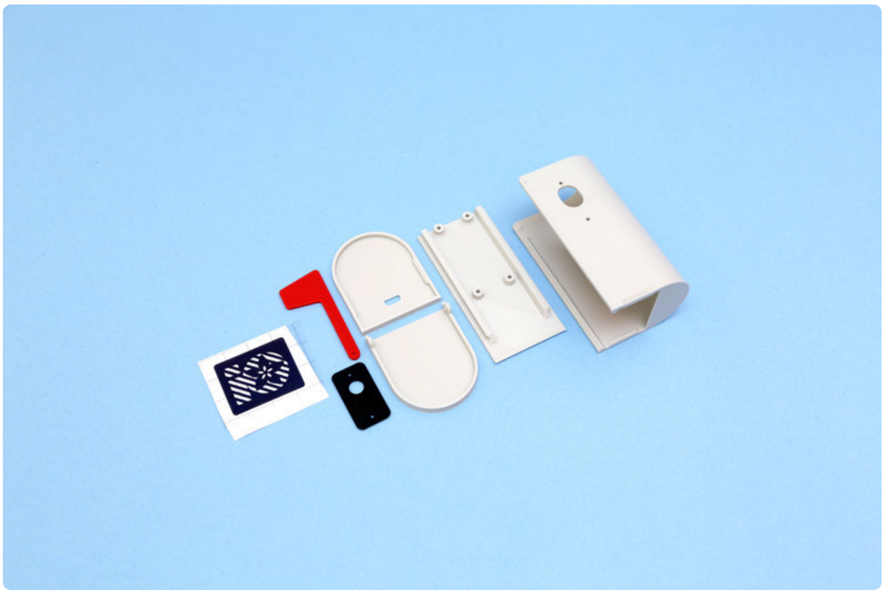
You'll need some screws and nuts to secure the parts together. We have them linked here but you can source them from your local hardware supplier.

2 x M2 x 12mm Machine Screws Micro Servo – M2x 12mm Flat Head Phillips	https://www.albanycountyfasteners.com/2MM-x-4-Phillips-Flat-Head-Machine-Screw-p/1011-1000.htm
2 x M2 Hex Nuts M2 Metric Hex Jam Nuts	https://www.albanycountyfasteners.com/Metric-Hex-Jam-Nuts-A2-Stainless-Steel-p/5580000.htm
4 x M2.5 x 6mm Machine Screws Feather HUZZAH – M2.5 x 6mm Flat Head Phillips	https://www.albanycountyfasteners.com/2-5-MM-x-45-Phillips-Flat-Head-Machine-Screw-p/1011-1002.htm
2 x M3 x 8mm Machine Screws Pole Bracket – M3 x 8mm Metric Pan Head Phillips	https://www.albanycountyfasteners.com/Phillips-Pan-Head-Machine-Screw-M3-x-5-p/1066-1008.htm
2 x M3 Hex Nuts M3 Metric Hex Jam Nuts	https://www.albanycountyfasteners.com/Metric-Hex-Jam-Nuts-A2-Stainless-Steel-p/5580000.htm

3D Printing the Mailbox

Google implemented changes to their API ecosystem that impacted the Gmail applet on both IFTTT and Zapier This guide is no longer possible as a result of these changes and should not be followed.

Gmailbox Parts



There are six 3D-printed parts which make up the Gmailbox:

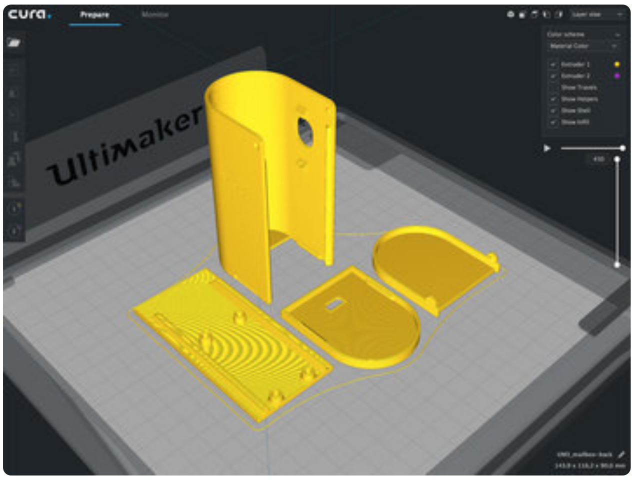
- Mailbox Bottom
- Mailbox Top
- Servo Holder

- Mailbox Cover (Front)
- Mailbox Cover (Back, Micro-USB cutout)

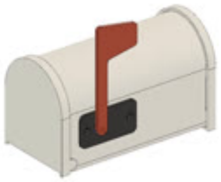
What if I don't have a 3D Printer?

Not to worry! You can use a 3D printing service such as 3DHubs (https://adafru.it/jNb) or MakeXYZ (https://adafru.it/veh) to have a local 3D printer operator 3D print and ship you parts to you. This is a great way to get your parts 3D printed by local makers. You could also try checking out your local Library or search for a Maker Space.

Slicer Settings for Cura



Layer height: 0.2mm
Line Width: 0.38mm
Wall Thickness: 2 line count
Infill: 20% triangle pattern
Print Speed: 60mm/s
Extruder/Bed Temps: 220c / 60c
Supports: Nope!



CAD Assembly

This animation demonstrates how the parts fit together. The assembly was designed for 3D printing and optimized to print without any supports. The front cover hinges onto the case while the back cover snap fits shut. The bottom cover is clamped to the case. The STL files are oriented to print "As-is".

Design Source Files

The enclosure assembly was designed in Fusion 360. This can be downloaded in different formats like STEP, SAT and more. Electronic components like the board, displays, connectors and more can be downloaded from our Fusion 360 CAD parts github repo (https://adafru.it/AW8).

If you need another format for your printer, use the following link:

Download Files on GitHub

https://adafru.it/Ca6

Fusion 360 Source

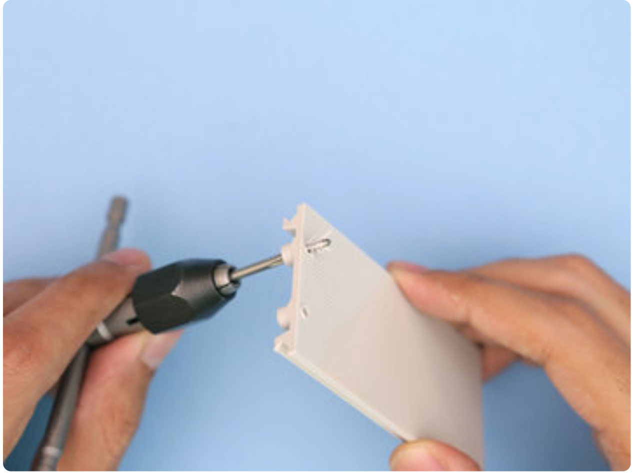
https://adafru.it/C9D

Download STLs on Thingiverse

https://adafru.it/Cbw

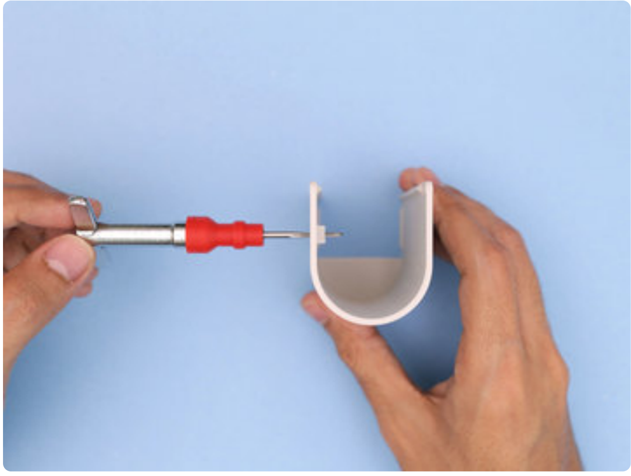
Tap Mounting Holes

The mounting holes in the bottom cover and case will need to be tapped using an M2 and M2.5 tap tools. This will create threads inside the mounting holes to allow precise fastening.



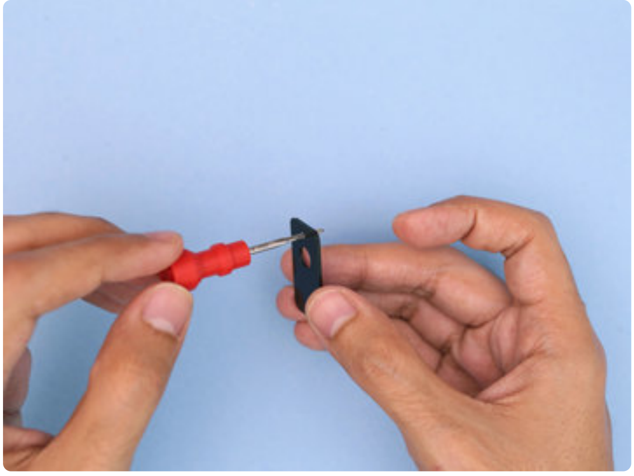
Making Threads

A tapping tool has coarse and sharp edges that are designed to scope out excess material. A tap handle is used instead of a drill to minimize friction caused by rotational speed (PLA plastic melts!). Slowly twisting the handle produces better results. Try to be as straight as possible when tapping holes.



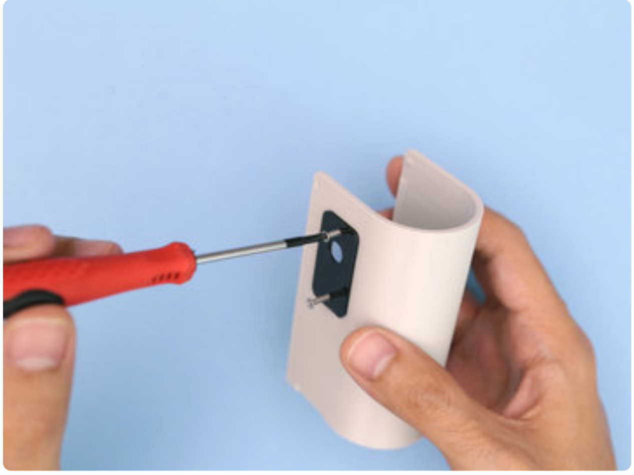
Tap Holes in Case

The two mounting holes on the side of the case feature geometry optimized for 3D printing. The part is printed vertically and produces holes that have slightly tighter tolerances. Use an M2 tapping tool to create threads in the mounting holes.



Tap Plate

The two mounting holes in the flat plate are also M2 sized and slightly tighter. These were also tapped. The M2 size tapping tool has a very small shank that did not fit my tap handle – So I designed and 3D printed one!



Install Plate

Place the plate over the side of the case with the ovular opening. Line up the mounting holes. Insert and fasten two M2 x 12mm flat head machine screws.

Mounting Screws

Continue to fasten the screws until the shank is about halfway through the case. Hold the parts together while fastening.

Mailbox Parts Assembly

Once all of the parts are printed, a dry fit test will ensure everything fits properly or may need a bit of sanding. Start with the **case** and **back** cover parts first. Press the **back** cover onto the end of the **case** with the flat side. Fit the lip over the case on one side and press fit the other side to snap the edges together. Insert the **bottom** cover in between the rail of the **case** and slide into the **back** cover. Fit the nubs from the **front** cover over the dimples in the lower corners of the **case**.

Putting it Together

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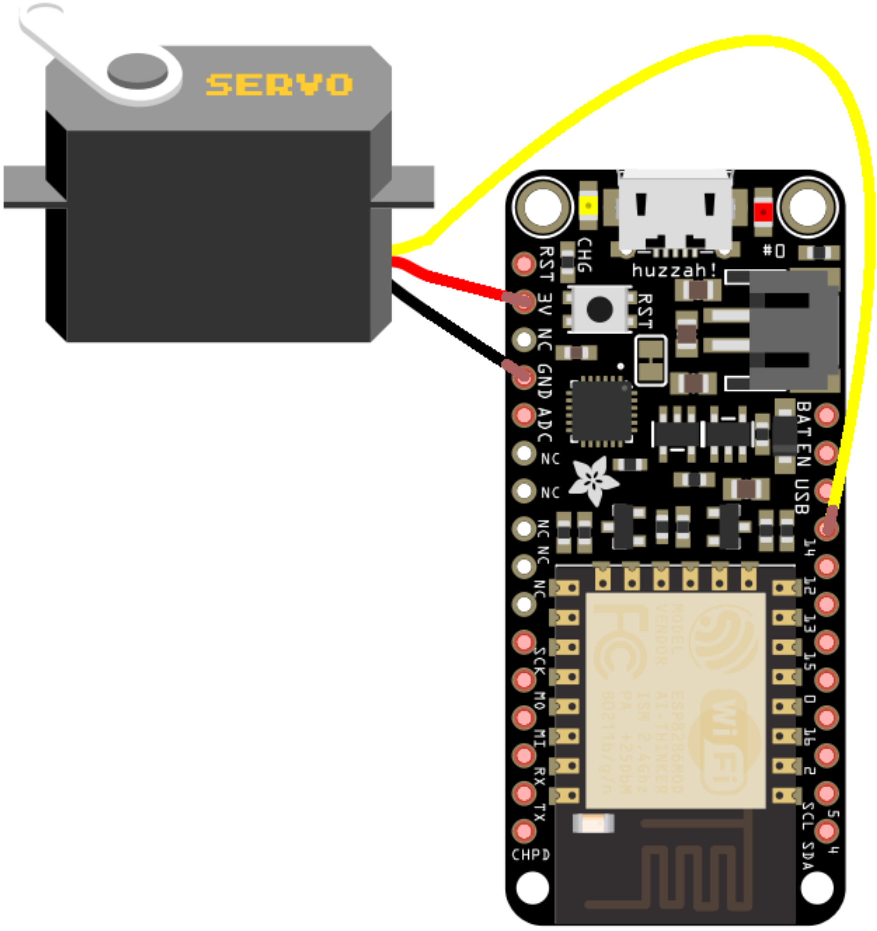
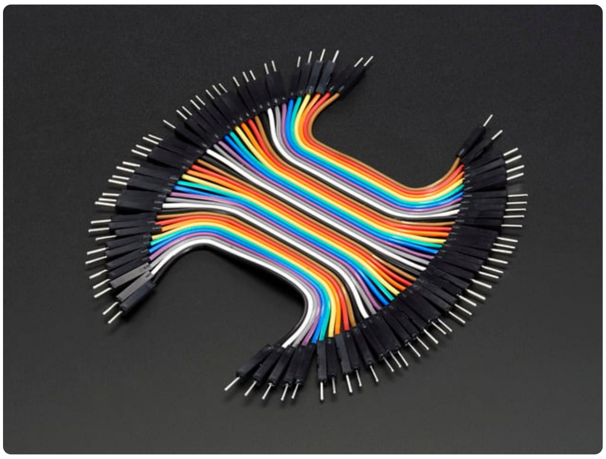
Wiring



Make the following connections between the servo and the Feather HUZZAH:

- **Servo Yellow** to **Feather Huzzah Digital Pin 14**
- **Servo Brown** to **Feather Huzzah GND Pin**
- **Servo Red** to **Feather Huzzah 3V Pin**

Not comfortable with soldering? [You can order a Feather HUZZAH ESP8266 with stacking header (http://adafru.it/3213)](http://adafru.it/3213)s pre-soldered, and use male/male jumper cables to connect the servo to your Feather HUZZAH.

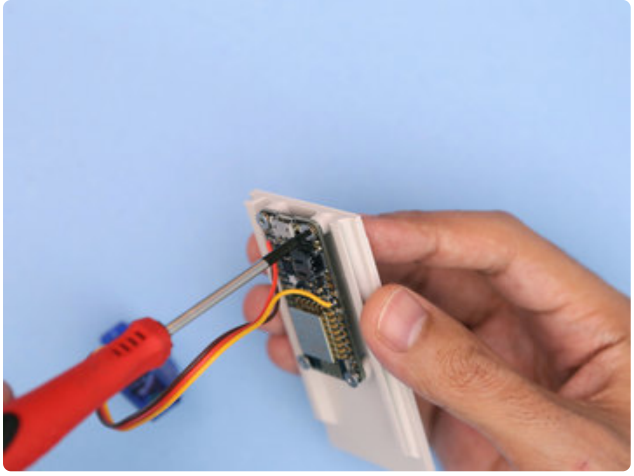


Premium Male/Male Jumper Wires - 40 x 3" (75mm)

Handy for making wire harnesses or jumpering between headers on PCB's. These premium jumper wires are 3" (75mm) long and come in a 'strip' of 40 (4 pieces of each of...

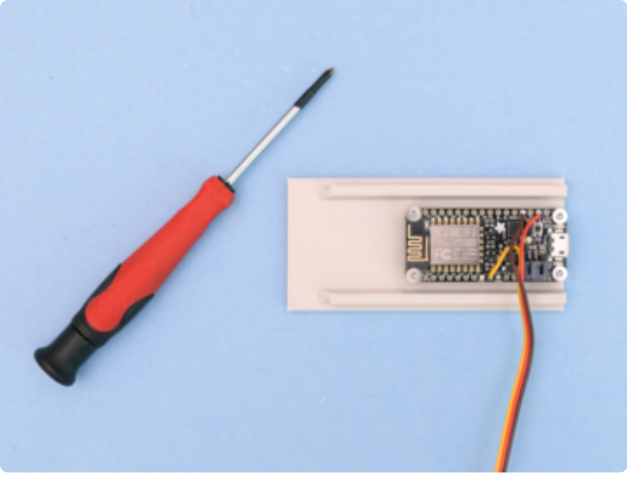
https://www.adafruit.com/product/759

Assembly



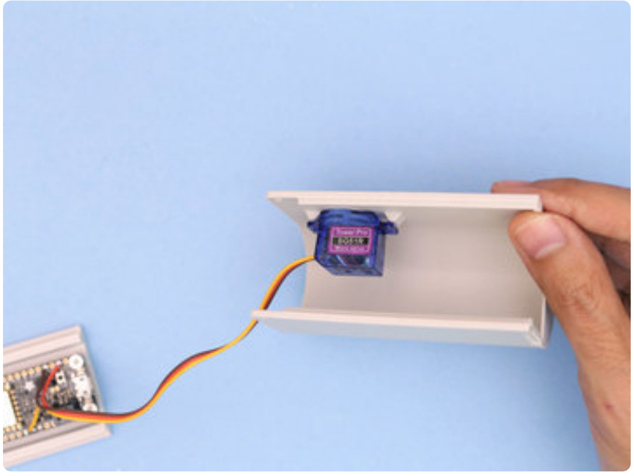
Install HUZZAH to Mount

Use two M2.5 x 4mm flat head machine screws to secure the Adafruit Feather HUZZAH to the bottom cover part. Place the PCB over the standoffs and line up the mounting holes. Fastening screws into standoffs work best when tapped and threaded. USB port should be facing the edge of the mount.



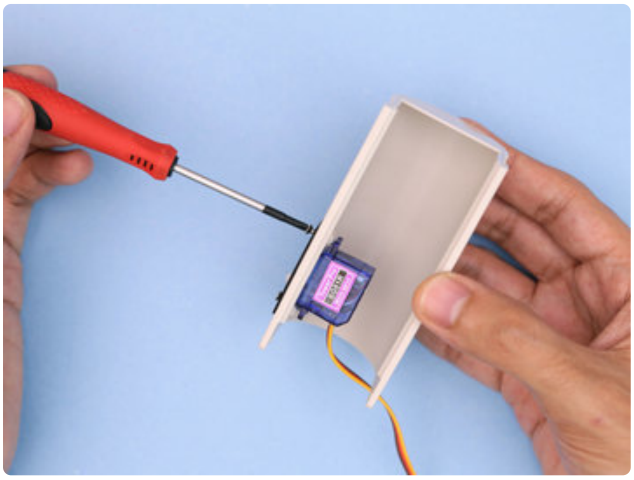
Installed HUZZAH

Flat head machine screws had a tapered screw head. This is nice for low clearance mount holes. The mounting holes on near the antenna have a slightly smaller diameter and should be tapped when intending to secure all four mount holes. Be cautious not to over tighten or that could damage the antenna.



Install Servo

Grab the servo and orient to match the mounting holes on the 3d printed case. Insert the servo, shaft first, through the opening in between the mounting holes. Press firmly to fit through the wall. If it's too tight to push through, loosen the opening by filing edge with filing tool or sand paper.

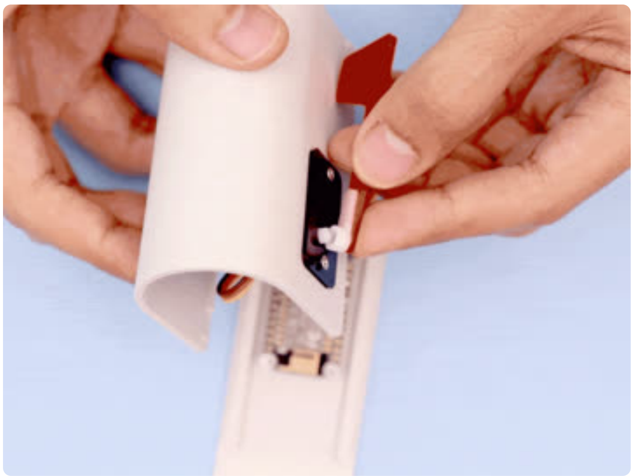


Secure Servo

Insert and fasten two M2 x 12mm machine screws on the outside of the case through the mounting tabs in the micro servo. Fasten until fully tighten. The flag mount plate has chamfered holes to allow flat head screws to be flush with the surface.

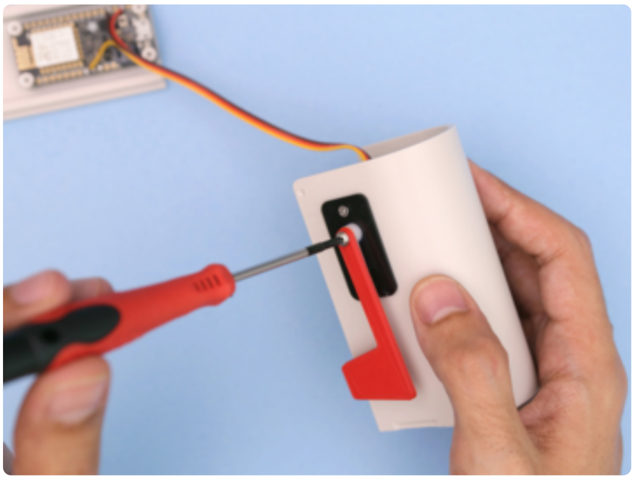
Flag Servo Horn

Use the single arm servo horn that came with your submicro servo. Superglue will bond the two surfaces together. Place the servo horn over the flag and line up the mounting holes. Glue and set dry. Use one of the small screws to secure the flag to the servo.



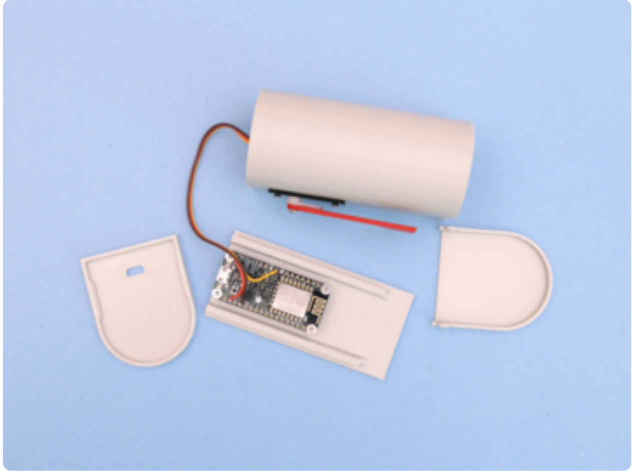
Install Flag

Line up the servo horn with the splines on the sub-micro servo. The position of the flag will need to be tweaked and adjusted to properly line up with the expected angles of degree.



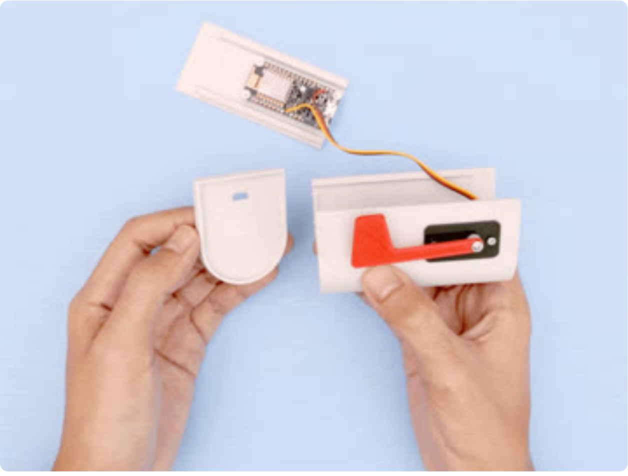
Secure Flag

Once the position is figured out, insert the small screw through the flag. Fasten the screw through the flag until the tip pokes through the servo horn. Then, press fit the servo horn onto the splines. Continue to fasten the screw and hold onto the flag until fully tightened.



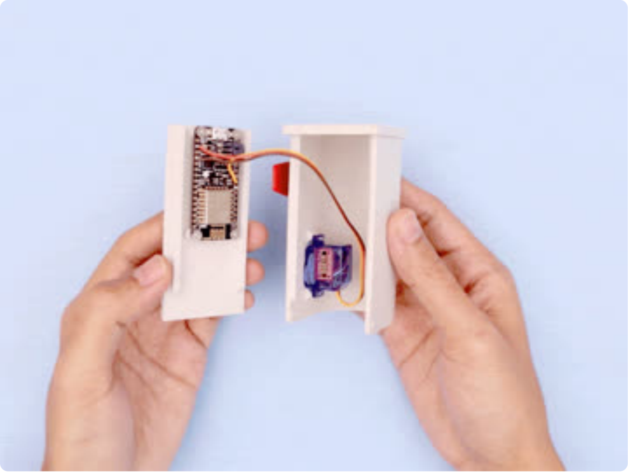
Building The Mailbox

Now that we have our parts secured and mounted, we can put everything together!



Back Cover

Start with the back cover. Line up the curve with the case and fit one side of the lip onto the indentation on the case. While holding the case, firmly press the other side of the lip on the back cover. The cover should snap fit and lock into place.



Bottom Cover

Line up the bottom cover so the USB port on the HUZZAH is facing the back cover. Insert one side of the railing on the case to the lip on the bottom case. Firmly press down on the other side to snap it onto the rail of the case. Slide the bottom cover up and firmly press to wedge it into the back cover.

Front Cover

Fit one side of the tab over the dimple on the case. Pinch the ends of the case together to allow clearance for fitting the other tab. Clip the tab over the case and onto the dimple to secure the hinge.

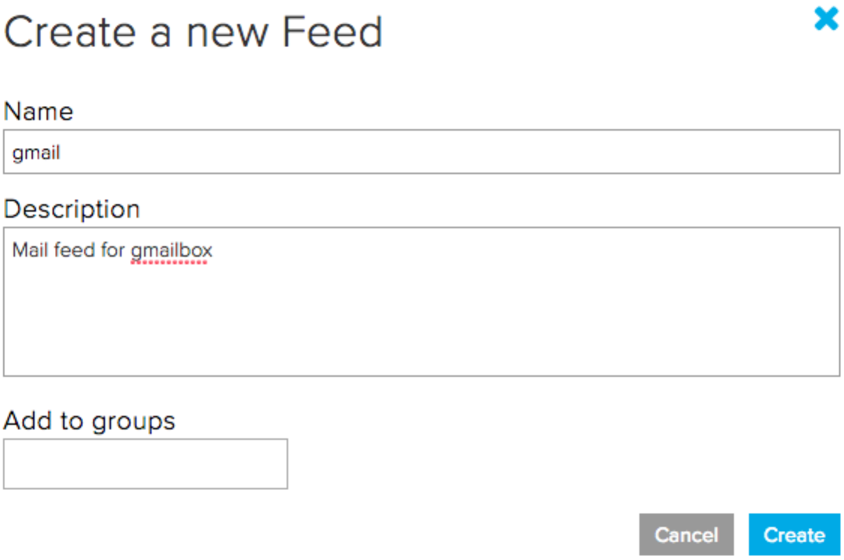
Adafruit IO Setup

Google implemented changes to their API ecosystem that impacted the Gmail applet on both IFTTT and Zapier This guide is no longer possible as a result of these changes and should not be followed.

If you do not already have an Adafruit IO account set up, head over to io.adafruit.com (https://adafru.it/fH9) to link your Adafruit.com account to Adafruit IO.

We need to create a new feed to hold data for the incoming emails. Navigate to the feeds page (https://adafru.it/mxC) on Adafruit IO. Then click **actions -> create new feed**, and name this feed **gmail**.

- If you do not already know how to create a feed, head over to Adafruit IO Basics: Feeds (https://adafru.it/ioA).



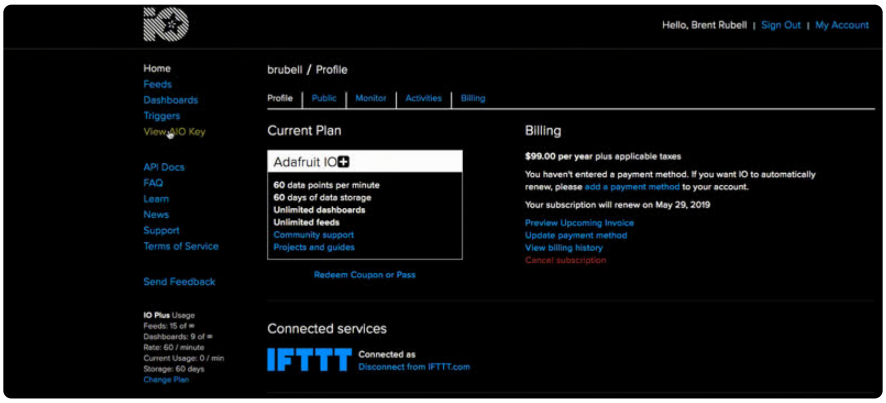
Create a new Feed

Name: gmail

Description: Mail feed for gmailbox

Add to groups:

We're also going to need our Adafruit IO username and active key. Navigate to your profile and click the **View AIO Key** button to retrieve them. Write them down in a safe place, we'll need them for later.



Current Plan

Adafruit IO+
60 data points per minute
60 days of data storage
Unlimited dashboards
Unlimited feeds
Community support
Projects and guides

Billing

$99.00 per year plus applicable taxes

You haven't entered a payment method. If you want IO to automatically renew, please add a payment method to your account.

Your subscription will renew on May 29, 2019

IO Plus Usage
Feeds: 15 of ∞
Dashboards: 9 of ∞
Rate: 60 / minute
Current Usage: 0 / min
Storage: 60 days

Connected services

IFTTT Connected as

Now that Adafruit IO is all set up, let's link IFTTT to your Gmail account.

IFTTT Setup

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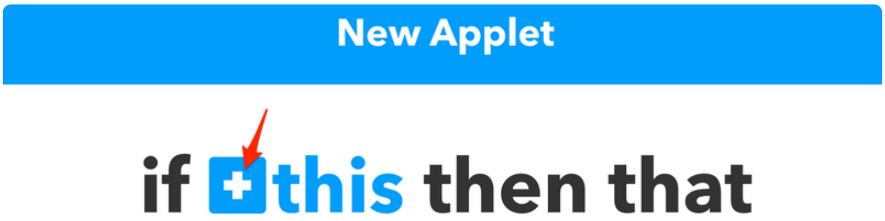
What happened with IFTTT?

Google implemented changes to their API ecosystem that will impacted the Gmail service on IFTTT. Unfortunately, this change means that all Gmail triggers were removed from IFTTT.

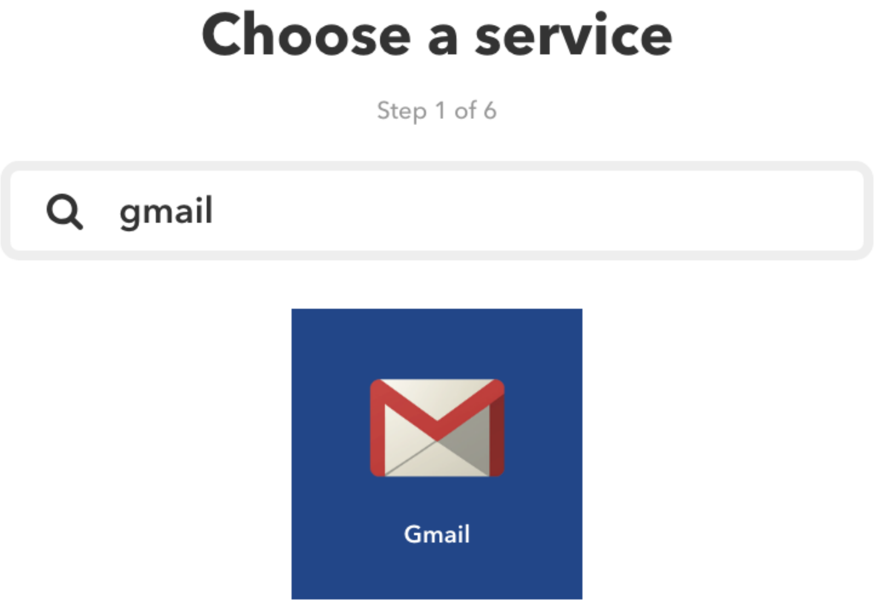
Please use the Zapier Setup page (https://adafru.it/G1b) for this guide, instead of this page.

If This Then That (https://adafru.it/iOe) is an internet service which can listen to services on the internet (such as a new tweet) and trigger physical device actions.

Once you're signed up and logged into IFTTT (https://adafru.it/iOe), navigate to the Create (https://adafru.it/C9E) page to create your applet and click the **+this** button:



When prompted to **Choose a Service**, use the search-bar to look for **Gmail**



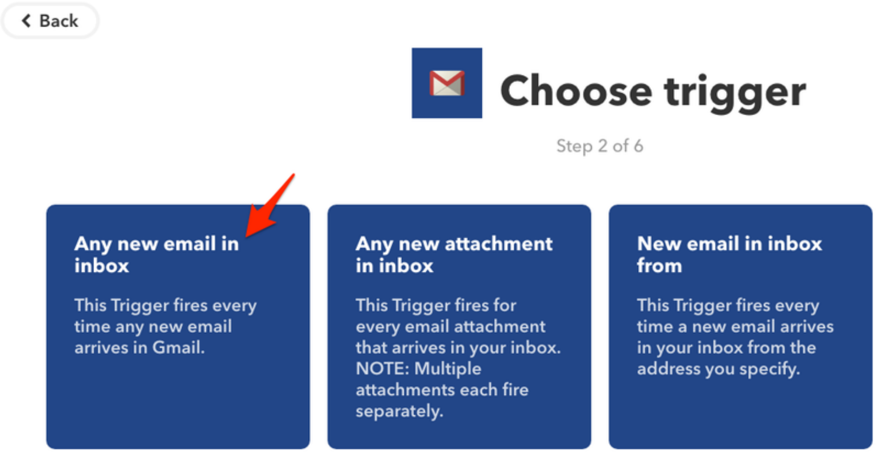
Choose a service

Step 1 of 6

gmail

Next, we'll need to choose a trigger. This is an event which occurs in Gmail that's used to cause our action ("then that") to occur. We'll need to retrieve any email which comes into our inbox.

Select **Any new email in inbox**



Choose trigger

Step 2 of 6

Any new email in inbox

This Trigger fires every time any new email arrives in Gmail.

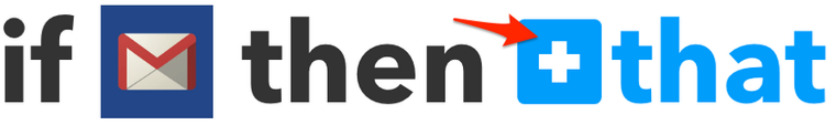
Any new attachment in inbox

This Trigger fires for every email attachment that arrives in your inbox. NOTE: Multiple attachments each fire separately.

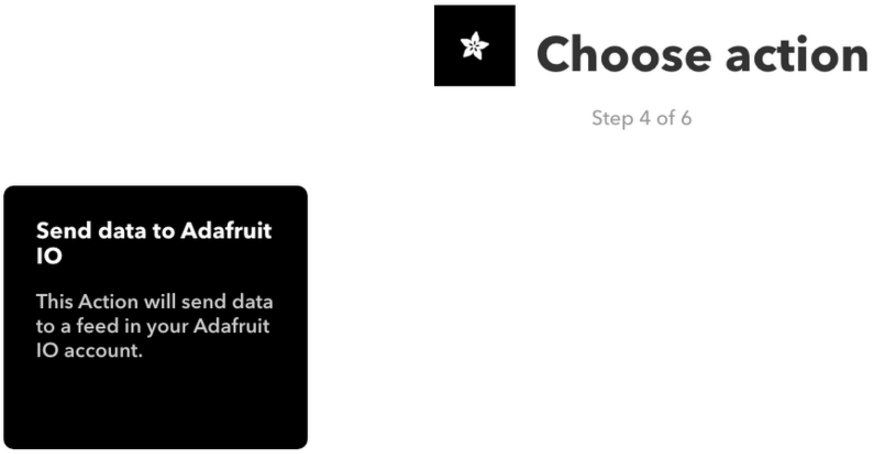
New email in inbox from

This Trigger fires every time a new email arrives in your inbox from the address you specify.

Once the trigger is selected, you'll be taken back to the **If Then That** page. This time, **click on +that**



On Step 4, search for **Adafruit** in the search bar and select **Send data to Adafruit IO** on the **Choose Action** page



Choose action

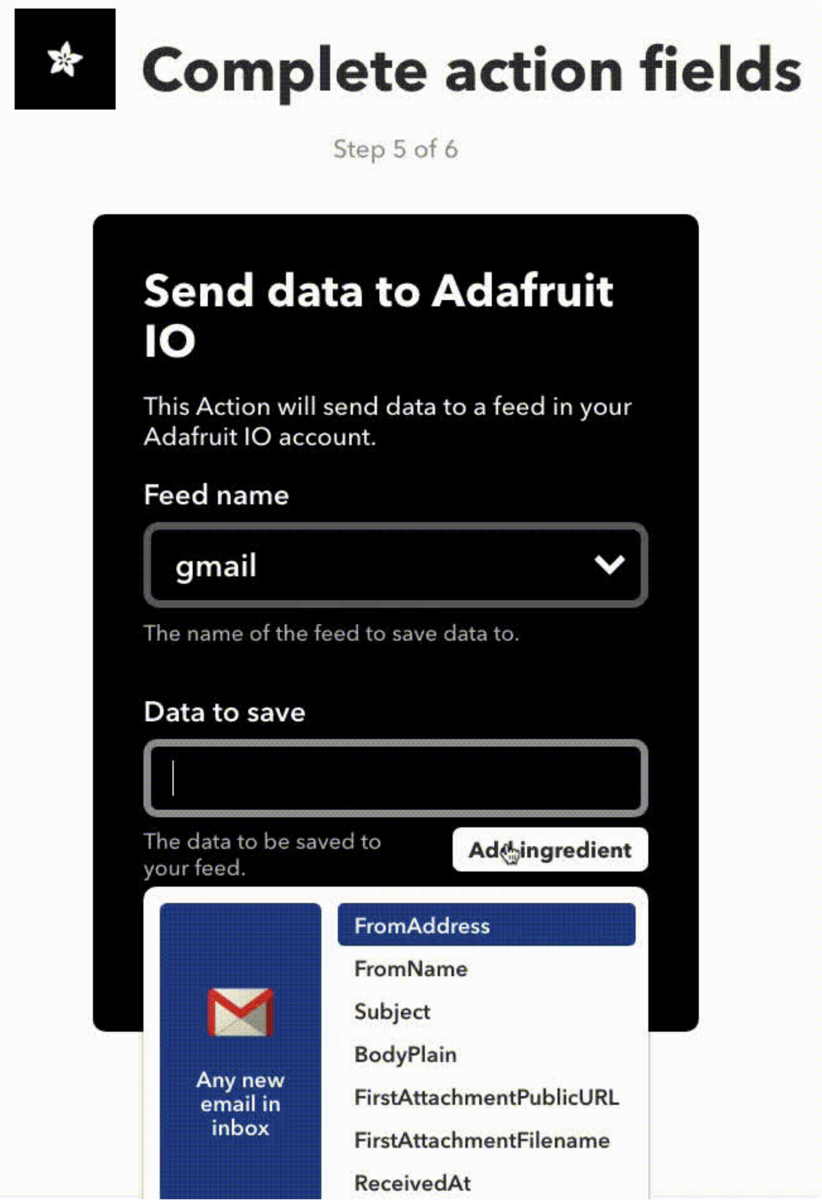
Step 4 of 6

Send data to Adafruit IO

This Action will send data to a feed in your Adafruit IO account.

On Step 5, select **gmail** as the Feed Name. On the **Data to Save** field, click **Add ingredient** and then **select ReceivedAt from the dropdown**.

Note: While we could select any data element from the gmail feed, we don't want to leak important information such as the sender or subject. So, we'll send date/time data.



Complete action fields

Step 5 of 6

Send data to Adafruit IO

This Action will send data to a feed in your Adafruit IO account.

Feed name

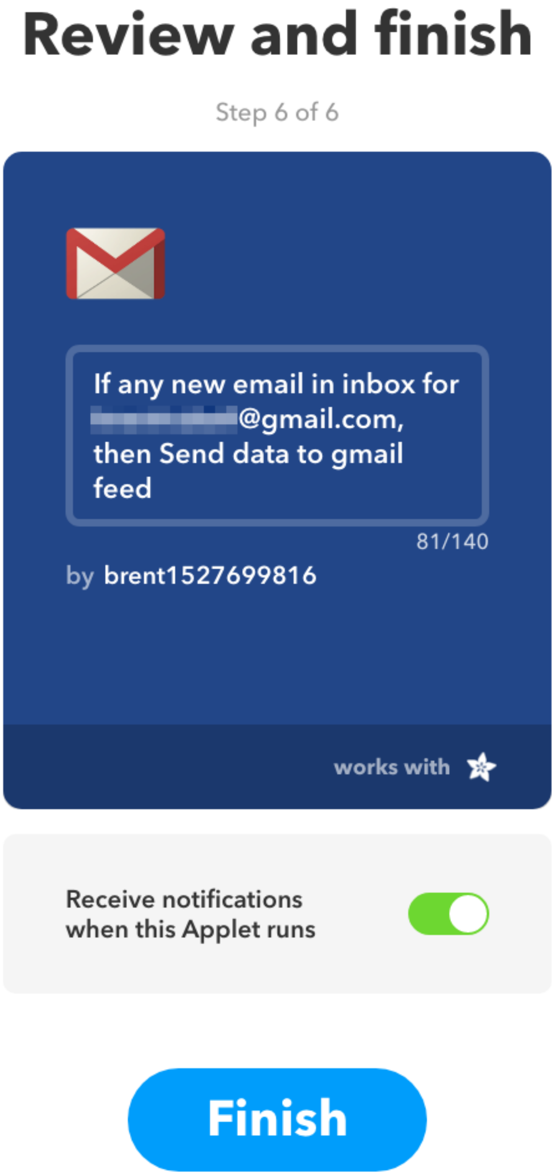
gmail

The name of the feed to save data to.

Data to save

The data to be saved to your feed.

Review the applet's settings to make sure they're correct. Then, **click finish.**



Review and finish

Step 6 of 6

If any new email in inbox for [redacted]@gmail.com, then Send data to gmail feed

81/140

by brent1527699816

Receive notifications when this Applet runs

Next, we're going to set up our Arduino for programming.

Zapier Setup

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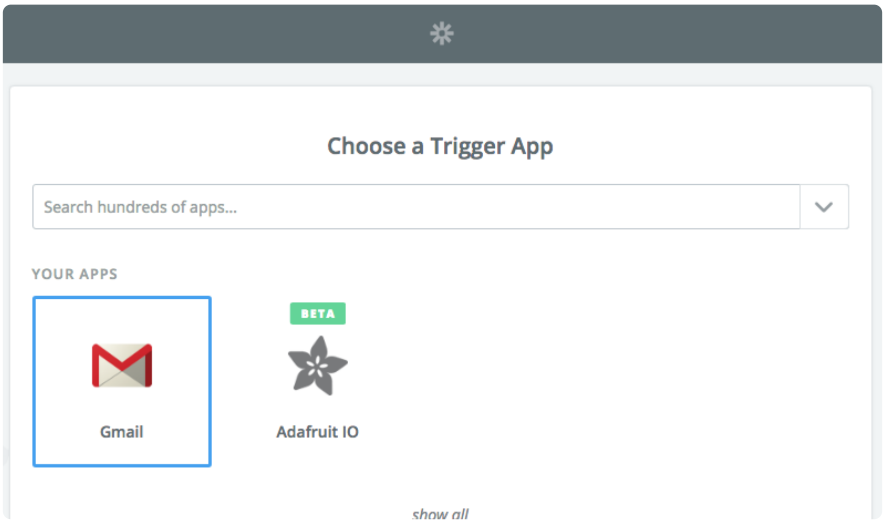
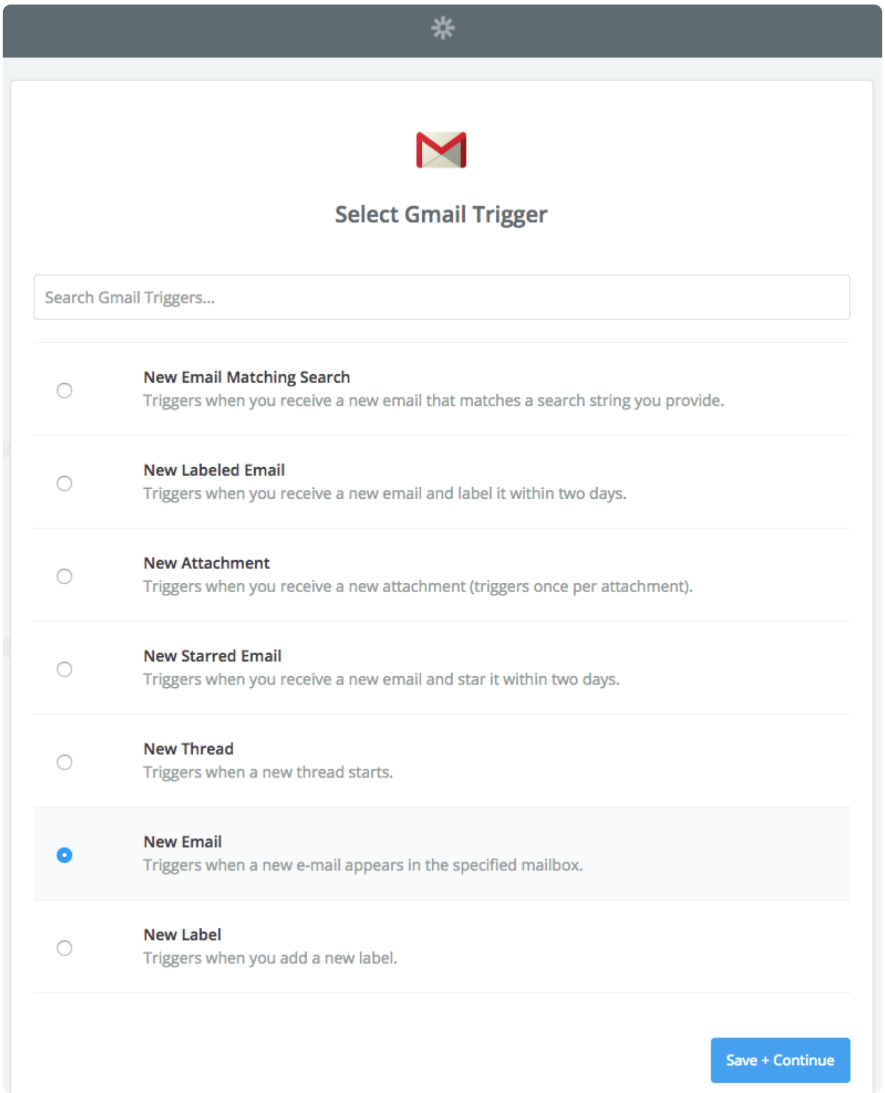
Zapier (https://adafru.it/Bwr) is a service for connecting web services to your Adafruit IO project. It offers support for Gmail, Twitter, and a few hundred other services. It's similar to IFTTT, but offers some additional flexibility.

First, you'll need an account at Zapier and an invite to the Adafruit IO app on Zapier. Visit zapier.com to sign up, and then use this link for the Adafruit IO app invite (https://adafru.it/fVR).

Launch the Zapier Editor (https://adafru.it/BwA) to make a Zap (similar to an IFTTT action). Then, use the searchbar to search for Gmail.



Select **New Email** as a Gmail Trigger



Select Gmail Trigger

Search Gmail Triggers...

○ **New Email Matching Search**
Triggers when you receive a new email that matches a search string you provide.

○ **New Labeled Email**
Triggers when you receive a new email and label it within two days.

○ **New Attachment**
Triggers when you receive a new attachment (triggers once per attachment).

○ **New Starred Email**
Triggers when you receive a new email and star it within two days.

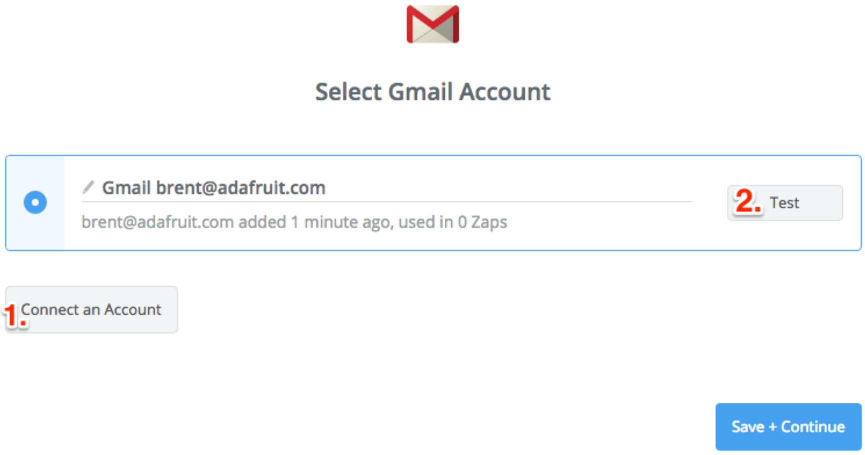
○ **New Thread**
Triggers when a new thread starts.

● **New Email**
Triggers when a new e-mail appears in the specified mailbox.

○ **New Label**
Triggers when you add a new label.

1. Connect your Gmail account to Zapier
2. Then, click **test** to ensure it's correctly integrated with your Zapier account.

If you see **Success**, your Gmail was successfully connected.



Select Gmail Account

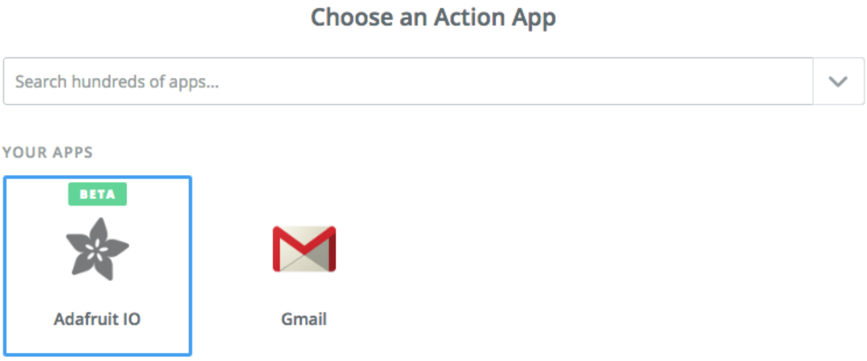
● Gmail brent@adafruit.com
brent@adafruit.com added 1 minute ago, used in 0 Zaps

Zapier will ask you to select a label or mailbox. Select **Inbox.**

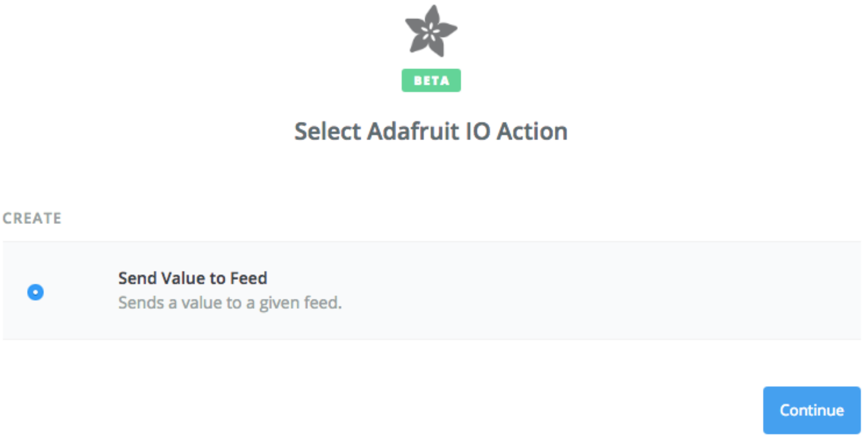
Note: This step is optional, if no Label/Mailbox is selected, this Zap will trigger on all e-mails, including Drafts.

Next, Zapier will proceed to test your Gmail account. If it integrates, it'll show a success message. Click **Next.**

You'll also need an **Action App**. Search and select Adafruit IO (it's still in beta but that's o.k).

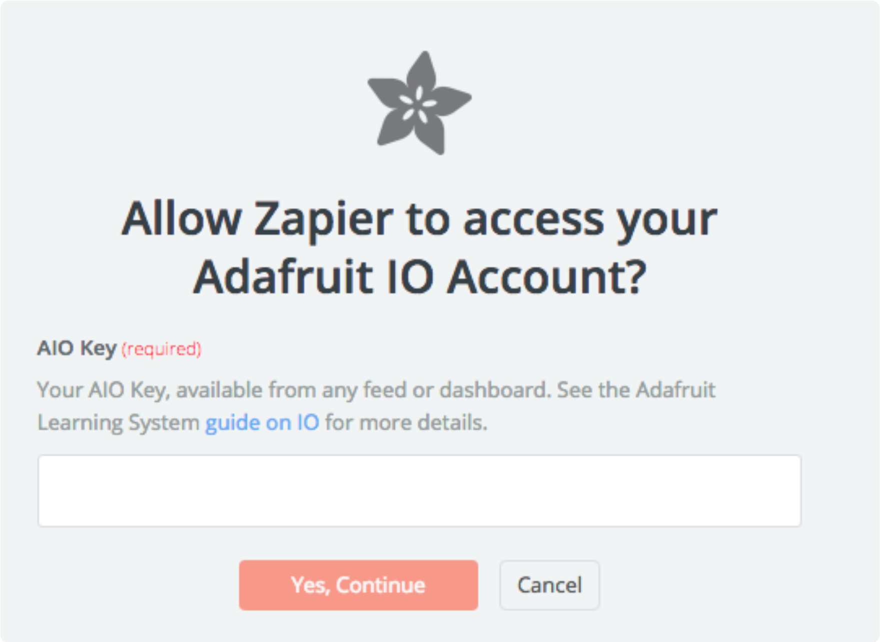


On the next step, select **Send Value to Feed** as an Adafruit IO action.



On "Select Adafruit IO Account", click **Connect an Account** and enter your Adafruit IO Active Key.

If you're not sure where to find this, navigate to your [Adafruit IO Profile](https://adafru.it/BwB) (https://adafru.it/BwB) and click View AIO Key

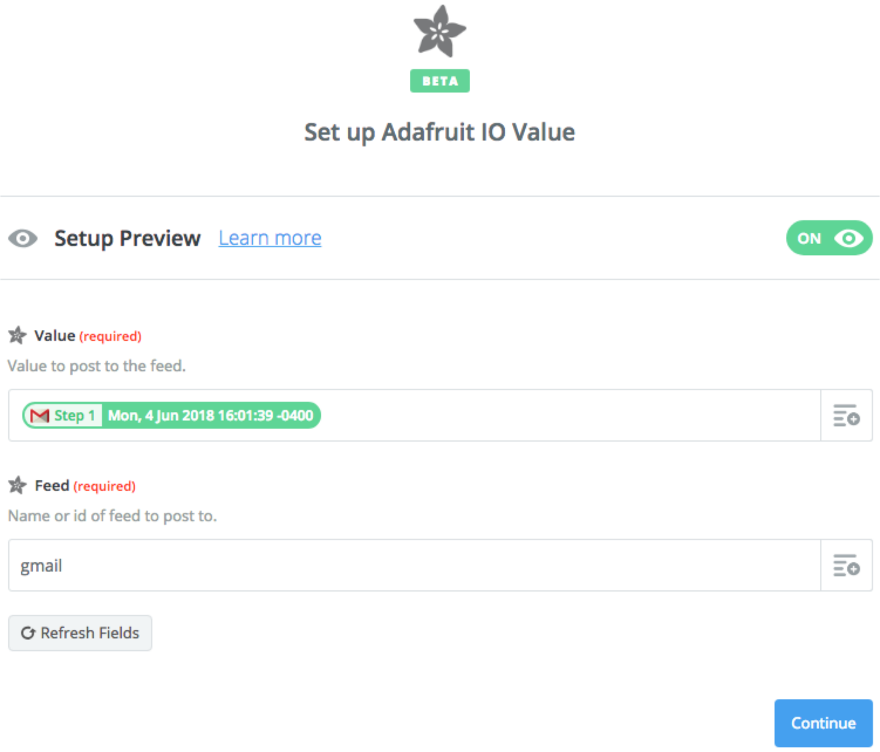


Allow Zapier to access your Adafruit IO Account?

AIO Key (required)

Your AIO Key, available from any feed or dashboard. See the Adafruit Learning System guide on IO for more details.

On the Set up Adafruit IO Value feed, select **Date** from the dropdown for **Value**. Then, enter **Gmail** as the name of the Feed



Set up Adafruit IO Value

Value (required)

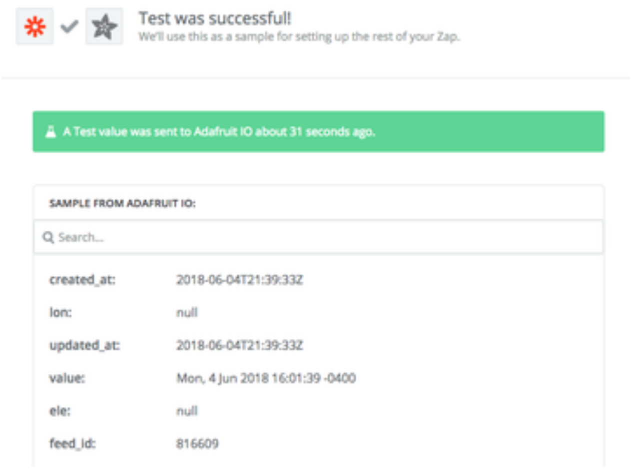
Value to post to the feed.

Step 1 Mon, 4 Jun 2018 16:01:39 -0400

Feed (required)

Name or id of feed to post to.

gmail



Test was successful!
We'll use this as a sample for setting up the rest of your Zap.

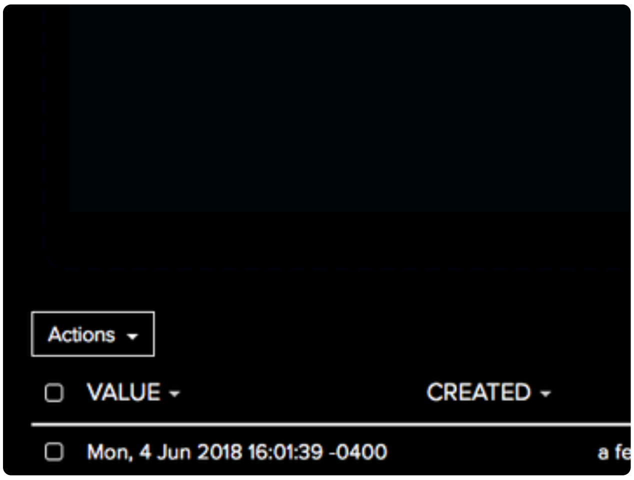
A Test value was sent to Adafruit IO about 31 seconds ago.

SAMPLE FROM ADAFRUIT IO:

Search...

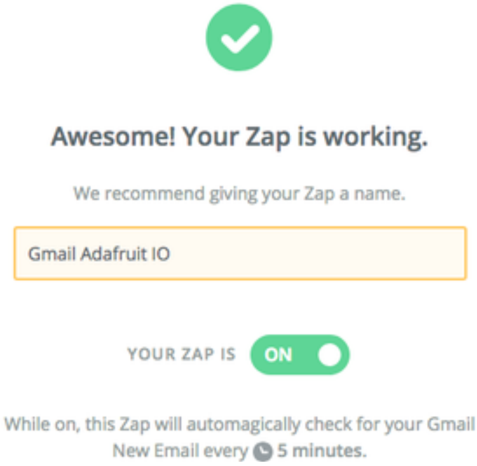
created_at:	2018-06-04T21:39:33Z
lon:	null
updated_at:	2018-06-04T21:39:33Z
value:	Mon, 4 Jun 2018 16:01:39 -0400
ele:	null
feed_id:	816609

Now, Zapier will test your Zap integrated with Gmail! Click the **Test** button and it'll send a test value to the gmail feed.



□ VALUE ▾	CREATED ▾
□ Mon, 4 Jun 2018 16:01:39 -0400	a fe

Navigate to your gmail Adafruit IO Feed. You should see a new value created 'a few seconds ago'. If you don't, check over the previous steps.



Awesome! Your Zap is working.

We recommend giving your Zap a name.

Gmail Adafruit IO

YOUR ZAP IS ON

While on, this Zap will automagically check for your Gmail New Email every 5 minutes.

Click **Finish** and give your Zap a name. Then, turn it on and you're ready to retrieve emails.

Note: Zapier retrieves emails every 5 minutes.

Arduino Setup

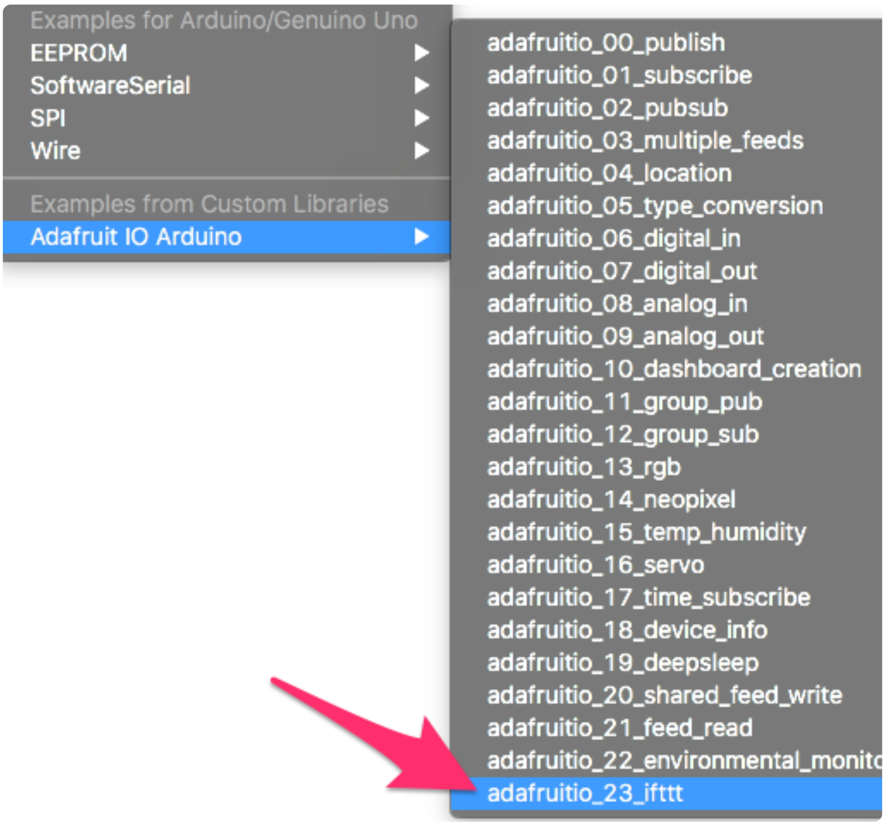
Google implemented changes to their API ecosystem that impacted the Gmail applet on both IFTTT and Zapier This guide is no longer possible as a result of these changes and should not be followed.

Installing Libraries

This guide assumes you've completed the setup required to get your ESP8266 up and running with Arduino IDE and Adafruit IO.

- If you haven't yet set up your ESP8266 for use with Adafruit IO and the Arduino IDE, follow along with this guide (https://adafru.it/DCl). The setup only needs to be performed once.

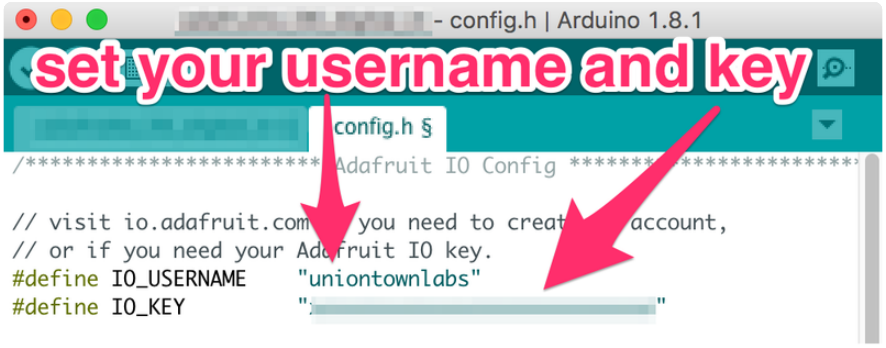
The code for this example is contained within the Adafruit IO Arduino Library. Open the **adafruitio_23_ifttt** example from within the Arduino IDE: **File->Examples->Adafruit IO Arduino->adafruitio_23_ifttt**



Next, we'll perform the network configuration required for this sketch.

Arduino Network Config

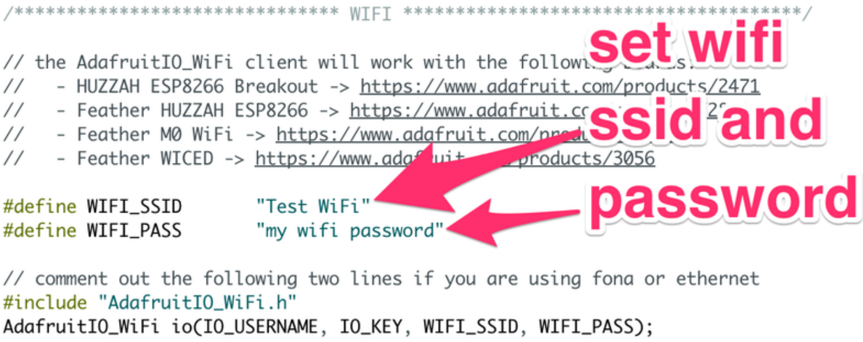
To configure the network settings, click on the **config.h** tab in the sketch. You will need to set your Adafruit IO username in the **IO_USERNAME** define, and your Adafruit IO key in the **IO_KEY** define.


[redacted] - config.h | Arduino 1.8.1
set your username and key
config.h §

```
/************************ Adafruit IO Config *******************************/

// visit io.adafruit.com if you need to create an account,
// or if you need your Adafruit IO key.
#define IO_USERNAME    "uniontownlabs"
#define IO_KEY         "[redacted]"
```

WiFi Config

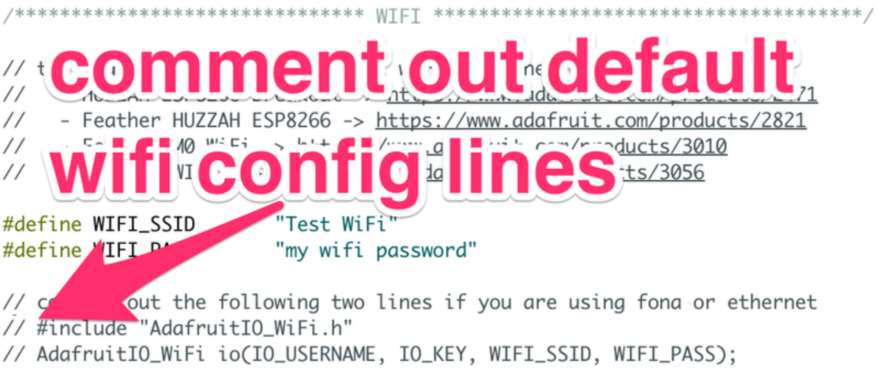
WiFi is enabled by default in **config.h** so if you are using one of the supported WiFi boards, you will only need to modify the **WIFI_SSID** and **WIFI_PASS** options in the **config.h** tab.



```
/****************************** WIFI **************************************/

// the AdafruitIO_WiFi client will work with the following boards:
//   - HUZZAH ESP8266 Breakout -> https://www.adafruit.com/products/2471
//   - Feather HUZZAH ESP8266 -> https://www.adafruit.com/products/2821
//   - Feather M0 WiFi -> https://www.adafruit.com/products/3010
//   - Feather WICED -> https://www.adafruit.com/products/3056

#define WIFI_SSID       "Test WiFi"
#define WIFI_PASS       "my wifi password"

// comment out the following two lines if you are using fona or ethernet
#include "AdafruitIO_WiFi.h"
AdafruitIO_WiFi io(IO_USERNAME, IO_KEY, WIFI_SSID, WIFI_PASS);
```

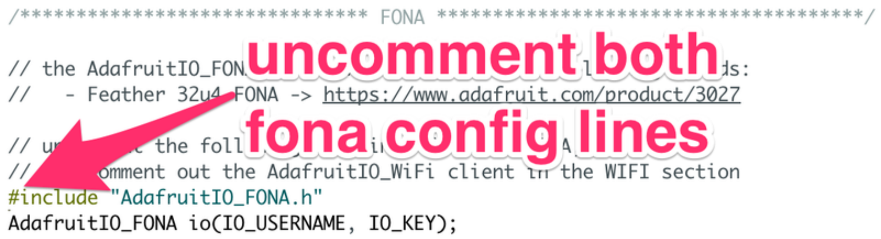
FONA Config

If you wish to use the FONA 32u4 Feather to connect to Adafruit IO, you will need to first comment out the WiFi support in **config.h**



```
/****************************** WIFI **************************************/

// t
//                                    71
//   - Feather HUZZAH ESP8266 -> https://www.adafruit.com/products/2821
//                                 ducts/3010
//     WI                        ts/3056

#define WIFI_SSID       "Test WiFi"
#define WIFI_P          "my wifi password"

// c      out the following two lines if you are using fona or ethernet
// #include "AdafruitIO_WiFi.h"
// AdafruitIO_WiFi io(IO_USERNAME, IO_KEY, WIFI_SSID, WIFI_PASS);
```

Next, remove the comments from both of the FONA config lines in the FONA section of **config.h** to enable FONA support.

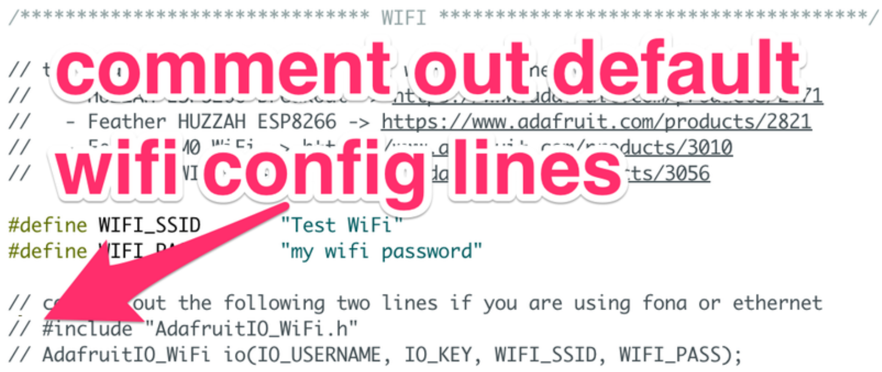


uncomment both fona config lines

```
/******************************* FONA ************************************/

// the AdafruitIO_FON[illegible] l[illegible]ds:
//   - Feather 32u4 FONA -> https://www.adafruit.com/product/3027

// u[illegible] the foll[illegible] i[illegible] A[illegible]
// [illegible]omment out the AdafruitIO_WiFi client in the WIFI section
#include "AdafruitIO_FONA.h"
AdafruitIO_FONA io(IO_USERNAME, IO_KEY);
```

Ethernet Config

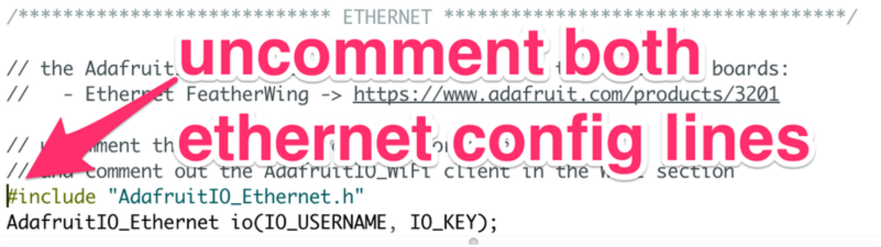
If you wish to use the Ethernet Wing to connect to Adafruit IO, you will need to first comment out the WiFi support in **config.h**



comment out default wifi config lines

```
/******************************* WIFI ************************************/

// t[illegible] ne[illegible]
//   [illegible] https://www.ada[illegible]71
//   - Feather HUZZAH ESP8266 -> https://www.adafruit.com/products/2821
//   [illegible]M0 Wi-Fi [illegible] /www.a[illegible]com/products/3010
//   [illegible] WI[illegible] da[illegible]ts/3056

#define WIFI_SSID       "Test WiFi"
#define WIFI_PA[illegible]       "my wifi password"

// c[illegible] out the following two lines if you are using fona or ethernet
// #include "AdafruitIO_WiFi.h"
// AdafruitIO_WiFi io(IO_USERNAME, IO_KEY, WIFI_SSID, WIFI_PASS);
```

Next, remove the comments from both of the Ethernet config lines in the Ethernet section of **config.h** to enable Ethernet Wing support.



uncomment both ethernet config lines

```
/*************************** ETHERNET ************************************/

// the Adafruit[illegible] [illegible] boards:
//   - Ether[illegible]t FeatherWing -> https://www.adafruit.com/products/3201

// [illegible]ment th[illegible] o[illegible]
// [illegible] comment out the AdafruitIO_WiFi client in the W[illegible] section
#include "AdafruitIO_Ethernet.h"
AdafruitIO_Ethernet io(IO_USERNAME, IO_KEY);
```

Next, we will look at how the example sketch works.

Code

Google implemented changes to their API ecosystem that impacted the Gmail applet on both IFTTT and Zapier This guide is no longer possible as a result of these changes and should not be followed.

Let's take a dive into the code that powers our Gmailbox. It's not too hard to understand and this code can serve as an introduction to Arduino and Adafruit IO.

We'll start by setting up the servo holding the flag. We wired the servo to the Feather HUZZAH's pin 14. If you need to change that, you can modify `SERVO_PIN`. We also define the flag's up and down positions (what angle to set the servo's maximum to) as `FLAG_UP` and `FLAG_DOWN`.

Want the servo's flag to be held up longer? You can do that by modifying the `FLAG_DELAY` variable.

```
// pin used to control the servo
#define SERVO_PIN 14

// Flag's up position, in degrees
#define FLAG_UP 0

// Flag's down position, in degrees
#define FLAG_DOWN 180

// How long to hold the flag up, in seconds
#define FLAG_DELAY 2
```

Next, we're going to create an instance of the servo class and set up the gmail feed from Adafruit IO.

```
Servo servo;
AdafruitIO_Feed *gmail_feed = io.feed("gmail");
```

The `setup()` function starts a serial connection, attaches the servo to `SERVO_PIN`, and attempts to connect to Adafruit IO. Then, it creates a message handler to listen to the gmail feed. We'll also write the servo to its' resting state (the `FLAG_DOWN` position).

```
void setup() {

  // start the serial connection
  Serial.begin(115200);

  // wait for serial monitor to open
  while(! Serial);

  // tell the servo class which pin we are using
  servo.attach(SERVO_PIN);

  // connect to io.adafruit.com
  Serial.print("Connecting to Adafruit IO");
  io.connect();

  // set up a message handler for the 'servo' feed.
  // the handleMessage function (defined below)
  // will be called whenever a message is
  // received from adafruit io.
  gmail_feed-&gt;onMessage(handleMessage);
  // wait for a connection
  while(io.status() &lt; AIO_CONNECTED) {
    Serial.print(".");
    delay(500);
  }

  // we are connected
  Serial.println();
  Serial.println(io.statusText());
  gmail_feed-&gt;get();

  // write flag to down position
  servo.write(FLAG_DOWN);

}
```

The `loop()` is empty aside from a call to `io.run()`, a function which keeps the client connected to io.adafruit.com (https://adafru.it/fsU).

```
void loop() {
  io.run();
}
```

The `handleMessage` function is called whenever a new data value is received from the gmail feed on Adafruit IO. Inside this function, we'll print to the serial monitor that a new email has been received.

Then, we'll set the flag to the `FLAG_UP` position to indicate a new email has been received. We'll wait `FLAG_DELAY` seconds and then move the flag back down by writing the servo to its' `FLAG_DOWN` position.

The `handleMessage` function is called when the gmail feed is updated by Zapier or IFTTT.

When it receives new data from the gmail feed, it will write the servo to the `flagUp` position, waits a second so that you can see it, and moves it back to the `flagDown` position.

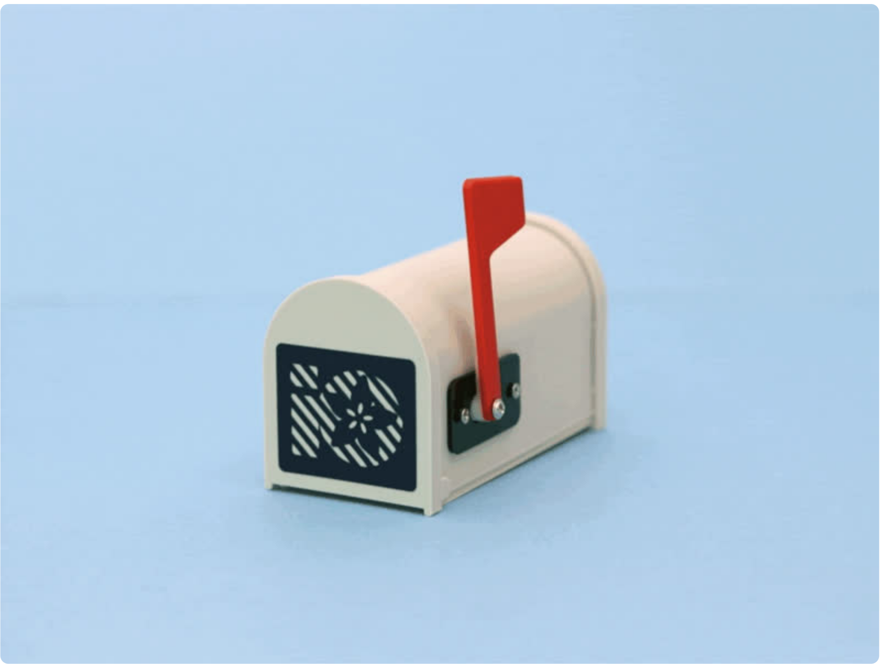
```
void handleMessage(AdafruitIO_Data *data) {
  Serial.println("You've got mail!");
  servo.write(FLAG_UP);
  // wait FLAG_DELAY seconds
  delay(FLAG_DELAY * 1000);
  servo.write(FLAG_DOWN);
}
```

Testing out your Gmailbox

Upload the code to your Feather and open the Arduino Serial Monitor **(Tools -> Serial Monitor)**.

```
IFTTT Gmailbox
Connecting to Adafruit IO
..
Connected to Adafruit IO!
```

If you see the above, we're all set up to receive emails! Compose an email to yourself and send it! When the gmail feed receives new data, the serial monitor will print You've got mail!, put the flag up, and gently lower it.



Help - my Gmailbox isn't working!

I want to trigger my feed to show my friend/coworker the gmailbox, but don't want to clog my inbox

On the gmail feed page, you can click on the **actions dropdown -> add data.** You can enter any value, it doesn't matter for this project, and click **create**. You'll see a new data-point dropped onto the IO feed.

The flag on my mailbox isn't moving up and down

First, check that the feed is set up correctly. Visit your feed page (https://adafru.it/mxC) for gmail and ensure your feed was updated when an email arrived.

If your feed did update, but the servo flag didn't move, there's a chance it was wired incorrectly. Re-read the wiring diagram on the Wiring and Assembly page. Make sure `SERVO_PIN` in the sketch is connected to the correct pin on your Feather HUZZAH.

My feed isn't updating when I get a new email

Check over your Zap or IFTTT Applet configuration. Make sure that the email is connected correctly.

Code

```
// Adafruit IO IFTTT Example - Gmailbox
// Tutorial Link: https://learn.adafruit.com/gmailbox
//
// Adafruit invests time and resources providing this open source code.
// Please support Adafruit and open source hardware by purchasing
// products from Adafruit!
//
// Written by Brent Rubell for Adafruit Industries
// Copyright (c) 2018 Adafruit Industries
// Licensed under the MIT license.
//
// All text above must be included in any redistribution.

/************************** Configuration ***********************************/

// edit the config.h tab and enter your Adafruit IO credentials
// and any additional configuration needed for WiFi, cellular,
// or ethernet clients.
#include "config.h"

// Import Servo Libraries
#if defined(ARDUINO_ARCH_ESP32)
  // ESP32Servo Library (https://github.com/madhephaestus/ESP32Servo)
  // installation: library manager -> search -> "ESP32Servo"
  #include <ESP32Servo.h>
#else
  #include <Servo.h>
#endif

/************************ Example Starts Here *******************************/

// pin used to control the servo
#define SERVO_PIN 14

// Flag's up position, in degrees
#define FLAG_UP 0

// Flag's down position, in degrees
#define FLAG_DOWN 180

// How long to hold the flag up, in seconds
#define FLAG_DELAY 2

// create an instance of the servo class
Servo servo;

// set up the 'servo' feed
AdafruitIO_Feed *gmail_feed = io.feed("gmail");

void setup() {

  // start the serial connection
  Serial.begin(115200);

  // wait for serial monitor to open
  while(! Serial);
  Serial.print("IFTTT Gmailbox");

  // tell the servo class which pin we are using
  servo.attach(SERVO_PIN);

  // connect to io.adafruit.com
  Serial.print("Connecting to Adafruit IO");
  io.connect();

  // set up a message handler for the 'servo' feed.
  // the handleMessage function (defined below)
  // will be called whenever a message is
  // received from adafruit io.
  gmail_feed->onMessage(handleMessage);

  // wait for a connection
  while(io.status() < AIO_CONNECTED) {
    Serial.print(".");
    delay(500);
  }

  // we are connected
  Serial.println();
  Serial.println(io.statusText());
  gmail_feed->get();

  // write flag to down position
  servo.write(FLAG_DOWN);

}

void loop() {

  // io.run(); is required for all sketches.
  // it should always be present at the top of your loop
  // function. it keeps the client connected to
  // io.adafruit.com, and processes any incoming data.
  io.run();

}

// this function is called whenever a 'gmail' message
// is received from Adafruit IO. it was attached to
// the gmail feed in the setup() function above.
void handleMessage(AdafruitIO_Data *data) {

  Serial.println("You've got mail!");
  servo.write(FLAG_UP);
  // wait FLAG_DELAY seconds
  delay(FLAG_DELAY * 1000);
  servo.write(FLAG_DOWN);
}
```