

# A Demonstration of Establishing Connection between a Trigger Service and an Action Service via an IFTTT Applet for IoT based Applications

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**Abstract** - Here in this work efforts were made to demonstrate the methodology adopted to establish connection between two different application services via an IFTTT applet. Here the two applications were chosen to implement an IOT based system. One of those were the Trigger service which was a popular Virtual Voice Assistant (VVA) by Google i.e. 'Google Assistant' in this case and another was an Action service which was an MQTT broker service by Adafruit i.e. 'AdafruitIO'. One purpose was the controlling of multiple electrical appliances remotely via a VPA (Virtual Personal Assistant) and the other purpose was the remote monitoring of a multi-sensor network and relay's active status via an MQTT broker service. Another purpose was to integrate and connect these two different services via an 'IFTTT' Applet so that they could be able to communicate with each other. All the sensor's data and status of relays could be observed over the AdafruitIO dashboard on a laptop or mobile phone from anywhere in the world.

**Key Words:** MQTT, IFTTT, IoT, VPA, Google Assistant, AdafruitIO, etc.

## 1. INTRODUCTION

If This Then That, also known as IFTTT is a freeware web-based service that creates chains of simple conditional statements, called applets. An applet is triggered by changes that occur within other web services such as Gmail, Facebook, Telegram, Instagram, or Pinterest. IFTTT pairs two different services/ devices so that they can talk to each other. In other words, IFTTT is the free way to get all the apps and devices talking to each other. For example: get Amazon Alexa connected to Google Drive or Google Calendar or Gmail. The brands like Google, Twitter, Facebook, Amazon, Instagram, Ebay, Honeywell Home, Dropbox and many more use the IFTTT Platform to accelerate the digital transformation of their products into integrated services, dramatically reducing their development costs.

## 2. PROBLEM STATEMENT

**The problem:** Established companies and startups today feel the need to increase customer engagement across their digital channels to remain relevant in today's digital landscape. But building product features to improve engagement is slow, risky, and time-consuming.

**The solution:** The quickest and most predictable way to increase engagement is to connect your product to the other brands your customers use every day. Embedding these brands directly into the customer-facing apps creates new and compelling features that differentiate your product and maximize engagement.

## 2.1 Benefits of Adopting IFTTT

1. Connect to and influence the brands your customers use daily to drive engagement
2. Embed integrations seamlessly into your apps, emails or website
3. Rapidly increase the functionality of your app with each new integration
4. Analyze behavior to understand the value of each connected user and to prioritize which services to integrate next

IFTTT Connect is a flexible API and SDK package that empowers the business to bring any of the 600+ services on IFTTT directly into your app, emails, and website with embeddable connections. With IFTTT's Real-time API, you can have Applets involving user-oriented triggers from your service run near-instantly. To ensure a great Applet experience for your users, triggers are required to use the Realtime API if a user would expect its Applets to run in realtime.

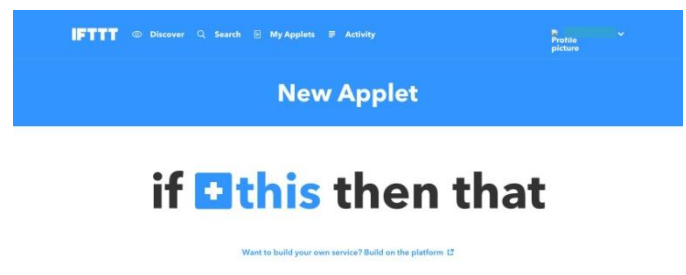


Fig.-1: IFTTT Dashboard

## 3. METHODOLOGY ADOPTED

The methodology adopted to create a new applet in IFTTT and how to configure it is demonstrated below:

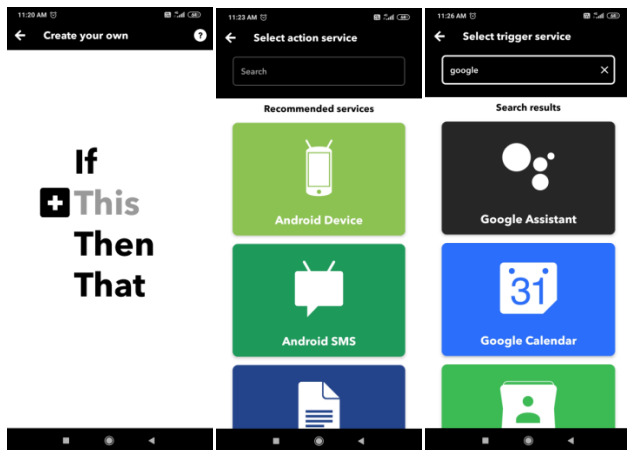


Fig.-2: IFTTT 'This' Condition

In IFTTT (If This Then That), 'This' represents the condition and 'That' represents the corresponding action to be taken. The user needs to configure both these parameters. In other words, the user feeds the condition as well as the action to be taken if that condition is true.

- Now, the first step is to install the IFTTT app into the cell phone and sign-up to create an account there by entering user credentials
- Next step is to open the IFTTT app in phone and the user will observe a default IFTTT dashboard
- The user can make its own from scratch by choosing the 'Create' option on dashboard
- User will get a 'Create your own' window as shown in Fig. 2
- Then, the user would have to enter the trigger condition by clicking on '+This'
- Afterwards, user will see another window showing a list of recommended trigger services by IFTTT
- User need to select one of those recommended services. Here in this case I had selected 'Google Assistant' as a trigger service

- Then, to enter the trigger condition in 'Google Assistant' service, the user need to select one of the options like 'Say a Phrase with a text ingredient' or else
- I chose 'Say a Phrase with a text ingredient' option in this project
- Then, the user is required to complete the trigger fields like
  - What do you want to say?
  - What's another way to say it? (optional)
  - And another way? (optional)
  - What do you want the Assistant to say in response?
  - Language (English)
- I entered the following message feeds in the trigger fields for turning the 1<sup>st</sup> light off
  - Turn off light 1
  - Light 1 off
  - Turn off light one
  - Ok, turning off light one

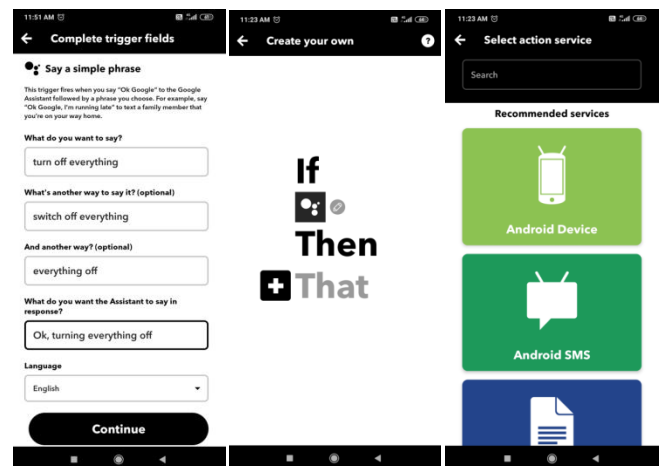


Fig.-4: IFTTT 'That' Condition

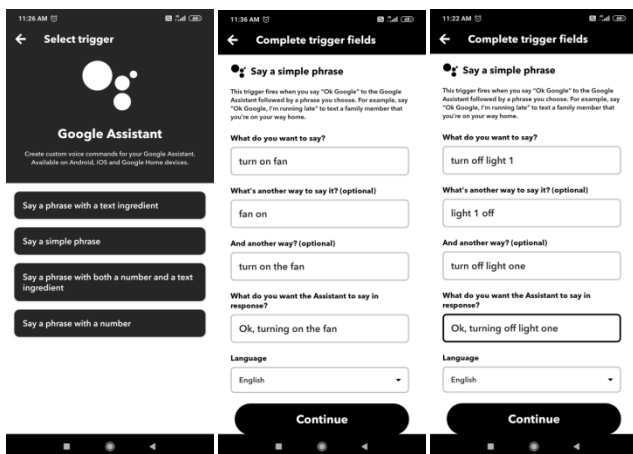


Fig.-3: Configuring 'Google Assistant' feeds in IFTTT

- Similarly, I entered the following message feeds in the trigger fields for turning all the connected electrical appliances off
  - Turn off everything
  - Switch off everything
  - Everything off
  - Ok, turning everything off
- Then, the user would have to enter the action field by clicking on '+That' as shown in Fig. 4
- Afterwards, user will see another window showing a list of recommended action services by IFTTT
- User need to select one of those recommended services. Here in this case I had selected 'Adafruit' as a action service

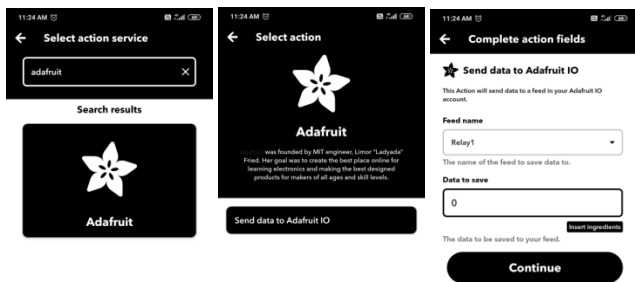


Fig-5: Configuring 'AdafruitIO' feeds in IFTTT

- Then, to enter the action feeds in 'Adafruit' service, the user need to select the option 'Send data to Adafruit IO'
- This action will send data to a feed in the user's Adafruit IO account created earlier
- Then, the user is required to complete the action fields like
  - Feed Name
  - Data to Save
- I entered the following message feeds in the action fields for turning the 1<sup>st</sup> light off
  - Relay 1
  - 0
- Similarly, I entered the following message feeds in the action fields for turning the 1<sup>st</sup> light on
  - Relay 1
  - 1
- Finally, the connection will be established by IFTTT for two services selected by the user and configurations entered by the user for that particular feed as shown in Fig. 6

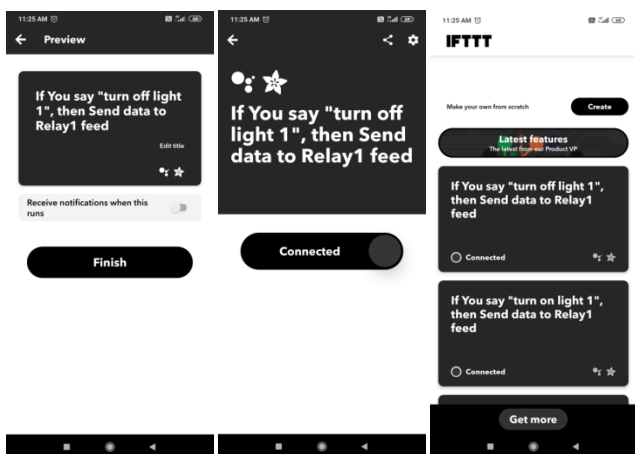


Fig-6: IFTTT Connection Established

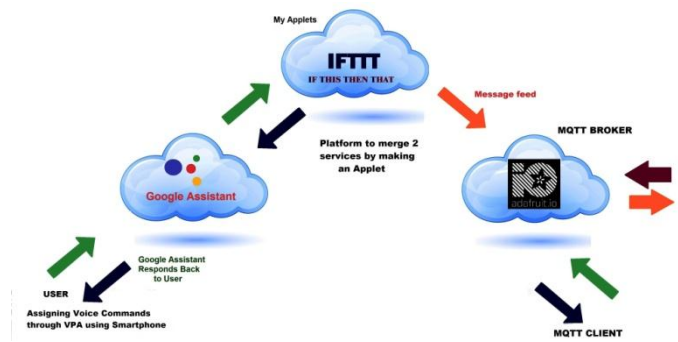


Fig-7: IFTTT Connecting a VPA & an MQTT Broker

This project uses two services to make it control through Google Assistant from anywhere in the world, Adafruit MQTT and IFTTT. Adafruit MQTT broker allows changing the message feed/ topic from any internet connected device globally. Here, the NodeMCU was acting as a MQTT client hence it was constantly listening to Adafruit MQTT broker. So if any changes occur in the server side, the same changes will be observed on the client side i.e. on our NodeMCU board. And to change our message on the MQTT broker side via Google assistant, we were using one service called IFTTT. In IFTTT, we were making an applet in which we could connect two services, Google Assistant and Adafruit MQTT. So by making proper applet, we could successfully update the message feed/ topic on the adafruit broker side with Google Assistant on the phone. If This Then That, also known as IFTTT is a freeware web-based service that creates chains of simple conditional statements, called applets. An applet is triggered by changes that occur within other web services such as Gmail, Facebook, Telegram, Instagram, or Pinterest. IFTTT pairs two different services/ devices so that they can talk to each other. In other words, IFTTT is the free way to get all the apps and devices talking to each other.

#### 4. RESULT & CONCLUSION

Finally an IFTTT applet was created and implemented which established communication between two different services. One was Artificial Intelligence based Voice Personal Assistant (VPA) by Google which transferred the user's voice data over to the Cloud via Google Assistant. The two services got connected via an IFTTT's Real-time API. Here, the created Applet connected the Google Assistant to the AdafruitIO MQTT broker services. It involved user-oriented triggers from the service that runs near-instantly. Proper message feeds were created by the user which defined every action corresponding to each trigger based on certain conditions fed by the user itself in the IFTTT applet. When a particular condition got satisfied, the Adafruit MQTT broker received feeds/ topics from the IFTTT client and sent it to the other client i.e. NodeMCU which was subscribed to that topic/ feed. As the data received from the topic/ feed is '1', the Relay connected to the NodeMCU got turned ON and the LED

bulb attached to it eventually turned ON. At the same time the status of Relay block in the AdafruitIO dashboard got updated. Means the toggle button block got shifted to the 'On' position. Another service was Adafruit IO MQTT broker in which a Dashboard was created with different blocks configured as per their application. The NodeMCU here was a client and the Adafruit IO is an MQTT broker. All the sensors were connected to the NodeMCU for monitoring sensors data over the internet from anywhere in the world. Data of all those sensors were fed to different feeds/ topics on the same MQTT broker, with an interval of 20 seconds. User could see the entire sensor's data over the MQTT Dashboard on a laptop or a smart-phone. The developed system was highly responsive and performance wise much more efficient than the conventional systems available.

## 5. FUTURE SCOPE

This work can be further extended to new levels as adoption rate of IFTTT is increasing at a rapid pace and IoT has already captured the market. The combination of two would lead to the development and implementation of much more sophisticated systems. The IFTTT could be used to integrate various services which would prove to be much more flexible and economical for developers. IFTTT has the power to influence the customer engagement by seamless integrations of multiple brands and thus rapidly increasing the functionality of the application with each new integration.

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