



JAIN INSTITUTE OF TECHNOLOGY
Dept. of Computer Science and Engineering.

Internship presentation on

“HOME AUTOMATION USING IOT”

Project guide:

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VIVARTTANA TECHNOLOGIES , BANGLORE

Team of industry experts with overall 90+ years in Software industry and 30+ years in teaching.
Team of seasoned professionals worked in Retail, BFSI, Manufacturing & Automobile, Travel and Logistics vertical / domain across US, Europe, APAC and Africa region.

Strong technology expertise in -

- Data Warehousing; Big Data;
- Web Technologies - Java Technology Framework;
- Mobile framework;
- User Experience – UI / UX - Node JS, Angular JS
- SAP; Business Objects.
- Strong domain expertise
- Human Capital Management (HCM or HRMS);
- Supply Chain Management (SCM);
- Manufacturing

CONTENTS:

- INTRODUCTION
- OBJECTIVE
- HARDWARE & SOFTWARE REQUIREMENTS
- DESIGN ARCHITECTURE
- IMPLEMENTATION AND EXECUTION
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INTRODUCTION

- The internet of things (IoT) is a system of interrelated computing devices , mechanical and digital machines are provided with a unique identifies (UID's) and the ability to transfer the data over the network without requiring a human-to-human or human-to-computer interaction.
- Smart Home using the IOT. The main aim of this system is to build a smart home device which can be used to control the home appliance via Internet.
- The electrical and electronics appliances in the home such as lights, fan, fire alarm , kitchen timer etc.., can be controlled using this technique.
- The wireless smart home system is an integrated system to facilitate elderly and disabled people with an easy to use home automation system that can be fully operated based on speech commands.





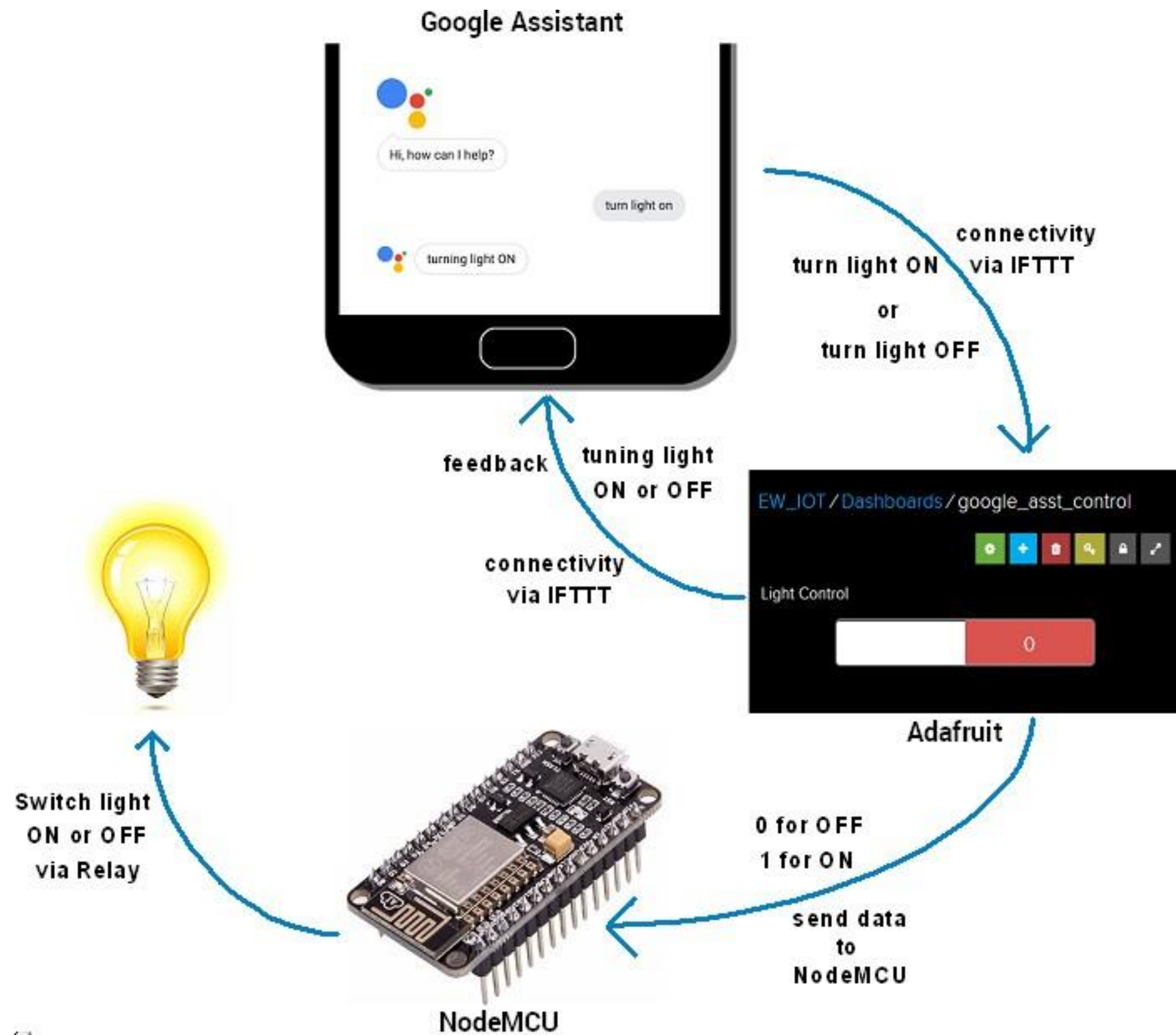
HARDWARE REQUIREMENTS

- NodeMcu(ESP8266 WIFI Module)
- Relay(2 or 4 Channel 5volt)
- Jumper wires(male to female and female to female)
- Bread Board
- Bulb
- Wire
- Switch

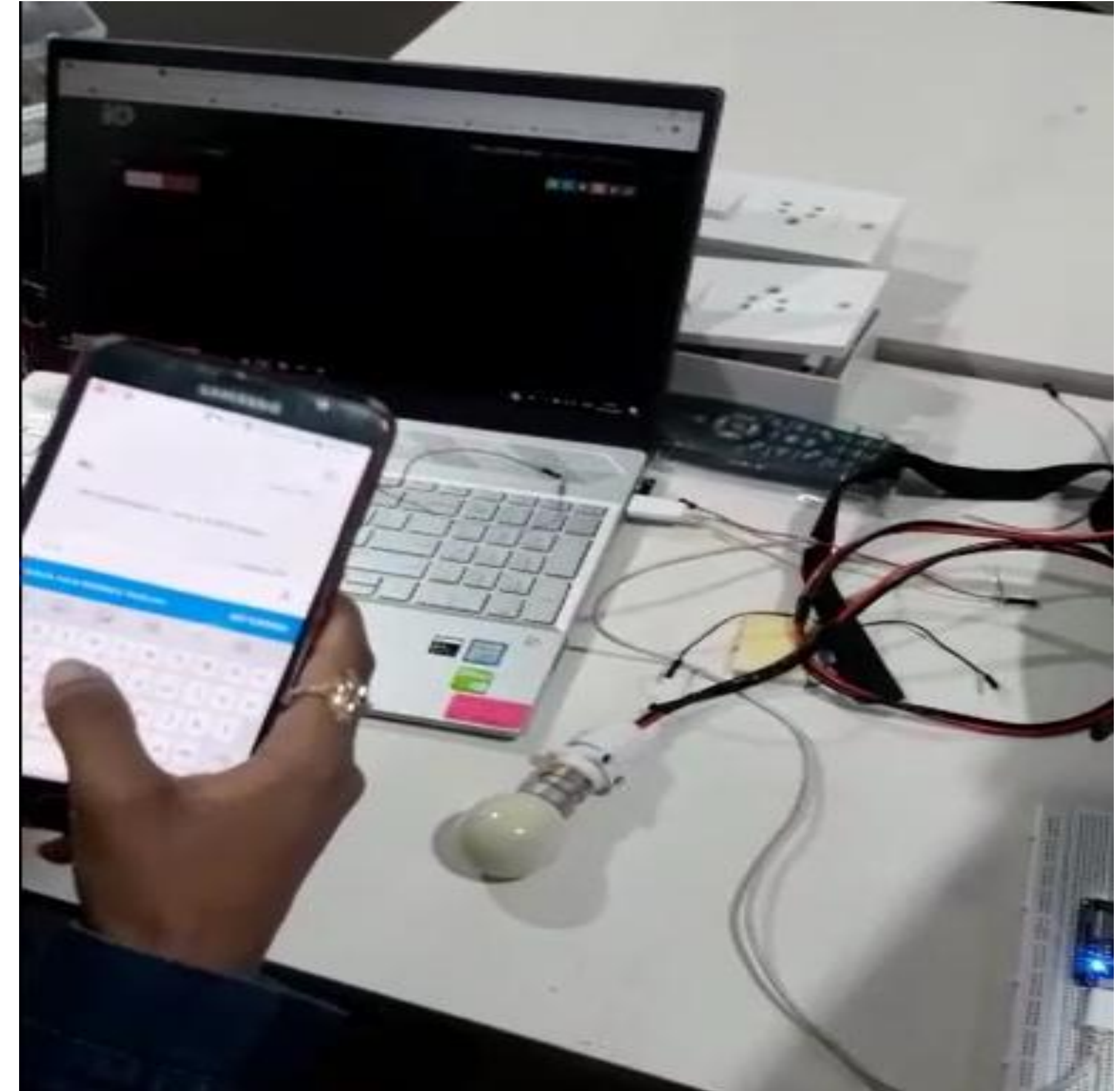
SOFTWARE REQUIREMENTS

- Aurdino Software
- Ada-fruit web service
- IFTTT
- Google assistant
- Windows 10

DESIGN ARCHITECTURE



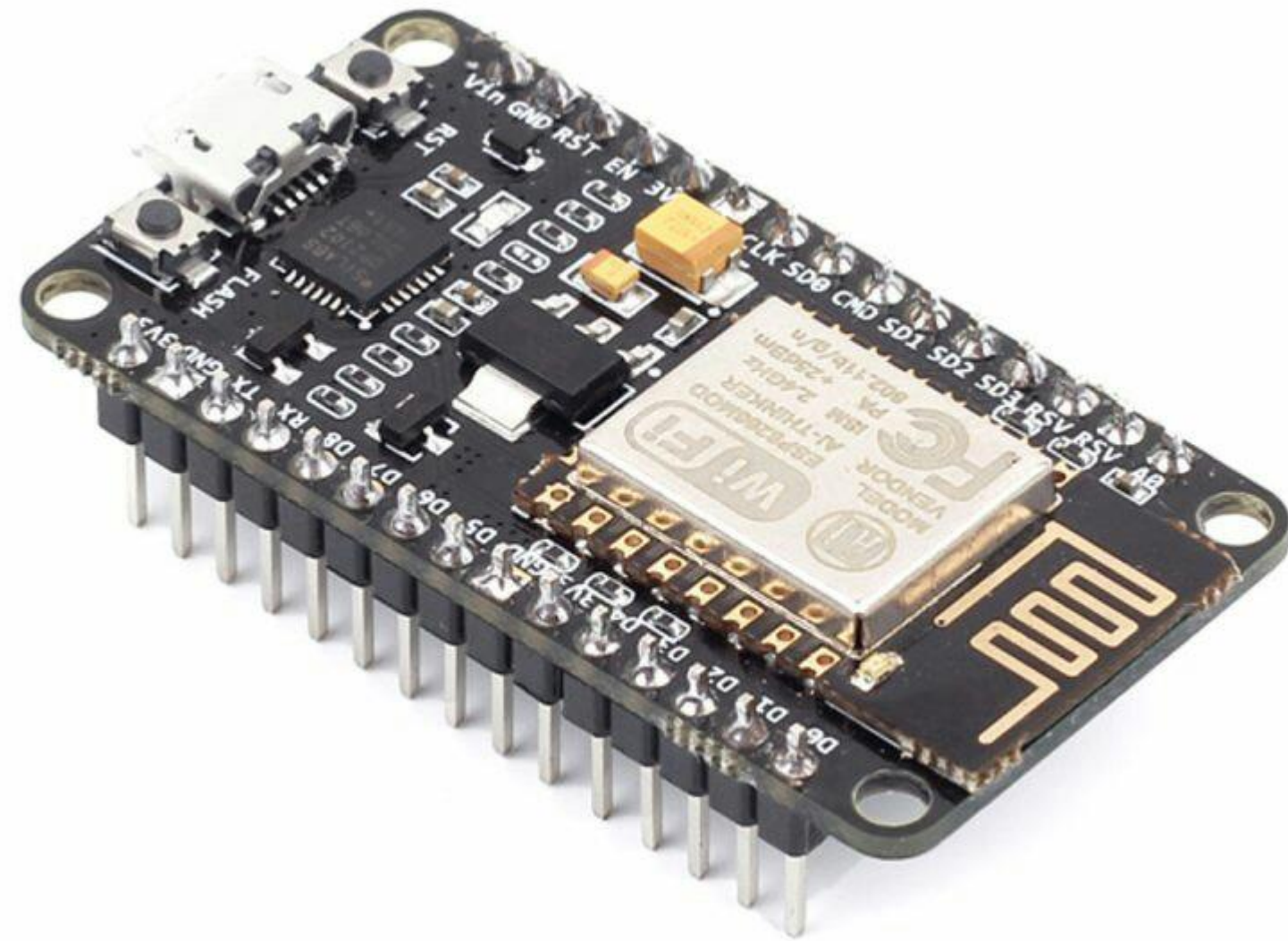
IMPLEMENTATION AND EXECUTION



Light Turned ON and then OFF

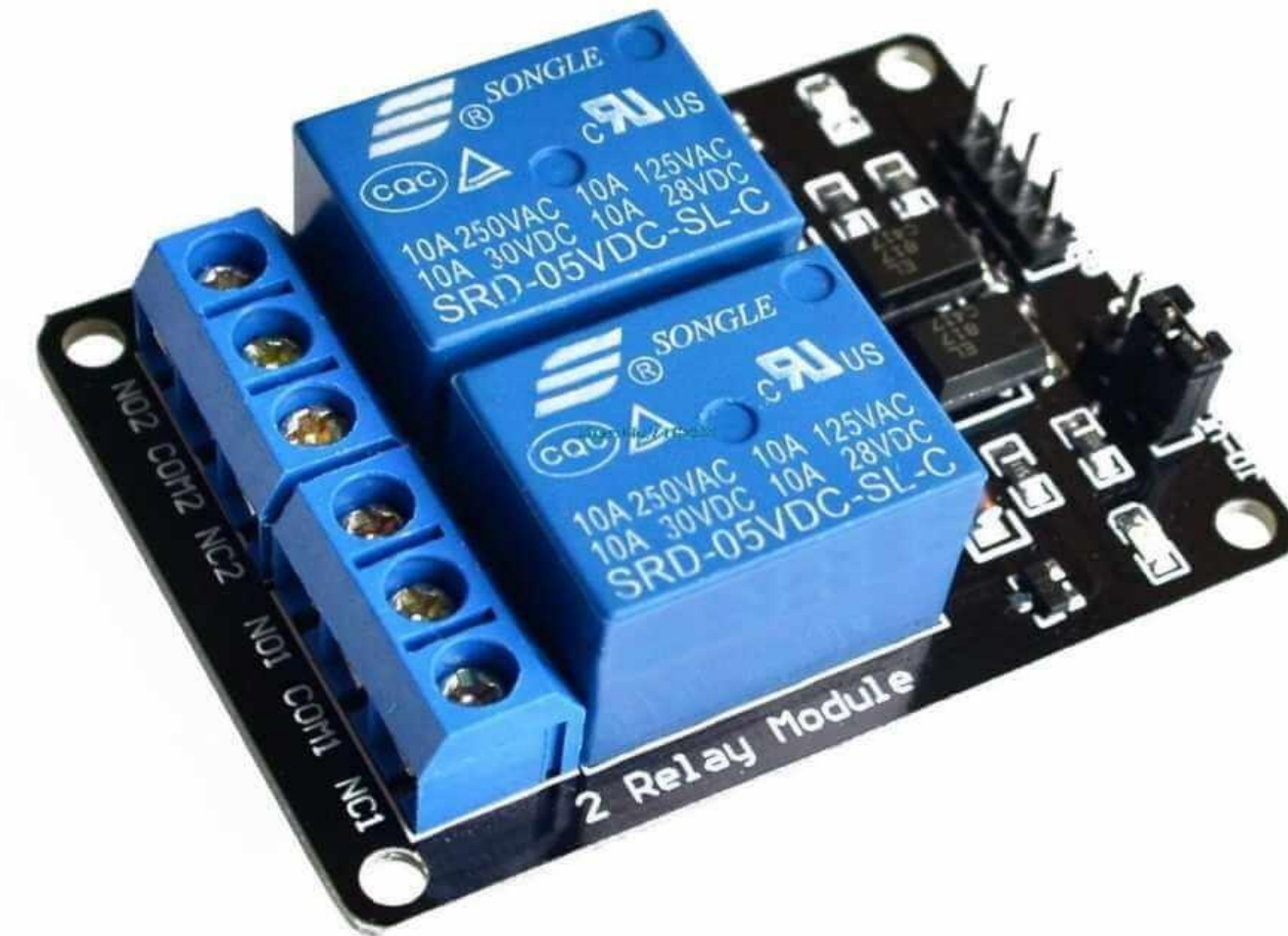
MODULES

NodeMcu (ESP8266 WIFI MODULE)



- The ESP8266 is a low-cost Wi-Fi chip with full TCP/IP stack and MCU (Micro control unit).
- This small module allows microcontroller to a Wi-Fi network and make simple TCP/IP connections.

RELAY (2 CHANNEL ,5V)

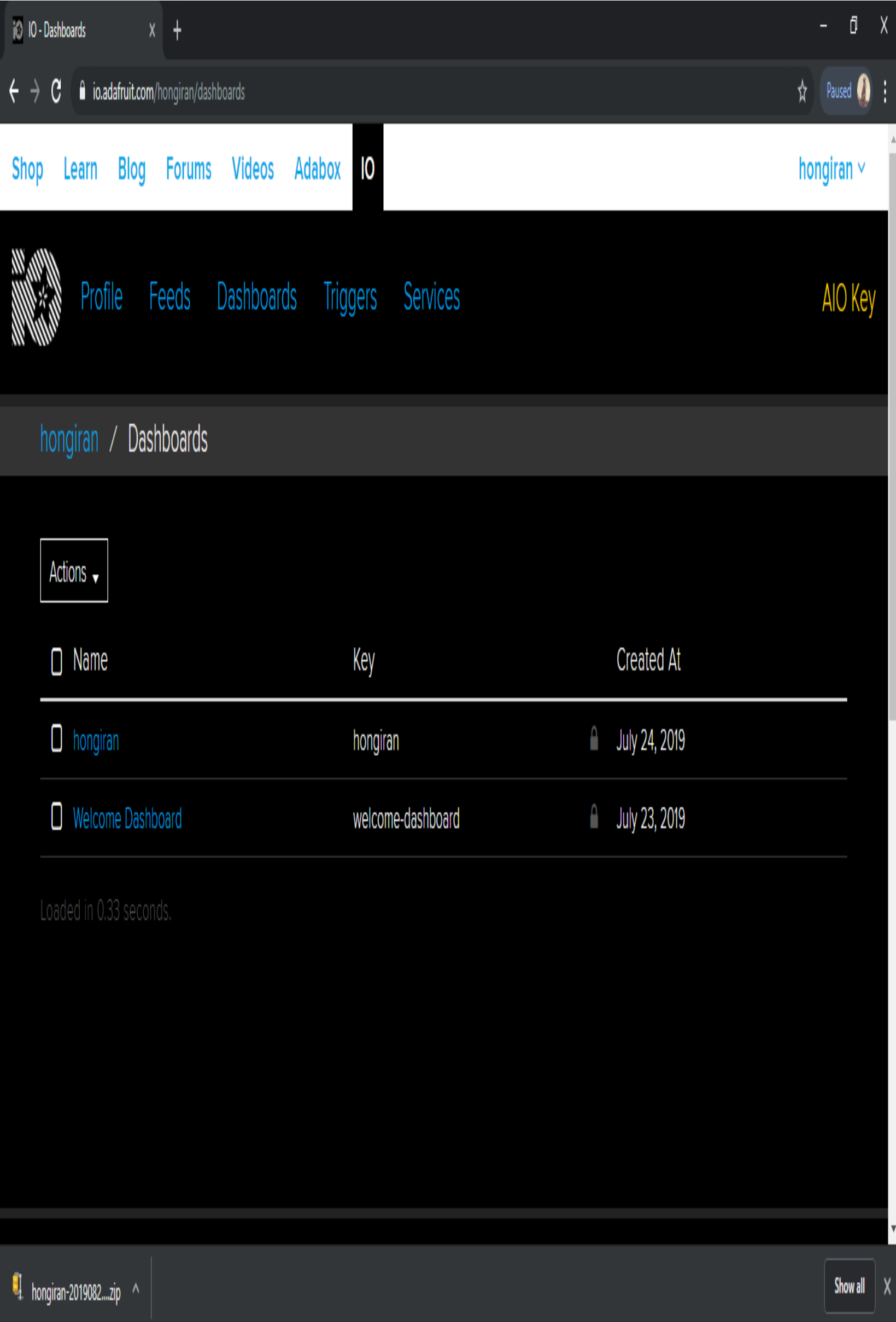


- A relay is a electrically operated switch
- Relays are used where it is necessary to control a circuit by a low-power signal.
- Relays protect electrical circuits from overload or faults.

ADA-FRUIT & MQTT

- **MQTT**, or message queue telemetry transport, is a protocol for device communication that **Adafruit IO** supports. ... For Python, Node.js, and Arduino you can use **Adafruit's IO**
- Client libraries as they include support for **MQTT** .
- Connect your project to other internet-enabled device.
- Display your data in real-time, online
- Make your project internet-connected: Control motors, read sensor data, and more.

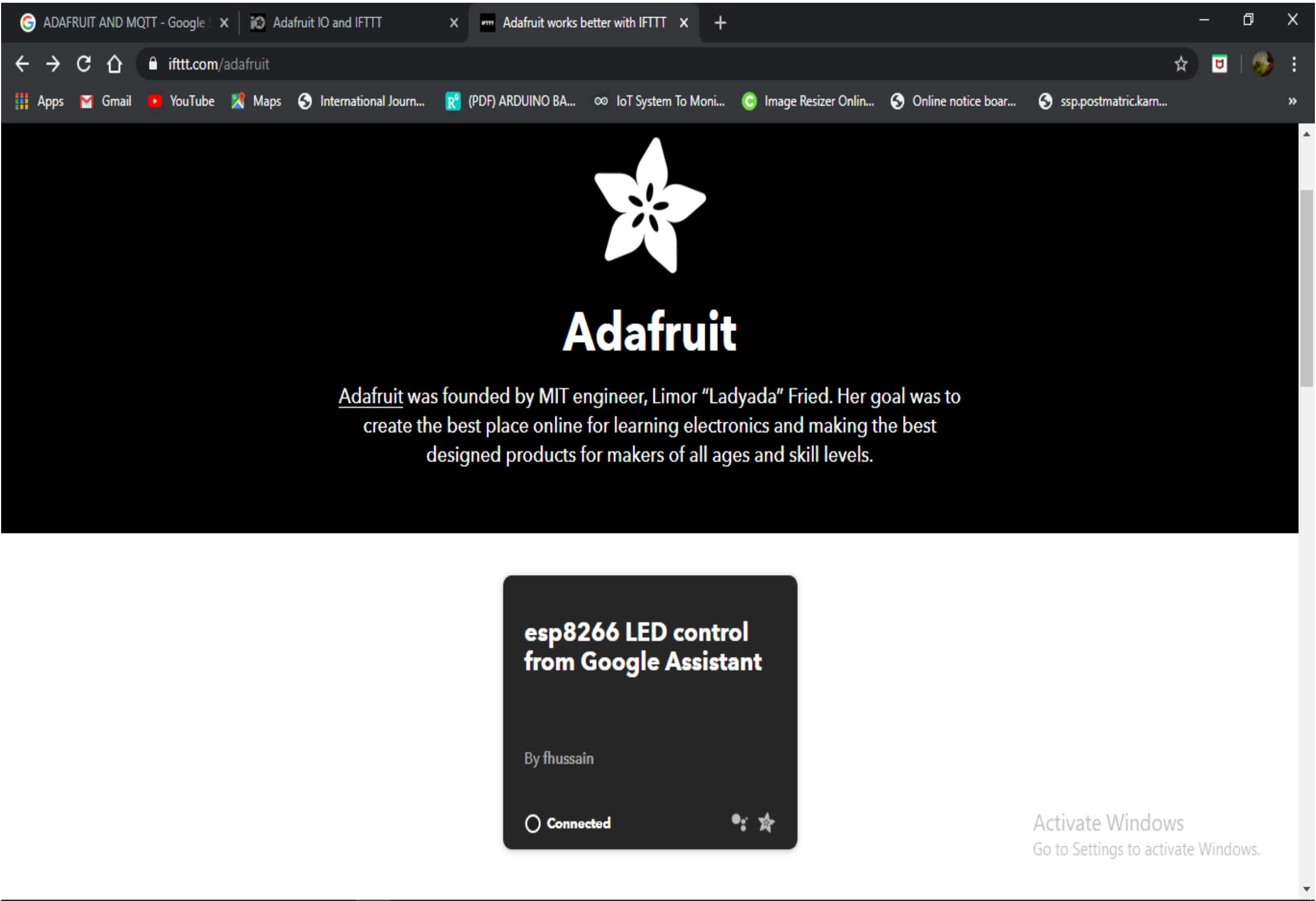
ADAFRUIT DASHBOARD



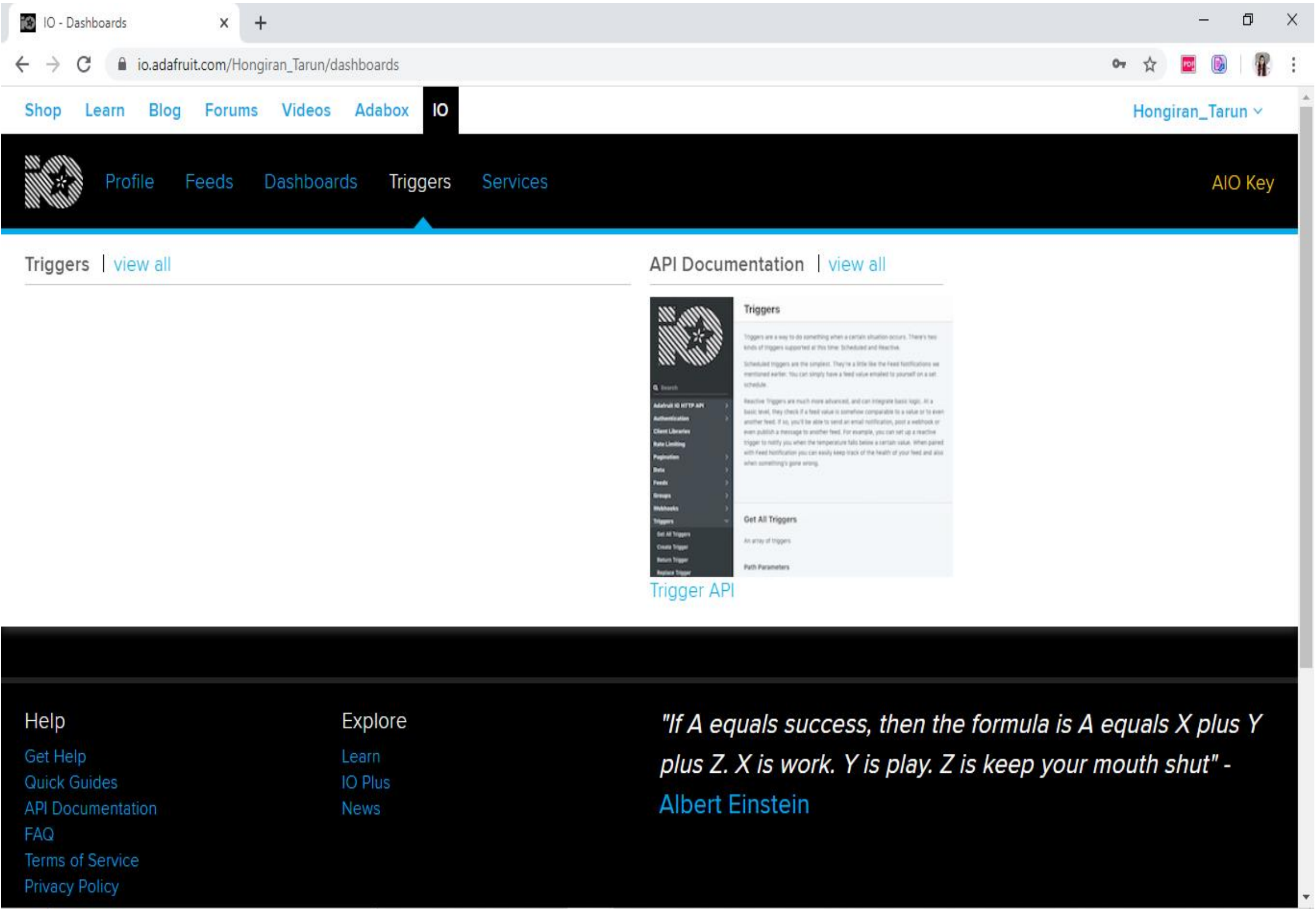
The screenshot shows the Adafruit IO web interface in a browser. The page title is "ADAFRUIT DASHBOARD". The user is logged in as "hongiran". The navigation bar includes links for Shop, Learn, Blog, Forums, Videos, Adabox, and IO. The main content area shows the user's profile and a list of dashboards. The dashboards table has columns for Name, Key, and Created At. The first dashboard is named "hongiran" with key "hongiran" and created on July 24, 2019. The second dashboard is named "Welcome Dashboard" with key "welcome-dashboard" and created on July 23, 2019. The page also shows a download notification for "hongiran-2019082...zip" at the bottom.

Name	Key	Created At
hongiran	hongiran	July 24, 2019
Welcome Dashboard	welcome-dashboard	July 23, 2019

ADAFRUIT LOOKS LIKE WHILE CREATING THE APPLLET BY GOOGLE ASSISTANT USING IFTTT



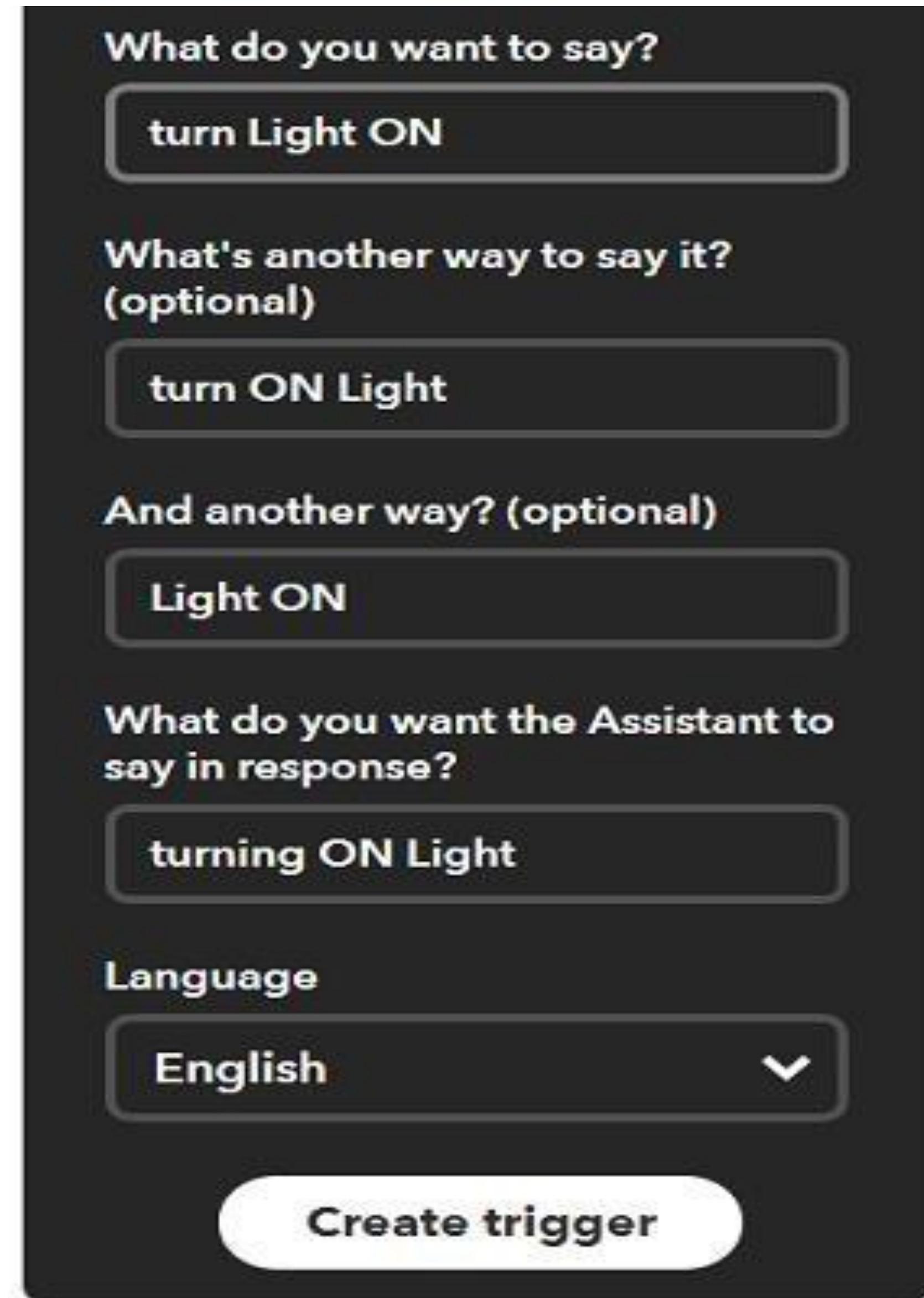
ADAFRUIT LOOKS LIKE WHILE CREATING THE TRIGGERS



IFTTT

- If This Then That ,also known as IFTTT, is a free web-based service that creates chains of simple conditional statements , called applets .
- An applets is triggered by changer that occurs within other web services such as Gmail, Facebook ,Telegram, Instagram ,or Printrest.

CREATING IFTTT TRIGGERS



The image shows a dark-themed interface for creating an IFTTT trigger. It consists of several text input fields with rounded corners, each preceded by a label. The labels are: '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?', and 'Language'. The input fields contain the following text: 'turn Light ON', 'turn ON Light', 'Light ON', 'turning ON Light', and 'English' with a downward arrow icon. At the bottom, there is a large, white, rounded button labeled 'Create trigger'.

What do you want to say?

turn Light ON

What's another way to say it? (optional)

turn ON Light

And another way? (optional)

Light ON

What do you want the Assistant to say in response?

turning ON Light

Language

English

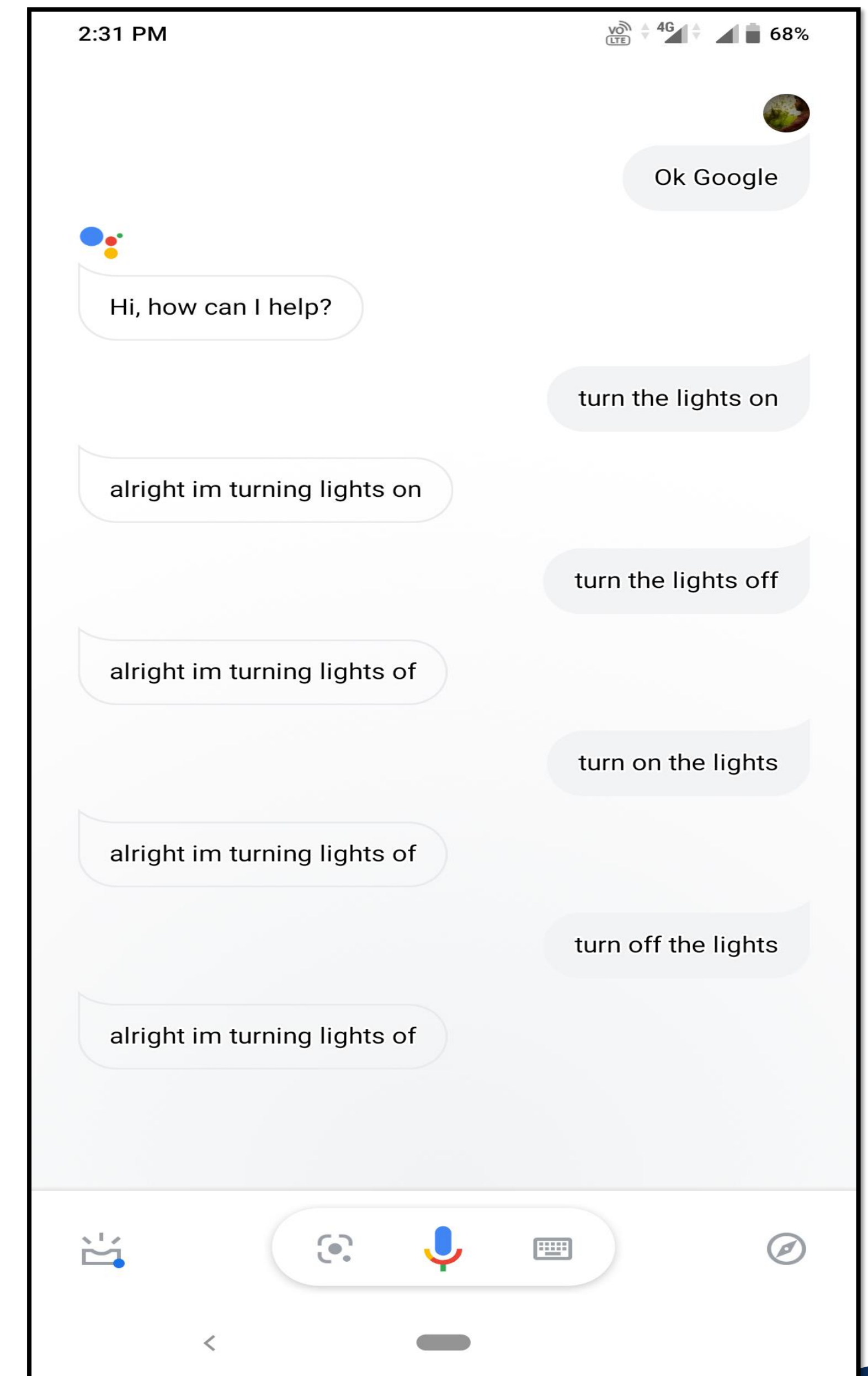
Create trigger

GOOGLE ASSISTANT

- **Google Assistant** is an artificial intelligence-powered virtual assistant developed by Google that is primarily available on mobile and smart home devices.
- Users primarily interact with the Google Assistant through natural voice, though keyboard input is also supported.

Control Home's Light using Google Assistant and NodeMCU

- I build an IoT based home automation application in which I control the 60 W bulb at remotely using AI based Google Assistant.
- Here, I used NodeMCU to read data from Adafruit server and act accordingly. 60 W bulb connected to NodeMCU via relay for controlling it voice command using google assistant.



CONCLUSION AND FUTURE SCOPE

- Smart Home using IoT is definitely a resource which is capable of make a home setting automated. People can be in command of their electrical devices via these Home Automation devices and set up the controlling actions in the workstation.
- In future this product may have high potential for marketing. In real time this project can be extended in future to ensure the high security through online HD spy camera.
- With this, the system can be incorporated in a whole building of any institution or residential building and can monitor from anywhere. This way, advantages of home automation can be more availed.





THANK
YOU