

# Lecture #7

# Google Assistant

Android Things 2023

# What we will build

- A custom Google Assistant device.
- It will use a button to trigger a microphone and playback the Assistant answer on the speaker.



Image source: <https://aiyprojects.withgoogle.com>

# What we will learn

- Record and playback audio from I2S devices.
- Use the Google Assistant gRPC API.



Image source: <https://dpi.wi.gov>

- ✓ Development board that is running Android Things.
- ✓ Microphone and speaker.
- ✓ WiFi/Ethernet connection.
- ✓ Android Studio 3.0+.
- ✓ A LED.
- ✓ A Google/Gmail account.



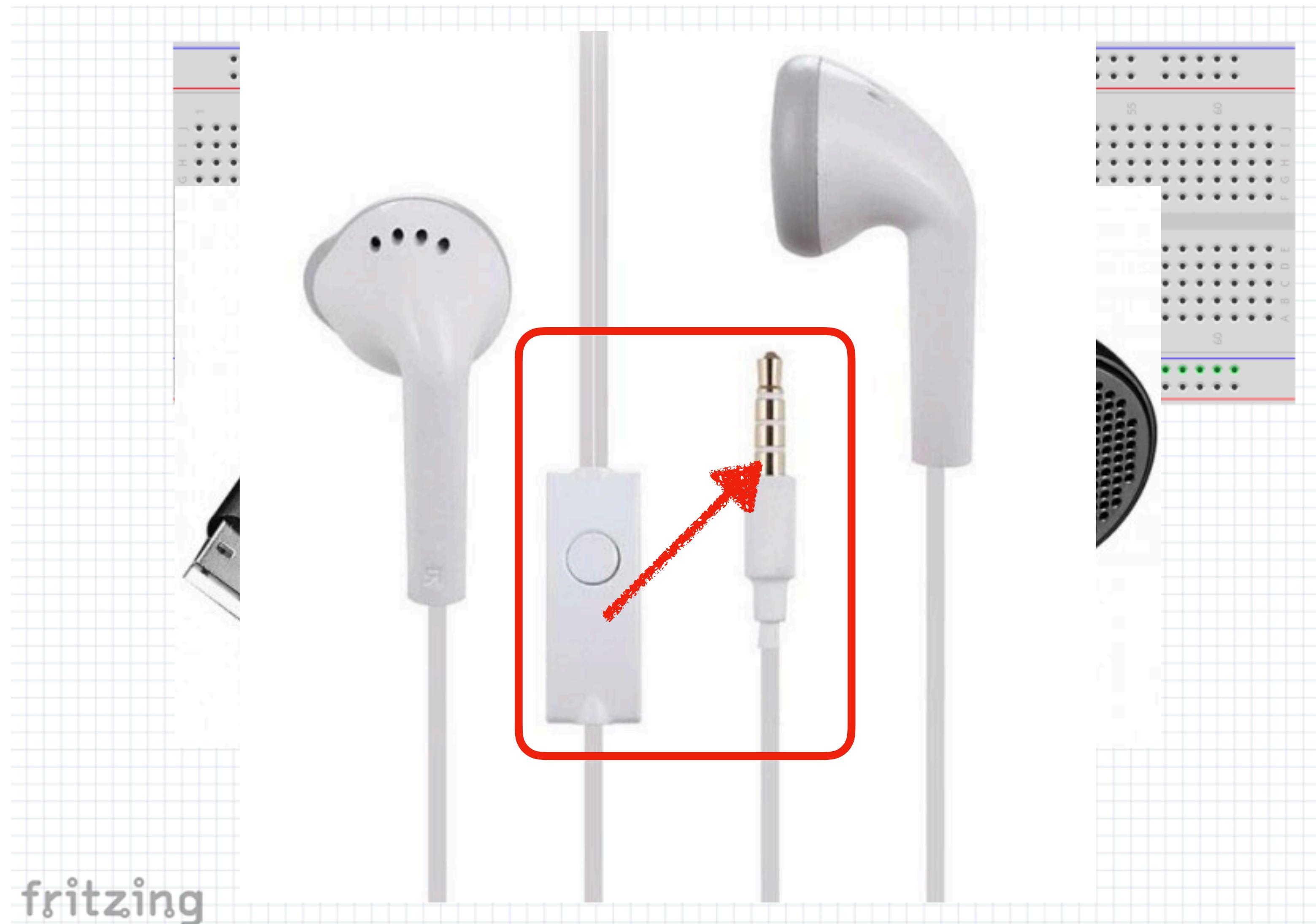
Image source: <https://www.dreamstime.com>

# Voice Kit



<https://aiyprojects.withgoogle.com/voice/>

# Assemble the Hardware



fritzing

# Get the Sample Code

The screenshot shows a GitHub repository page for the user 'dancojocar' with the repository name 'at'. The page includes the following elements:

- Header:** Shows the repository name 'dancojocar / at', a watch count of 1, a star count of 0, and a fork count of 0.
- Navigation:** Includes links for 'Code', 'Issues 0', 'Pull requests 0', 'Projects 0', 'Wiki', 'Insights', and 'Settings'.
- Section Headers:** 'Android Things' and 'Manage topics'.
- Statistics:** 11 commits, 1 branch, 0 releases, and 1 contributor.
- Branch Selection:** 'Branch: master ▾' and 'New pull request'.
- File List:** A list of files including 'Change the colors.', 'lectures', 'Change the colors.', and '.gitignore'.
- Clone Options:** Buttons for 'Clone with SSH' (selected) and 'Use HTTPS', with the SSH URL 'git@github.com:dancojocar/at.git' displayed.
- Download Options:** 'Open in Desktop' and 'Download ZIP'.
- README Placeholder:** A light blue box prompting to 'Help people interested in this repository understand your project by adding a README.'

# Get the Sample Code

dancojocar / at

Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

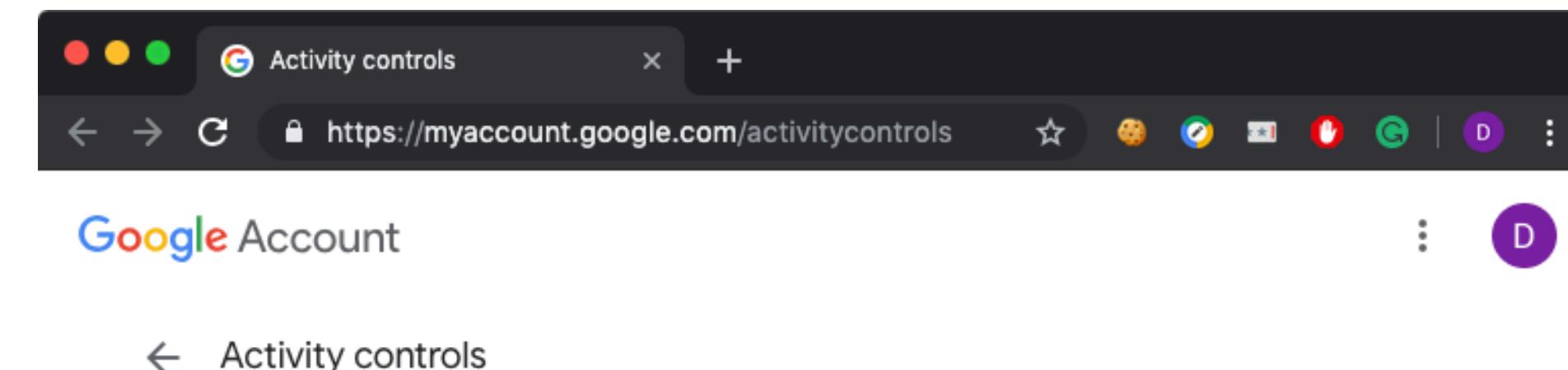
Branch: master at / lectures / 7 / androidthings-googleassistant / Create new file Upload files Find file History

File/Folder	Last Commit	Author
gradle/wrapper	Lecture #7 23 hours ago	dancojocar
shared	Lecture #7 23 hours ago	dancojocar
step1-start-here	Lecture #7 23 hours ago	dancojocar
step2-volume-control	Lecture #7 23 hours ago	dancojocar
step3-built-in-device-actions	Lecture #7 23 hours ago	dancojocar
step4-custom-device-actions	Lecture #7 23 hours ago	dancojocar

# Configure the Credentials

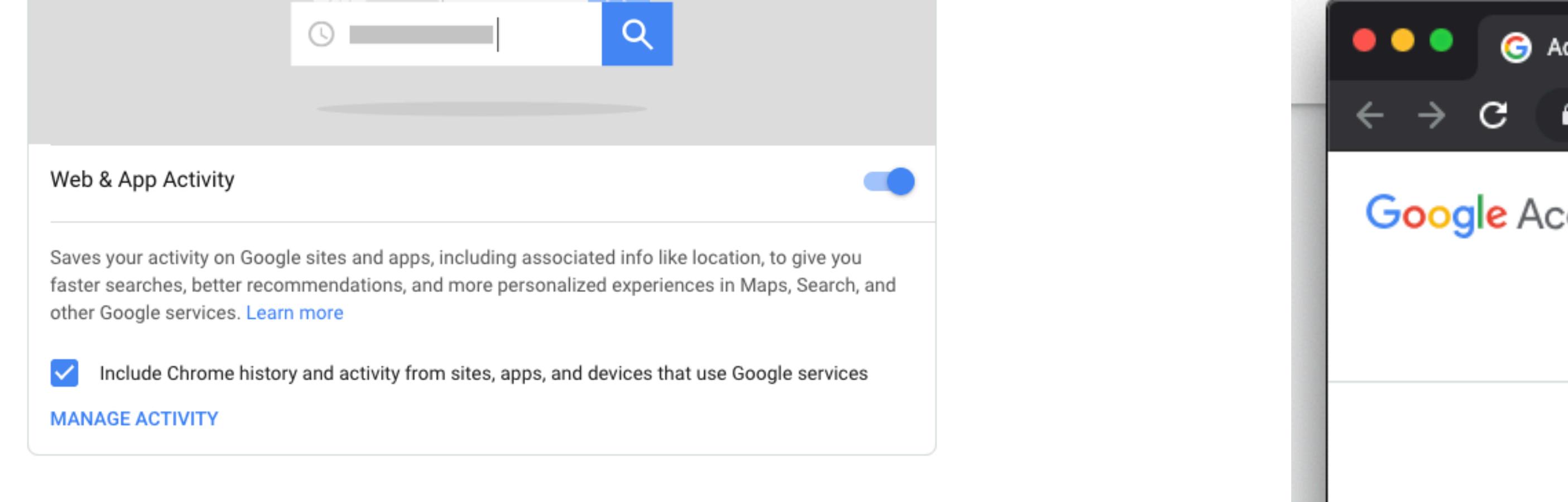
- In Activity controls enable:

- Web & App Activity



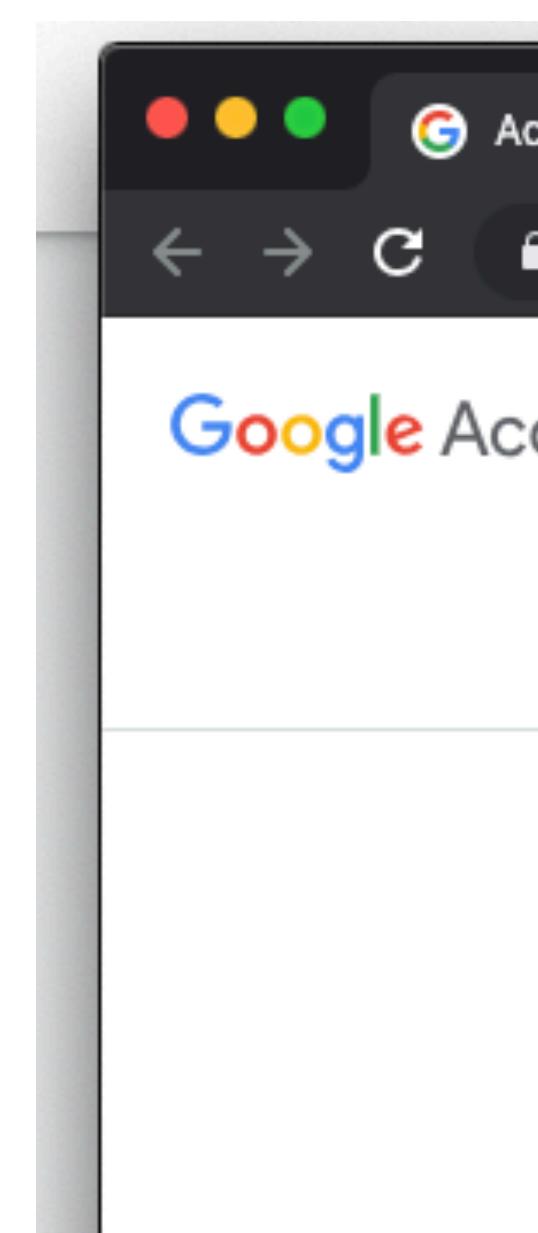
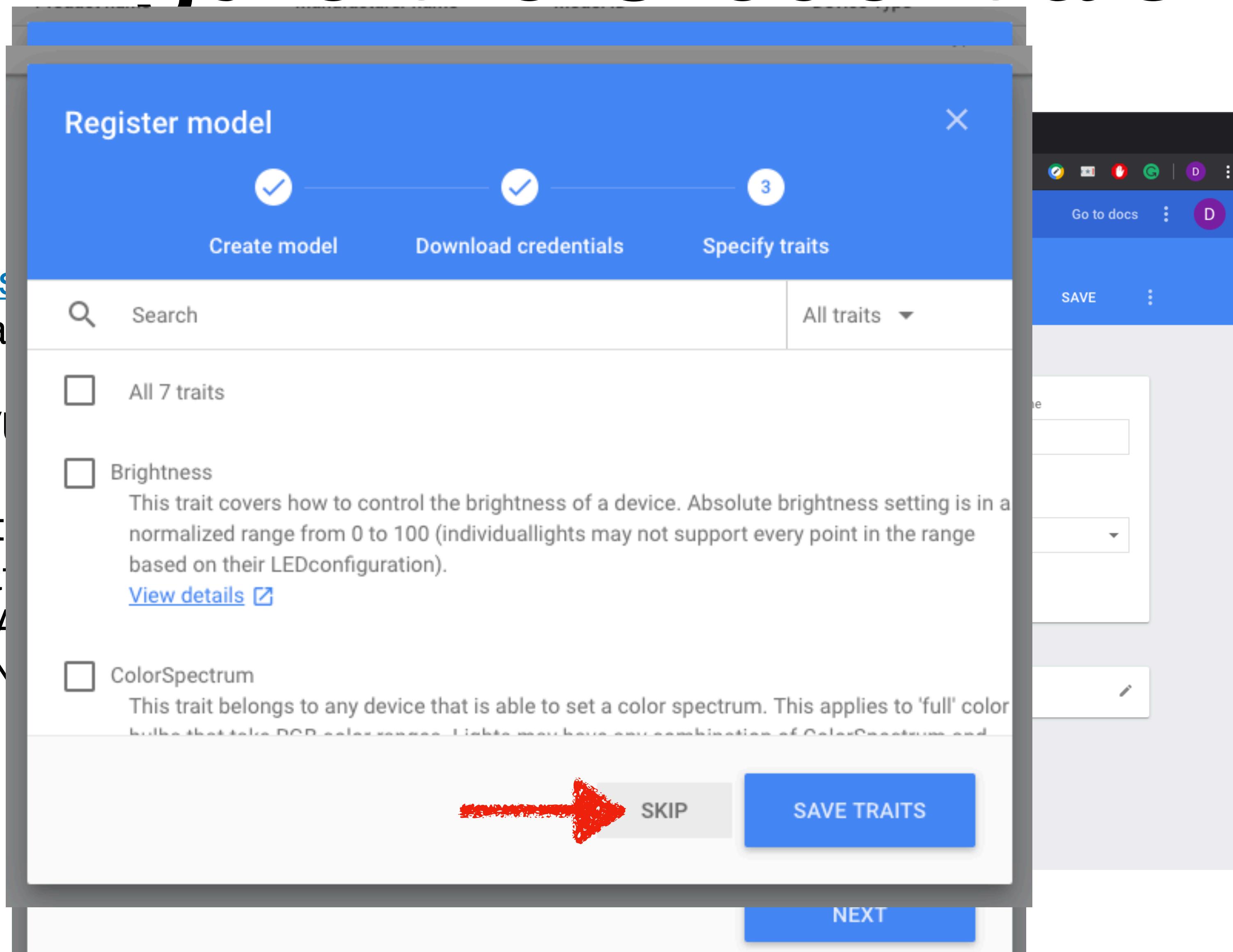
- Device Information

- Voice & Audio Activity



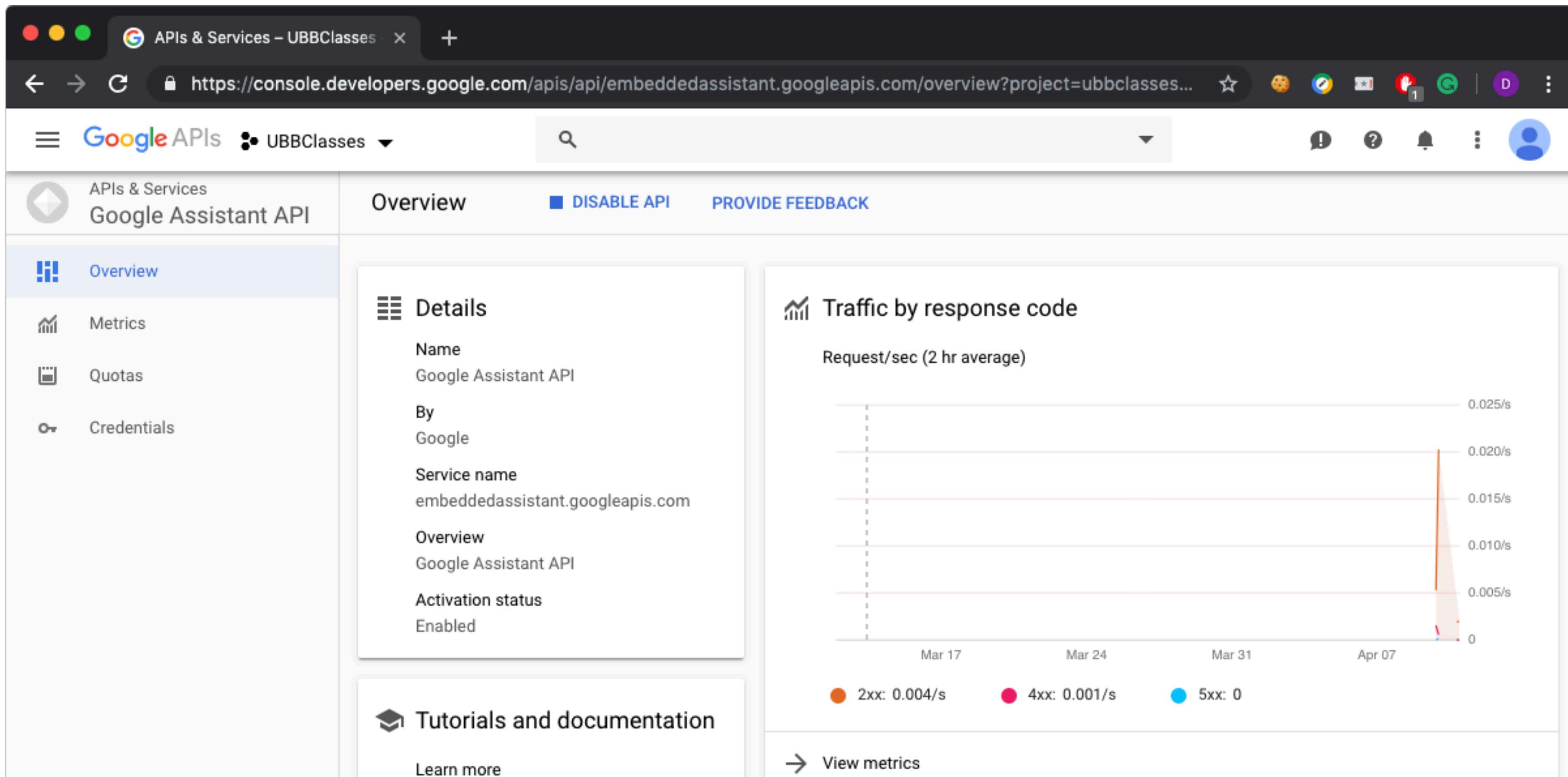
# Configure the Credentials

- In [Actions](#), register a
- Create/
- Select the registration (under **ACTIONS > OPTIONS** in the navbar).



# Enable the Google Assistant API

- Enable [Google Assistant API](#) in the Cloud Console



# Configure a new Python Virtual Environment

```
$ python3 -m venv env  
$ source env/bin/activate  
(env) $ pip install --upgrade pip setuptools wheel  
(env) $ pip install --upgrade "google-auth-oauthlib[tool]"
```

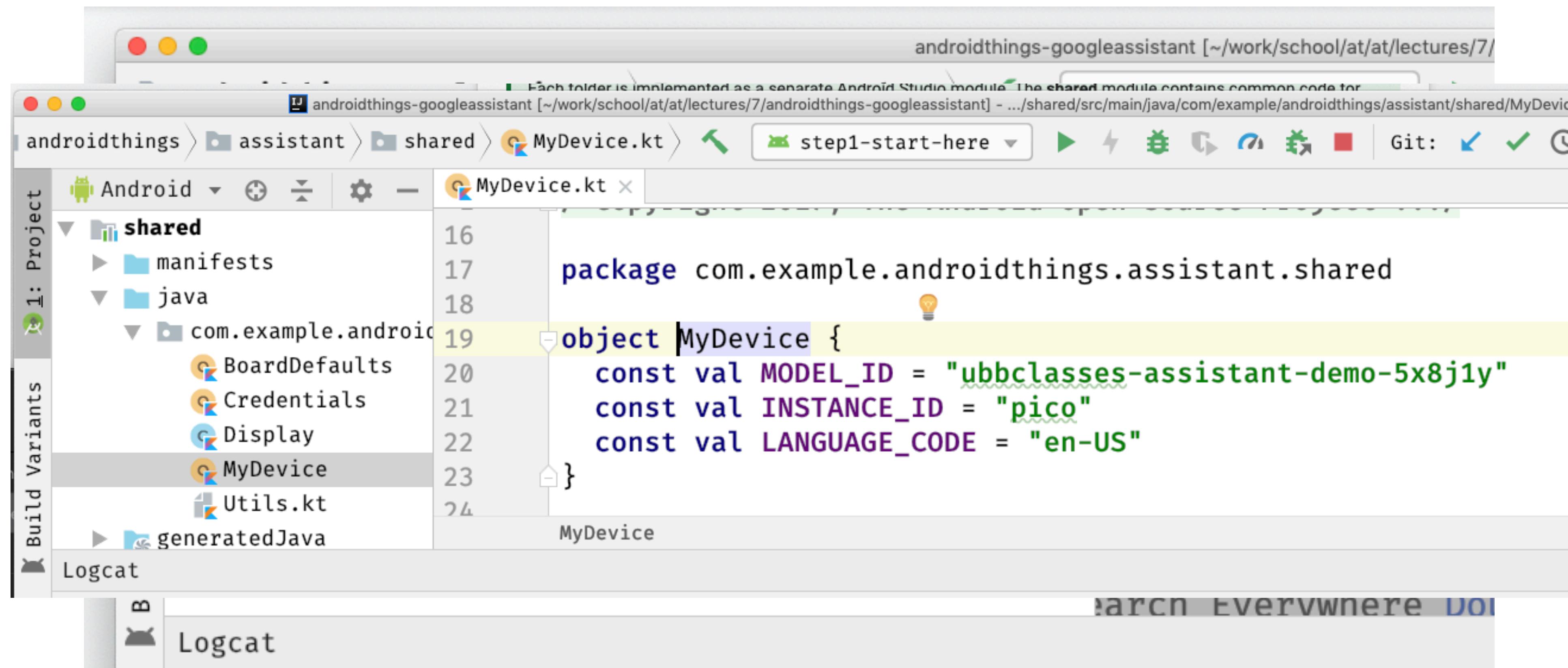
# Generate the credentials

```
(env) $ google-oauthlib-tool --client-secrets path/to/credentials.json \
--credentials shared/src/main/res/raw/credentials.json \
--scope https://www.googleapis.com/auth/assistant-sdk-prototype \
--save
```

Replace `path/to/credentials.json` with the path of the JSON file you downloaded

DEMO

# Run the step1-start-here module



# Add Built-In Device Actions

**Traits**

Select the traits your device supports. [Learn more](#)

Search All traits ▾

large, these are currently robotic vacuum cleaners, but this would also apply to some drones, delivery robots, and other future devices.  
[View details](#)

**OnOff**  
The basic on and off functionality for any device that has binary on and off, including plugs and switches as well as many future devices. Note that thermostats have an expanded 'mode' setting, which is a multiway switch that includes on and off, but thermostats generally will not have this trait.  
[View details](#)

**StartStop**  
This trait covers starting and stopping the device. Starting and stopping a device serves a similar function to turning it on and off. Devices that inherit this trait function differently when turned on and when started. Certain washing machines, for instance, are able to be turned on and have their settings modified before actually starting operation.

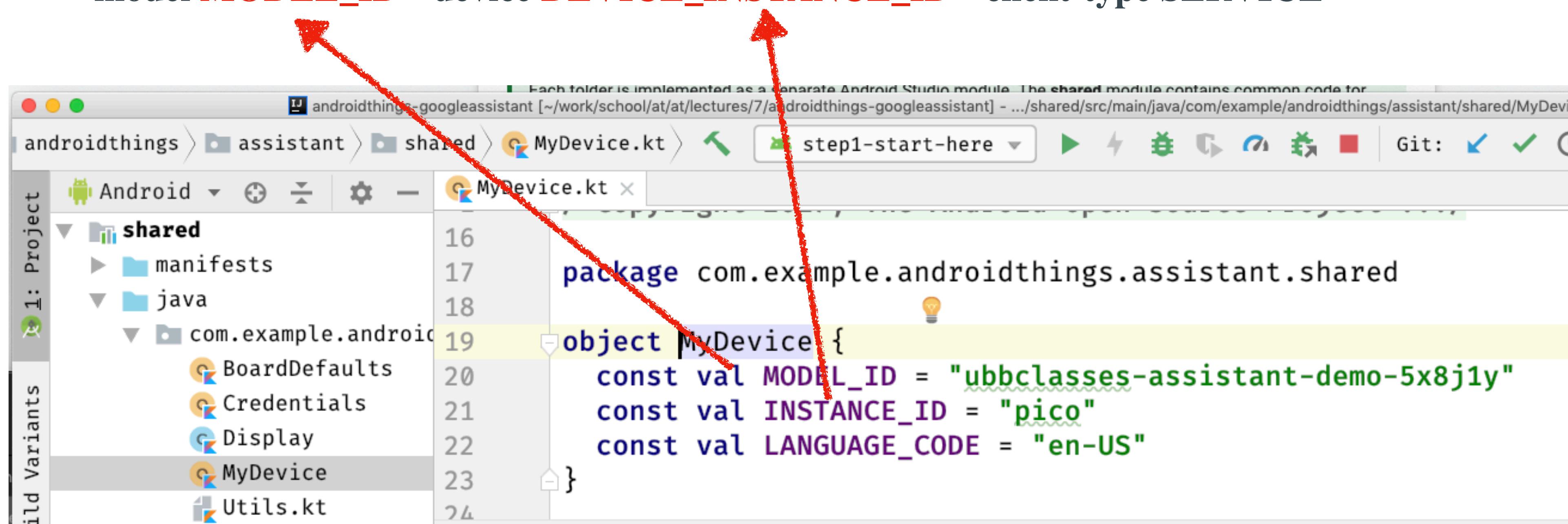
You've selected 1 out of 7 traits

[CANCEL](#) [SAVE](#)

DEMO

# Register the Device

```
(env) $ google-oauthlib-tool --client-secrets path/to/credentials.json \  
--scope https://www.googleapis.com/auth/assistant-sdk-prototype \  
--save  
(env) $ pip install google-assistant-sdk  
(env) $ googlesamples-assistant-devicetool --project-id PROJECT_ID list --model  
...  
(env) $ googlesamples-assistant-devicetool --project-id PROJECT_ID register-device \  
--model MODEL_ID --device DEVICE_INSTANCE_ID --client-type SERVICE
```



# Add Custom Device Actions

```
{  
  "manifest": {  
    "displayName": "Display",  
    "invocationName": "Display",  
    "category": "PRODUCTIVITY"  
  },  
  "actions": [  
    {  
      "name": "com.example.actions.Display",  
      "availability": {  
        "deviceClasses": [  
          {  
            "assistantSdkDevice": {}  
          }  
        ]  
      },  
    },  
  ],  
}
```

**DEMO**

# Add Custom Device Actions

```
(env) $ gactions test --action_package actions.json --project project_id
```

# Lecture outcomes

- Integrate Google Assistant.
- Define custom actions.

