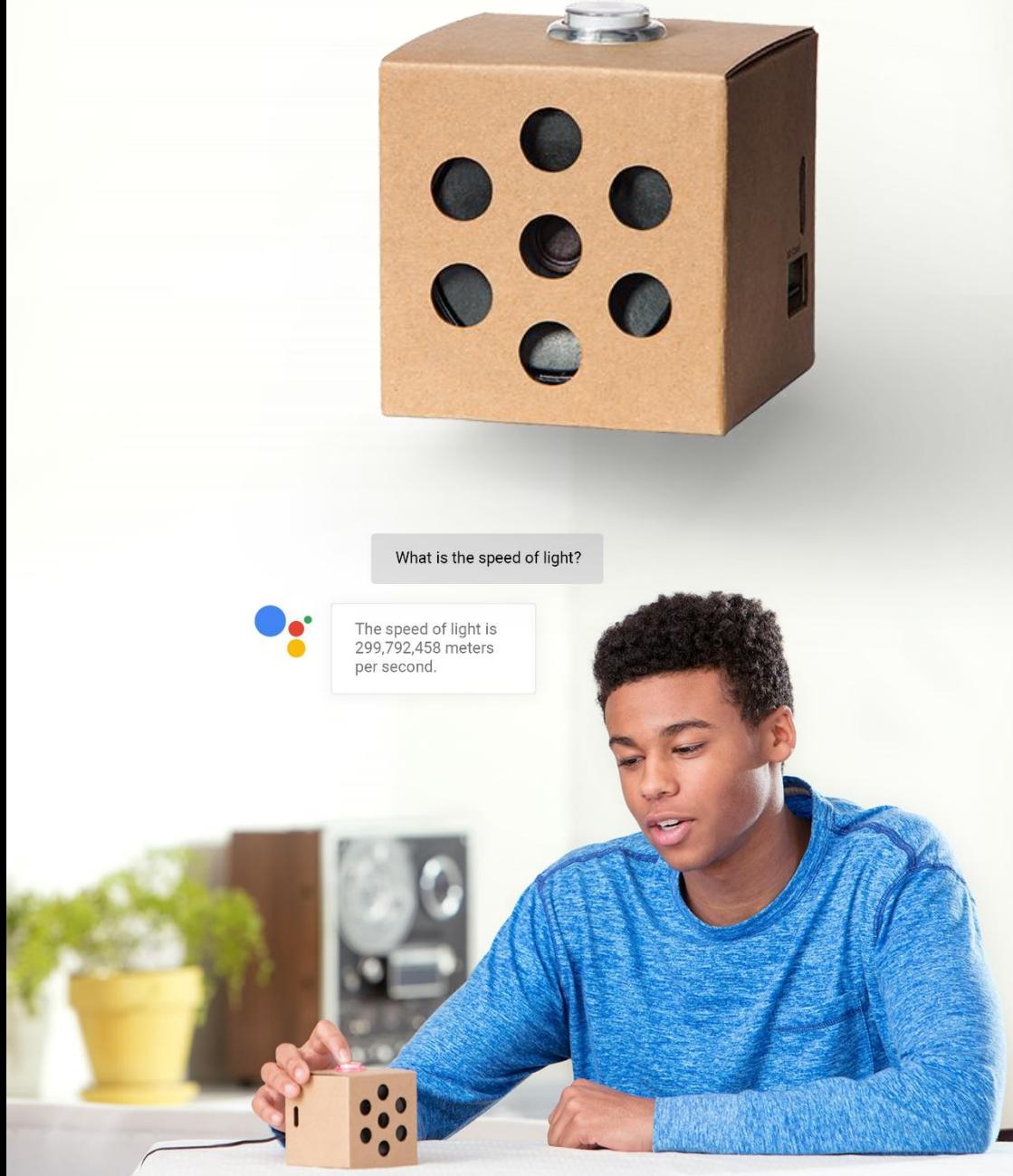


Google AIY Voice Kit v2

- Make workshop-

Copyright.q2ok



Goal && Limit



- AI 이해 및 간접 체험
- Google Assistant
- 라즈베리파이 speak를 활용한
- 인공지능 스피커 제작



- 깊이 있는 Python 언어
- 다른 언어로 써의 활용
- 다른 프로그램과의 연동

Curriculum

Curriculum

1일차



- AI 이해
- 회로구성 및 제작
- os img setup

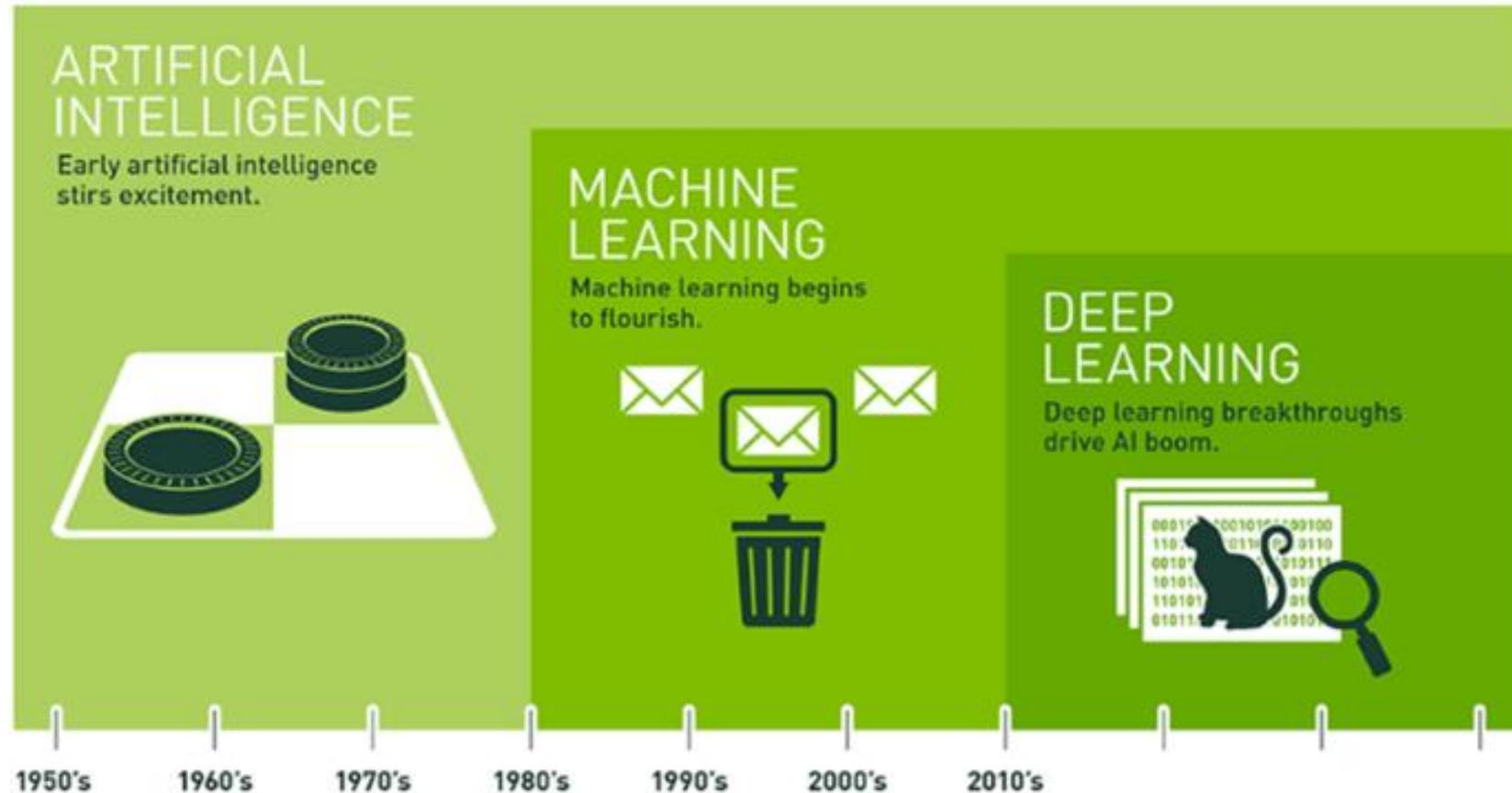
2일차



- 미비 된 메이킹 진행
- 예제 코드 실행 및 리뷰

AI 인공지능

AI / ML / DL



Since an early flush of optimism in the 1950s, smaller subsets of artificial intelligence – first machine learning, then deep learning, a subset of machine learning – have created ever larger disruptions.

- 인공지능(AI) > ML(머신러닝) > DL (딥 러닝)

기업

Google

facebook



PYTORCH

Deep Learning with PyTorch

Curriculum

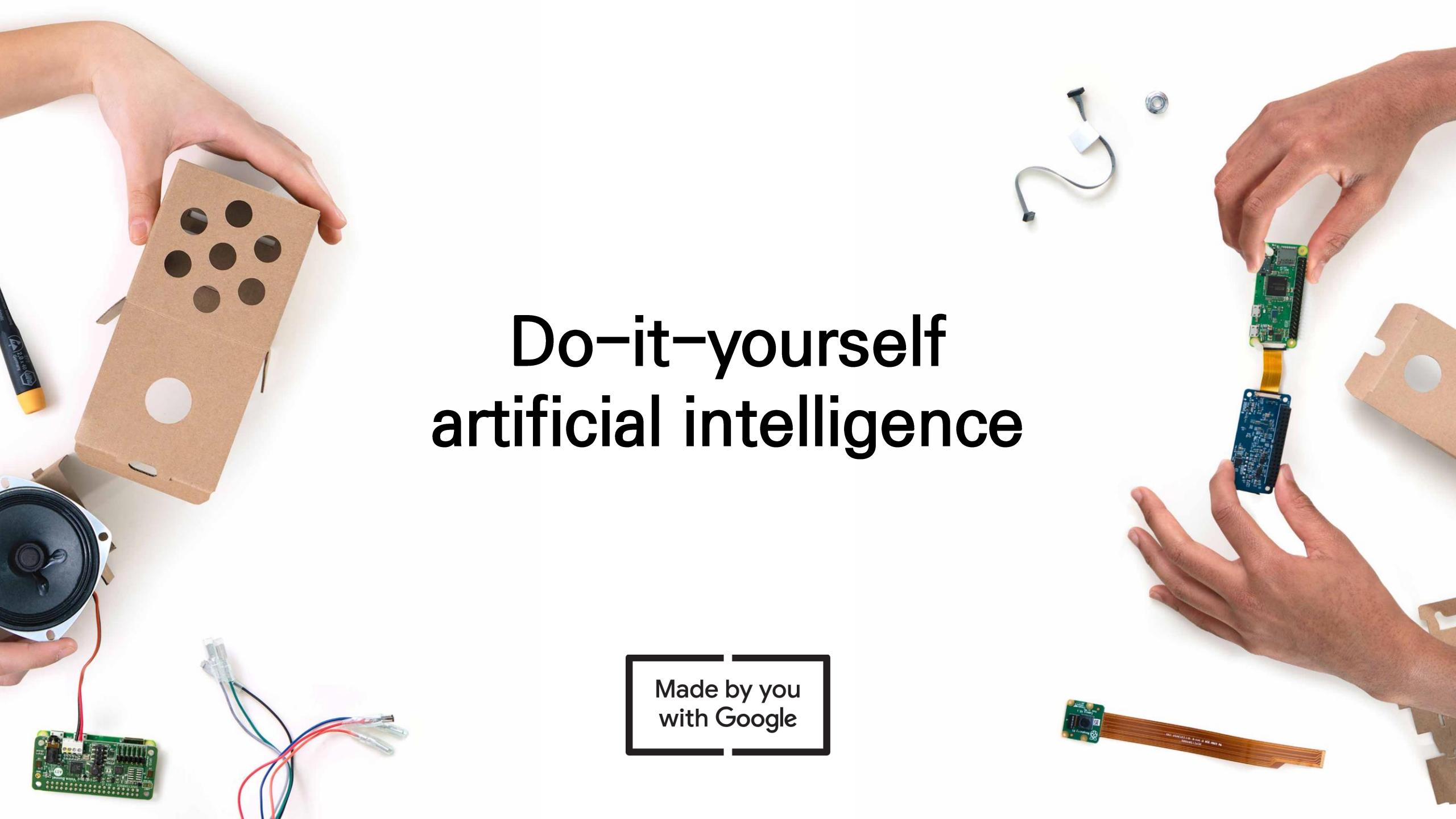
amazon

SAMSUNG

kt

- <http://www.hani.co.kr/arti/economy/it/870696.html> (삼성 sds 사이다 팀 스타우승)



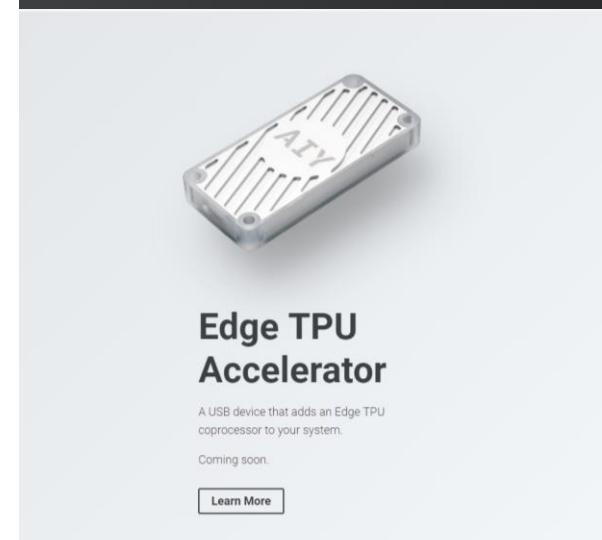
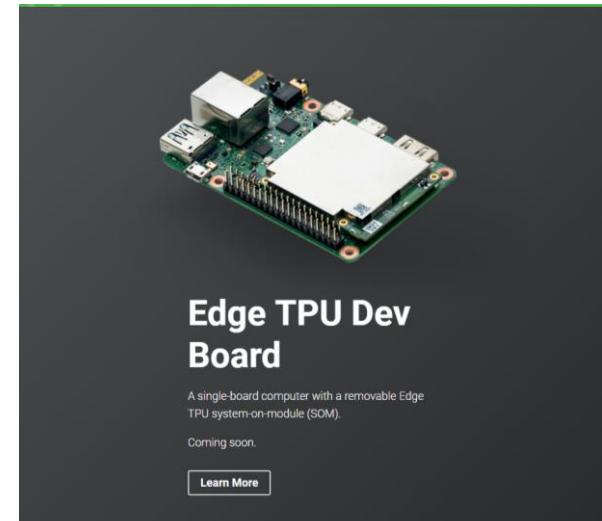
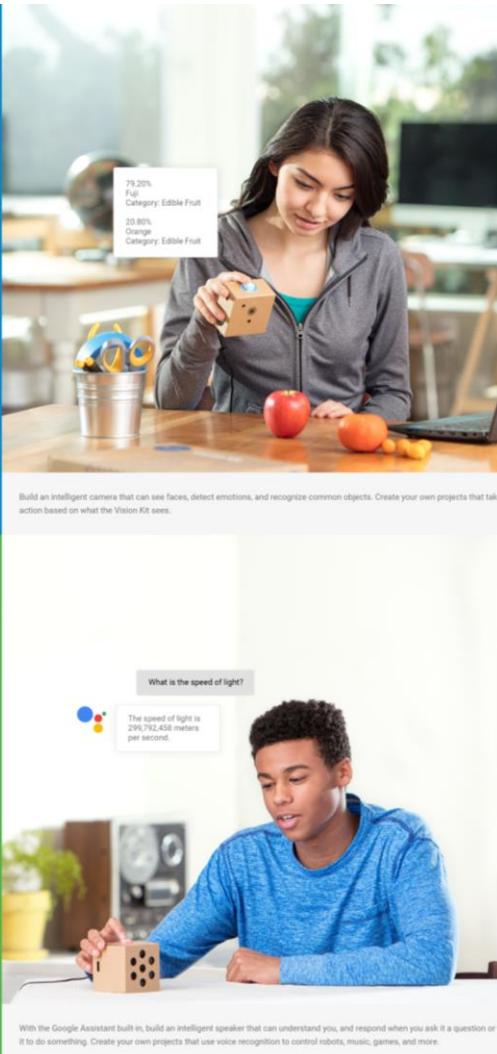
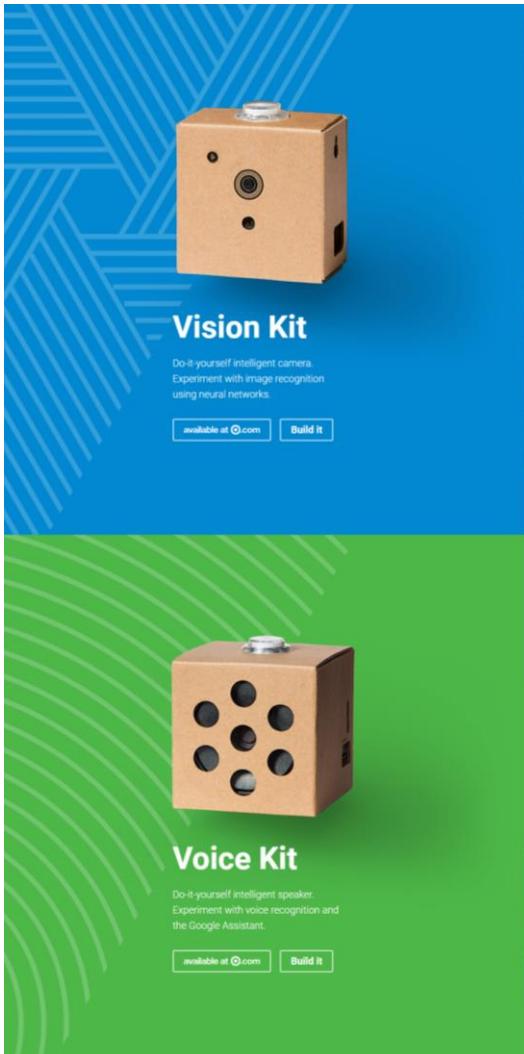


Do-it-yourself artificial intelligence

Made by you
with Google

GOOGLE AIY PROJECT

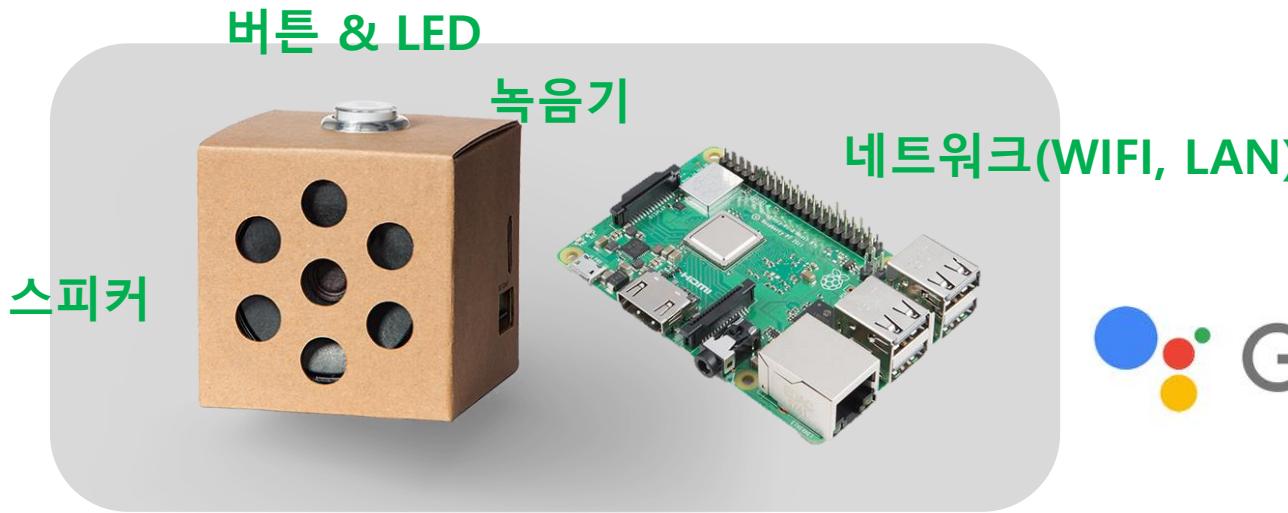
AIY project with google



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

voice kit 구조

Android

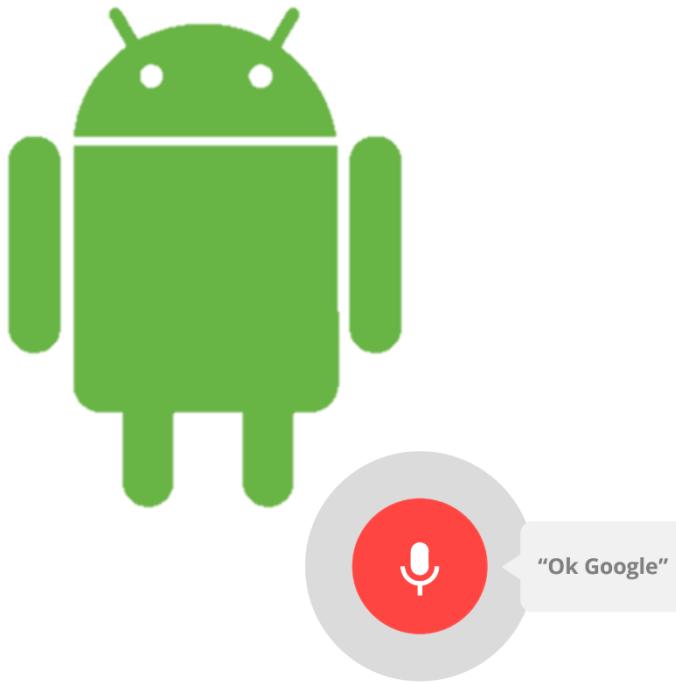


**프로그램
(python)**

 Google 어시스턴트

인공지능 스피커

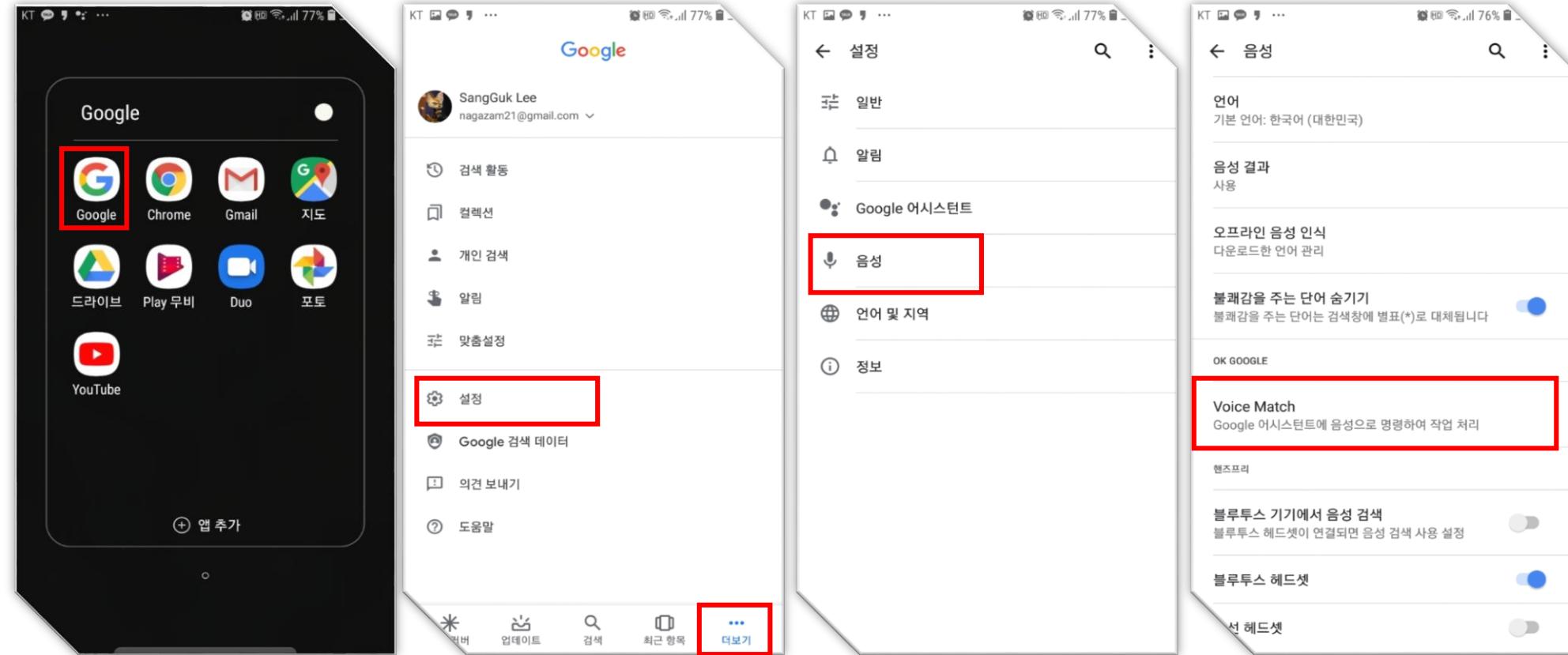
Android



여러분들은 이미 하나 씩 가지고 계십니다.

ok google

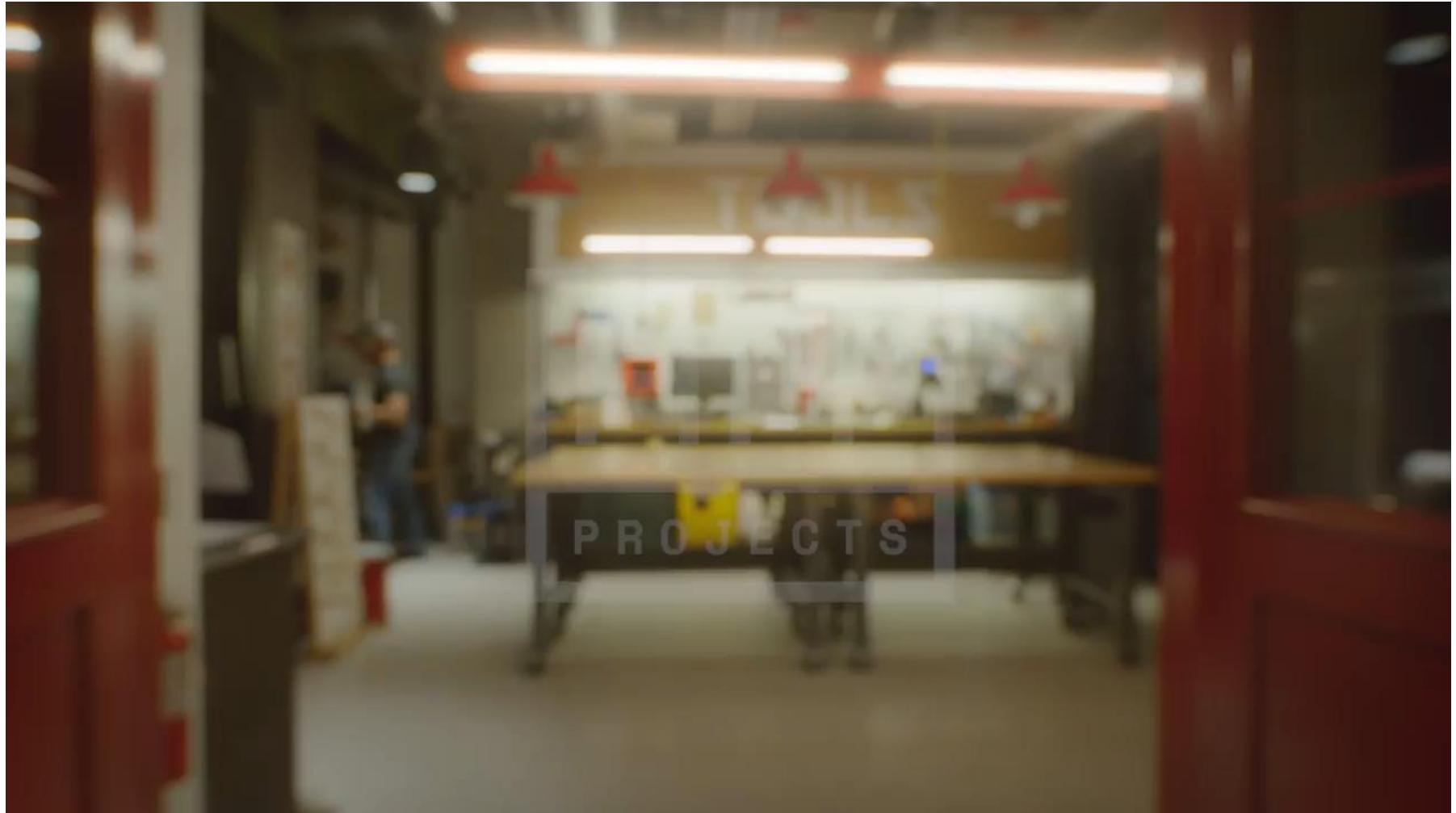
ok Google



GOOGLE 앱 > 더보기 > 설정 > 음성 > voice Match > voice Match로 액세스 활성화

intro

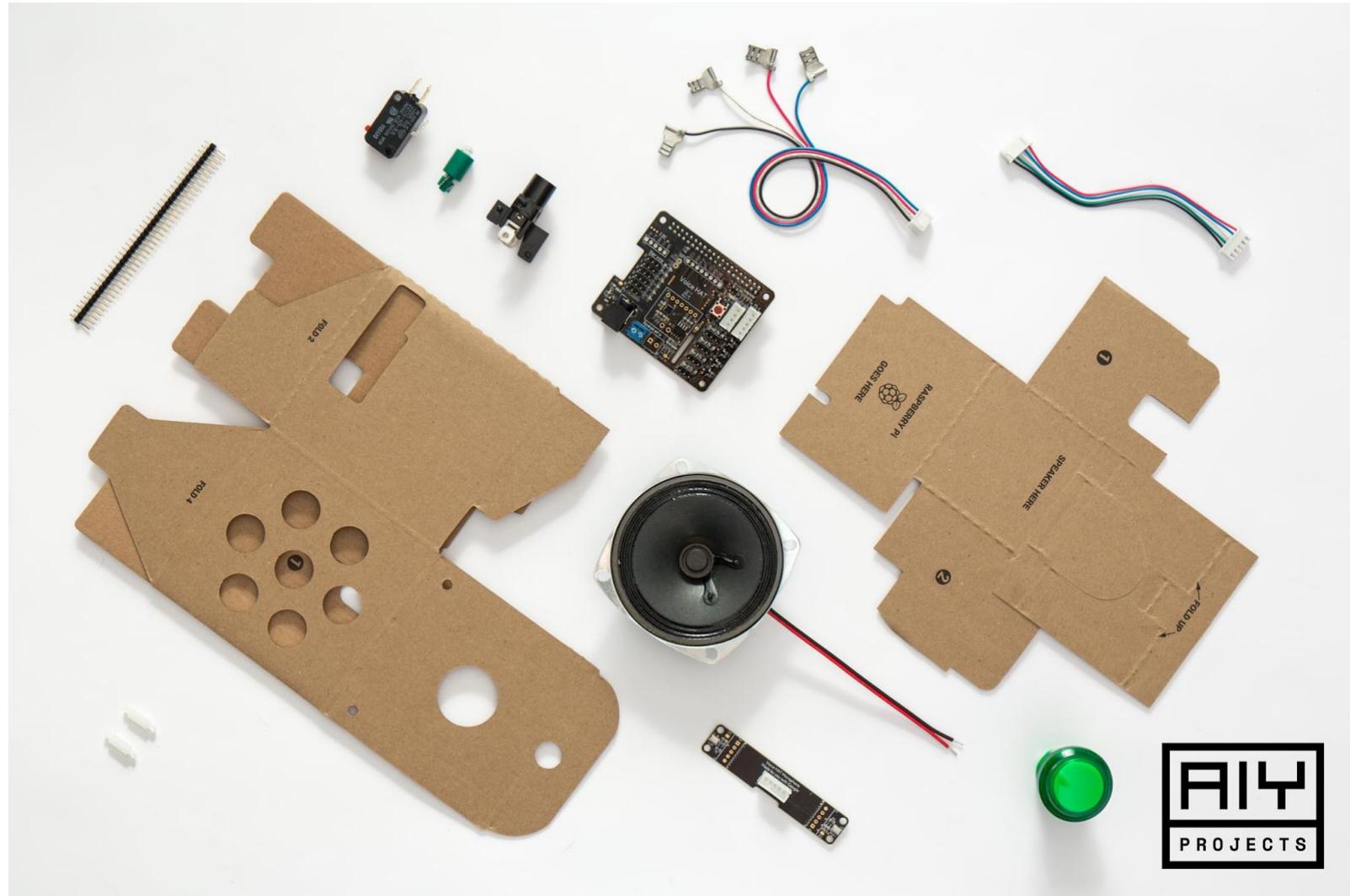
Introduce



- <https://www.youtube.com/watch?v=upwcDQnQhls&feature=youtu.be>

kit

kit 구성 v1



- <https://aiyprojects.withgoogle.com/voice/#project-overview>

kit

kit 구성 v2



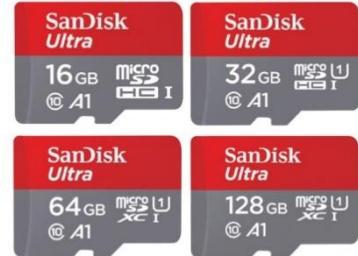
IN YOUR KIT

- | | | | | | | | | | | | | | | | | | | | |
|----------------|------|------------------------|------|-----------|------|-----------------|------|---------------|------|------------------|------|-------------|------|-------------------|------|-------------------------|------|----------------------------|------|
| ❶ Voice Bonnet | (x1) | ❷ Raspberry Pi Zero WH | (x1) | ❸ Speaker | (x1) | ❹ Micro SD card | (x1) | ❺ Push button | (x1) | ❻ Button harness | (x1) | ❼ Standoffs | (x2) | ❼ Micro USB cable | (x1) | ⫽ Speaker box cardboard | (x1) | ⫽ Internal frame cardboard | (x1) |
| ⪻ Button nut | (x1) | | | | | | | | | | | | | | | | | | |

추가 필요

material

SanDisk®



- <https://aiyprojects.withgoogle.com/voice/#project-overview>

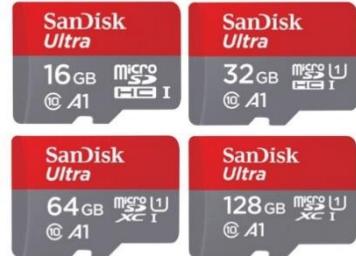
① 셋팅 및 설치



Version Check

Version
Check

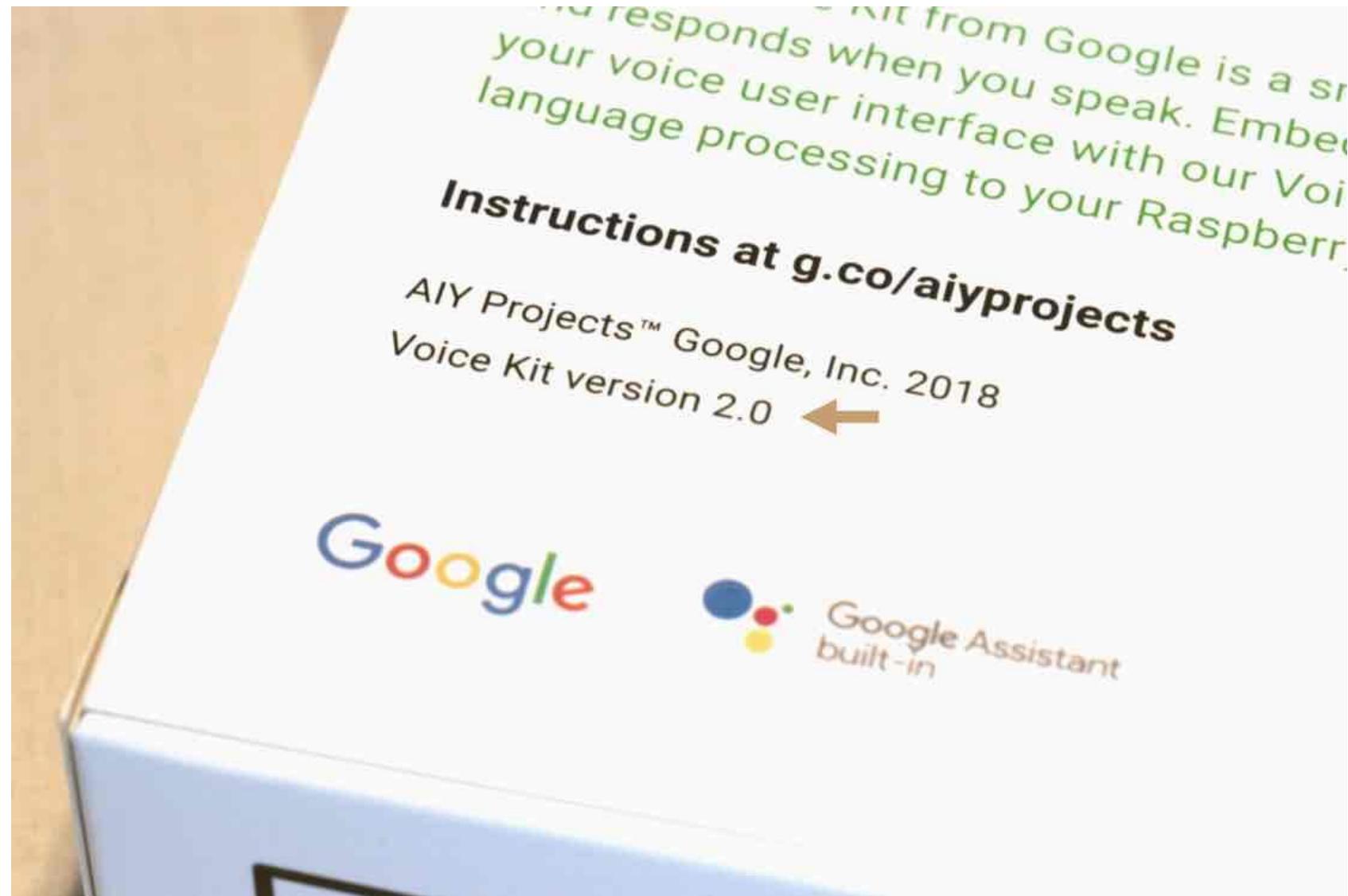
SanDisk®



- <https://aiyprojects.withgoogle.com/voice/#project-overview>

Check your kit version

material



- <https://aiyprojects.withgoogle.com/voice/#project-overview>

Get the Latest System Image

GET THE LATEST SYSTEM IMAGE

This kit requires a special version of the Raspbian operating system that includes some extra AIY software.

Although the MicroSD card included with your kit is pre-flashed with the AIY system image, it's very likely out of date. So before you begin, we highly recommend you download and install the latest system image and flash it to your MicroSD card. Otherwise, you might encounter some old bugs and some of the sample code might not work for you.

- ① Download the latest `.img.xz` file from our [releases page on GitHub](#).
- ② Use an adapter to connect your MicroSD card to your computer.
- ③ Use a program such as [Etcher](#) to flash the `.img.xz` file onto your MicroSD card. (Etcher is free and works on Windows, Mac OS, and Linux.)

Flashing the system image onto the card can take a several minutes. So while that's going, start assembling the kit. Once the kit is assembled, you'll put the card into it.

- <https://aiyprojects.withgoogle.com/voice/#project-overview>

구글 AIY 프로젝트용
이미지 다운로드

Get the Latest System Image

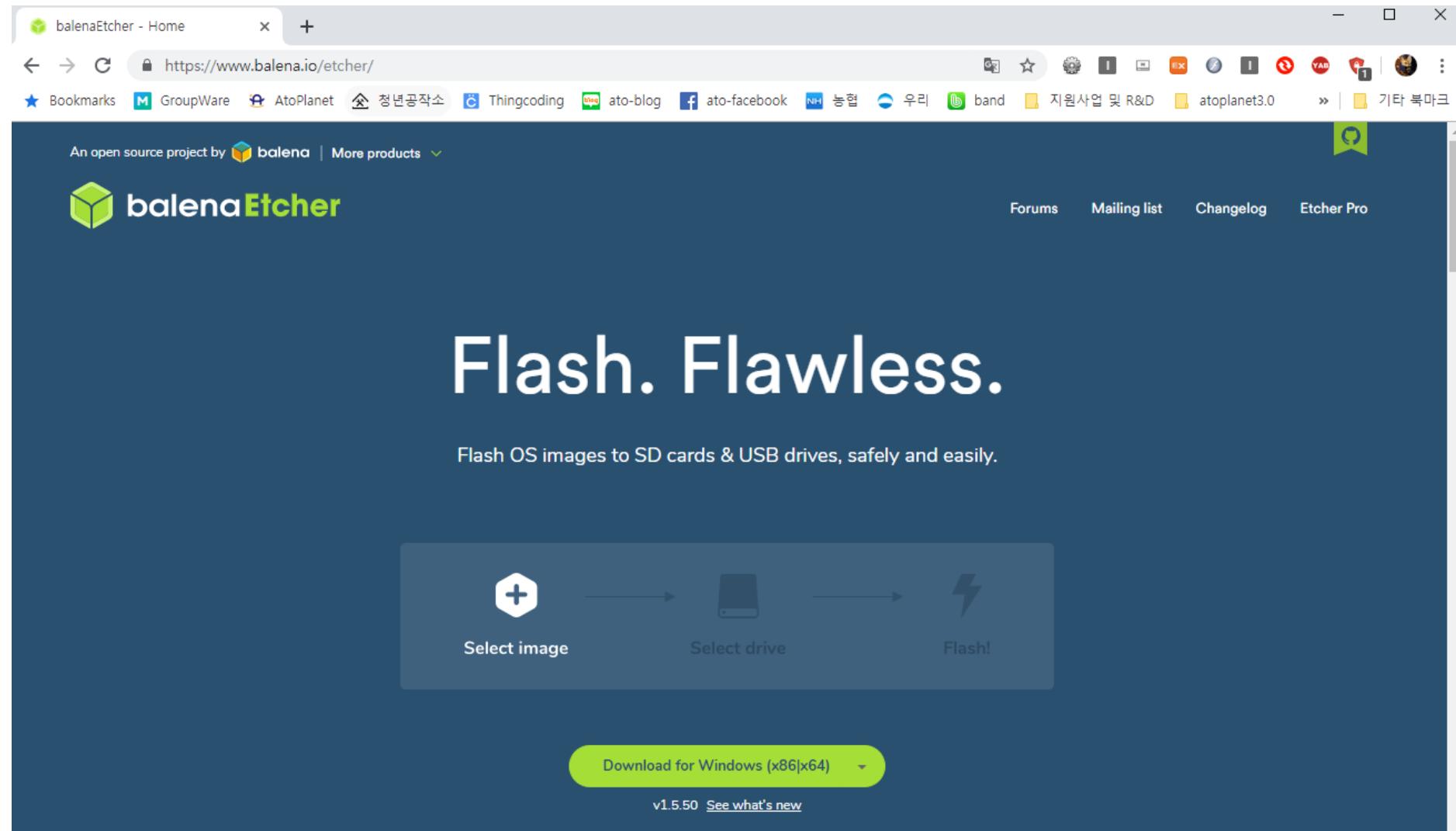
구글 AIY 프로젝트용
이미지 다운로드

The screenshot shows the GitHub repository page for 'google/aiyprojects-raspbian'. At the top, there's a navigation bar with links for 'Why GitHub?', 'Enterprise', 'Explore', 'Marketplace', 'Pricing', 'Search', 'Sign in', and 'Sign up'. Below the navigation bar, the repository name 'google / aiyprojects-raspbian' is displayed, along with statistics: 154 Watchers, 1,168 Stars, and 551 Forks. A navigation menu below the repository name includes 'Code' (which is selected), 'Issues 123', 'Pull requests 15', 'Projects 0', 'Security', and 'Insights'. A prominent callout box in the center encourages users to 'Be notified of new releases' by creating a free GitHub account, with a 'Sign up' button. Below this, the 'Releases' tab is selected, showing the 'Latest release' 'AIY Kits Release 2018-11-16'. This release was made by user 'dmitriykovalev' on 17 Nov 2018, with 6 commits since the release. The description states it's an SD card image supporting both AIY Voice Kit and AIY Vision Kit. It includes an MD5 hash: 2ad73c6501ce504350054f1357e67713. Under the 'Assets' section, three files are listed: 'aiyprojects-2018-11-16.img.xz' (1.17 GB), 'Source code (zip)', and 'Source code (tar.gz)'.

- <https://github.com/google/aiyprojects-raspbian/releases>

balena Etcher 설치

balenaEtcher
설치



- <https://aiyprojects.withgoogle.com/voice/#project-overview>

img 다운로드

GET THE VOICE KIT SYSTEM IMAGE

The Voice Kit requires a special version of the Raspbian operating system that includes some extra AIY software. So before you begin, you need to download the Voice Kit system image and flash it to your MicroSD card.

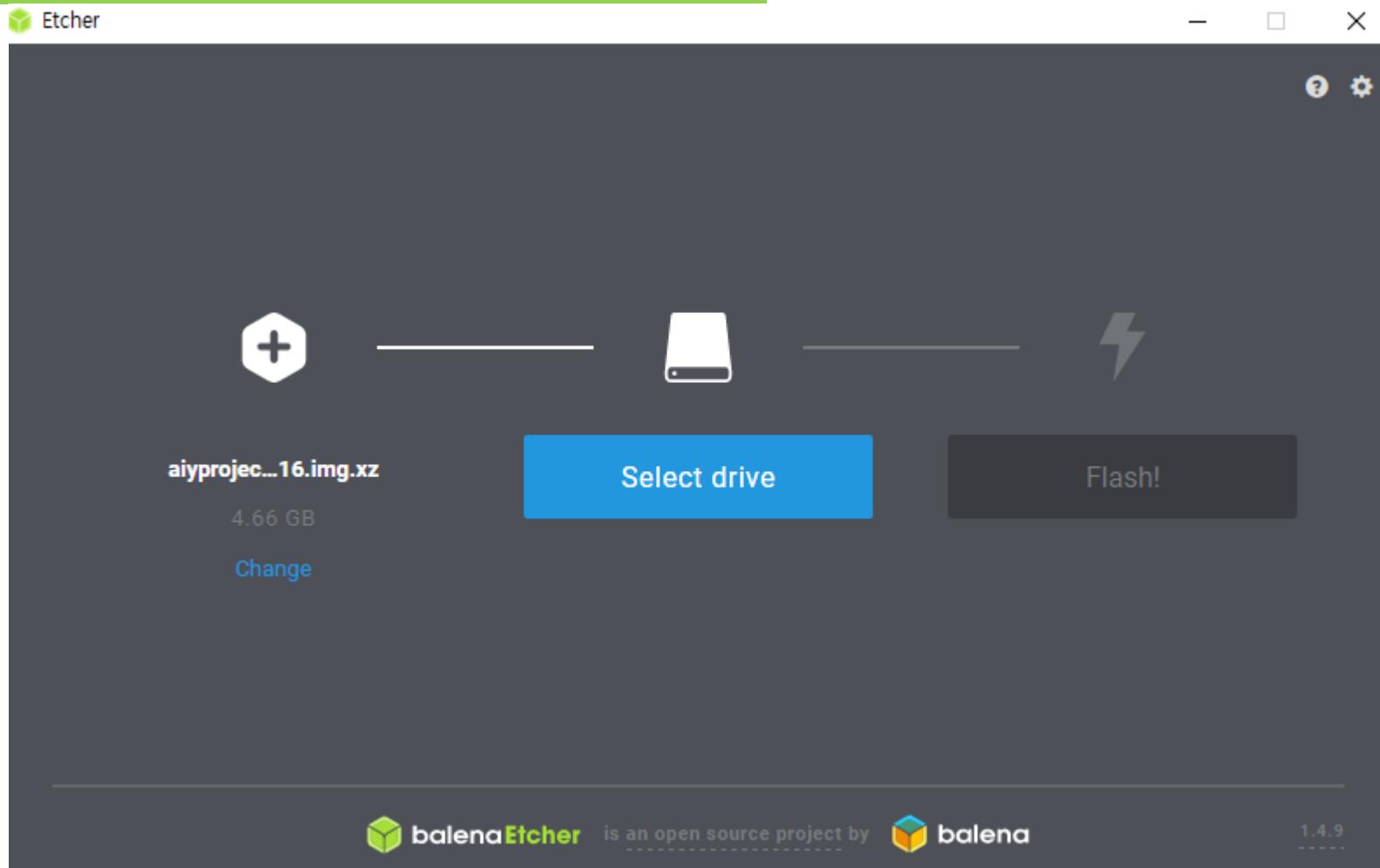
- ① Download the latest `.img.xz` file from the [releases page on GitHub](#).
- ② Use an adapter to connect your MicroSD card to your computer.
- ③ Use a program such as [Etcher](#) to flash the `.img.xz` file onto your MicroSD card. (Etcher is free and works on Windows, Mac OS, and Linux.)

Flashing the system image onto the card can take a several minutes. So while that's going, start assembling the kit. Once the kit is assembled, you'll put the card into it.

- <https://aiyprojects.withgoogle.com/>
- >Voice KIT > [follow the assembly instructions for the earlier version](#).
- >> <https://github.com/google/aiyprojects-raspbian/releases>
- img.xz 파일 다운로드(1.2G)
- balenaEtcher-

img 다운로드

GOOGLE
AIY
PROJECT



- img.xz 파일 선택
- 드라이브 선택 주의
- flash 진행 약 10분 소요

GOOGLE
AIY
PROJECT

img 다운로드

이름	수정한 날짜	유형	크기
config.txt	2018-11-16 오전...	텍스트 문서	2KB
issue.txt	2018-10-09 오후...	텍스트 문서	1KB
LICENSE.oracle	2018-10-09 오후...	ORACLE 파일	19KB
start_db.elf	2018-09-25 오전...	ELF 파일	4,990KB
start_x.elf	2018-09-25 오전...	ELF 파일	3,954KB
bootcode.bin	2018-09-25 오전...	ALZip BIN File	51KB
fixup.dat	2018-09-25 오전...	DAT 파일	7KB
fixup_cd.dat	2018-09-25 오전...	DAT 파일	3KB
fixup_db.dat	2018-09-25 오전...	DAT 파일	10KB
fixup_x.dat	2018-09-25 오전...	DAT 파일	10KB
kernel.img	2018-09-25 오전...	ALZip IMG File	4,576KB
kernel7.img	2018-09-25 오전...	ALZip IMG File	4,820KB
start.elf	2018-09-25 오전...	ELF 파일	2,781KB
start_cd.elf	2018-09-25 오전...	ELF 파일	662KB
bcm2708-rpi-0-w.dtb	2018-09-19 오후...	DTB 파일	23KB
bcm2708-rpi-b.dtb	2018-09-19 오후...	DTB 파일	23KB
bcm2708-rpi-b-plus.dtb	2018-09-19 오후...	DTB 파일	23KB
bcm2708-rpi-cm.dtb	2018-09-19 오후...	DTB 파일	23KB
bcm2709-rpi-2-b.dtb	2018-09-19 오후...	DTB 파일	24KB
bcm2710-rpi-3-b.dtb	2018-09-19 오후...	DTB 파일	25KB
bcm2710-rpi-3-b-plus.dtb	2018-09-19 오후...	DTB 파일	25KB
bcm2710-rpi-cm3.dtb	2018-09-19 오후...	DTB 파일	24KB
COPYING.linux	2018-03-09 오후...	LINUX 파일	19KB
LICENCE.broadcom	2018-03-09 오후...	BROADCOM 파일	2KB
cmdline.txt		텍스트 문서	1KB
overlays	2018-11-16 오전...	파일 폴더	

- img.xz 파일 선택
- 드라이브 선택 주의
- flash 진행 약 10분 소요

cmdline.txt 수정

(cm dline.txt)

해당 파일을 열어보면 아래와 같이 적혀있다.

```
dwc_otg.lpm_enable=0 console=serial0,115200 console=tty1 root=/dev/mmcblk0p7 rootfstype=ext4 elevator=deadline  
fsck.repair=yes rootwait splash plym outh.ignore-serial-consoles
```

여기에 rootwait와 splash 사이에
modules-load=dwc2,g_ether
를 추가한다. 추가하면 아래와 같은 문구가 된다.
추가했을 때 양쪽으로 띠어쓰기가 잘 되었는지를 확인해야 한다.

modules-load=dwc2,g_ether

usb 포트 드라이브 설정

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컴퓨터에서 드라이버 찾아보기
RPI Driver OTG 경로 설정
네트워크 어댑터에서 gadget으로 추가

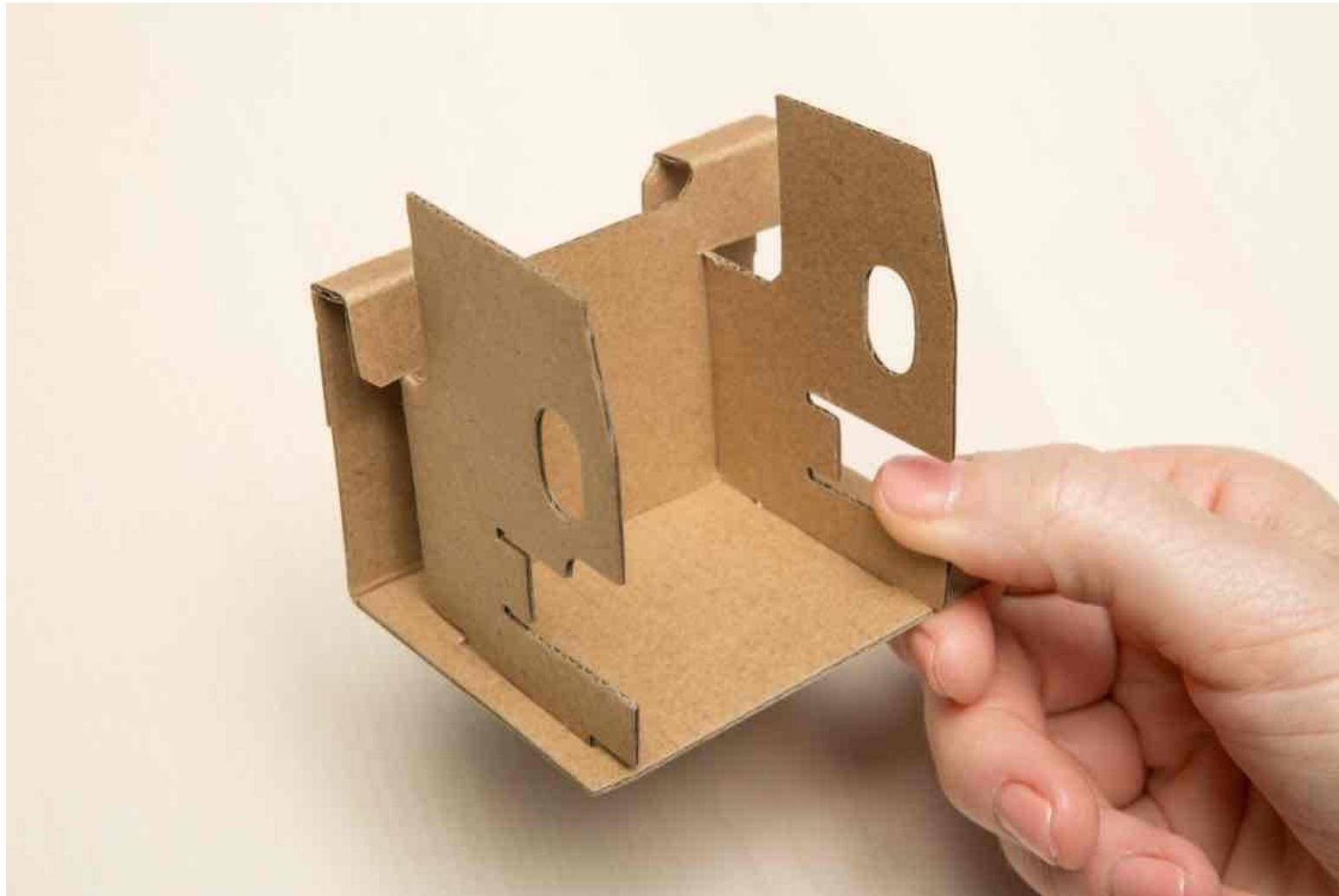
ⓐ
BOX
FRAME



- <https://aiyprojects.withgoogle.com/voice-v1/>
- 유입물 20~33

GOOGLE
AIY
PROJECT

box 조립 frame 완성



- <https://aiyprojects.withgoogle.com/voice/#makers-guide--python-api-library>

b

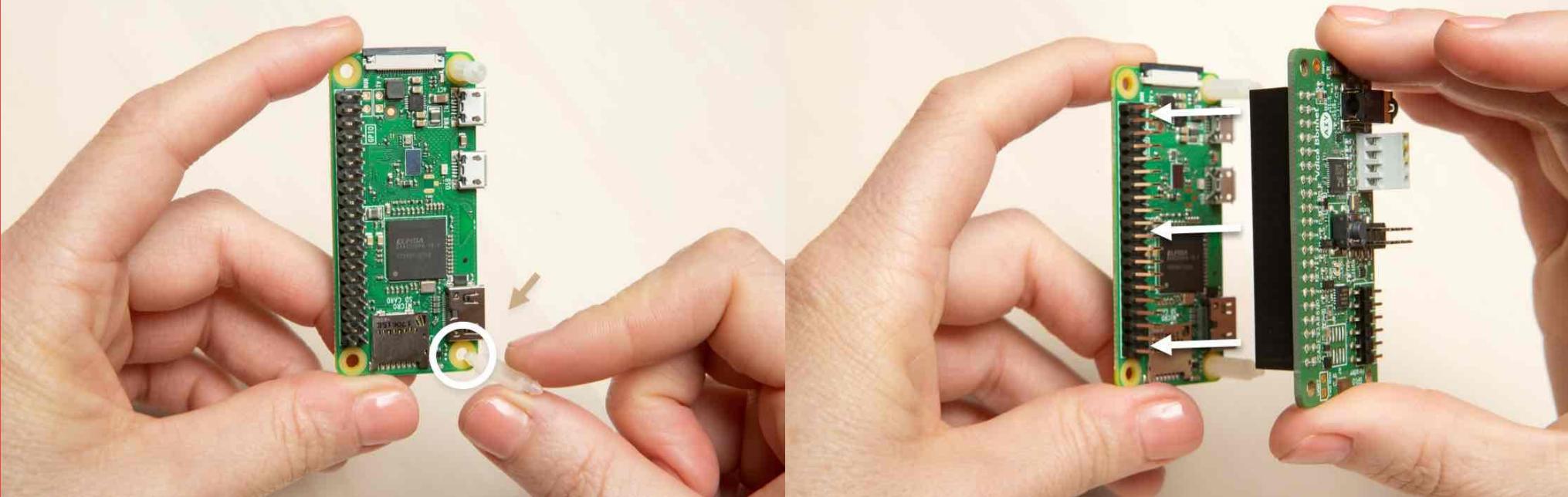
Hardware Assemble



- <https://aiyprojects.withgoogle.com/voice/#makers-guide--python-api-library>

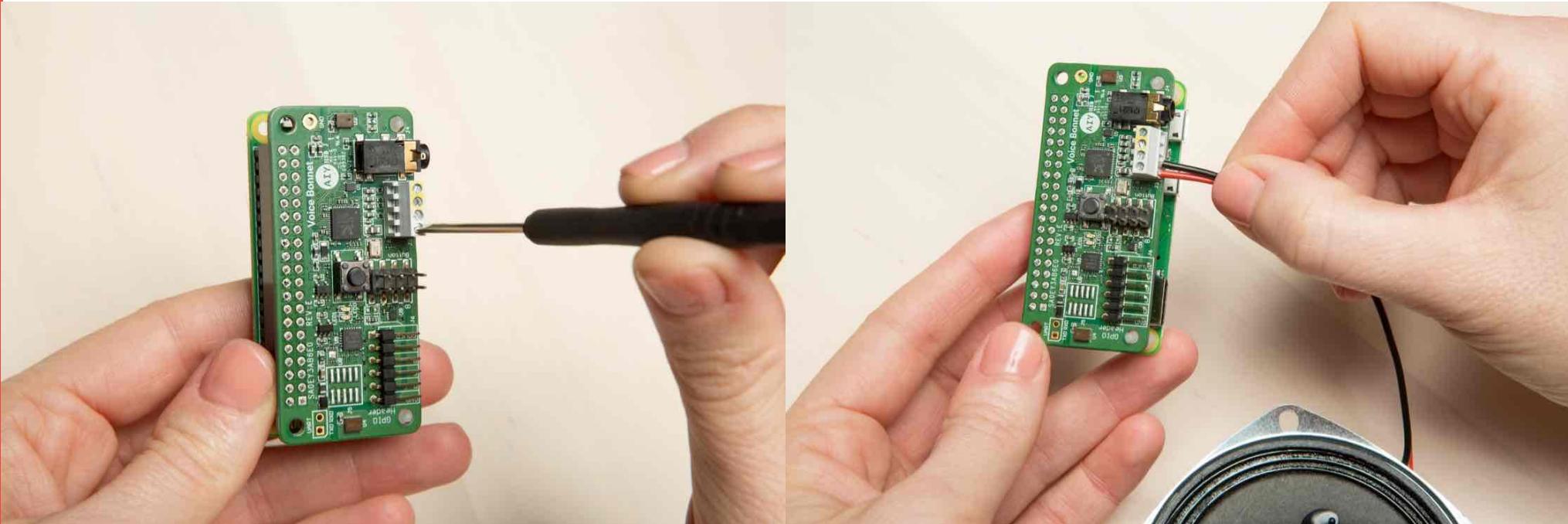
GOOGLE
AIY
PROJECT

Making start 하드웨어 조립



- 라즈베리파이와 두 개의 플라스틱 standoff로 쉴드 와 고정

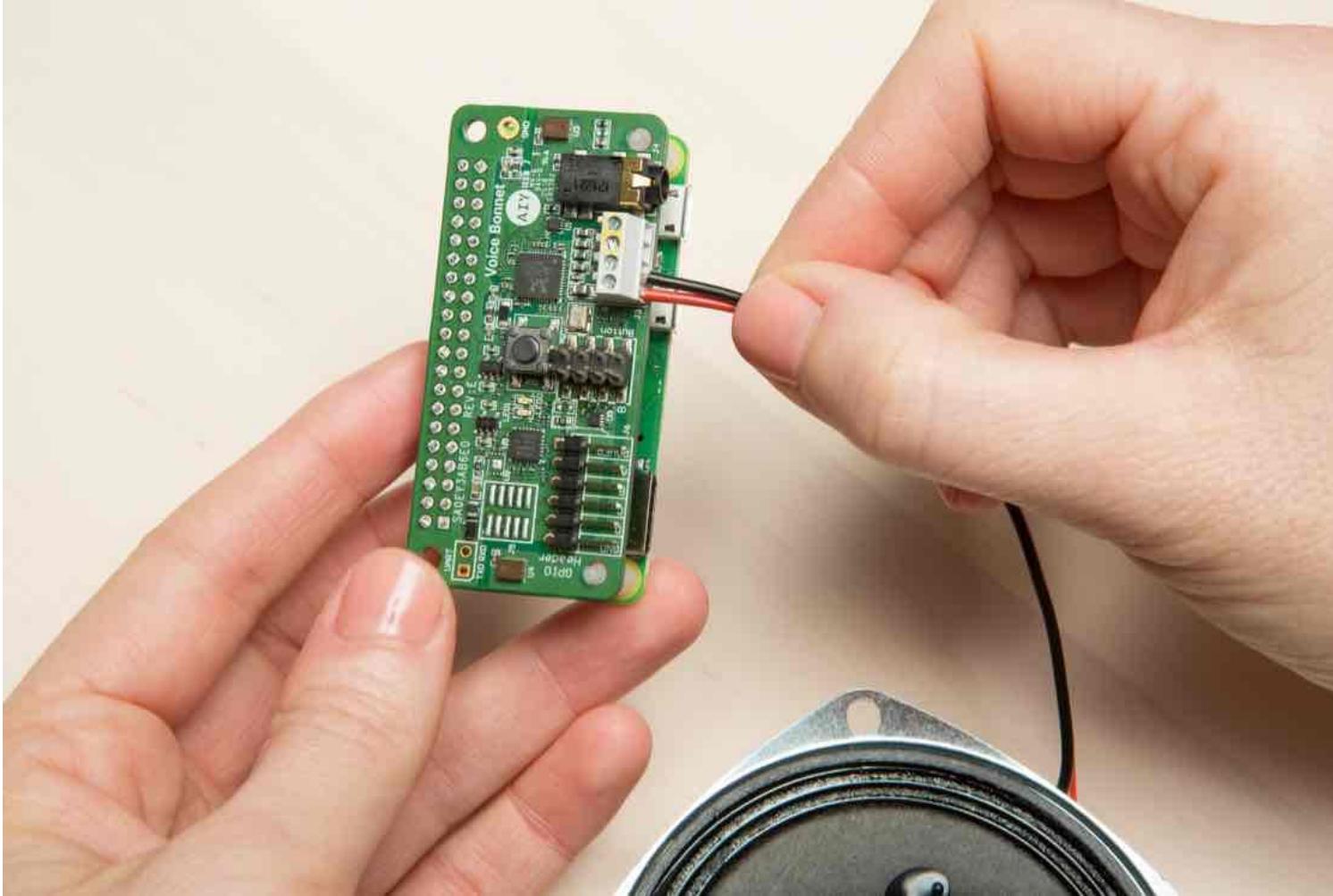
Making start 하드웨어 조립



- 나사를 느슨하게 끈 후 선 연결
- 스피커 라인 연결
- 검정 - 빨강

GOOGLE
AIY
PROJECT

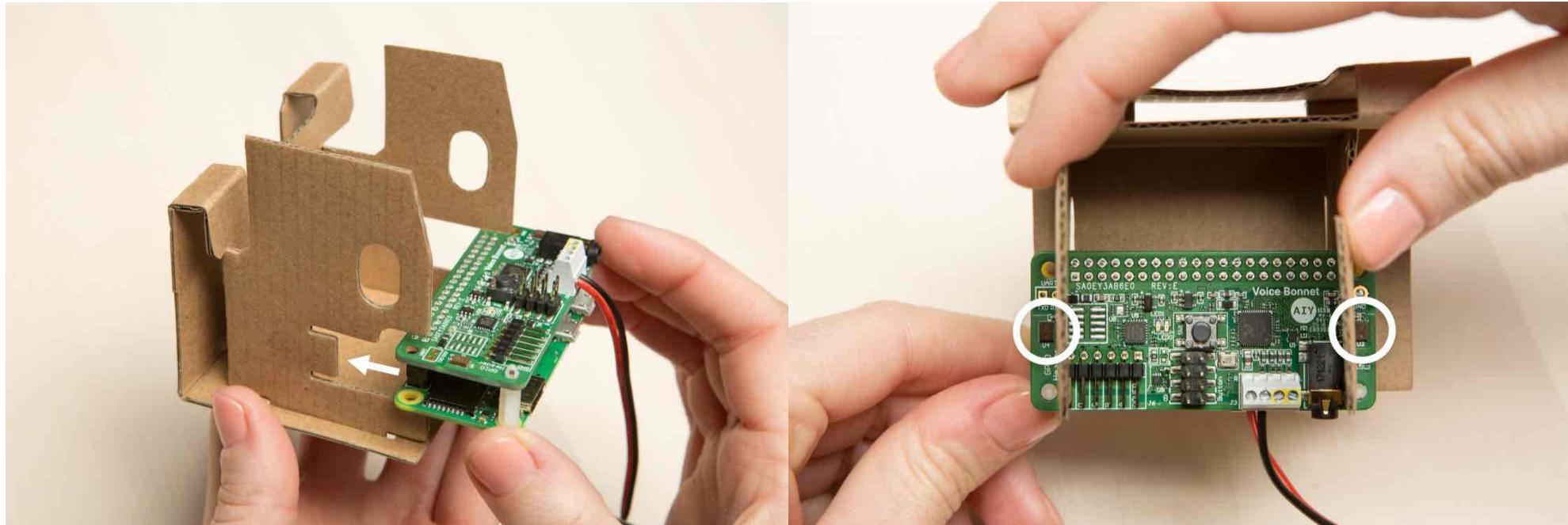
Making start 하드웨어 조립



- 나사를 느슨하게 끈 후 선 연결
- 스피커 라인 연결
- 검정 - 빨강

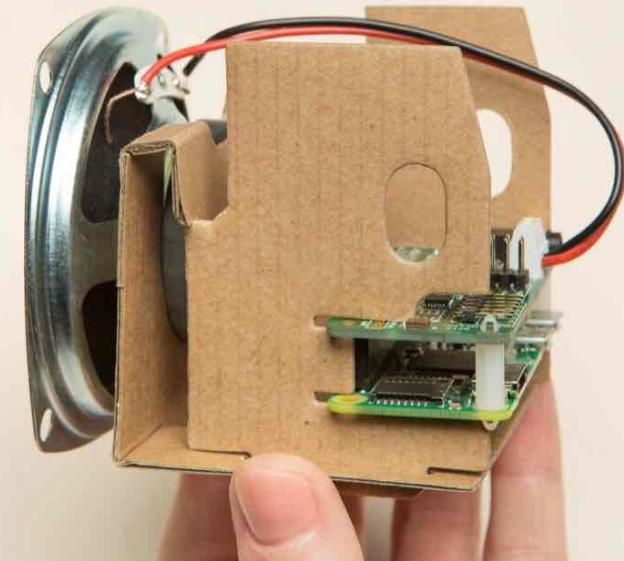
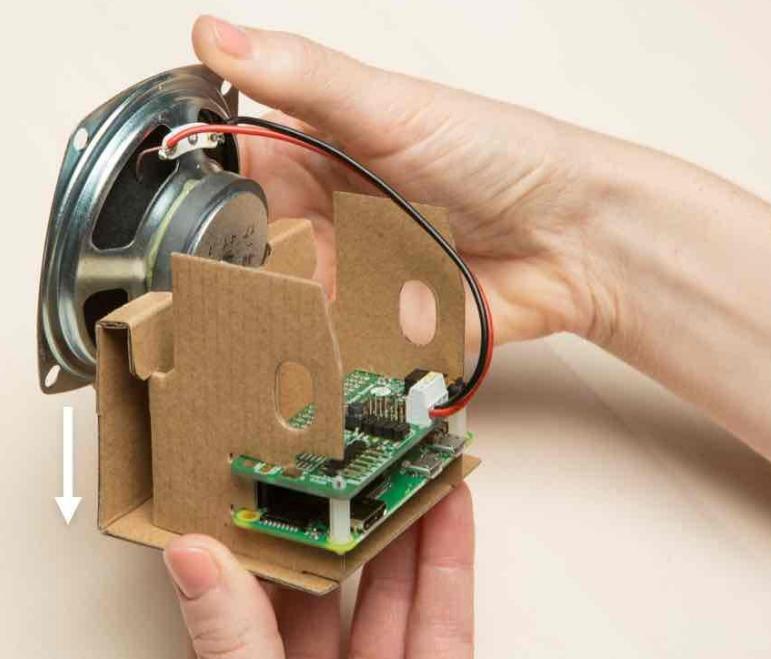
GOOGLE
AIY
PROJECT

Making start 하드웨어 조립



- 프레임 사이로 라즈베리파이와 쉴드 결합부분

Making start 하드웨어 조립



- 프레임 사이로 라즈베리파이와 슬드 결합부분

GOOGLE
AIY
PROJECT

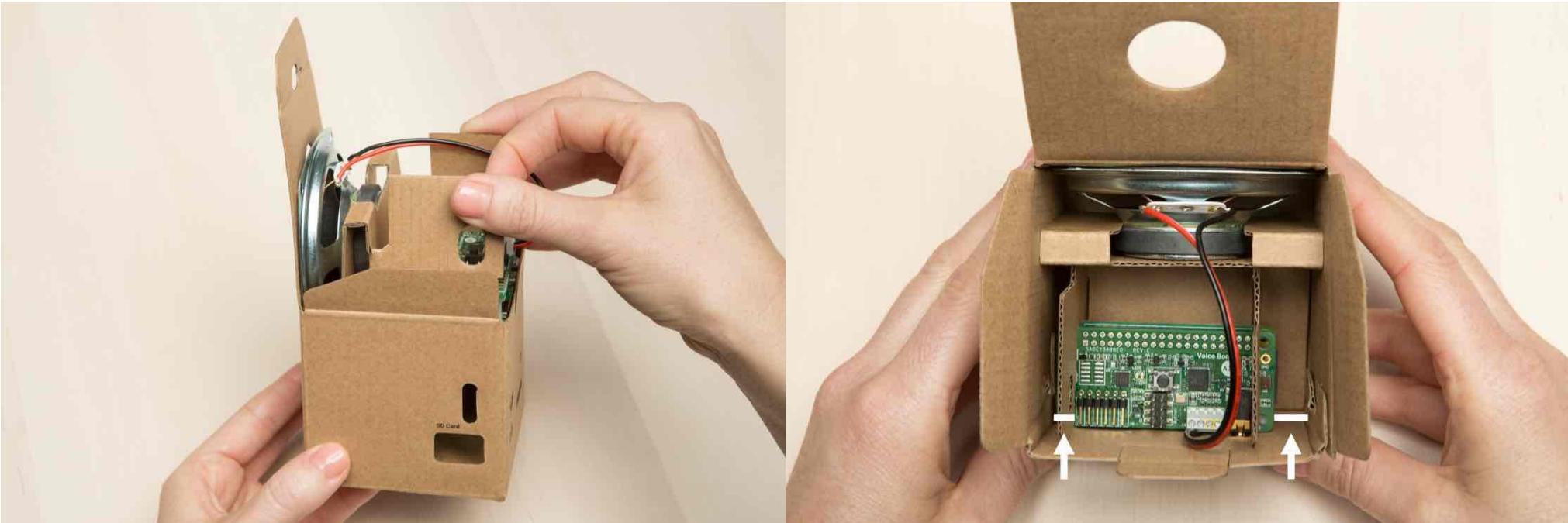
Making start 하드웨어 조립



- 메인 박스 조립

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PROJECT

Making start 하드웨어 조립



- 메인박스와 결합

GOOGLE
AIY
PROJECT

Making start 하드웨어 조립



Making start 하드웨어 조립

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AIY
PROJECT



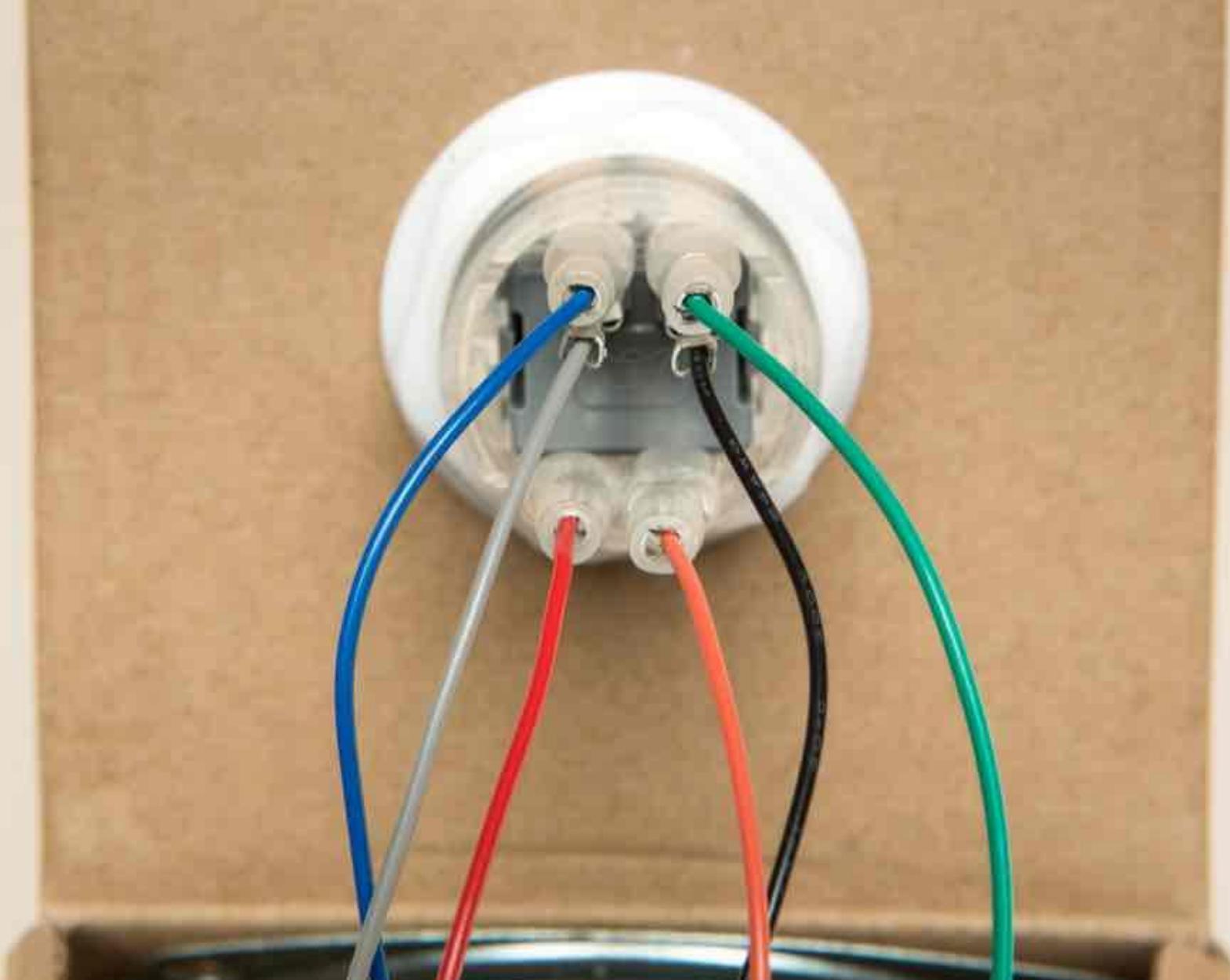
Making start 하드웨어 조립

GOOGLE
AIY
PROJECT



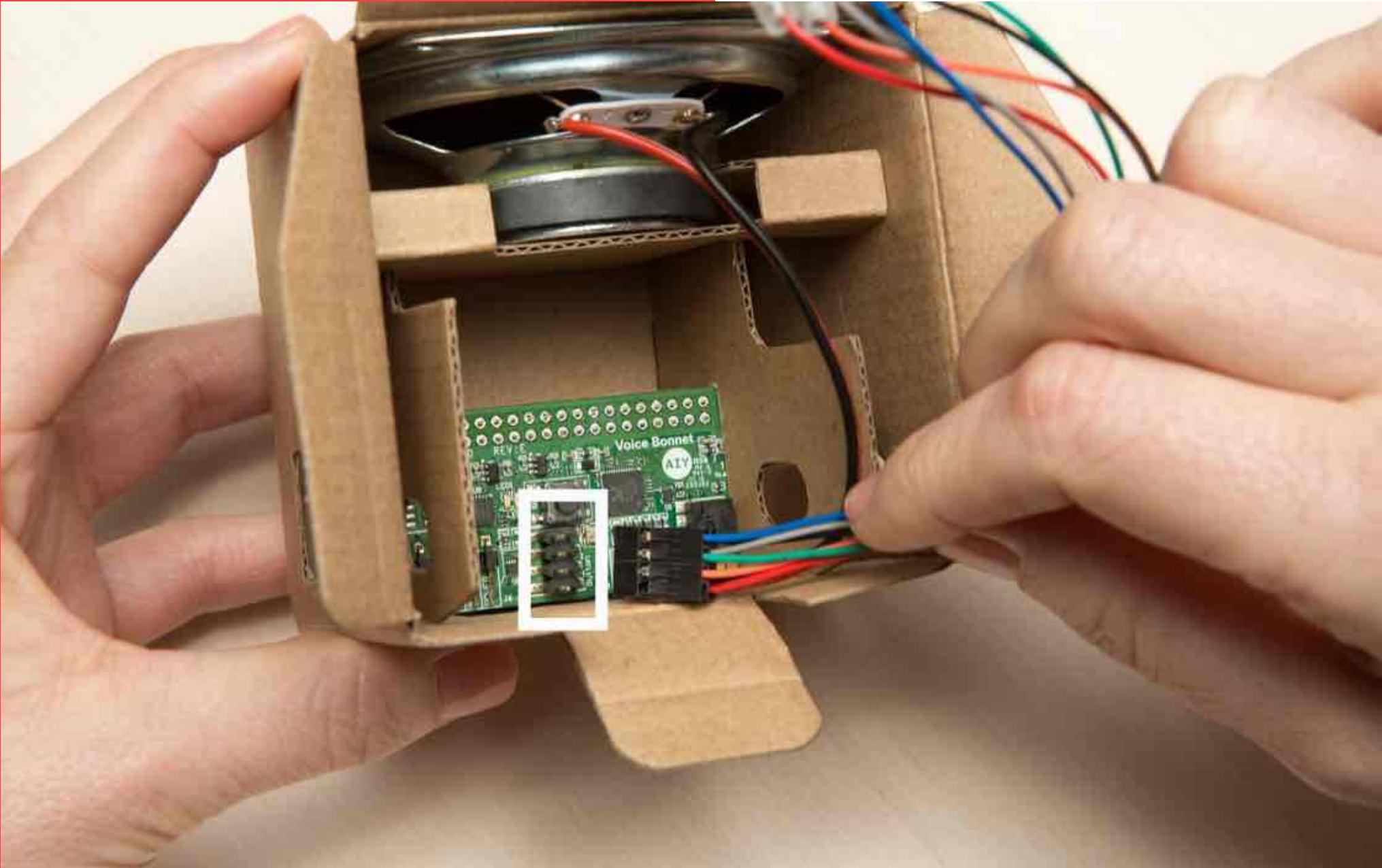
Making start 하드웨어 조립

GOOGLE
AIY
PROJECT



Making start 하드웨어 조립

GOOGLE
AIY
PROJECT



Making start 하드웨어 조립

GOOGLE
AIY
PROJECT

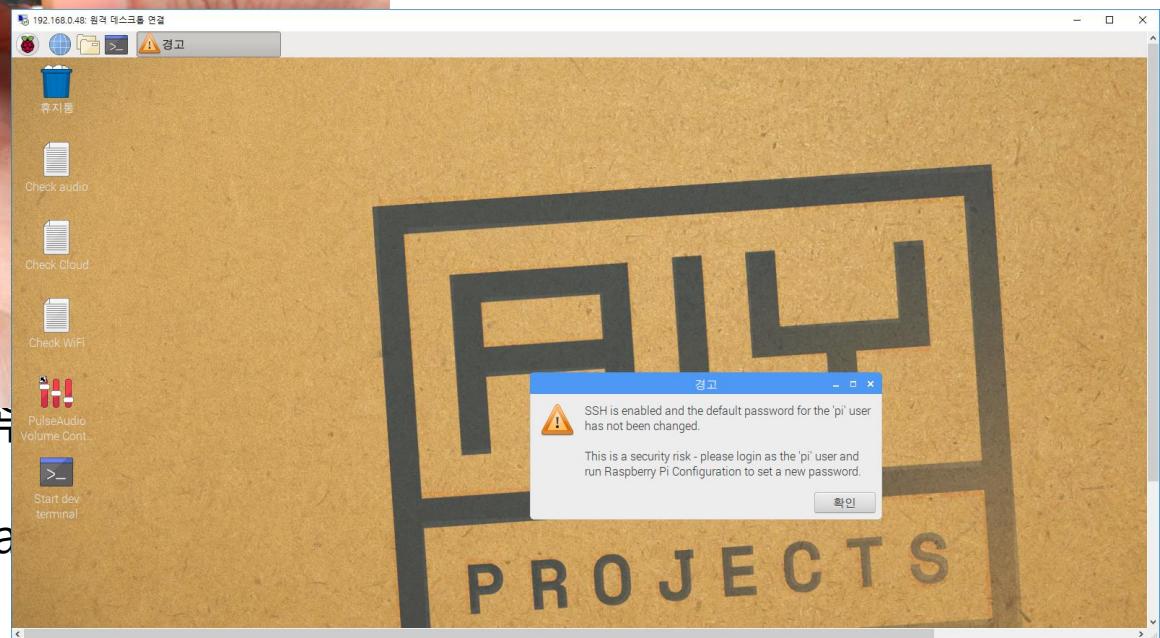


vnc viewer 활성화

GOOGLE
AIY
PROJECT



teraterm – raspberrypi.local 접속
sudo raspi-config 입력
interfacing options - vnc – enable
vnc viewer 실행



셋팅

- 1) WIFI on / Bluetooth off
- 2) check Audio / alsamixer
- 3) check Wifi
- wifi 주소확인하기 (ifconfig)
- xrdp 설치 sudo apt-get install xrdp
- **한글폰트 설치** sudo apt-get install fonts-unfonts-core

GOOGLE
AIY
PROJECT



Google Cloud platform

- 구글 가입
- 크로미엄 브라우저 실행
- <https://console.developers.google.com>
- 로그인 / new projet create
- 라이브러리 - google assistant API 사용설정
- 인증 정보 : create credentials >> choose Oauth client ID
 - > name set > 어플리케이션 유형 “기타”
 - > 다운로드 JSON

/home/pi/Downloads/ json 파일 옮기기 /home/pi/assistant.json 이름 경로 변경

<https://myaccount.google.com/activitycontrols>
활성화

Google ASSISTANT API

GOOGLE
AIY
PROJECT

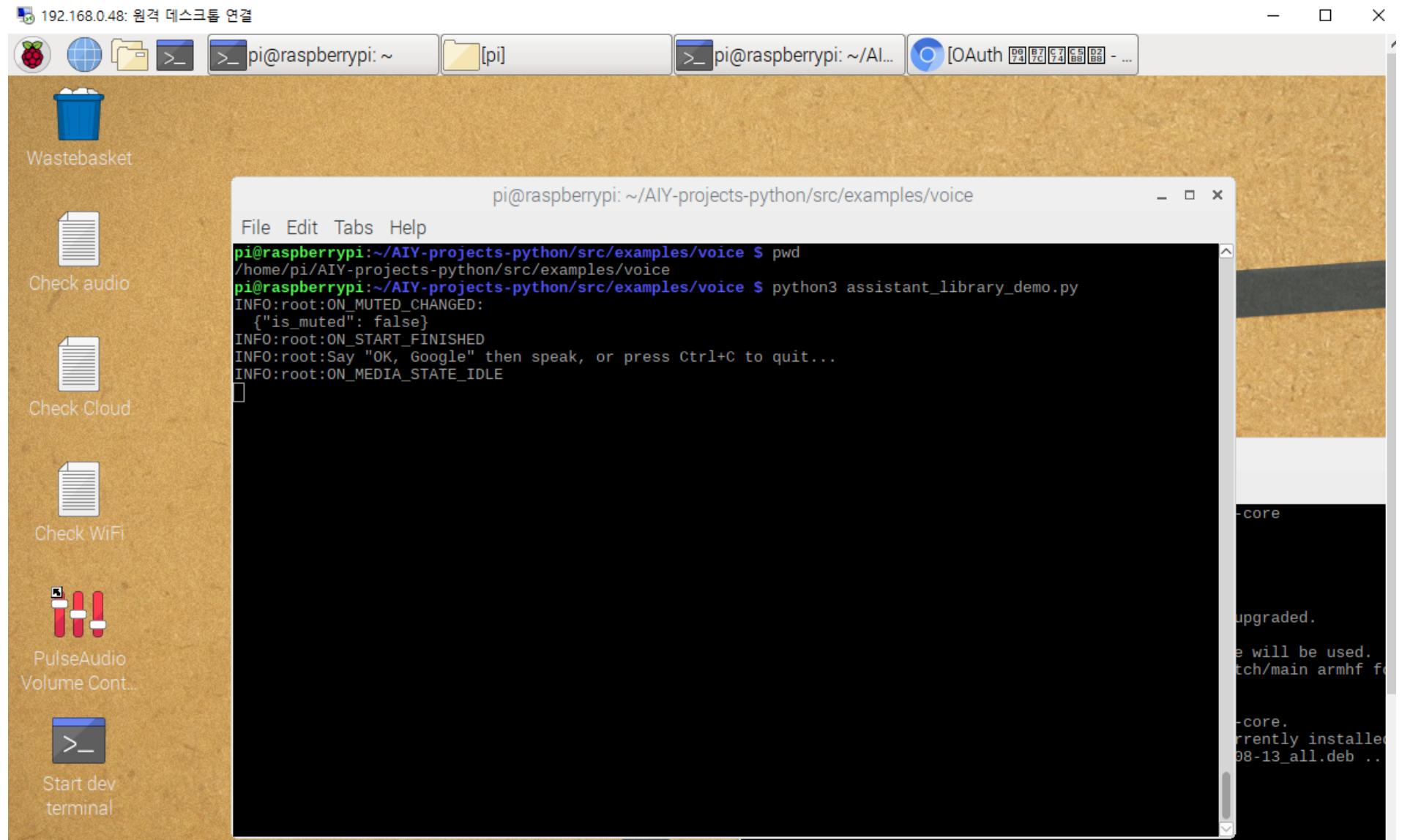


Google 어시스턴트

구글 어시스턴트(Google Assistant)는 구글이 개발하고 2016년 5월 자체 개발자 콘퍼런스에서 발표한 지능형 가상 비서이다. 구글 나우와 달리 구글 어시스턴트는 양방향 대화에 참여할 수 있다.

GOOGLE
AIY
PROJECT

실행시켜보기



질문 해보기

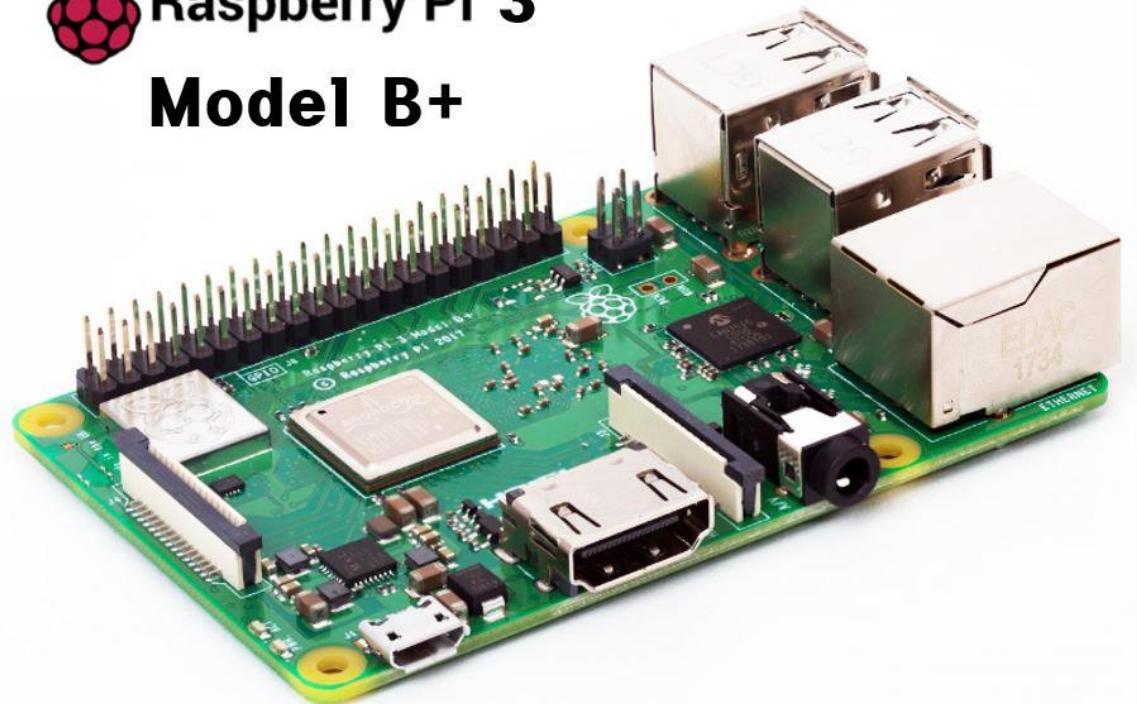
GOOGLE
AIY
PROJECT



- <https://github.com/google/aiyprojects-raspbian/releases>

활용...

Raspberry Pi 3
Model B+



외관 프레임 3D화

활용

Search Thingiverse - Thingiverse X +

https://www.thingiverse.com/search?q=aiy&dwh=375d0e686bdeda7

Bookmarks GroupWare AtoPlanet 청년공작소 Thingcoding ato-blog ato-facebook NH 농협 우리 band 기타 북

Thingiverse DASHBOARD EXPLORE Thingcoding https://thingcoding.com CREATE Search Thingiverse SIGN IN / JOIN

SEARCH RESULTS

45 results matching aiy

Relevant

aiy

SEARCH

FILTER BY

Things

Makes

Users

Collections

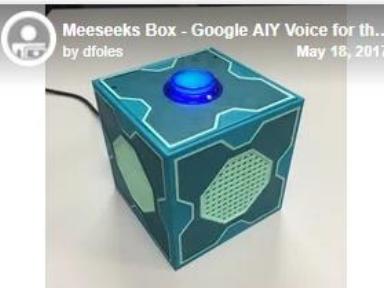
Groups

Apps

FOR EDUCATION


Google AIY Voice Kit Case
by major_tomm
May 9, 2017


Adabot Google AIY Voice Kit
by adafruit
Dec 13, 2017


Meeseeks Box - Google AIY Voice for the...
by dfoles
May 18, 2017


Google AIY Kit Box
by lewiswalsh
May 10, 2017

<https://www.thingiverse.com/>

• <https://www.thingiverse.com/>

한글화

활용

<https://note.fumika.moe/2>