



PI-SIGHT Open Auto Software User Manual

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Caution

Be sure to check and comply with road regulations before using the product.

OpenAuto is an open source DIY project, not an official Google product, and comes with no warranty.

Additionally, we do not have any guarantee or certification from Google, and OpenAuto may not work if Google decides to block OpenAuto through an Android update.

Software features may be added or changed depending on the version, and the contents of this manual may also change.

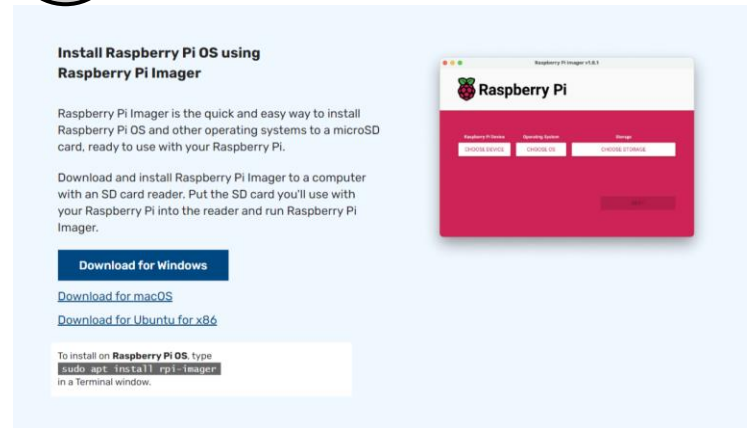
To connect your device and use Android Auto, you need a compatible Android phone or tablet.

1. Software Installation

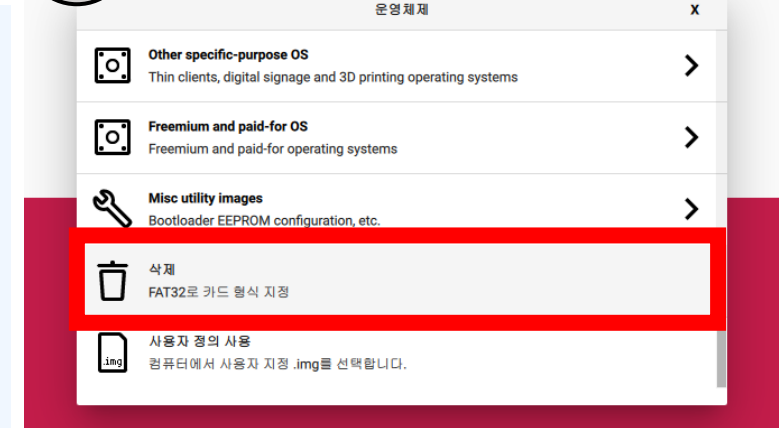
1. Download the Raspberry Pi Imager program appropriate for your PC operating system from www.raspberrypi.com, install it, and then run it.
2. Connect the memory card, select Erase on the Operating System tab, click on the memory card on the Storage tab, and then click Write to format the memory card.
3. Download the img file of the desired software from vudev.net, click Use Custom in the Operating Systems tab of the Raspberry Pi Imager, and select the downloaded img file.
4. Select the memory card in the Storage tab and click Write to start installing the software on the memory card. Once the installation is complete, insert it into your device and use it.

A memory card format error may occur when removing the memory card during a write operation or when the program is terminated. This can be resolved using methods such as diskpart.

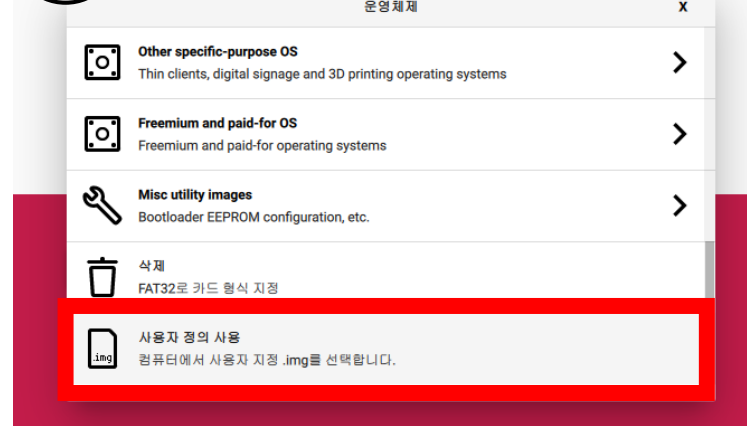
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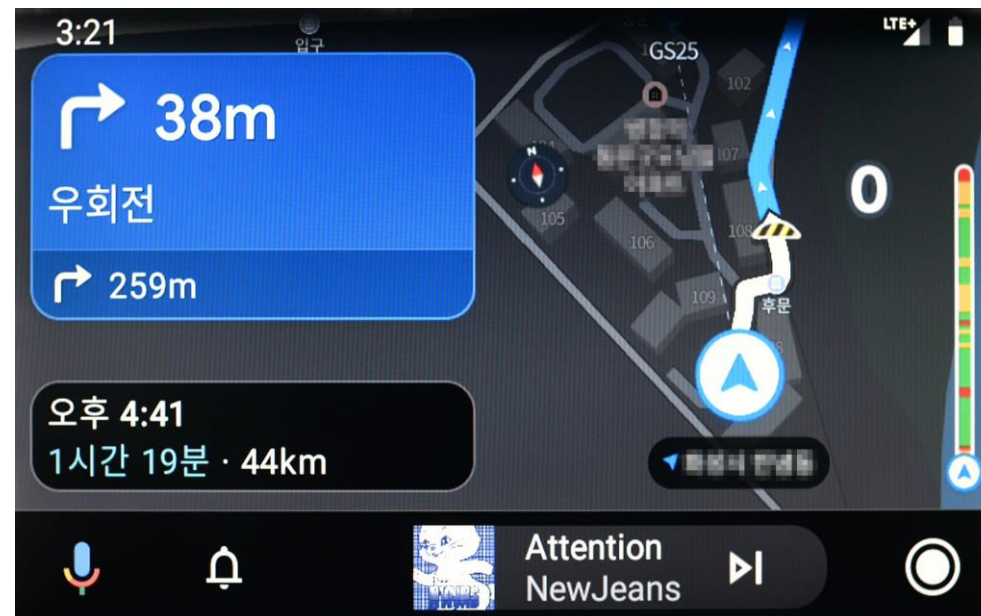
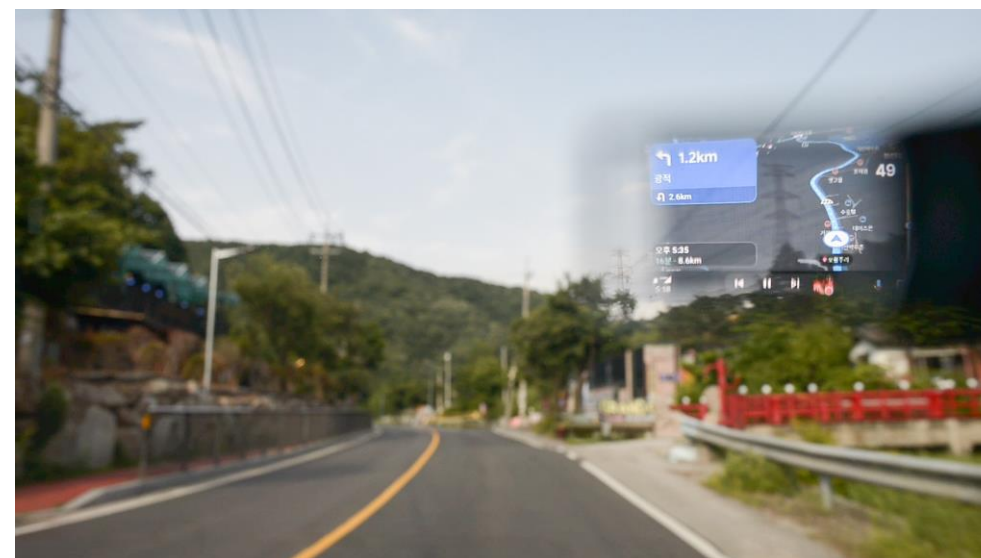
OpenAuto software is a solution that allows you to use your Raspberry Pi as an Android Auto head unit for your car.

When you wirelessly connect the device to an Android smartphone and run Android Auto, the Android Auto screen will appear on the display, and you can use all the functions of Android Auto, such as navigation, phone calls, and Google Assistant. It also supports the rearview mirror function using the rear camera and loop recording, just like the rearview software.

Users can check necessary information such as navigation and rear view through the display in front of their eyes without moving their heads, and can operate the device without taking their hands off through the remote control mounted on the left handle. They can also control Android Auto with their voice using Google Assistant.

3500mAh battery, can operate for about 5 hours at medium display brightness.

When the Bluetooth headset module is installed, you can listen to music and make calls by connecting to your smartphone via Bluetooth without a separate Bluetooth receiver.



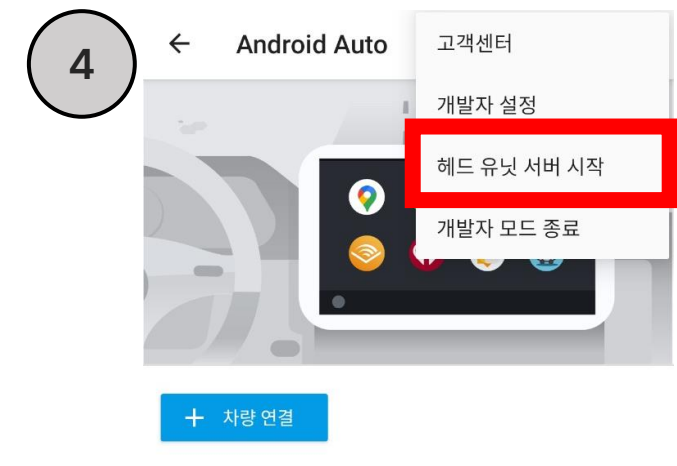
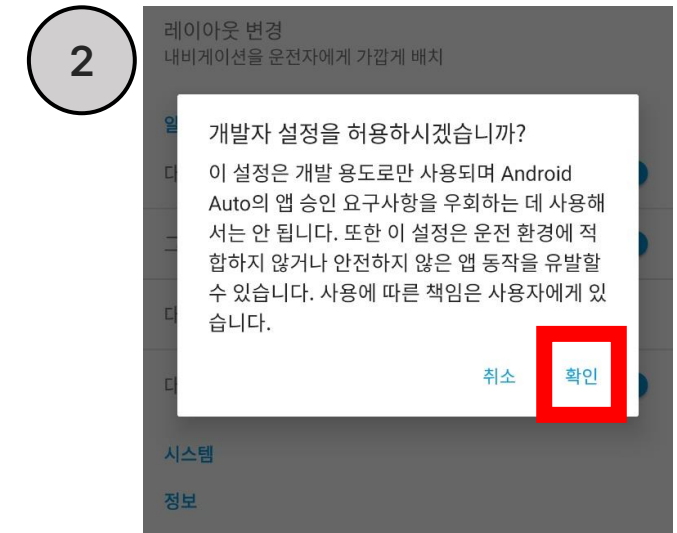
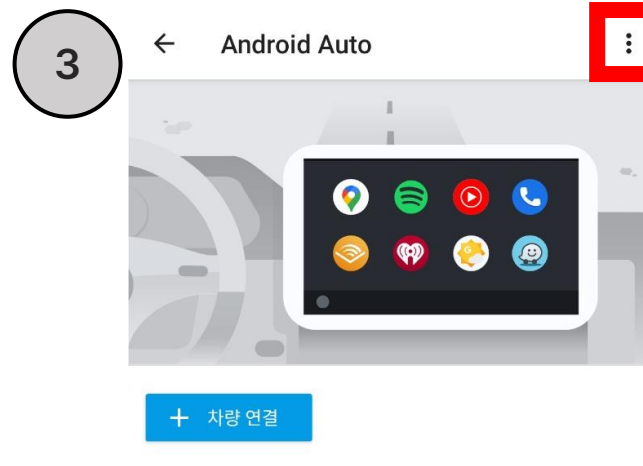
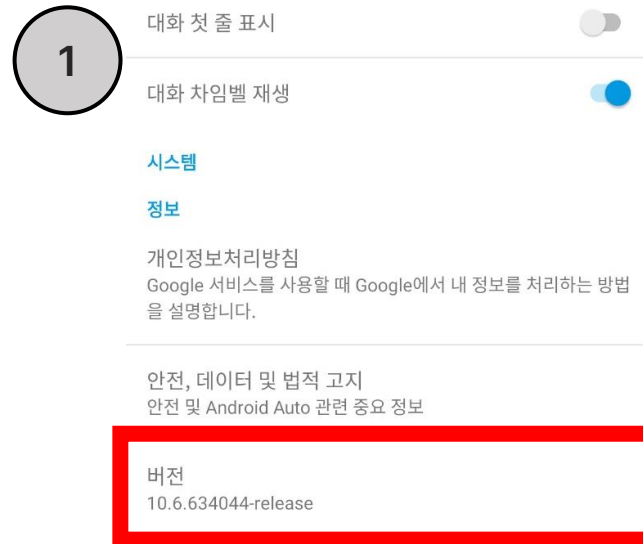
2. Using OpenAuto Software – Smartphone Settings

To connect wirelessly to OpenAuto, you need to start the Android Auto head unit server on your smartphone.

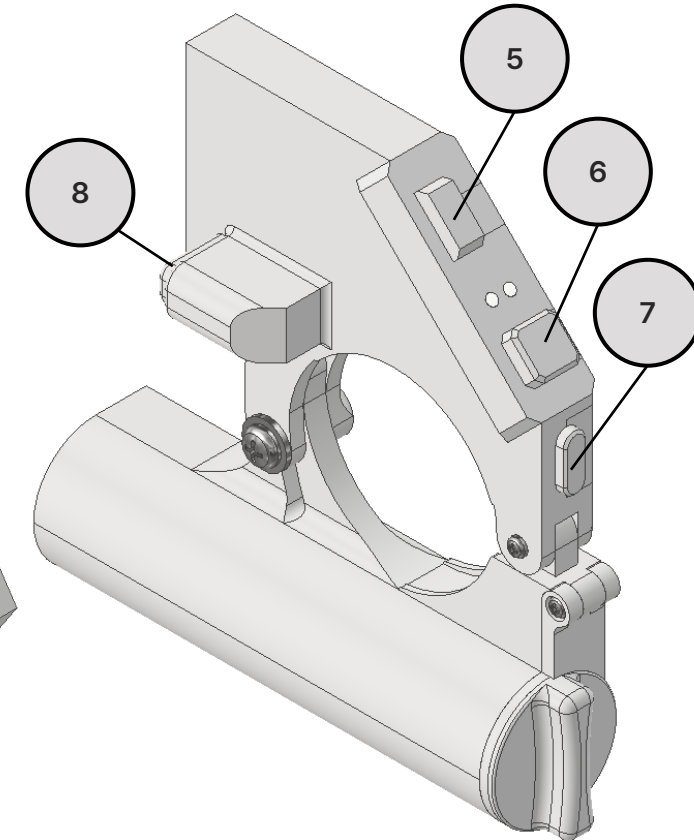
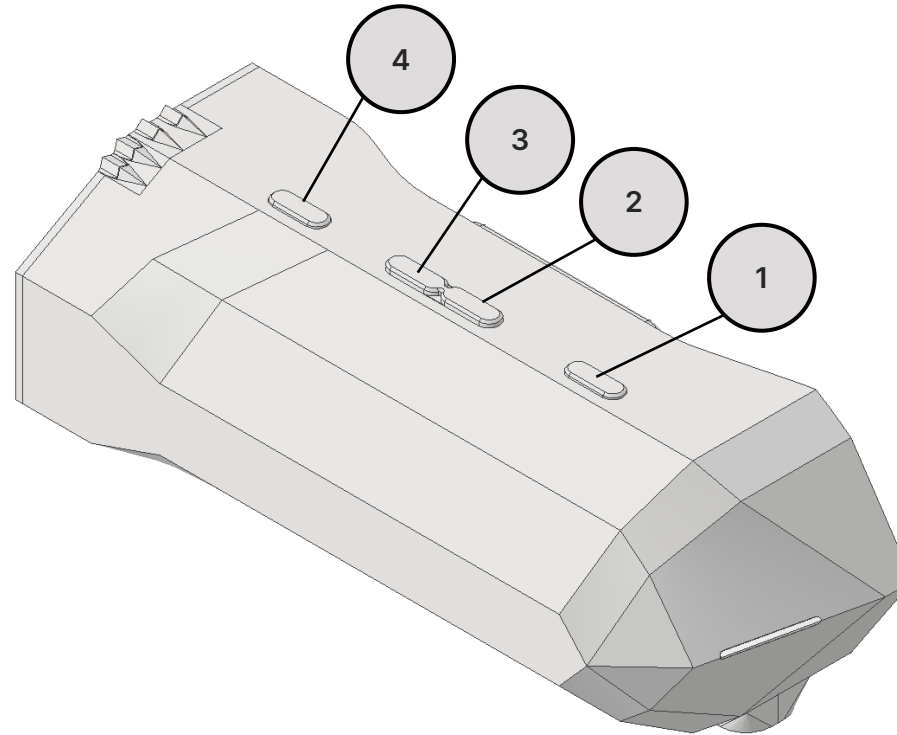
When you enable developer settings in Android Auto, a button to start/stop the head unit server appears.

1. On your Android smartphone, go to Settings - Device Connection - Connection Settings - Android Auto to open the Android Auto settings screen, then touch the Version tab at the bottom continuously.
2. Tap OK on the Allow developer settings notification to allow.
3. Go to the top of Settings and tap the three-dot menu in the upper right corner.
4. When the Start Head Unit Server button appears, setup is complete.

 This process is only done once during the initial setup and does not need to be done again.



1. Power on (press once) / Power off (press twice)
2. Decrease display brightness
3. Increase display brightness
4. Remote control pairing mode (press for 2 seconds or longer)
5. Remote control power on/off
6. Entry screen: Start Android Auto (press for 1 second or longer)
Android Auto: Up/Down/Left/Right/Confirm
(Previous/next song when swiping left/right for more than 1 second)
7. Google Assistant, hang up the phone
8. Short view of the rear camera (when pressed briefly) Continuous view of the rear camera (when pressed for more than 1 second)

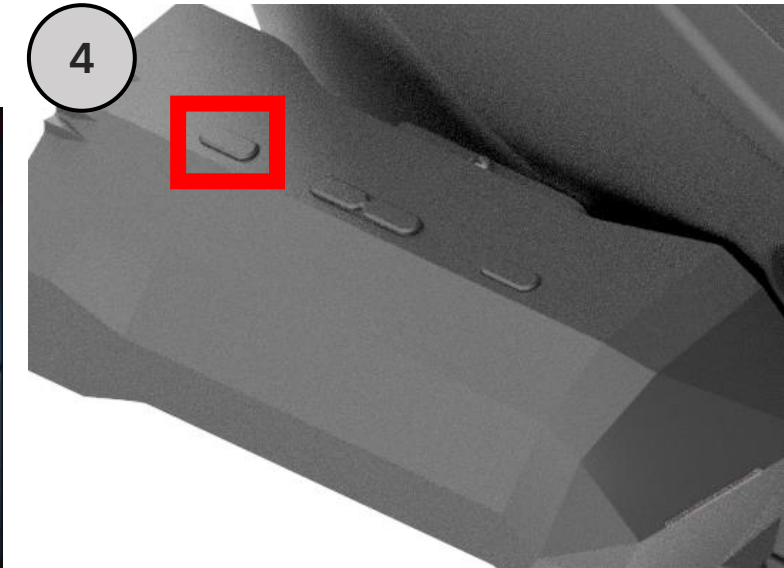
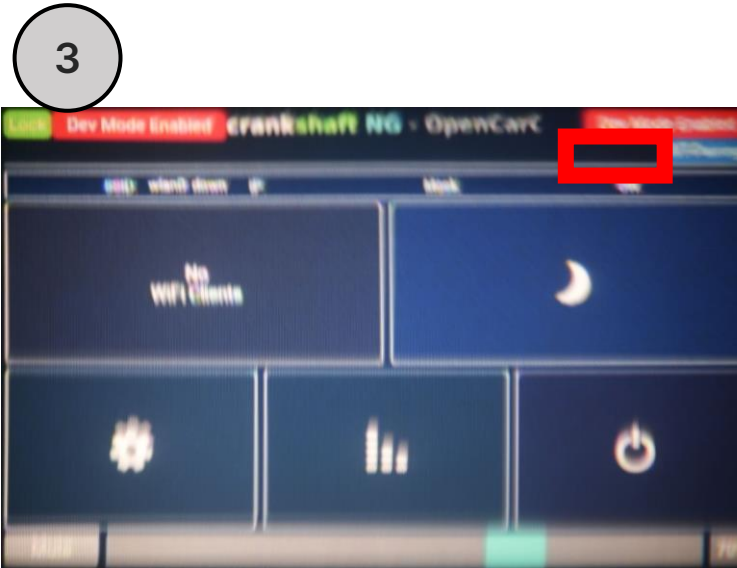
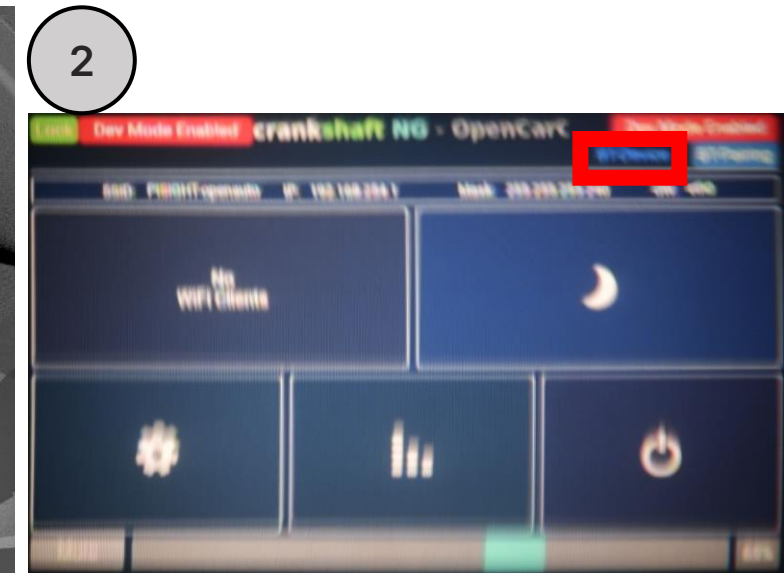
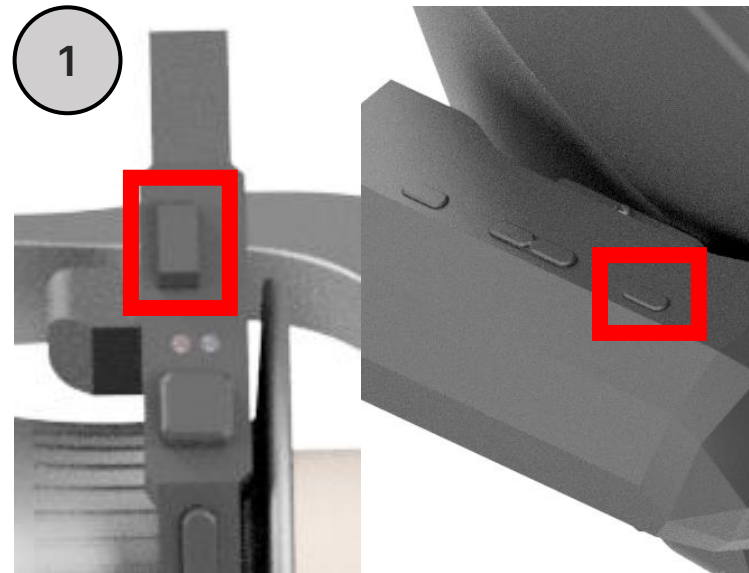


1. Insert the battery into the remote control, turn the power switch up, insert the battery and memory card correctly into the main body, and press the power button once to start the device. After booting, the entry screen appears.

2. If the remote control is connected: Wait a moment on the entry screen, and the blue BT-Device text in the upper right corner of the screen will remain lit, network information will be displayed, and the hotspot will turn on. If you press the index button on the remote control, the camera image will be displayed, and if you move the joystick up and down, you can see the slide bar at the bottom of the screen moving. Proceed to the smartphone connection process.

3. If the remote control is not connected: The blue BT-Device text in the upper right corner of the entry screen will blink or turn off, the text "wlan0 down" will not be displayed in the network information tab, and the hotspot will not turn on. In this case, go to step 4 and pair the remote control again.

4. Remote control pairing: With the remote control turned on, place it near the main body, and press the Fn button on the main body for 2 seconds to enter pairing mode. Please wait a moment while the device searches for nearby devices and automatically connects to the remote control. If the connection is successful, proceed to step 2.



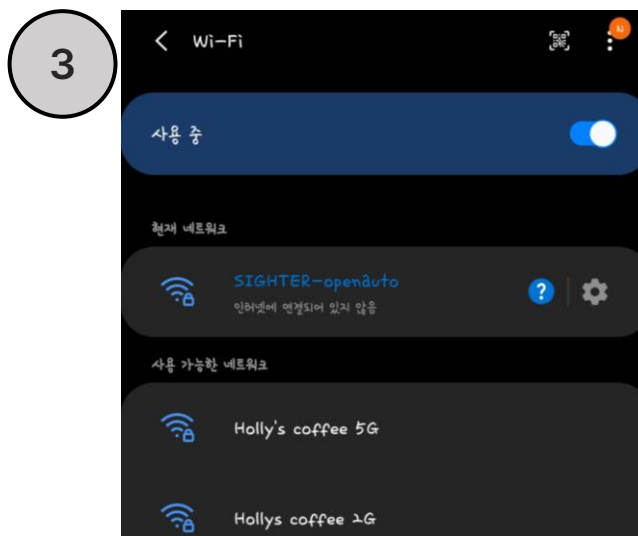
1. Turn on your smartphone's WiFi and go into Settings to connect to the device's hotspot. The default SSID is PISIGHT-openauto, and the password is 1234567890.

2. Since this is WiFi without a network, a notification may appear that the Internet is not available. In this case, do not press the button on the notification window, but press the back button to ignore the notification.

3. When connected to WiFi, it is normal to see or see a notification that you are not connected to the Internet.

4. In the Android Auto settings, press the three-dot menu in the upper right corner, and press the Start Head Unit Server button.

If you select the Connect button in the Internet connection notification 2, the network connection will be disconnected because the smartphone will stop using cellular data. In this case, erase the device's Wi-Fi on the smartphone and reconnect, and then press the back button on the Internet connection notification to ignore it.



2 인터넷 연결 확실치 않음

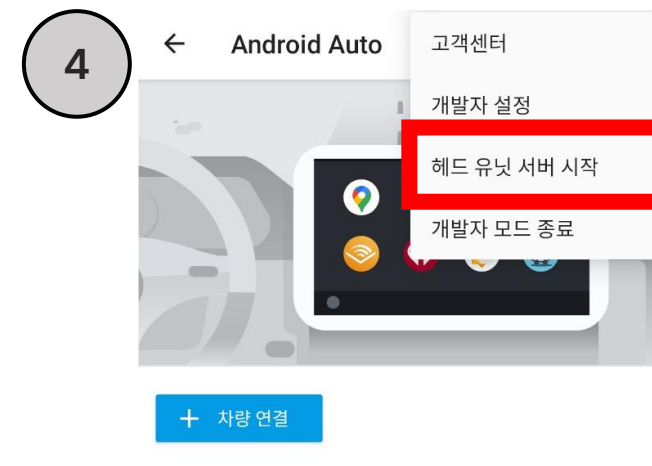
인터넷을 사용할 수 없는 Wi-Fi 네트워크에 계속 연결하려면 이번만 연결하는 옵션을 선택하거나, 인터넷을 사용할 수 없어도 이 네트워크에 연결하도록 휴대전화를 설정하세요.

[설정 > 연결 > Wi-Fi > 고급 > 모바일 데이터로 전환 > 예외 네트워크]에서 설정을 변경할 수 있습니다.

이번만 연결

항상 연결

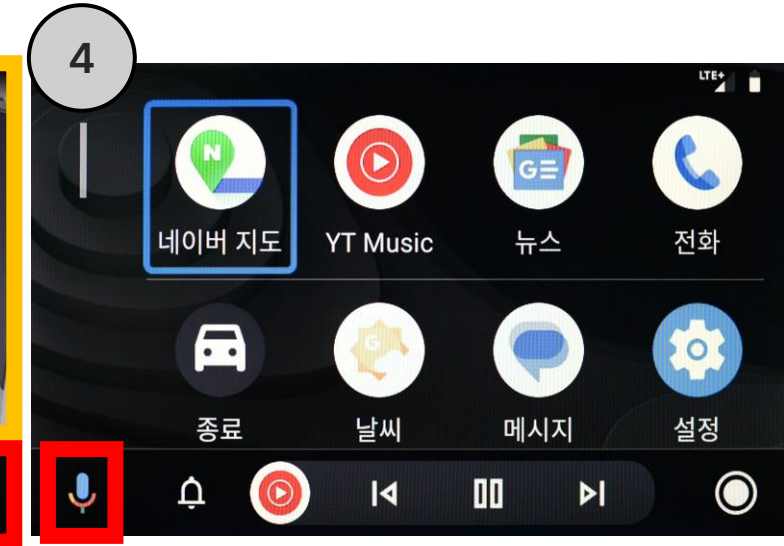
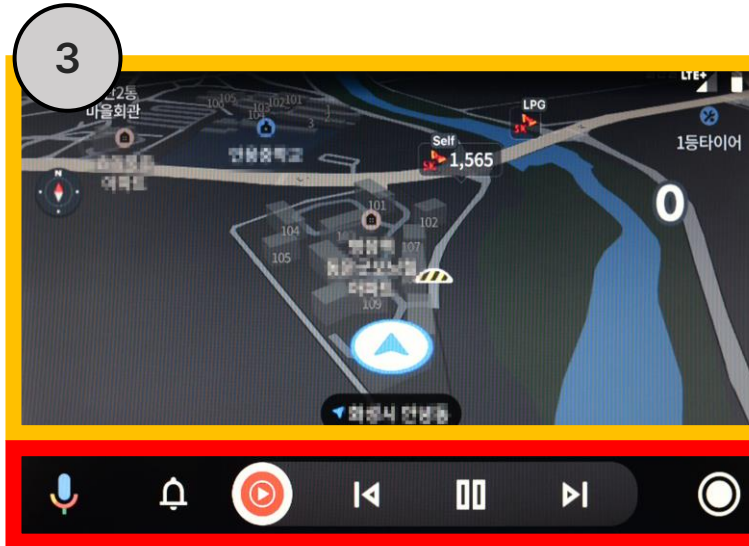
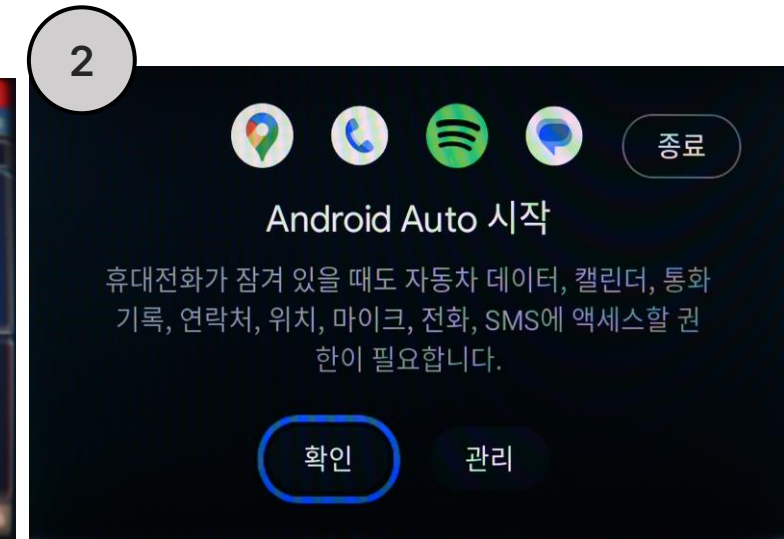
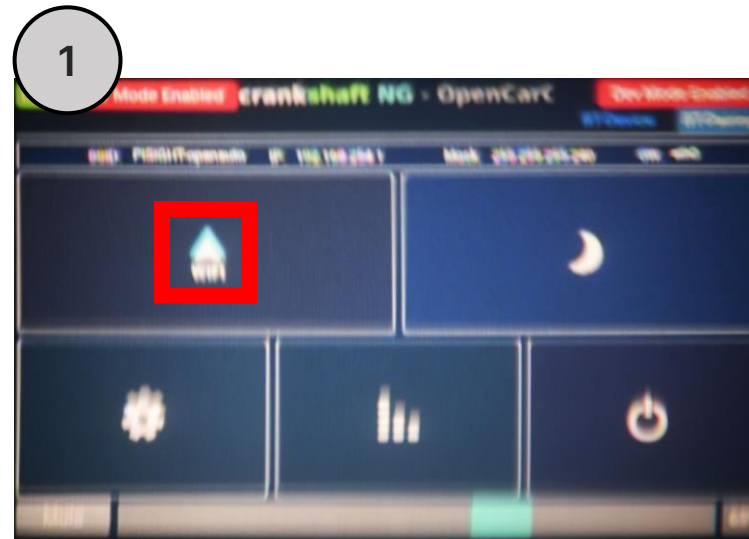
연결 해제



연결 도움말

2. Using OpenAuto Software – Starting and Using Android Auto

1. If the connection with the smartphone is complete, the No WiFi Clients text on the first tile will disappear and the Android Auto icon will appear. Press the joystick on the remote control for 1 second to start Android Auto.
2. If the smartphone has never been connected to Android Auto before, the initial Android Auto setup will begin. Follow the instructions.
3. You can move the cursor using the joystick. Moving up and down will move the focus effect to the upper tab (yellow square) and the lower tab (red square), and moving left and right will move the focus within the tab.
4. You can launch Google Assistant by pressing the thumb button on the remote control or moving the focus with the joystick to select the microphone shape. You can perform various functions through Google Assistant.
 - Set the destination (e.g. Sogang University)
 - Set the song (e.g. Play Hypeboy, Next song)
 - Adjust the volume (e.g. Volume 60 percent)
 - Call (e.g. Call Mom) In addition to text messages, weather, etc.



2. Using Open Auto Software – Checking Rear Camera Recordings

1. After removing the memory card from the main body and connecting it to a Windows PC, the boot disk

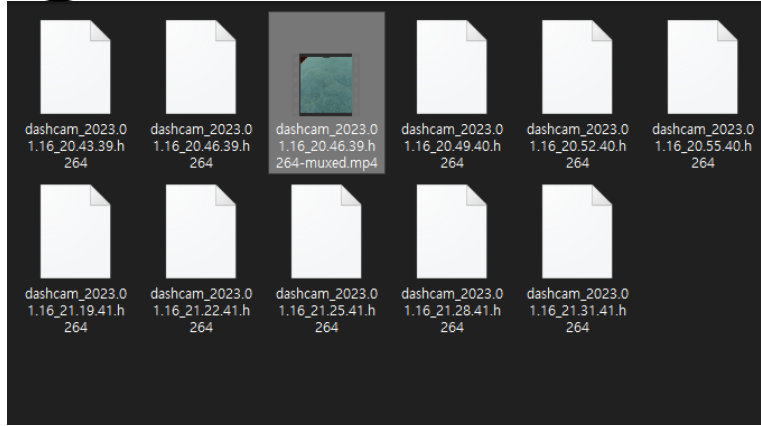
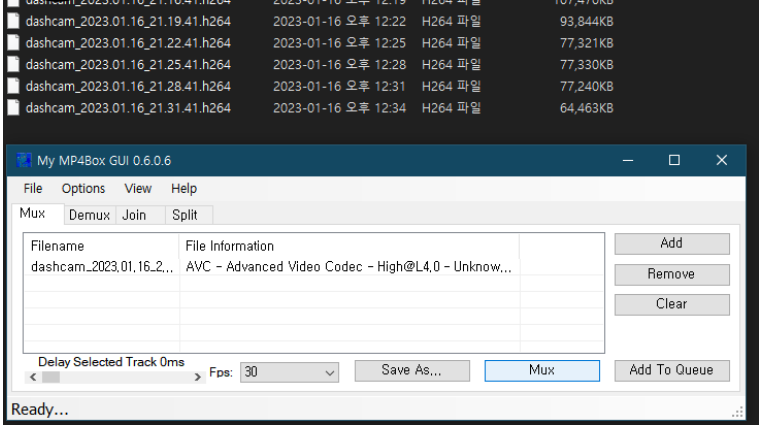
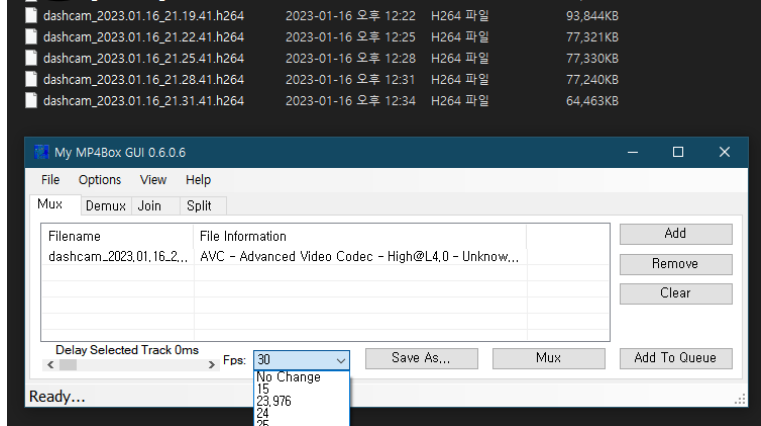
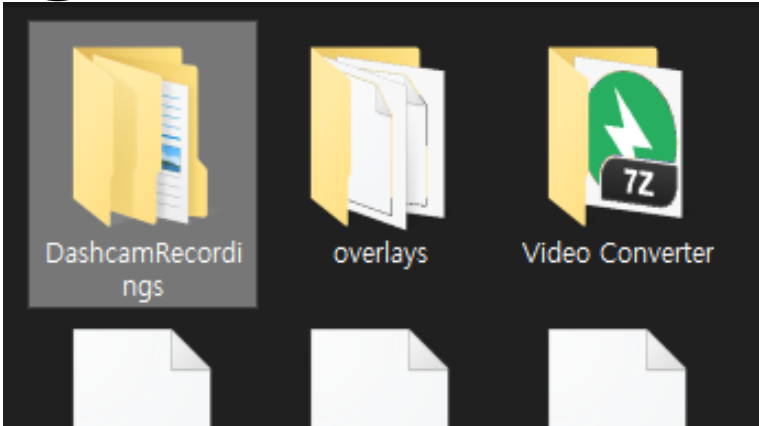
The videos are inside the DashcamRecordings folder. Every time the device is turned on, the number of the videos folder inside increases by one. To view the videos, you need to convert them.

(When connecting the memory card to the PC, a notification may appear telling you to format the memory card. This is normal as it occurs due to the difference in memory formats used in Raspberry Pi OS and Windows. Click Cancel and then click Boot Disk.)

2. Install the My MP4Box GUI program inside the Boot disk Video Converter folder. After running the program, click the Add button to select the video to convert, and set the Fps below to 30.

3. When you press the Mux button, the video will be converted to mp4 format in the same folder and you can check it on your PC.

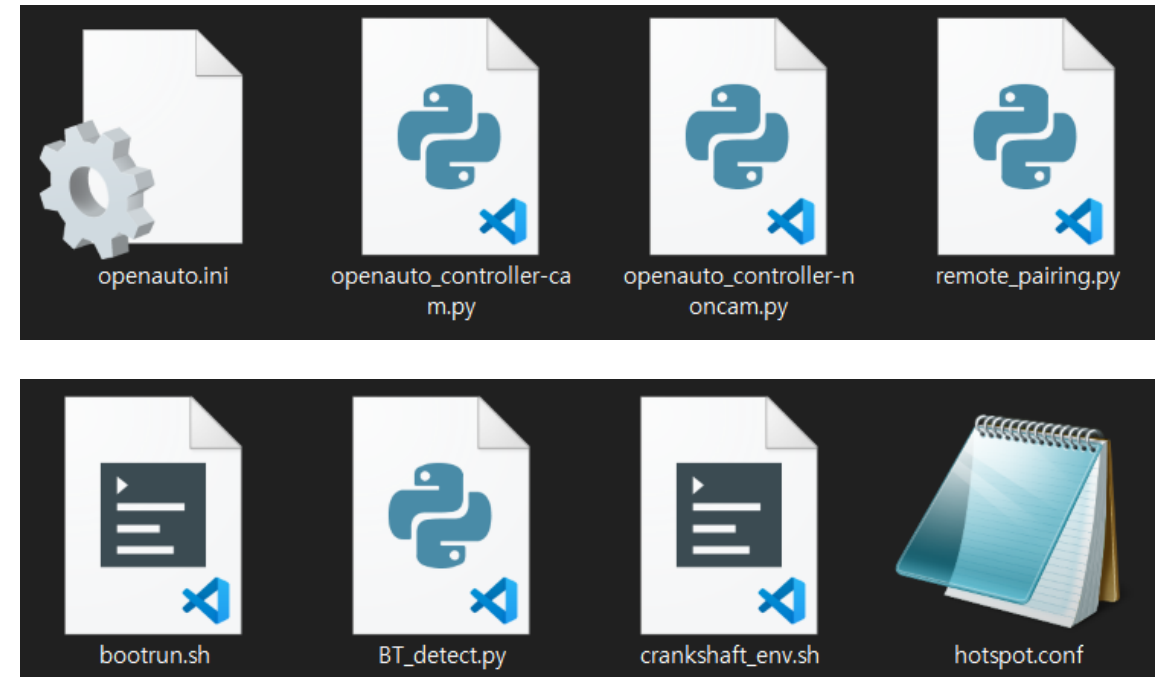
 The converter program provided by default is only available for Windows, but if you use MP4Box or FFMPEG, you can convert videos not only on Windows but also on Linux and Mac.



2. Using OpenAuto Software – Customizing

1. Inside the crankshaft folder of the boot disk, there are some software for operating the device.
2. The functions of each code are as follows:
 - `openauto_controller-cam.py`: Camera, remote key mapping
 - `remote_pairig.py`: Remote key pairing
 - `BT_detect.py`: Hotspot stops until remote is connected at boot
 - `Bootrun.sh`: Code auto-run
3. You can freely modify many aspects of the video, such as resolution, frame, and split recording length, by modifying the `openauto_controller-cam.py` file. For more information, please refer to vudev.net.
4. You can change the hotspot name and password of your device by editing the `Hotspot.conf` file. To change the name and password of your hotspot, open the file and replace the characters inside the double quotes with the desired characters.

Back up the original file and make changes to restore it in case of problems.



3.1 Main body operation problem

- If the battery gauge light comes on but the display does not work, check the connection between the main body and the display terminal.
- If the battery gauge light comes on but the boot screen does not appear, check if the memory card is inserted properly.
- If the battery gauge light does not come on, check if the battery is inserted properly.
- If the device continuously saves/deletes images and the memory card reaches its lifespan after a certain period of time, the device may not work properly. In this case, replace the memory card and reinstall the software.

3.2 Remote control connection problems

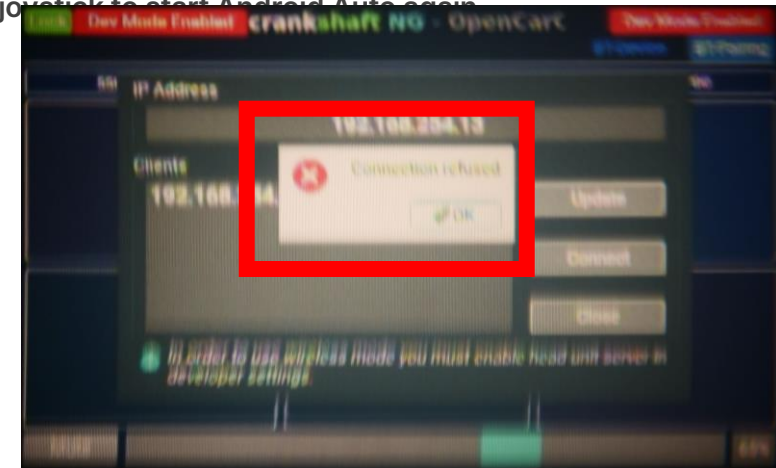
- When the remote control is turned on, it automatically enters pairing mode until it is connected to the main body. When you turn on pairing mode on the main body, if there is another remote control nearby that is turned on and not connected, a remote control other than yours may be connected. Make sure there are other PI-SIGHT remote controls nearby when the main body's pairing mode is activated.
- If the video is continuously saved/deleted and after a certain period of time, the memory card's lifespan has expired, problems may occur with the program, and connection may not be possible. In this case, replace the memory card and reinstall the software.

3.3 Wireless Hotspot Issues

- If the remote control is not connected after the device boots up, the hotspot will not turn on. Check the power and connection status of the remote control.
- If the hotspot is turned off for a certain period of time because the remote control is not connected when the device boots up, the hotspot may not turn on again even if the remote control is connected. In this case, reboot the device.

3.4 Android Auto startup issues

- If you have not started the Android Auto head unit server on your smartphone, pressing and holding the joystick on the startup screen will result in a Connection refused error as shown below. In this case, start the Android Auto head unit server on your smartphone and then press and hold the joystick to start Android Auto again.



3. Troubleshooting

3.5 스마트폰 데이터 네트워크 문제

- 스마트폰을 기기의 핫스팟에 연결할 때 인터넷 연결 알림이 나타날 수 있습니다. 해당 알림에서 연결 버튼을 선택할 경우, 스마트폰이 셀룰러 데이터 사용을 멈추기 때문에 네트워크 연결이 끊어집니다. 이 경우 스마트폰에서 기기의 와이파이를 지운 후 다시 연결하고, 인터넷 연결 알림에서 뒤로가기를 눌러 무시하십시오.

3.6 주행 중 끊김 문제

- 기기와 연결된 스마트폰을 타이트한 바지 주머니에 넣는 등 신체에 밀착한 경우 기기와 통신에 문제가 발생할 수 있습니다. 신체와 밀착하지 않은 외부 주머니 또는 가방에 스마트폰을 수납하십시오.
- 주행풍에 의한 기기 냉각이 이루어지지 않고 고온의 환경에서 사용할 경우 기기의 발열로 인해 성능이 저하될 수 있습니다. 기기의 온도가 과도하게 올라가지 않도록 하십시오.

3.7 영상 녹화 문제

- 지속적으로 영상의 저장/삭제가 반복되며 일정 시간이 지나면 메모리카드의 수명이 다해 영상 저장이 제대로 이루어지지 않을 수 있습니다. 이 경우 메모리카드를 교체하고 소프트웨어를 새로 설치하십시오.

3.8 리모컨 충전 불빛 문제

- 리모컨의 전원이 켜진 상태에서 배터리 완충 시 빨간불과 파란불이 동시에 켜지거나, 번갈아 켜지는 현상이 발생할 수 있으나, 정상작동입니다.

3.9 메모리카드 PC 연결 시 포맷 알림

- 메모리카드를 PC에 연결했을 때, 메모리카드를 포맷해야 한다는 알림이 뜰 수 있습니다. 메모리 형식의 차이로 발생하는 알림이니 정상이며, 취소를 눌러 무시하십시오.

