



gForceAPP User Guide

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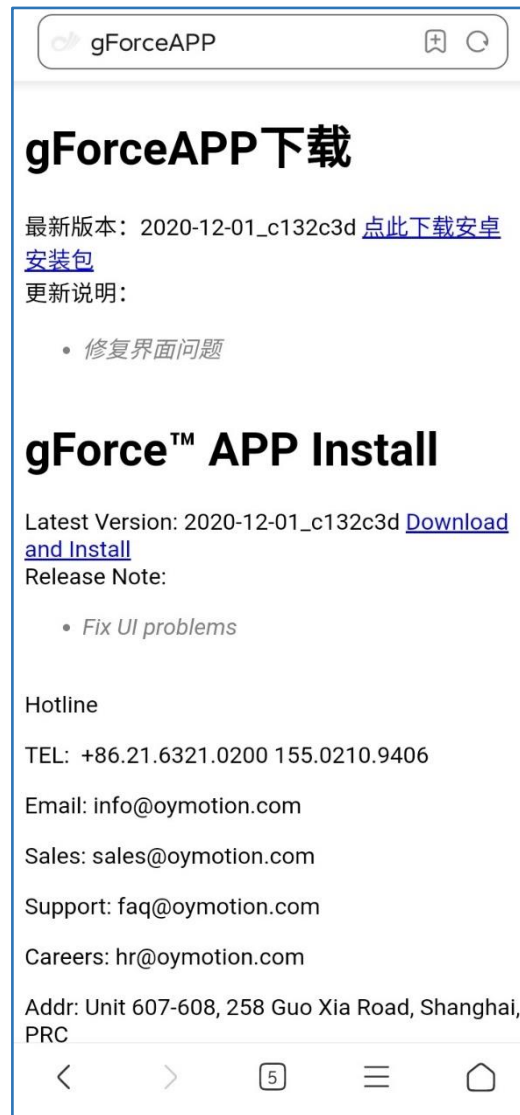
1. About gForceAPP and Install

1.1 gForceAPP is a mobile application works with gForce series EMG devices for user to: view real time EMG waveform, view quaternion, view gesture ID, do gesture training, do model download, do firmware OTA update, etc.

1.2 Install APP:

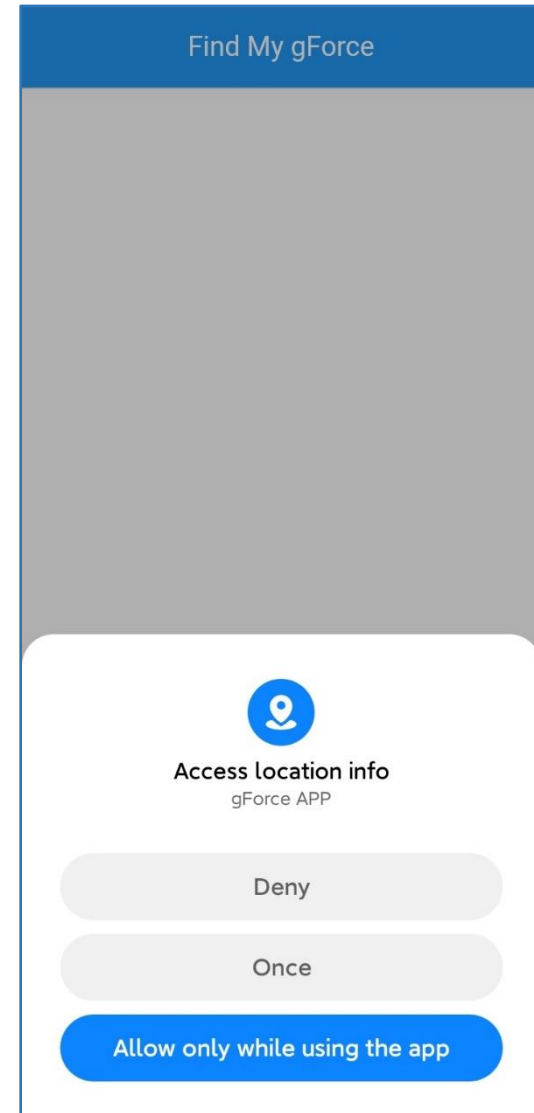
Open <http://gforce-portal.oymotion.com/>

Click "Download and Install" to install the latest gForceAPP.



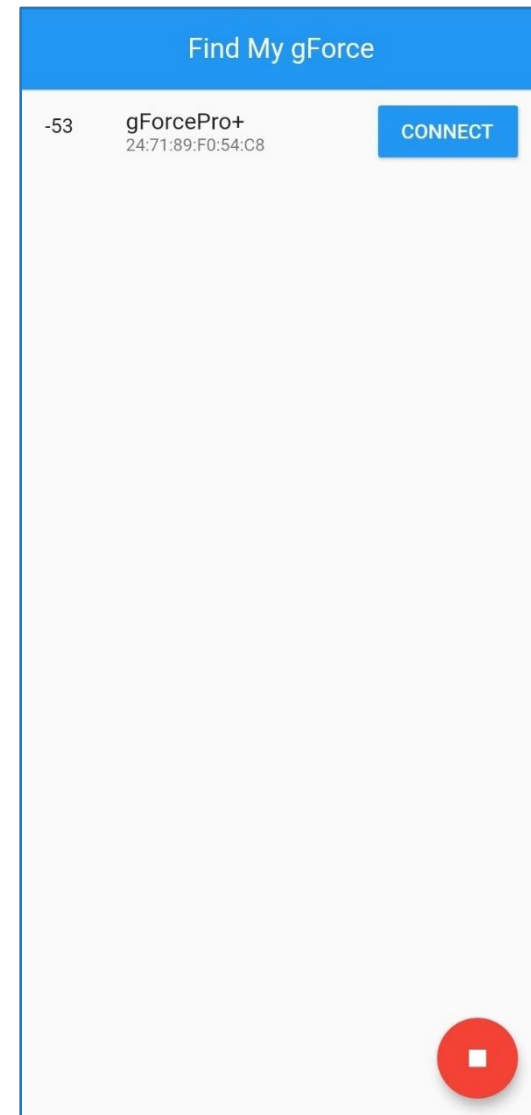
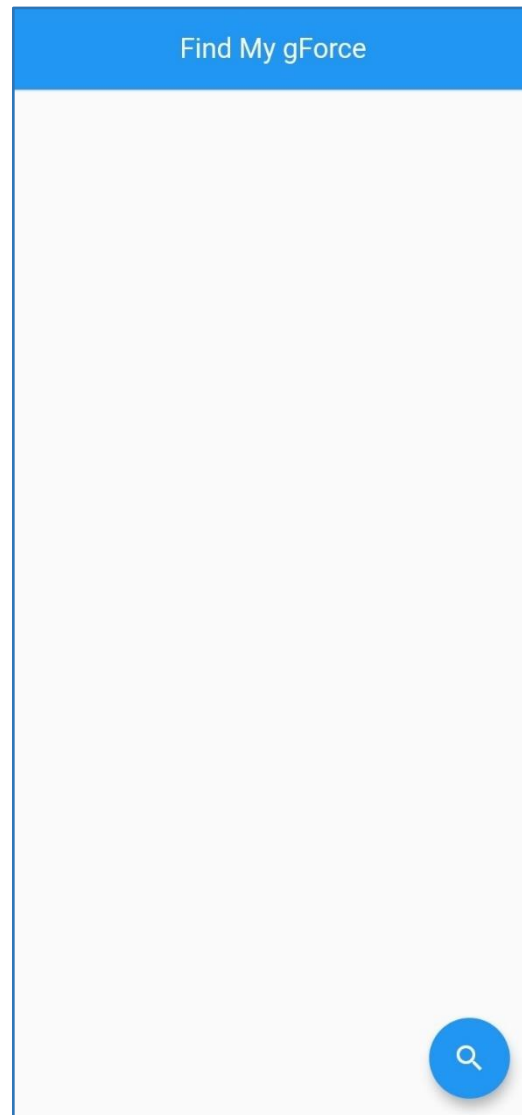
2. Run APP

- 2.1 Make sure mobile's "Bluetooth" service on.
- 2.2 Make sure mobile has "Internet" access.
- 2.3 Make sure mobile has "Location" service on.
- 2.4 Run gForceAPP, allow "Access Location Info" permission. This is mandatory.



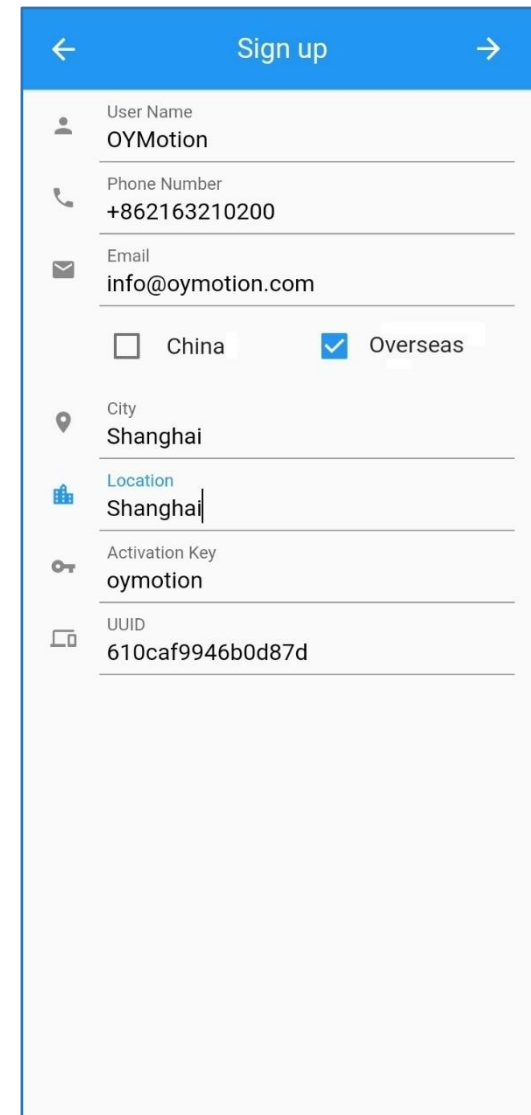
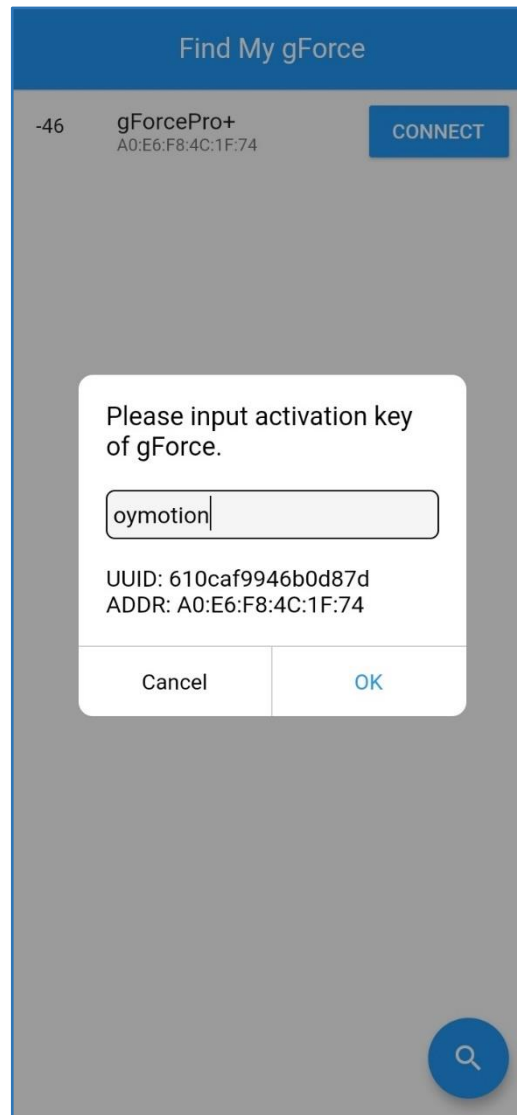
3. Connect to gForce Device

- 3.1 Turn on gForce device, click search icon on bottom-right on the “Find My gForce” page, find the right gForce device in the list and click the “CONNECT” button to its right.
- 3.2 If the device and mobile have not been registered, user will be prompted to enter the activation code, else directly to the main page. Each gForce device has an activation code comes with, user should keep it properly.



4. gForce Device Activation

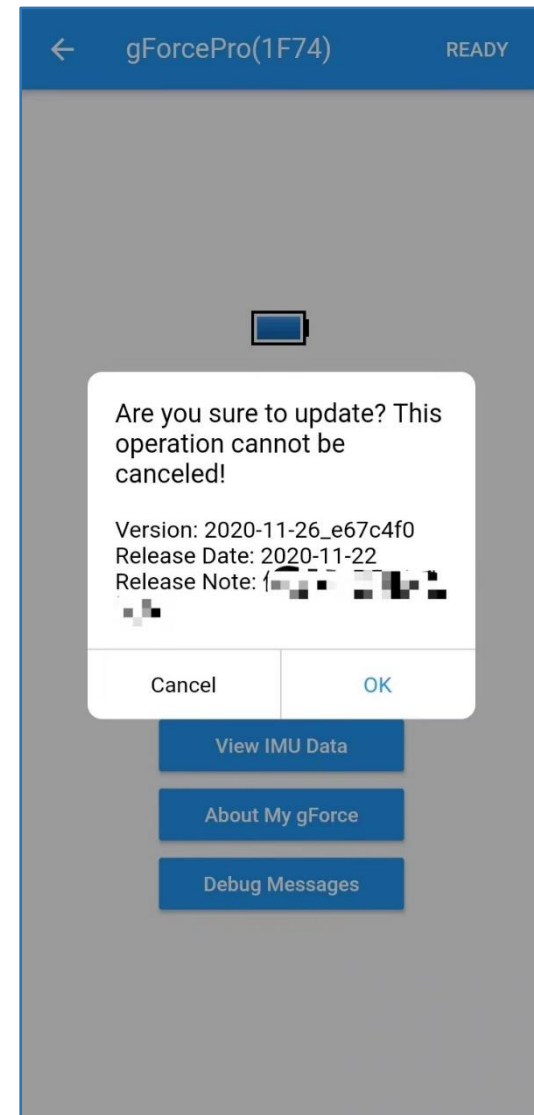
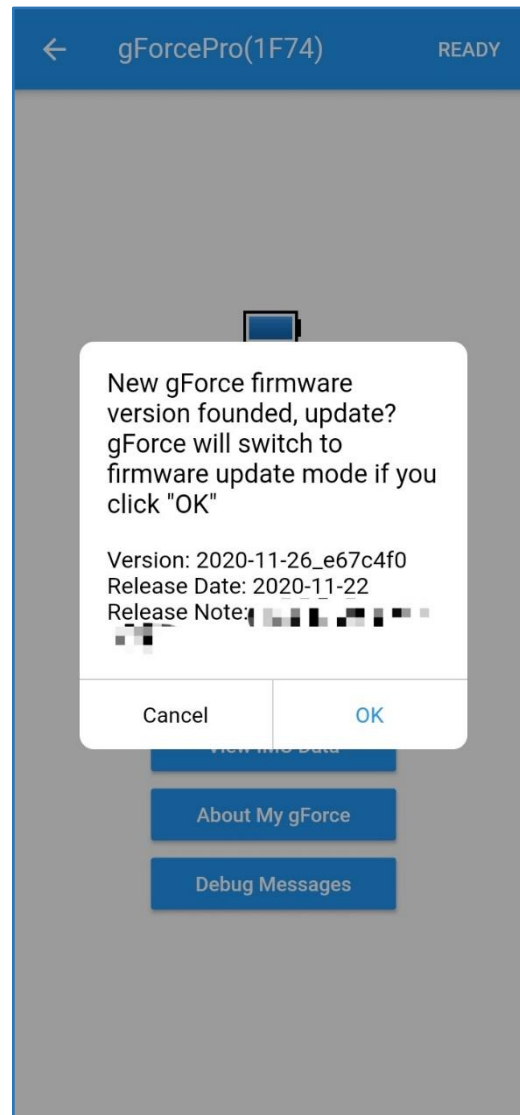
- 4.1 If it's the first time gForce device connecting to gForceAPP on a mobile, user will be asked to activate it.
- 4.2 Enter the "activation code" comes with gForce device.
- 4.3 Sign up with the correct personal information for a better tech support.
- 4.4 gForceAPP enters the main page if things go thru.
- 4.5 Keep the activation code properly. When user changes to a new mobile, the gForce device needs to be activated again.
Email: info@oymotion.com with all the information if its lost.



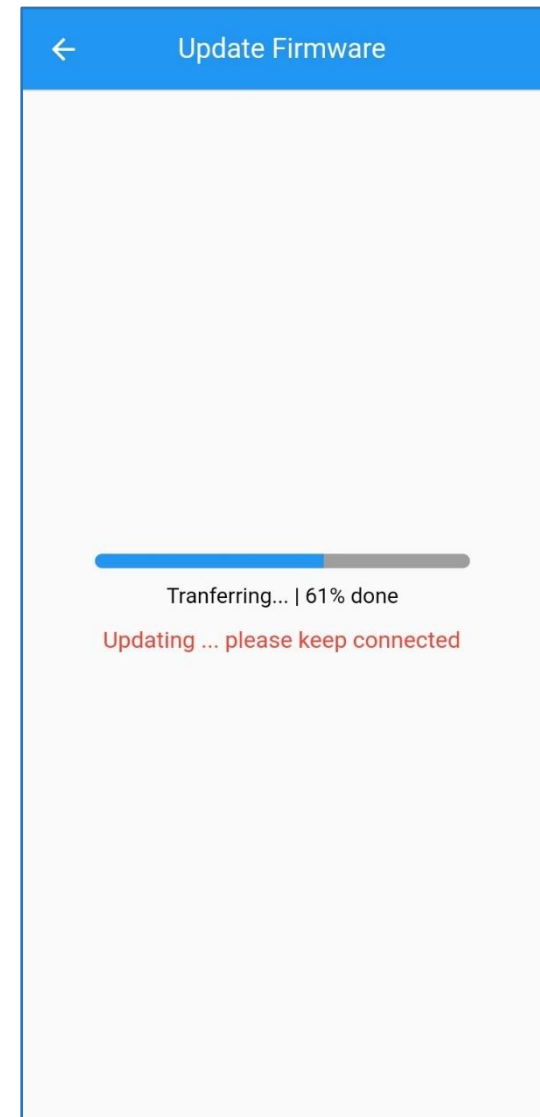
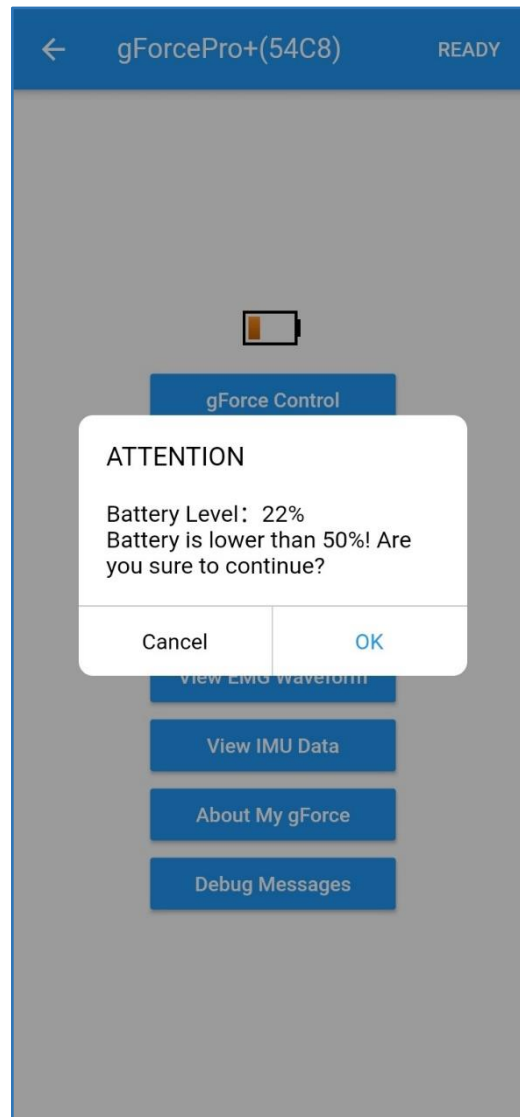
5. gForce Device Firmware OTA

Update

- 5.1 After gForceAPP successfully connects to gForce device, it checks the device's firmware version first and if there's a newer version available, it prompts user if to run the OTA update.
- 5.2 Click "OK" to run the OTA or till the next time. OTA can't be cancelled once started.
- 5.3 Keep the gForce device and mobile running gForceAPP close, don't turn off the Bluetooth service on mobile when OTA is undergoing. gForceAPP returns to "Find My gForce" page when OTA is done.



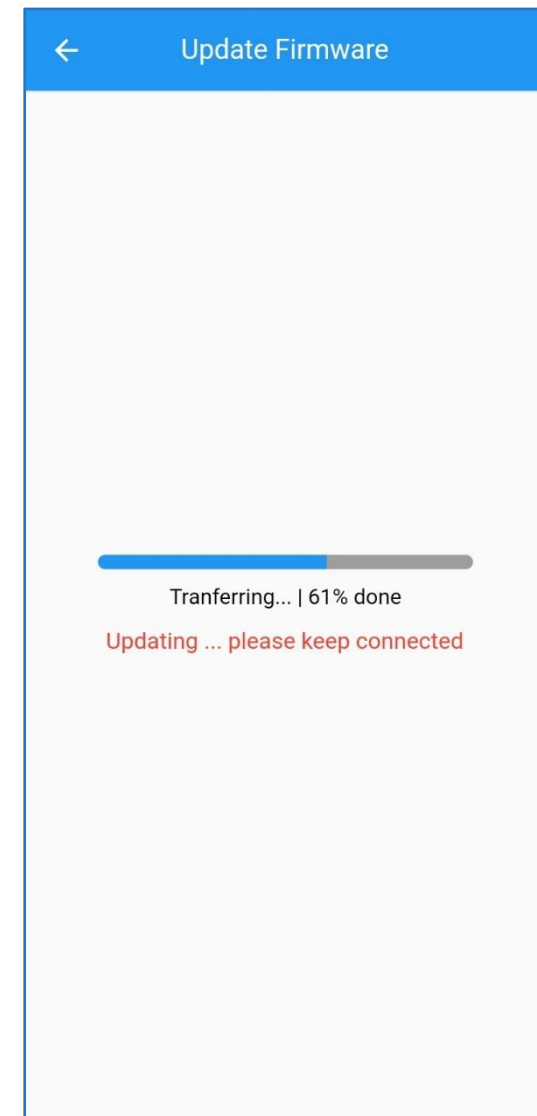
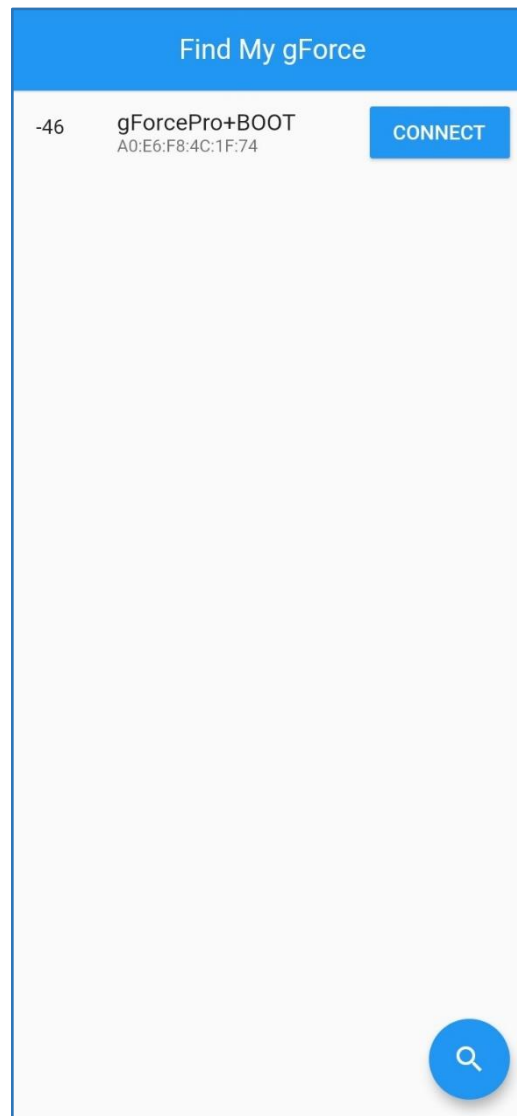
5.4 Make sure both gForce device and mobile has sufficient batteries to avoid any interrupt. If gForce device's battery is less than 50%, gForceAPP will prompt a warning message.



6. gForce Device Firmware OTA

Update (BOOT Mode)








- 6.1 If update failed, the gForce device will enter into BOOT mode, and the device name changes to gForce***BOOT.
- 6.2 Click on the search icon and find the gForce***BOOT device. Click the "Connect" button to its right. The OTA update will start.
- 6.3 Make sure both mobile and gForce device have sufficient batteries. Neither disable or disconnect the Bluetooth connection.

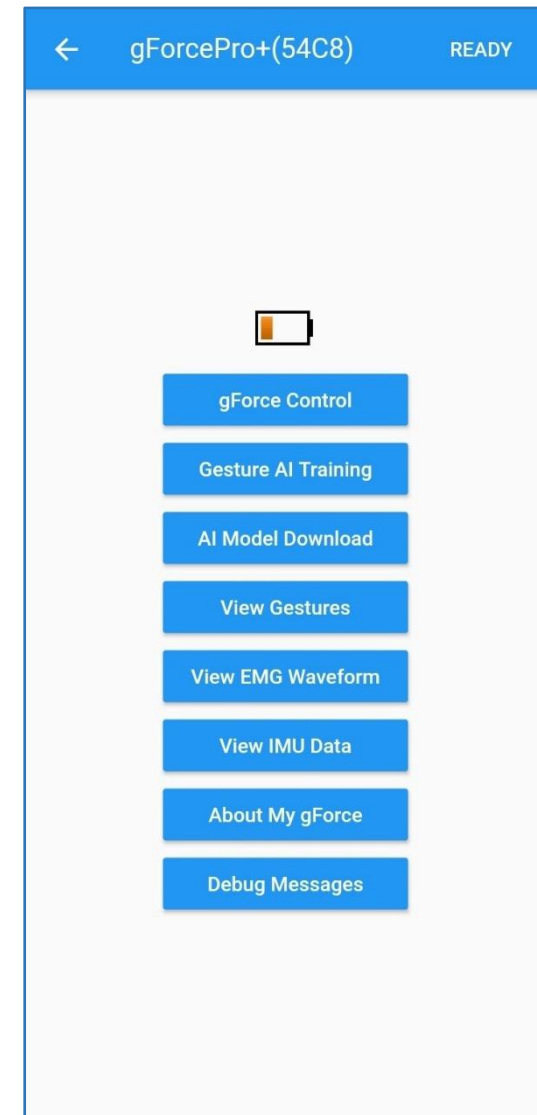
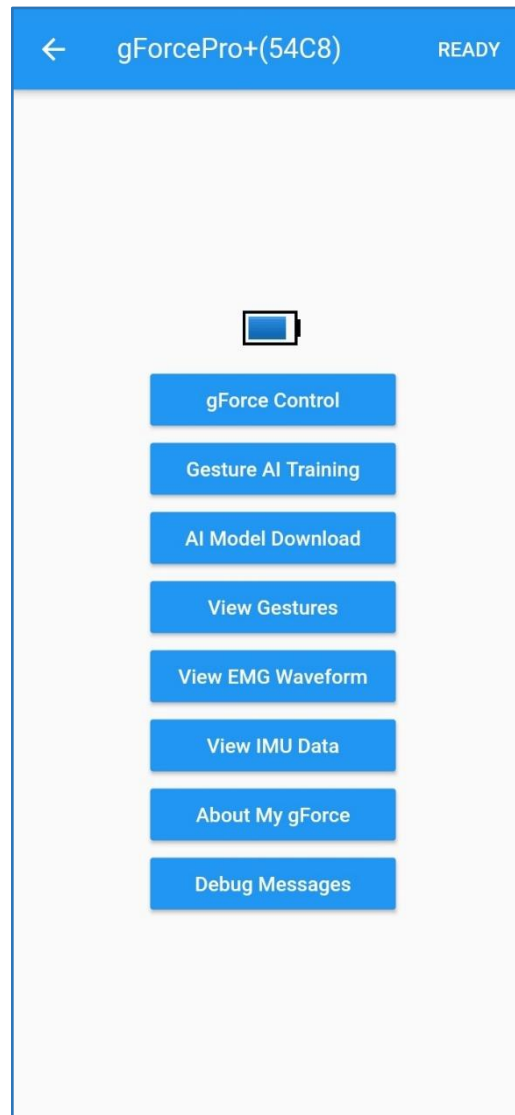


7. Battery Indicator

7.1 The battery icon on top of the buttons on the Main Page shows percentage of gForce device battery.

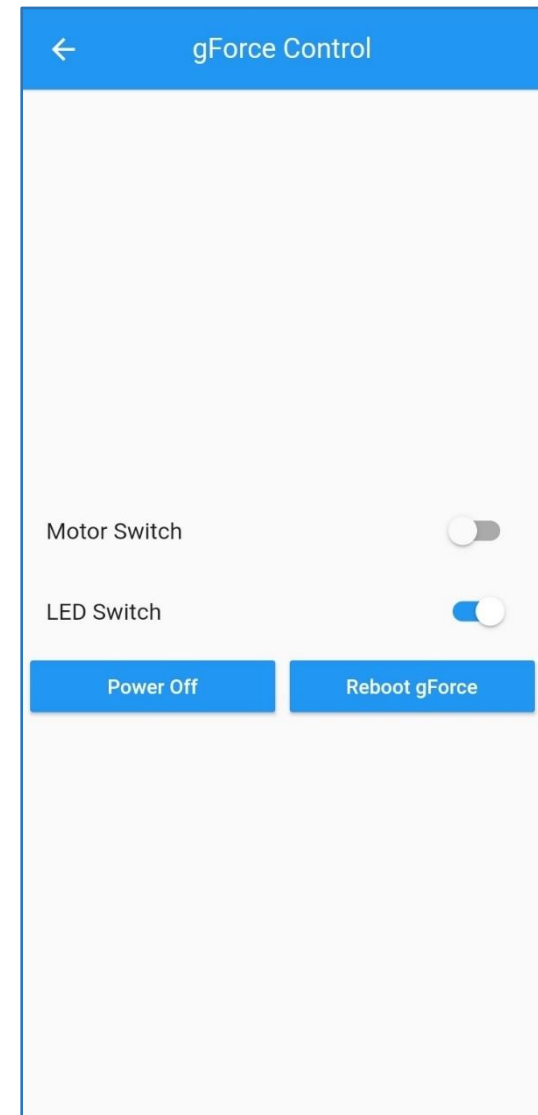
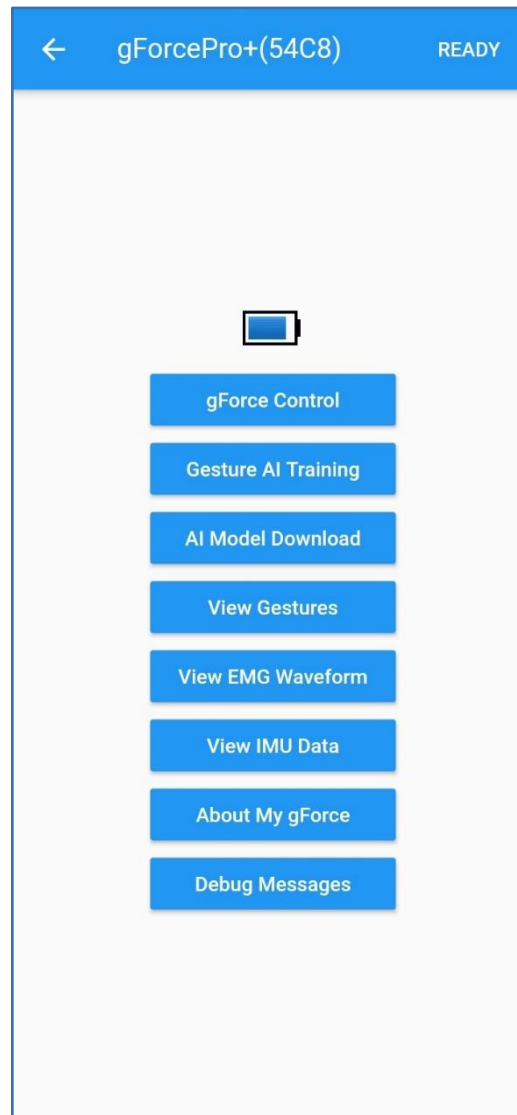
7.2 The following table shows the rough battery levels of gForce device. When the icon becomes red, the battery level is critical, user shall charge it as soon as possible.

Percentage	Icon
100%	
80% – 99%	
60% – 79%	
40% – 59%	
20% – 39%	
0% – 19%	
Not Readable	



8. gForce Control

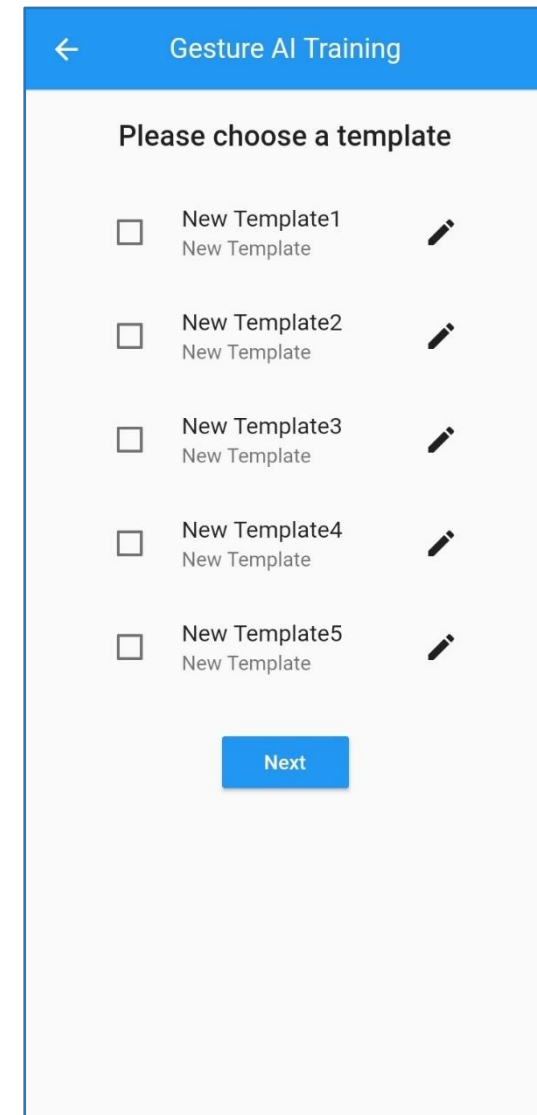
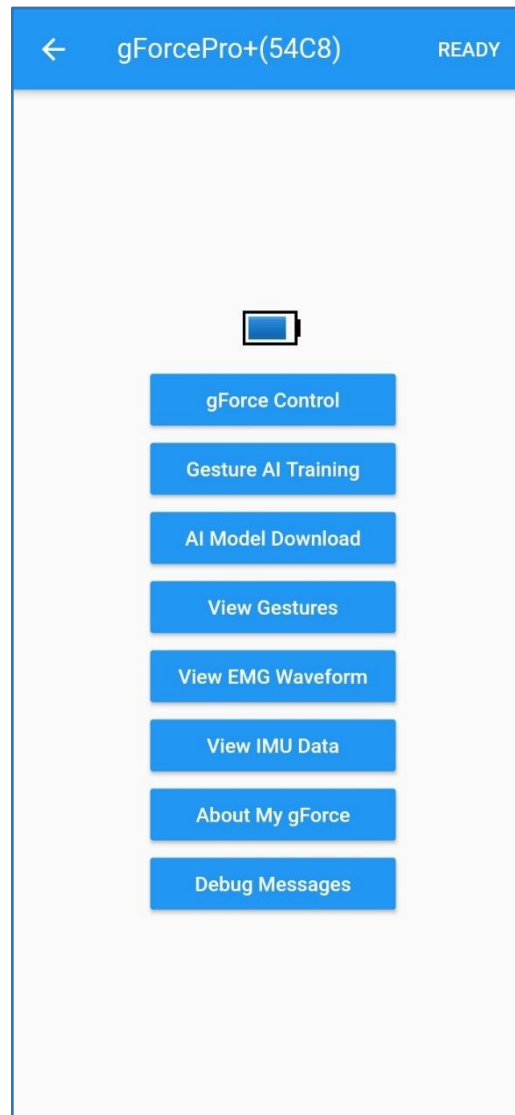
- 8.1 Click on “gForce Control” to step into this page, gForceAPP will turn off gForce device’s vibrator and turn on the green LED.
- 8.2 User can click on the switches next to “Motor Switch” and “LED Switch”, to turn on or off the vibrator or green LED.
- 8.3 Click the “Power Off” button to turn gForce device off. Click the “Reboot gForce” button to reboot gForce device.



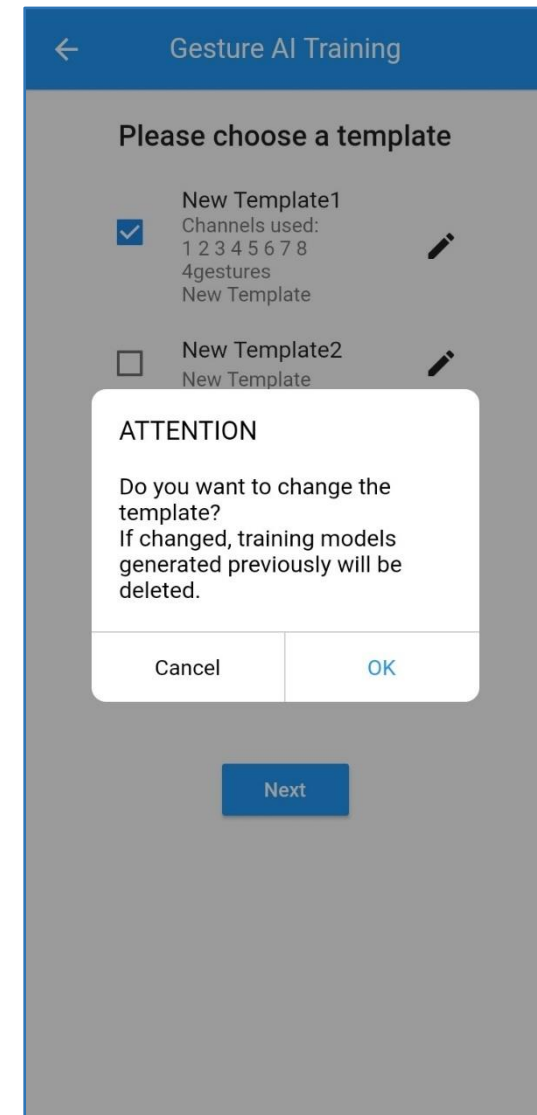
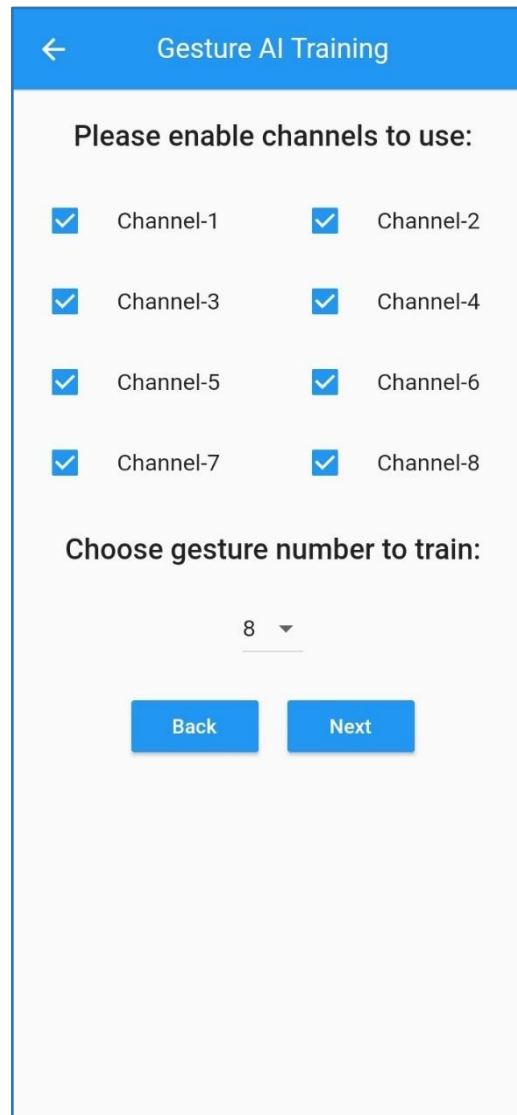
9. Gesture AI Training

(gForcePro+/gForceOct Only)

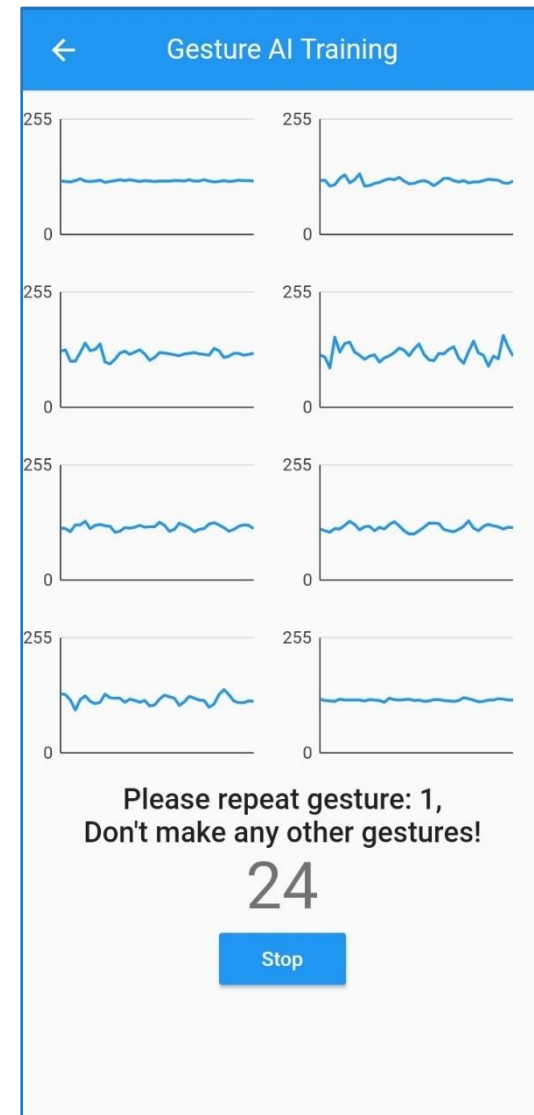
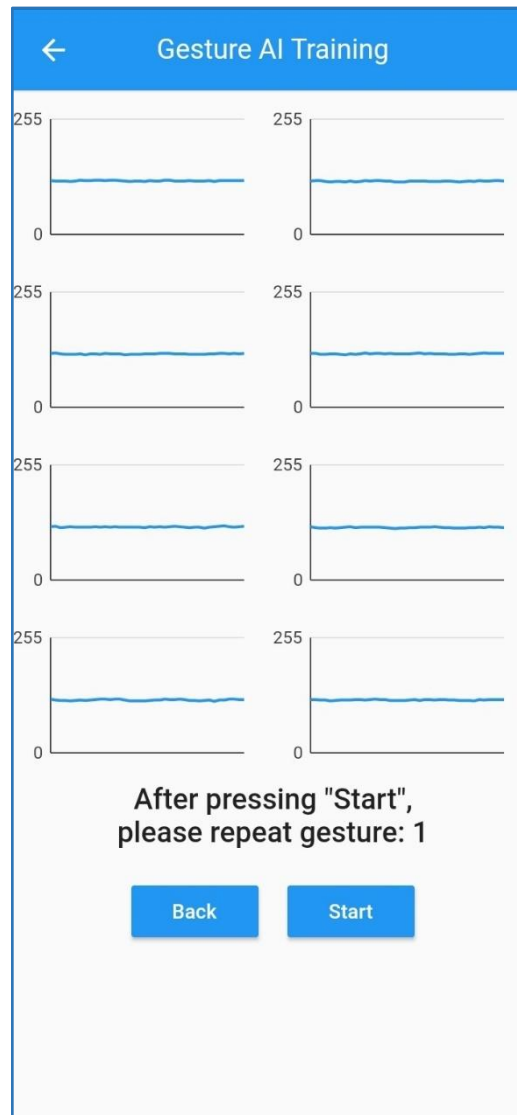
- 9.1 Click on “Gesture AI Training” to start a gesture training session.
- 9.2 Choose one of the five templates, and click “Next”.
- 9.3 Five templates are allowed for a single gForce device. As gesture data under one template accumulates, it’s user to take responsibility for keeping consistency under one template, such like gesture types, gForce device wearing position. Else the inconsistency results in a bad training model.



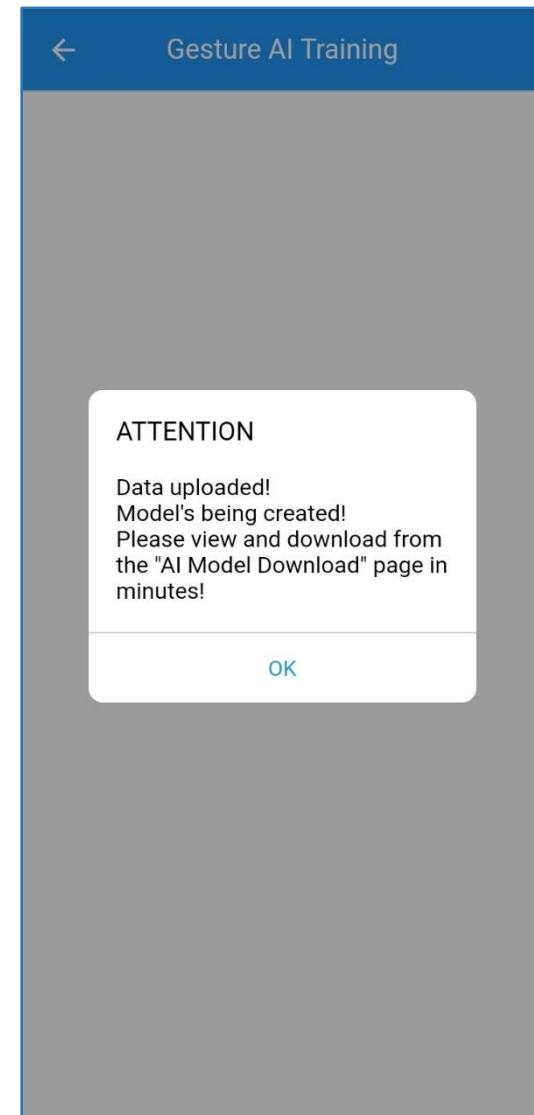
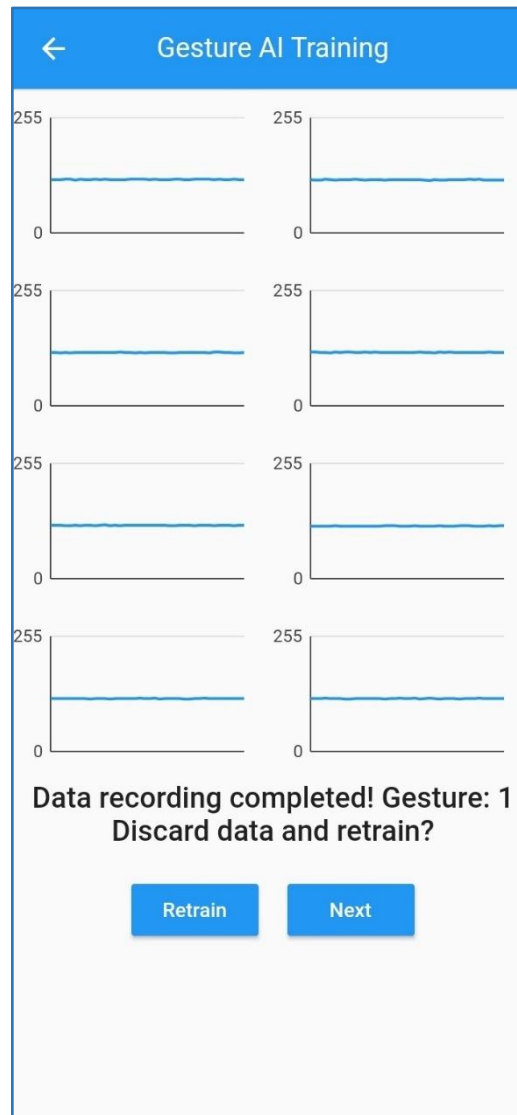
- 9.4 Enable sensor channels and choose gesture number to train. gForce device allows up to 16 customized gestures to train. Refer to 11. gForce200 Preloaded Gestures. User should choose gestures that have difference.
- 9.5 Click “Next”.
- 9.6 If the template selected has been used, means there are old data, gForceAPP asks user if to change the template setting. If “OK” is selected, user can update the sensor and gesture number settings and override the current one by deleting all its old data and model generated. User should be very careful and takes full responsibility when doing this as data cannot be recovered. Click “Cancel” to continue using the current template setting and start a new training session.
- 9.7 User guarantees the wearing position/direction, gestures are consistent with the last training session within one same template. gForceAPP doesn’t check any consistency and will blindly add the data to the next data slot of the same one template. If there are too much inconsistency, data will be contaminated and results in a poor training model.



9.8 Click on “Start” to start a 30 seconds session of the current gesture recording. User repeats a fixed gesture with a sequence of “relax – gesture – relax” slowly, remember not to bring in any other gestures and keep consistency as much as possible. If user thinks the recorded data quality is not good, such like too much EMG noise or mistakes when recording, click on the “Stop” to start over the current gesture recording work.



- 9.9 When the current gesture recording is done, click “Next” to move to the next gesture or “Retrain” to discard the data and start over the current gesture.
- 9.10 When finish all wanted gestures data recording, click “Next”, gForceAPP will upload the data and the model will be built on server.
- 9.11 Click “OK”.
- 9.12 Return to the Main Page.
- 9.13 Check in the “AI Model Download” page, it shows “Training”. Based on gesture numbers and training sessions accumulated, it normally takes several minutes to finish generating the gesture model.
- 9.14 When model is being generated, gForceAPP doesn’t allow user to have another training session over the same template. User has to wait till the last session’s model is built or user can start in another template.

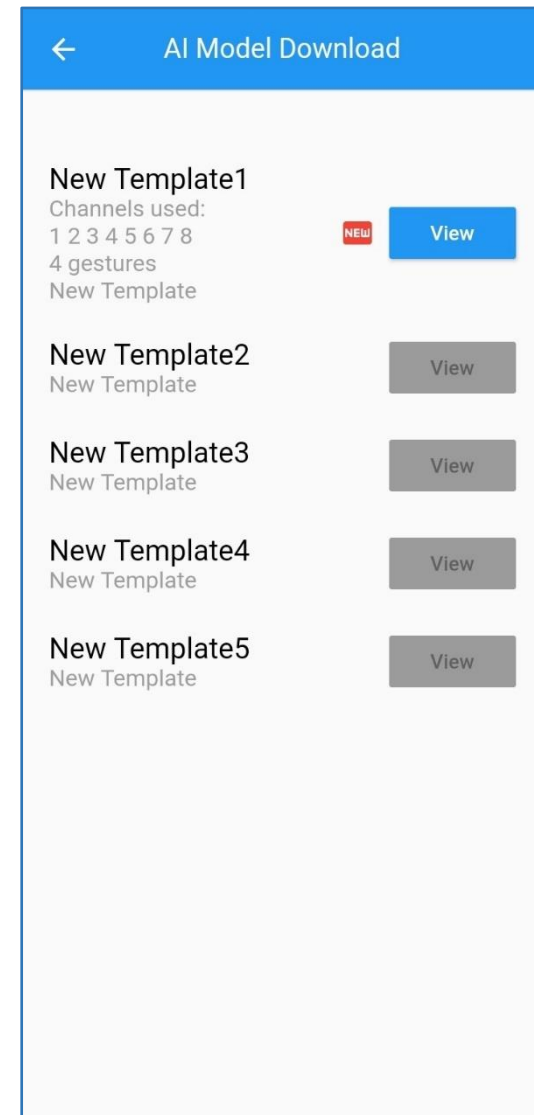
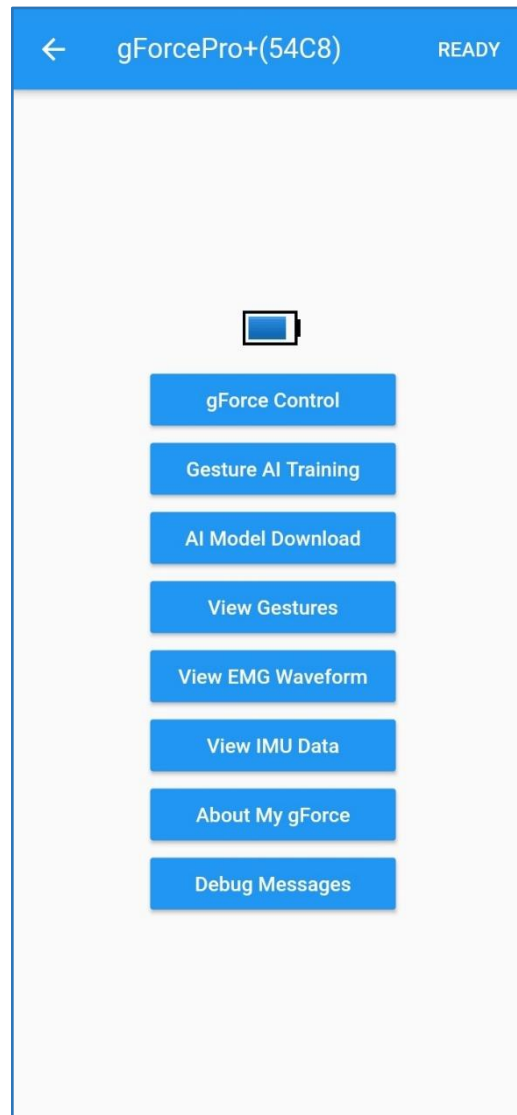


10.AI Model Download

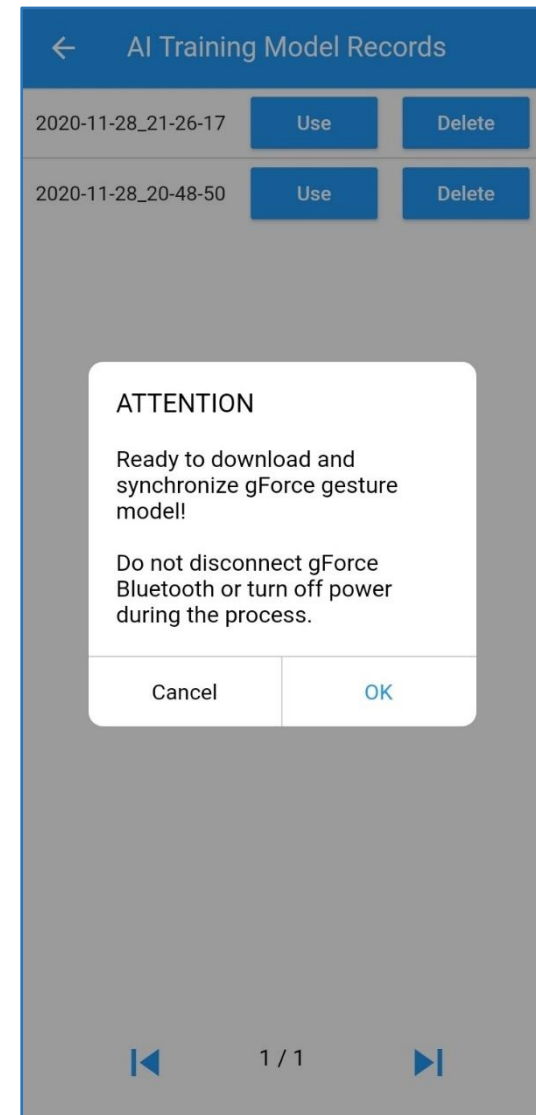
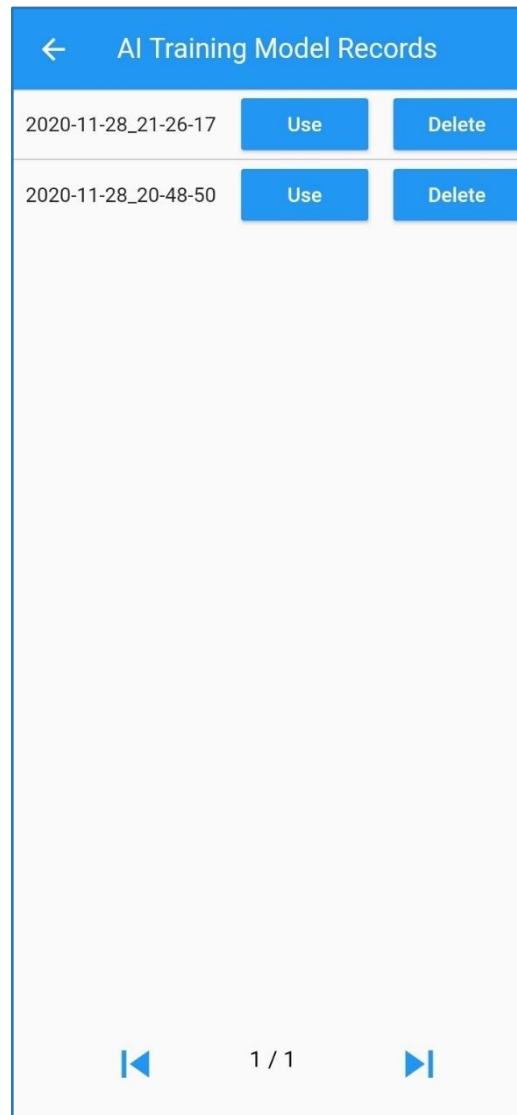
(gForcePro+/gForceOct Only)

10.1 Click “AI Model Download” in the Main Page to start downloading a trained gesture AI model into gForce device.

10.2 If there’s a new model generated, a red “NEW” icon displays to the left of the “View” button. Click “View”.

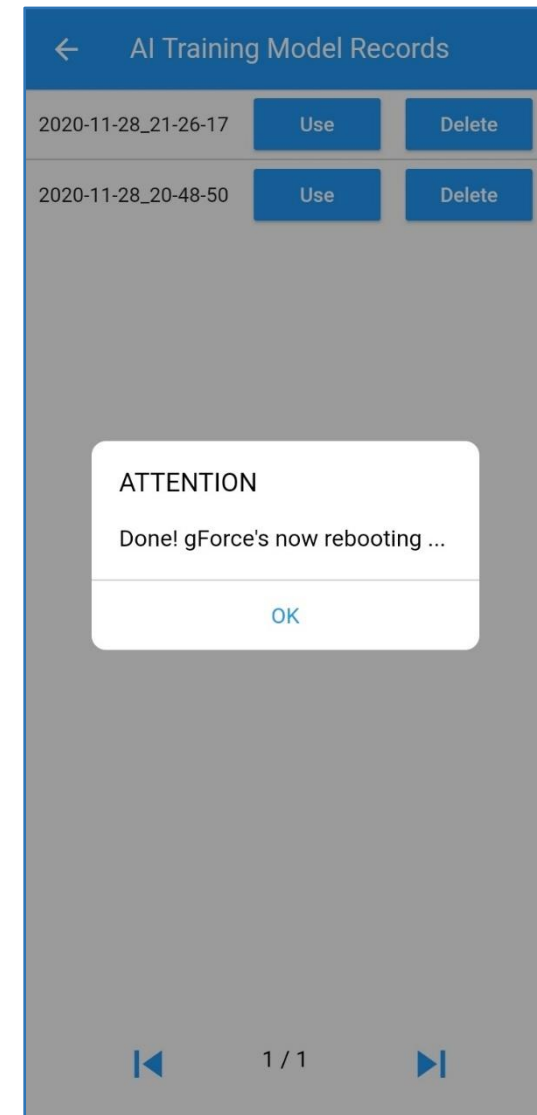
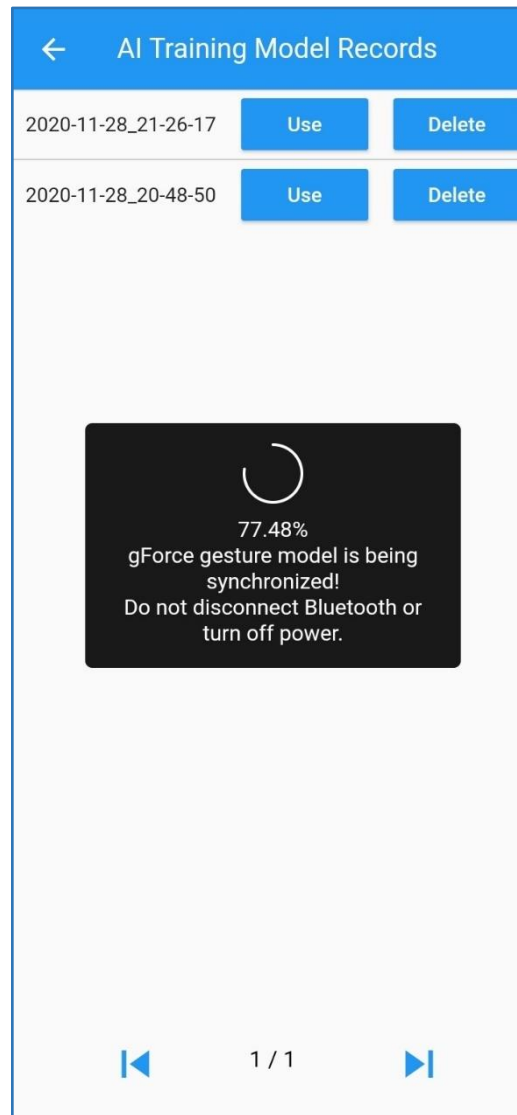


- 10.3 Every training session will have its own AI model generated. Click “Use” to start download the model and update into gForce device. The new session’s model is built on a combination of its own and all the former sessions’ data.
- 10.4 Make sure both mobile and gForce device have sufficient batteries. When updating, don’t disconnect or turn off Bluetooth.



10.5 When it reaches 100% and so model is synchronized, gForce device will reboot and be disconnected.







10.6 Back in the “Find My gForce” page, search for gForce device and connect it.



11.gForce200 Armband

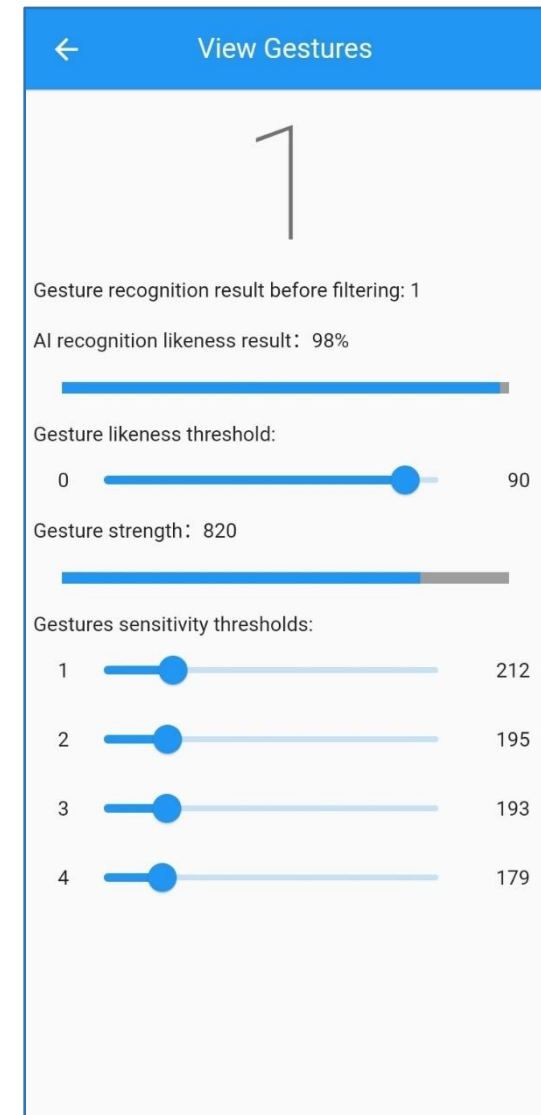
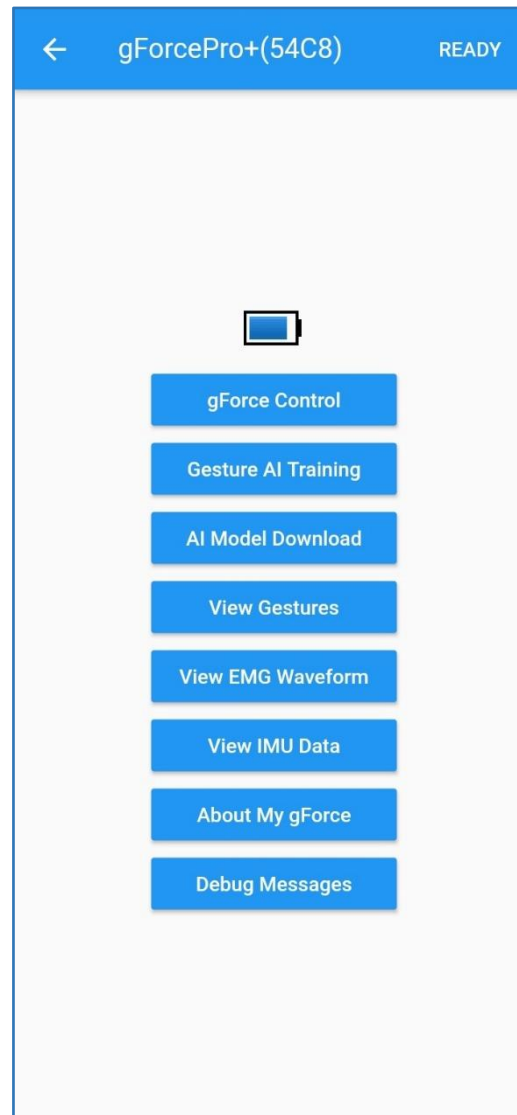
Preloaded Gestures

11.1 gForce200 gesture armband doesn't support the AI training feature neither EMG raw data access. It's preloaded with 6 predefined gestures shown on the right. Refer to "gForce Armband User Guide".

Gesture 1	Gesture 2	Gesture 3	Gesture 4	Gesture 5	Gesture 6
					

12.View Gestures

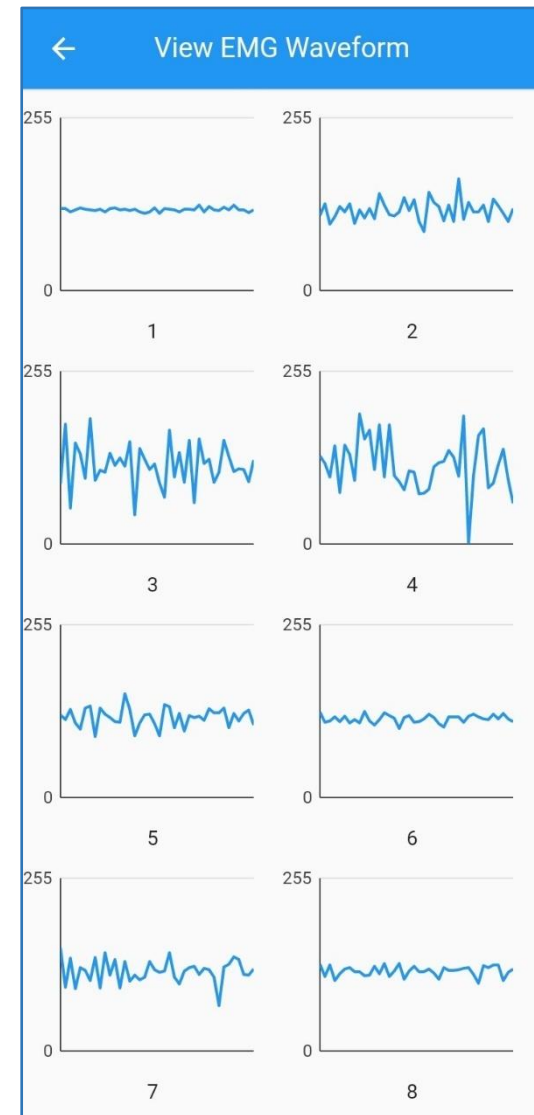
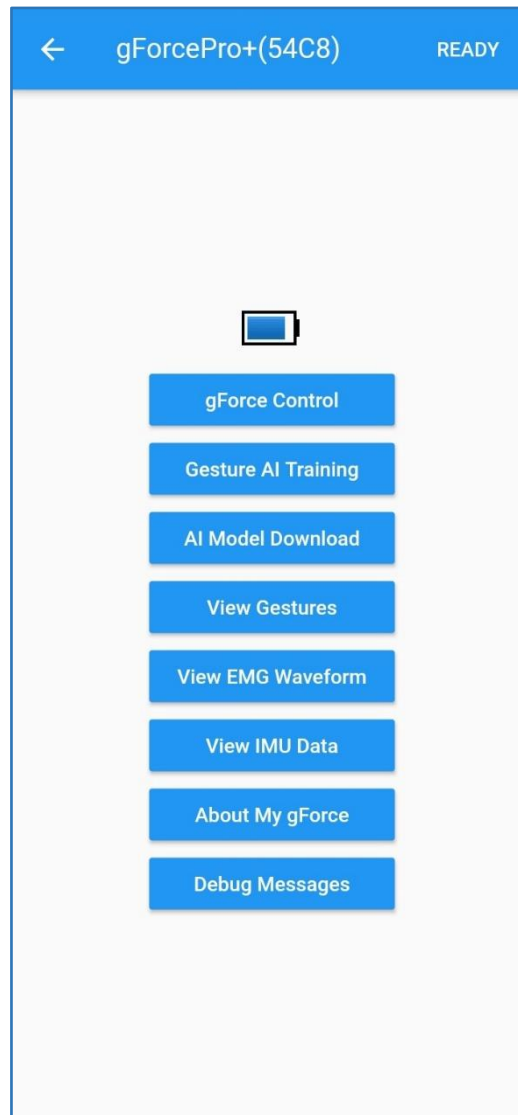
- 12.1 Click “View Gestures” on the main page.
- 12.2 Make sure consistency with training.
- 12.3 User makes gestures. On top of the window, the number shown is the gesture ID being recognized by the AI engine. It gives out the likeness value which is noted by a percentage. gForceAPP and gForce device allows a global likeness threshold to be set. Only likeness higher than the threshold will pass thru. It’s suggested to set the likeness around 85~90%.
- 12.4 For gesture strength less than a certain threshold, user can further filter it out by setting a dedicated threshold on the bottom of the window. User can hold a certain gesture and check the “Gesture strength:” value, set a threshold around 1/4 is suggested for that gesture. Different people and different gesture has strength which might be big different, so its suggested to set individual threshold for each gesture.



13.View EMG Waveform

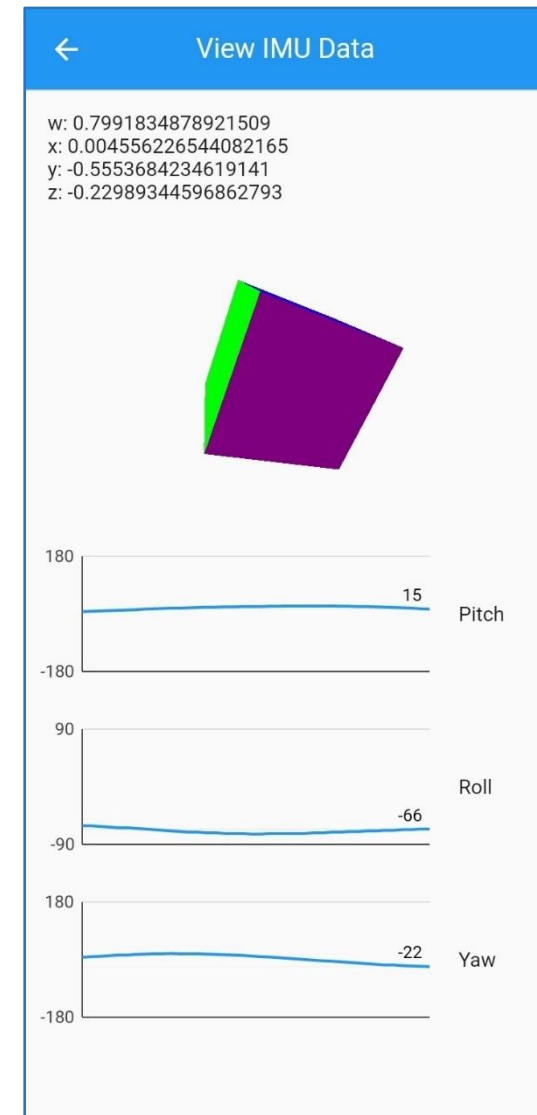
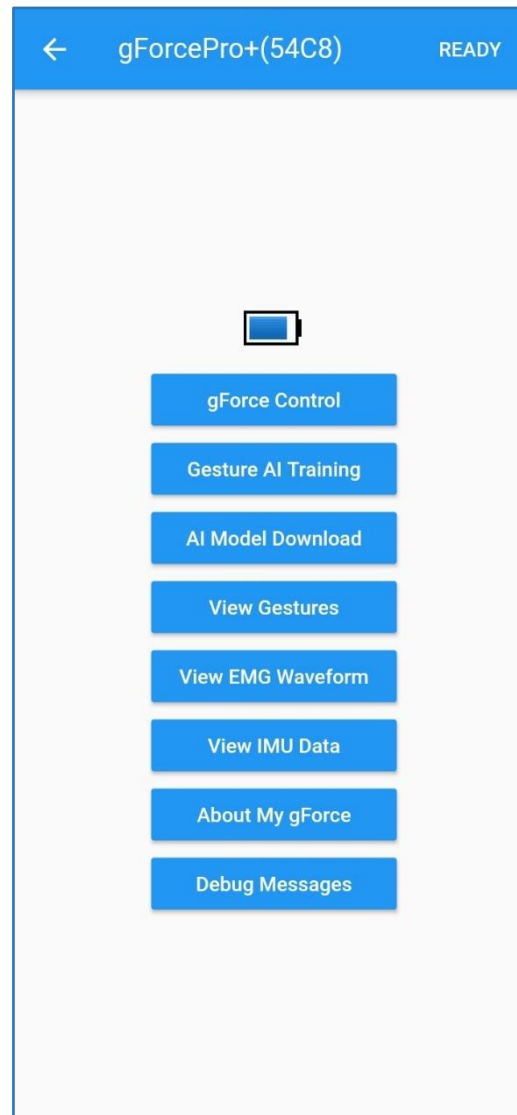
(gForcePro+/gForceOct Only)

- 13.1 Click “View EMG Waveform” on the main page.
- 13.2 Eight waveform windows numbered show each EMG sensor’s real time waveform.
- 13.3 This page is used to check EMG signals’ quality and if the gForce device’s EMG sensor is working properly as well as if the sensor electrodes have good contact with user’s skin.



14. View IMU Data

- 14.1 Click “View IMU Data” on the main page to check the real time IMU information.
- 14.2 On top-left the w,x,y,z numbers shows the real time Quaternion from gForce device.
- 14.3 The cube in middle represents the real time 3-DOF status of gForce device.
- 14.4 The three waveform underneath are the real time Pitch, Roll and Yaw of gForce device.
- 14.5 The Quaternion can be reset by quickly pressing the button on gForce device, this sets the current status to be $Q(1,0,0,0)$. Pitch, Roll, Yaw are not affected.

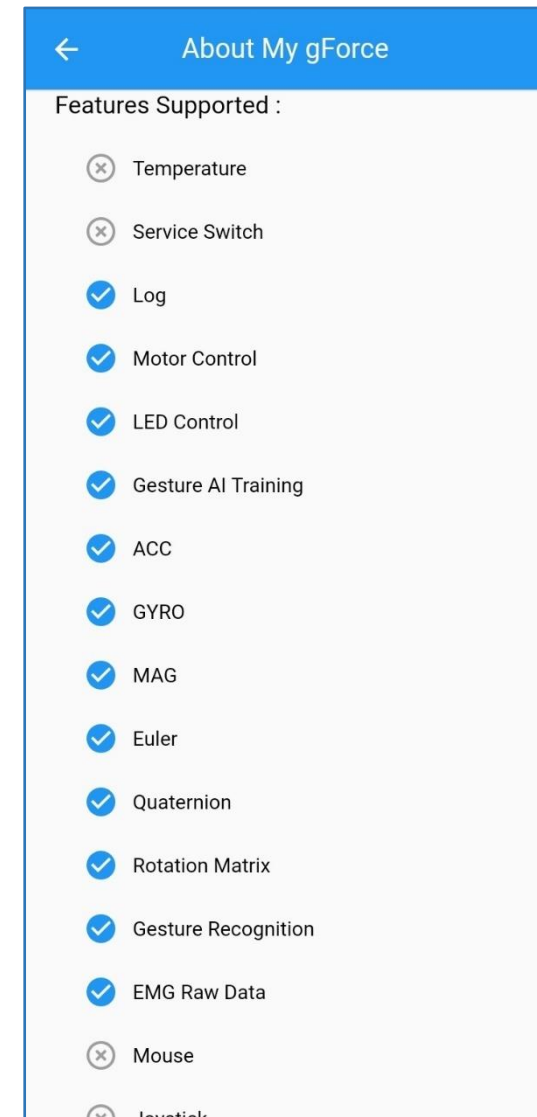
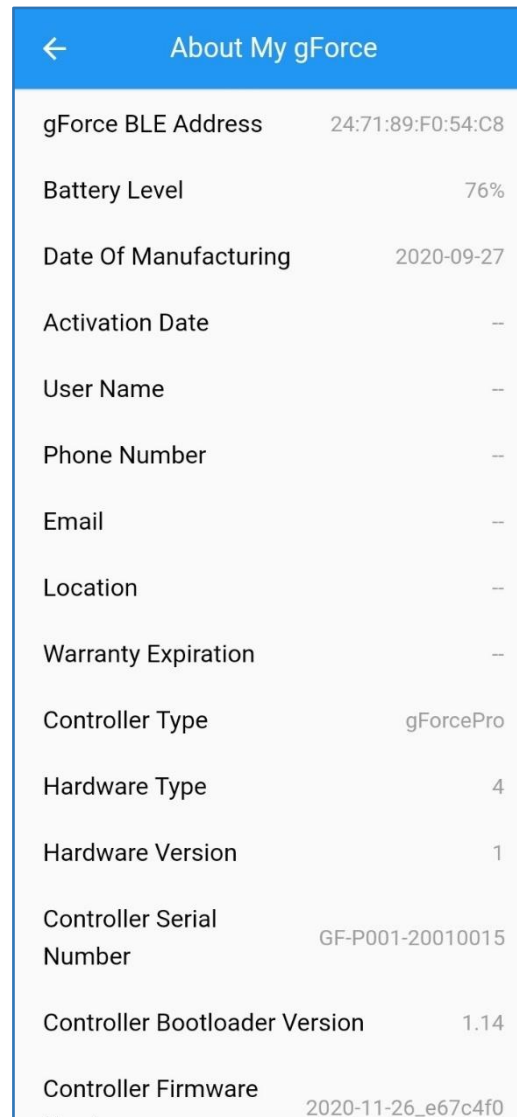


15.About My gForce

15.1 Click “About My gForce” on the main page to check gForce device’s profile and features supported.

15.2 The top page of information is self-explanatory.

15.3 The bottom page shows the features supported by the gForce device. Eg. gForce200 doesn’t support neither EMG Raw Data nor Gesture AI Training.

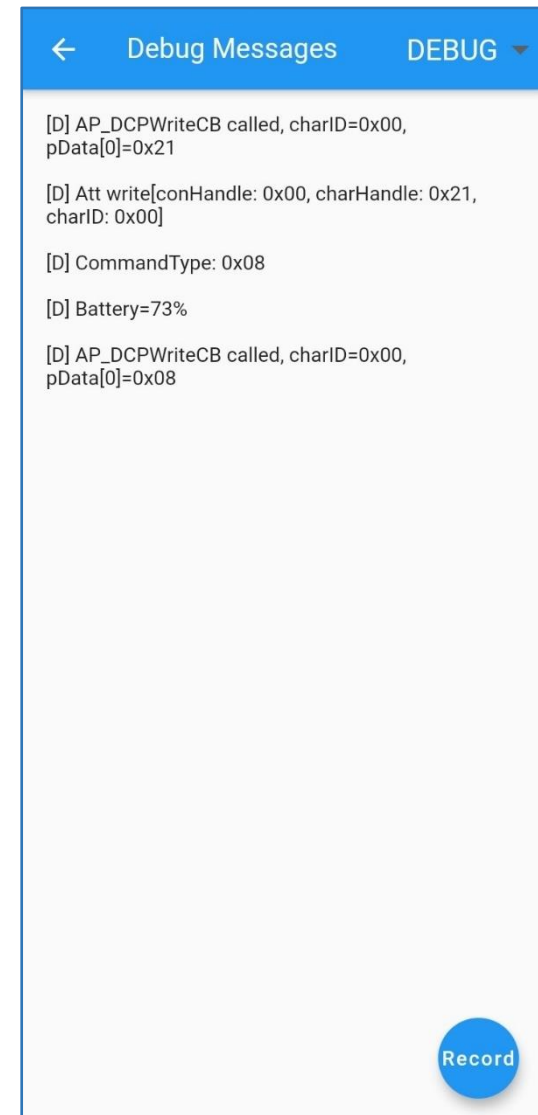
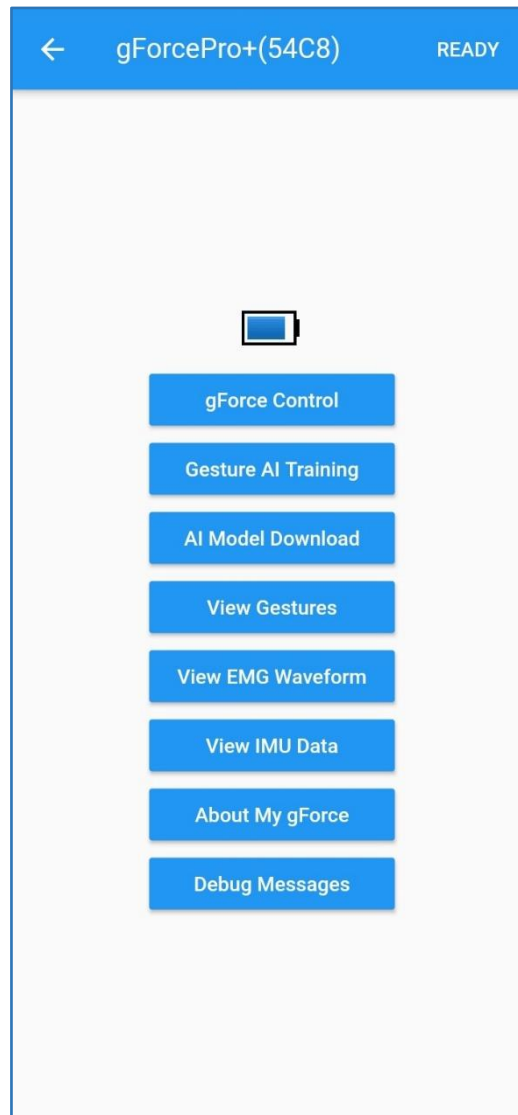


16. Debug Messages

16.1 Click “Debug Messages” on the main page.

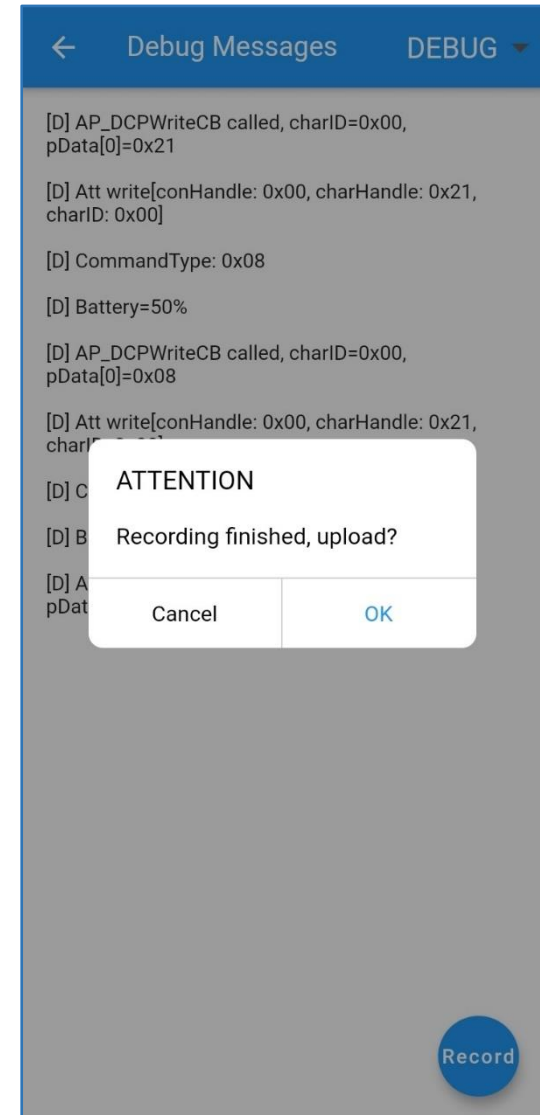
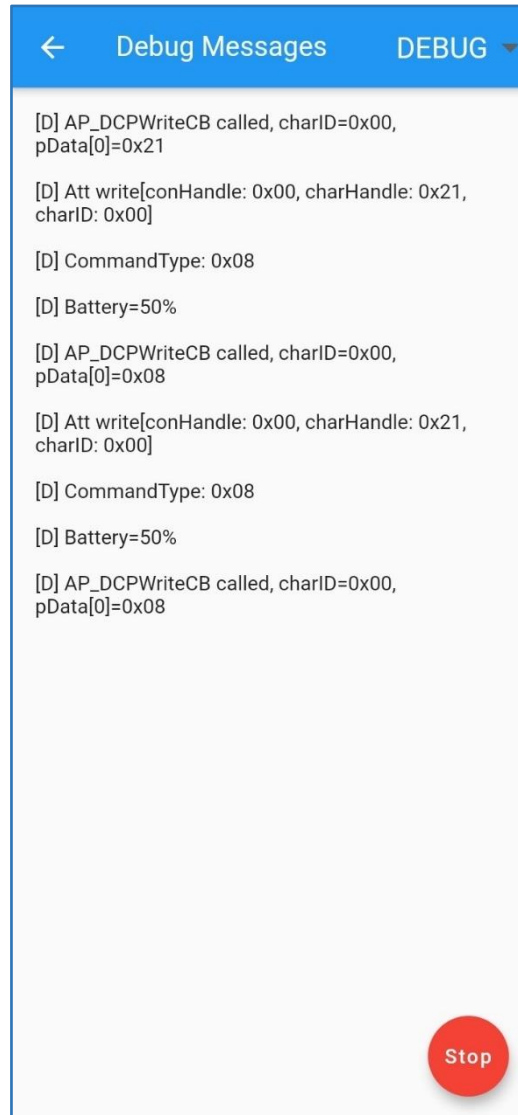
16.2 Choose different levels of information to catch and display.

- DEBUG: Debug level information, used to analyze bugs
- INFO: General information
- WARN: System has minor errors
- ERROR: System errors preventing tasks to finish
- FATAL: Fatal errors causing system likely to crash
- NONE: Turn off all messages



16.3 Click “Record” on bottom-right corner to start recording the log information. Click “Stop” to upload to server to analyze.

NOTE: This feature is only for debug purpose.



17. General Issues

- 17.1 gForce device can connect to one mobile only at a time. If to find and connect by another mobile, make sure to disconnect from the current one.
- 17.2 When installing gForceAPP, make sure mobile has enough storage. Else user might see a blackout of screen.
- 17.3 If gForceAPP can't find or connect to gForce device, make sure the gForce device is not connected to another mobile, and the mobile's Bluetooth, Location, Internet access are on. And the gForceAPP has the "Access Location Info" permission.
- 17.4 If gForceAPP has connected to gForce device, but can't read data from the device properly such like IMU data, reboot mobile and gForce device and try again.
- 17.5 For tech support, send email with detailed information to: faq@oymotion.com

18.Contact Us

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- Website: www.oymotion.com
- Download: <https://www.github.com/oymotion>
- gForceAPP: <http://gforce-portal.oymotion.com/>