

# OYMotion Technologies, Inc

Magic Now

## gForce-Pro EMG Armband

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[www.oymotion.com](http://www.oymotion.com)

<https://oymotion.github.io>

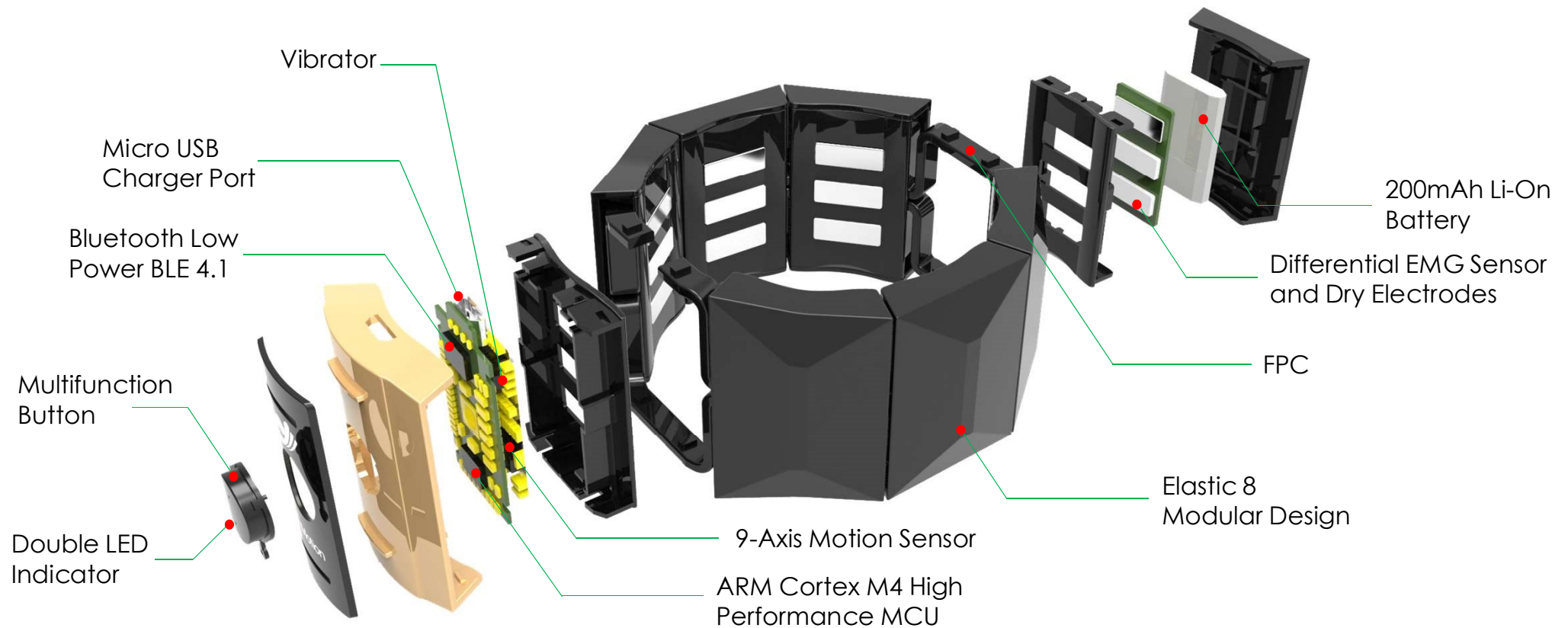
[info@oymotion.com](mailto:info@oymotion.com)



# gForce-Pro EMG Armband



# gForce-Pro Hardware Components



# gForce-Pro Size



- Elastic Diameter: 65-90 mm
- Height: 40 mm
- Thickness: 10 mm
- Weight: 80g

# gForce-Pro Platforms Supported

- Windows: Win 7, 8, 10
  - SDK for Windows
  - Unity3D SDK
  - USB2BLE gForce-Dongle is mandatory
- Android:
  - OS with BLE 4.0+
  - Android Unity3D SDK
- MCU:
  - SDK for Arduino/STM32
  - Arduino/STM32
  - UART2BLE gForce-Joint is mandatory



# gForce-Pro Features

- Wireless: BLE4.1
- Distance: 10 Meters
- Power: 0.1W
- Gesture Numbers: 8
- Gestures: Customer Re-Definable
- EMG Raw Data: Streaming Supported
  - Sample Rate: 1000Hz (max)
  - ADC: 8bit
  - Channels: 8
  - Gain: 1000
  - Filter: 20~500Hz Hardware BPF
- Quaternion: Supported
  - Sample Rate: 50Hz
- Motion Sensor Raw: Supported
  - Sample Rate: 50Hz
  - ADC: 16bit
  - 9-Axis: ACC、GYRO、MAG
- Software:
  - SDK For Windows
  - SDK For Android
  - SDK For Arduino/STM32
  - Unity3D SDK
  - OTrain EMG Gesture Training APP
  - OPlatform EMG Waveform Scope and Data Record APP

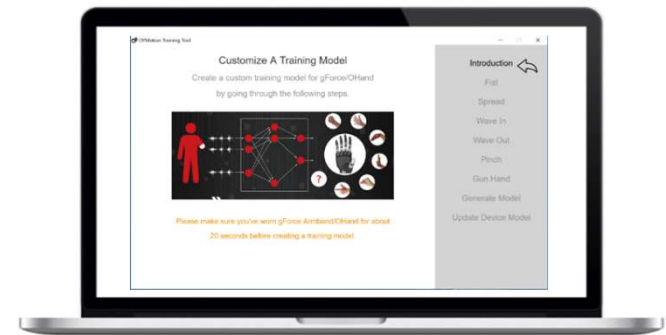
# gForce-Pro And OTrain



gForce-Pro



gForce-Dongle  
(USB2BLE)



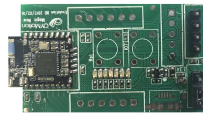
OTrain

- OTrain is used to Connect to gForce-Pro, Capture EMG raw data, Generate model and Update to gForce-Pro
- Gestures are Customizable
- After gForce-Pro is updated with trained model, it works off-line

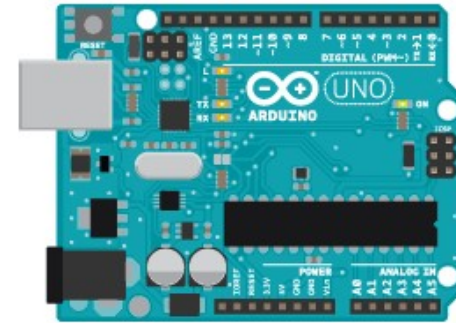
# gForce-Pro And Arduino



gForce-Pro



gForce-Joint  
(UART2BLE Adapter)

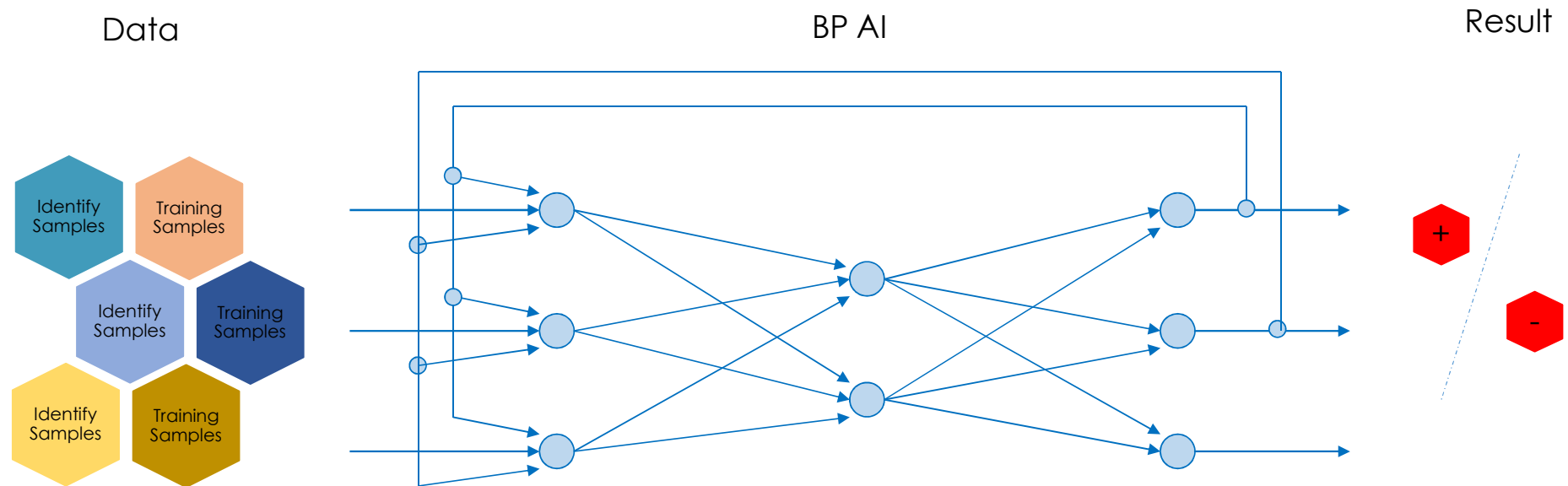


Arduino

- gForce-Joint acts as a Bluetooth Center and automatically connects with gForce-Pro
- gForce-Pro sends gesture index, quaternion values to gForce-Joint
- gForce-Joint forwards the received gesture index and quaternion thru its COM port (TX)
- Arduino gets the gesture index and quaternion thru its COM port (RX)



# OTrain: BP Based AI



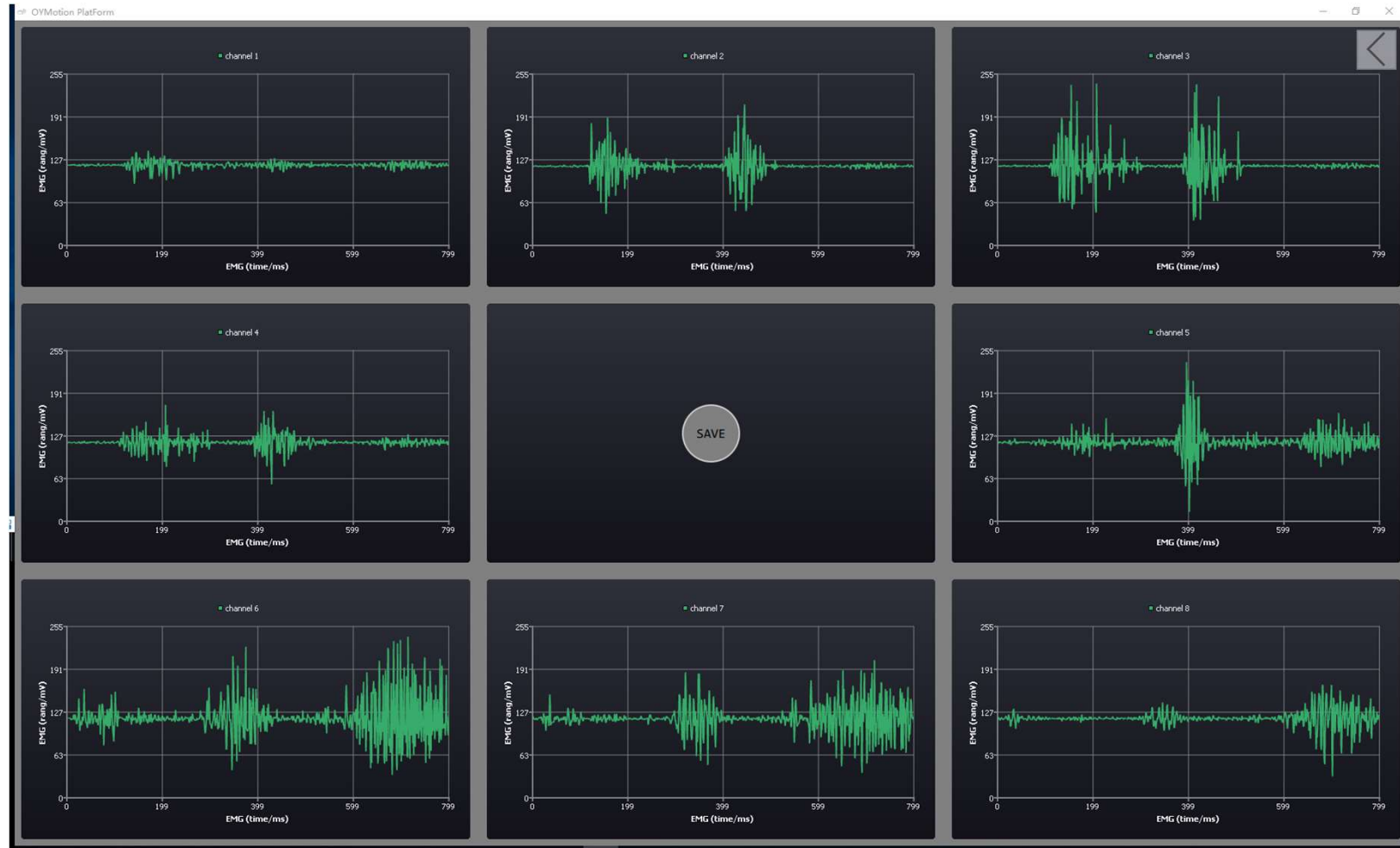
# gForce-Pro Downloads

- OTrain EMG Gesture Training:
  - <https://github.com/oymotion/OTrain/releases>
- SDK For Windows with sample code:
  - <https://github.com/oymotion/gForceSDK/releases/download/V0.5.1/gForceSDK-win-0.5.1.7z>
- gForceAPP For Android: Armband Gesture and Quaternion Real-time Check
  - [https://oymotion.github.io/assets/downloads/gForceApp\\_v2.3.4-20171009.apk](https://oymotion.github.io/assets/downloads/gForceApp_v2.3.4-20171009.apk)
- gForce-Dongle USB Driver:
  - [https://oymotion.github.io/assets/downloads/ftdi\\_ft232\\_driver.7z](https://oymotion.github.io/assets/downloads/ftdi_ft232_driver.7z)

# gForce-Pro Open Source Projects

- gForce-Pro Arduino SDK Downloads and Instruction:
  - <https://github.com/oymotion/gForceSDKArduino>
- gForce on-Arduino Demo Project (Robotic Arm):
  - <https://github.com/oymotion/gForceSDKArduinoExamples>
- Open source gForce SDK for general embedded systems
  - <https://github.com/oymotion/gForceSDKEmbedded>
- STM32 based example for gForceSDKEmbedded
  - <https://github.com/oymotion/gForceSDKSTM32Example>
- Unity3D examples of gForceSDK
  - <https://github.com/oymotion/gForceSDKUnity>
- Capture EMG signals from GForcePro and play sound according to individual channel signal
  - <https://github.com/oymotion/oym8CHWave>
- gForce Data Protocol Sample
  - <https://github.com/oymotion/gForceDataProtocolSample>

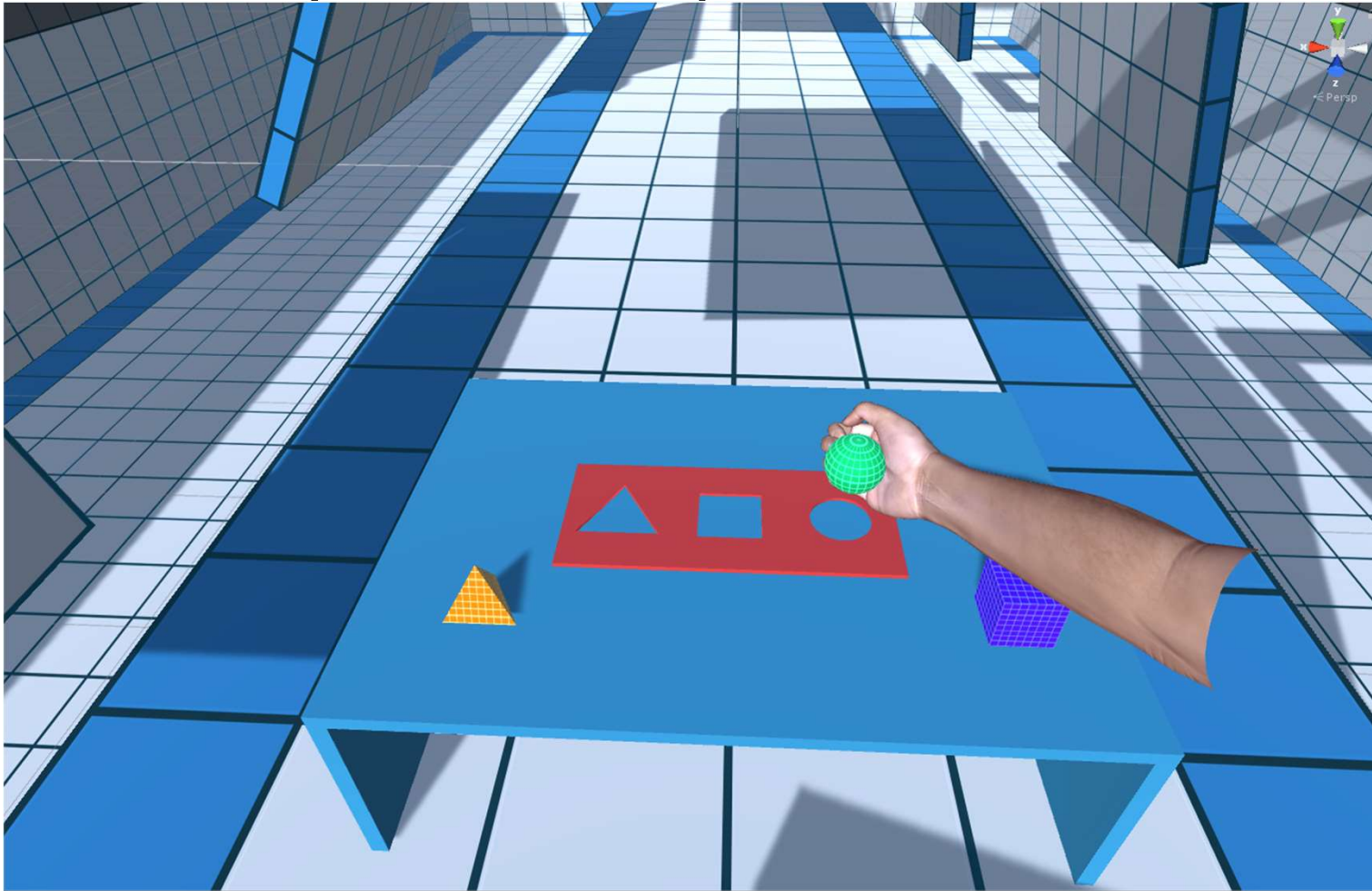
# gForce-Pro Realtime EMG Waveform



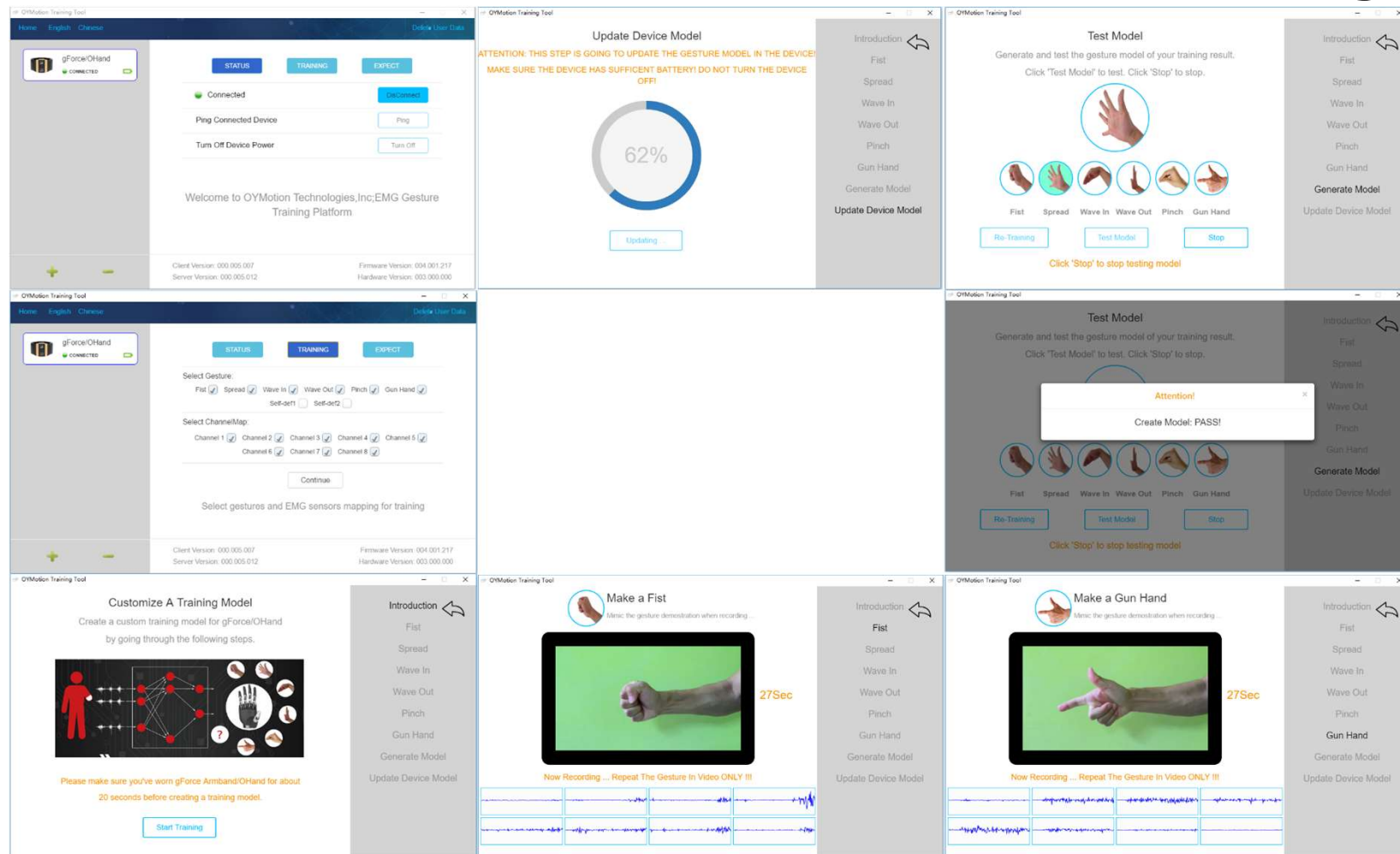
# gForce-Pro Realtime Quaternion



# gForce Unity3D Sample Project



# gForce-Pro OTrain Gesture Training



# gForce Demo Video

OTrain Gesture Training APP:

<https://www.youtube.com/watch?v=mMPr2MOXgfk>

VR Gaming:

<https://www.youtube.com/watch?v=UJmsyQyWR3o>

TV Gaming:

<https://www.youtube.com/watch?v=q4bwlw1pGvM>

Robotic Arm Control With Arduino:

<https://www.youtube.com/watch?v=wYXUzvnTAyQ>

Prosthetic Hand Control with gForce:

<https://www.youtube.com/watch?v=IA6BR6s03F8>



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