KinMAS

Development Kit

User Manual

Revision F

Contents

Congratulations on buying your KinMAS. Please read this manual carefully before using the product. This manual explains how to set up and use your device. For further information, please visit jmex.com.tw. Please read all warnings and cautions before you use your device.

Setting up your device-KinMAS

Follow these steps to start enjoying your device-KinMAS.

1. Assembly

1. Take the 2 sensor hubs out from the box. The sensor hub has "HUB" print on top. Place one sensor hub onto the <u>vest</u> base. Clip the other sensor hub to the <u>belt</u> base.

2. Take the 8 sensors out from the box. The sensor has "Sensor" print on top. Clip each sensor into the bases. Eight sensors need to be clicked into the bases.

2. Dress up

1. Vest size is able to adjust from the back. Wear the vest. Sensor hub should be in the middle.

2. Put on wrist and arm straps, and then adjust the velcro to the tightest range so it would not fall off. The word "sensor" should not be upside down. Sensor should face outward.

Note: No difference between left and right.

Note: The word "sensor" should not be upside down.

Note: Leg straps are longer than arm straps

3. Connect the left arm connector with left vest connector; also connect the right arm connector with right vest connector.

4. Wear belt on your waist. Sensor hub is in the middle.

5. Put on shin and thigh straps, then adjust the velcro to the tightest range so it would not fall off. The word "sensor" should not be upside down. Sensor should face outward.

6. Connect the left thigh connector with left belt connector; also connect the right thigh connector with right belt connector.

7. Place USB wire to connect vest sensor hub.

8. Place another USB wire to connect belt sensor hub.

9. Connect the vest wire to USB hub.

10. Connect the belt wire to USB hub.

11. Plug in extension wire to USB hub and connect to computer USB port. (If using wireless method, plug converter to USB hub and connect to Android cell phone.)

3. Software Guidance

KinMAS can precisely capture user's movements and record movement data using IMU sensors on user's torso and limbs.

Install KinMAS on computer

Run "KinMAS-Setup" installer.

First page, press "Next" Button
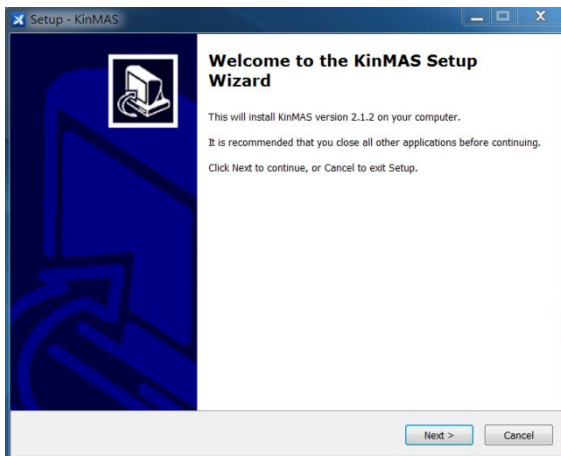
KinMAS License agreement, please accept the agreement and press "Next" Button.
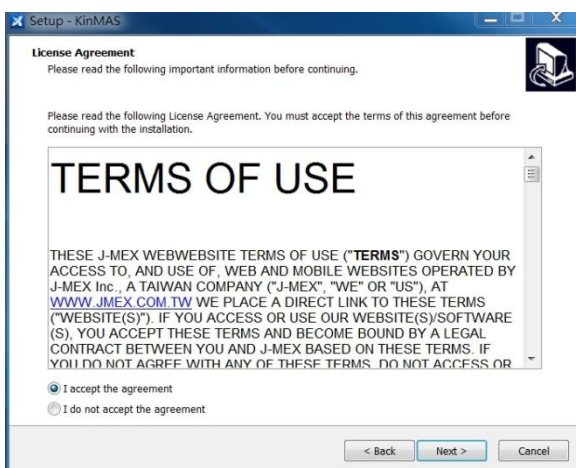
Tick "Install KinMAS Driver".
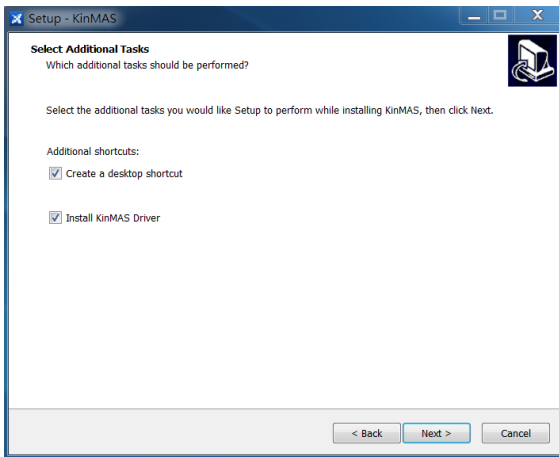
Ready to install, press "Install" button to start installing KinMAS.
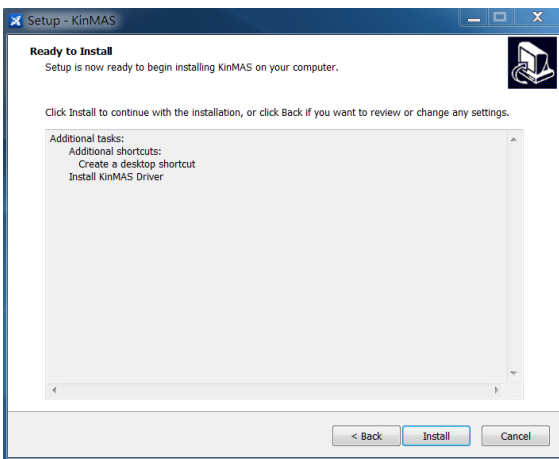
Wait for installation
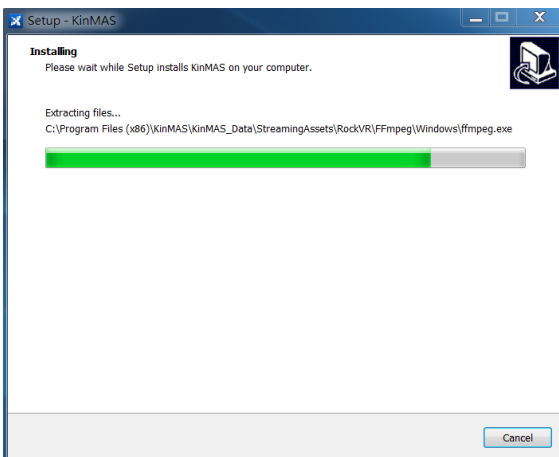
Choose "Install KinMAS Driver," it will automatically run driver installer.
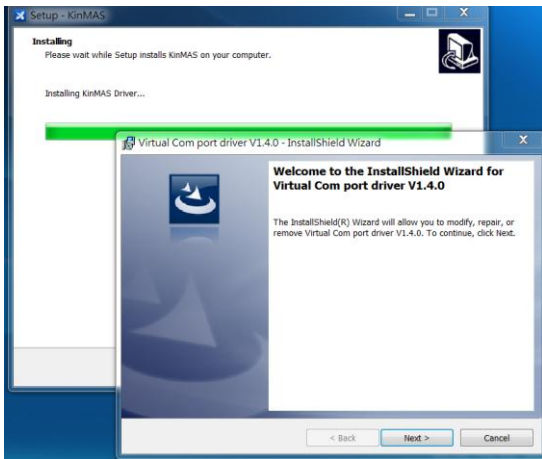
KinMAS Driver Installer, please press "Next" button
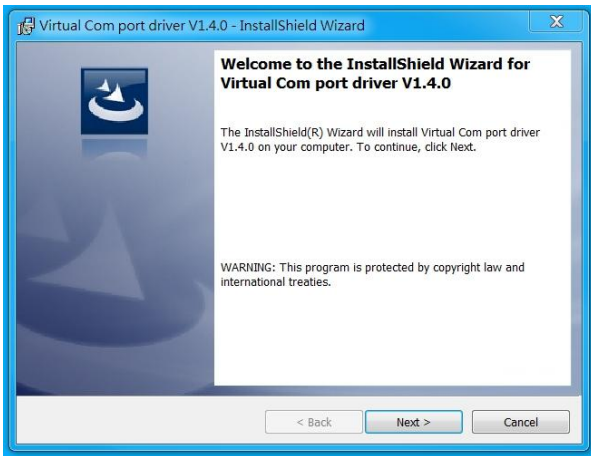
Press "Install" button
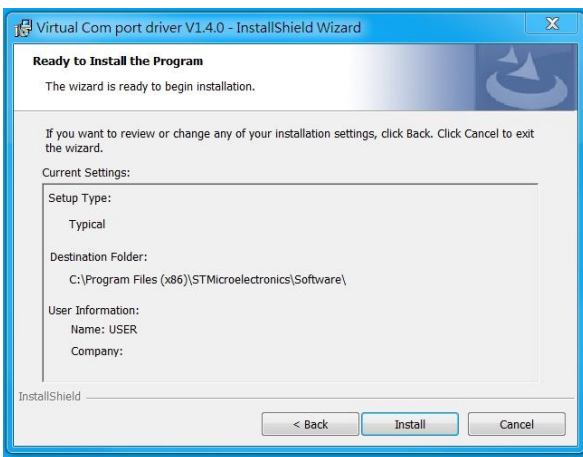
Waiting for installation
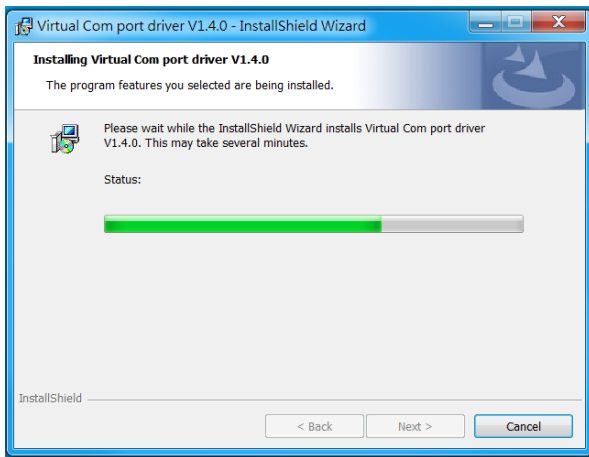
InstallShield Wizard Completed
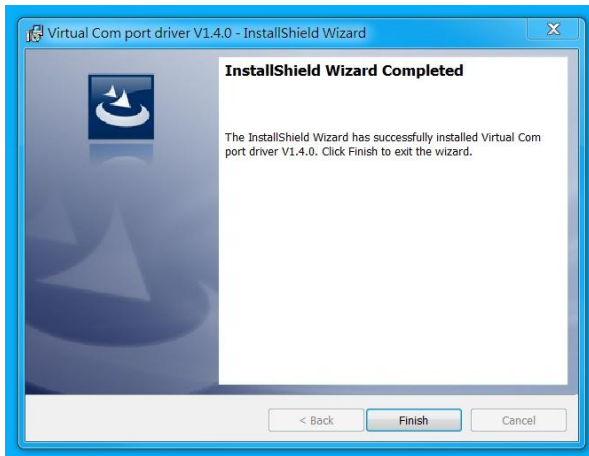
Finish downloading
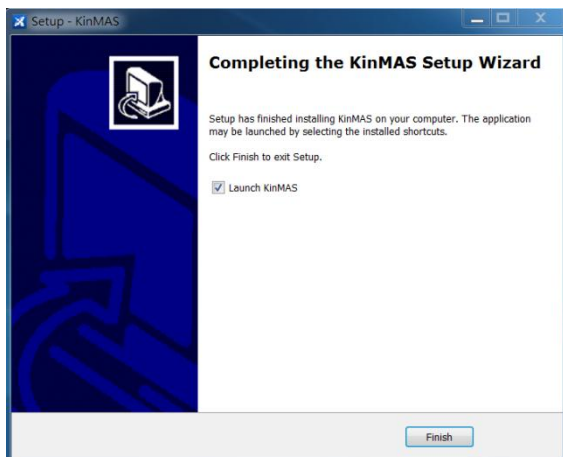
Run KinMAS on computer

Run "KinMAS.exe"

> NOTE: Please launch the application by right clicking and run as administrator. Place your mouse on KinMAS app, and right click to **"Run as administrator"**, shown as below.
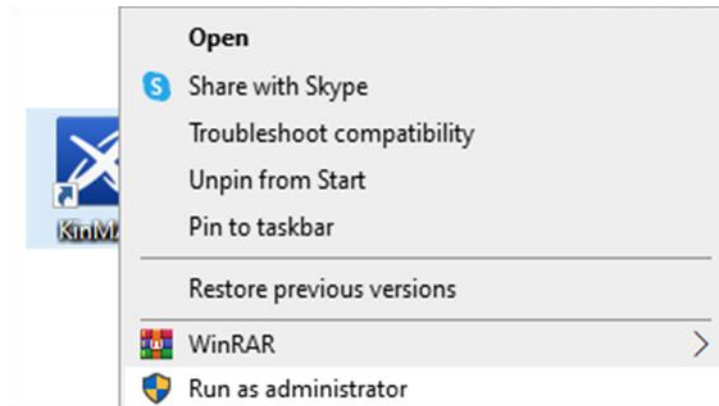
After you run "KinMAS.exe", configuration window will show first. You can change the setting like screen resolution, window mode or full screen mode and press "Play!" button to run application.
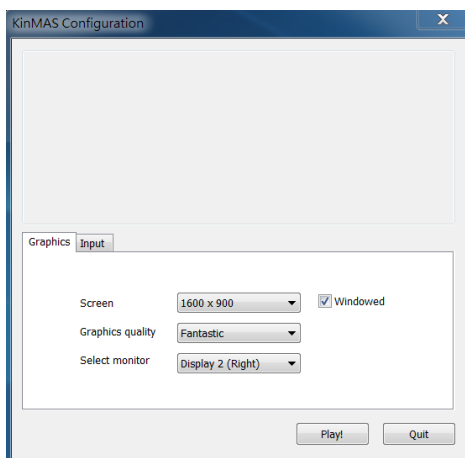
Launcher

Login page, enter your email and password to login.

    Green box is "Forgotten your password".

    Red box is "Join now".
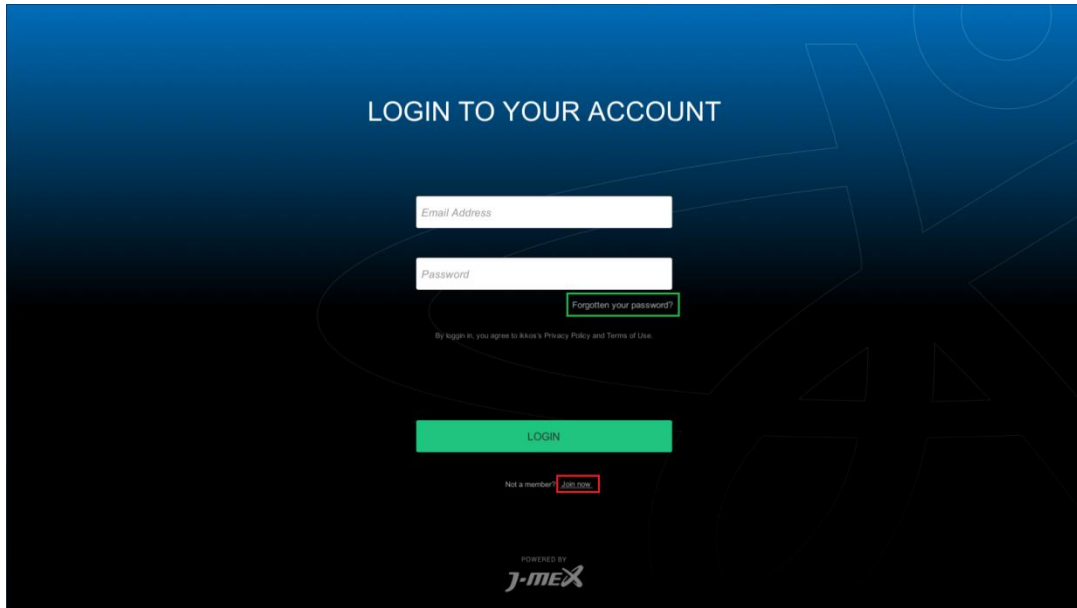
Join now page
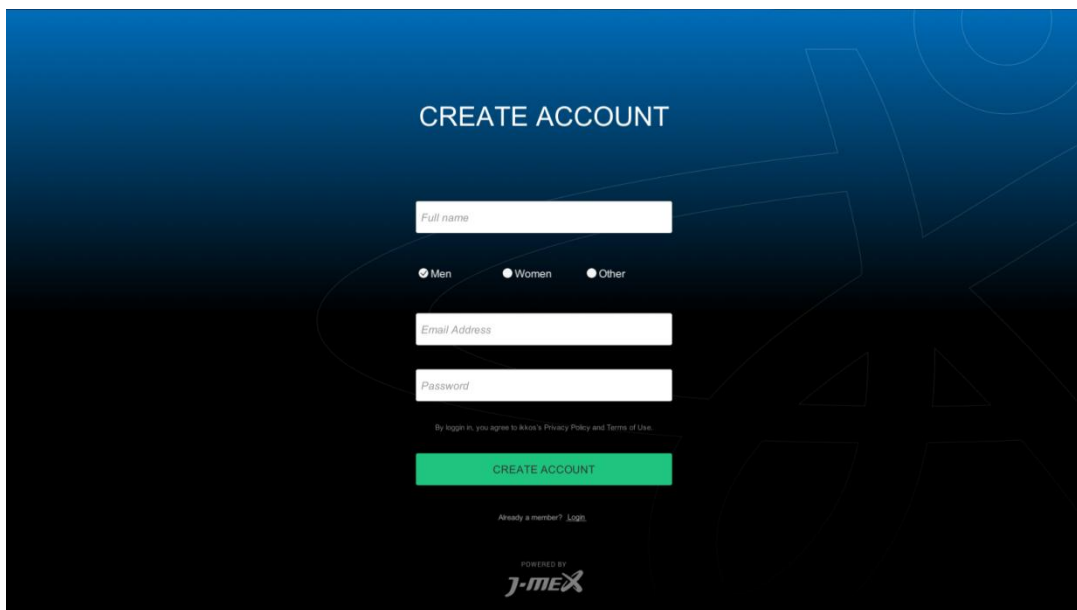
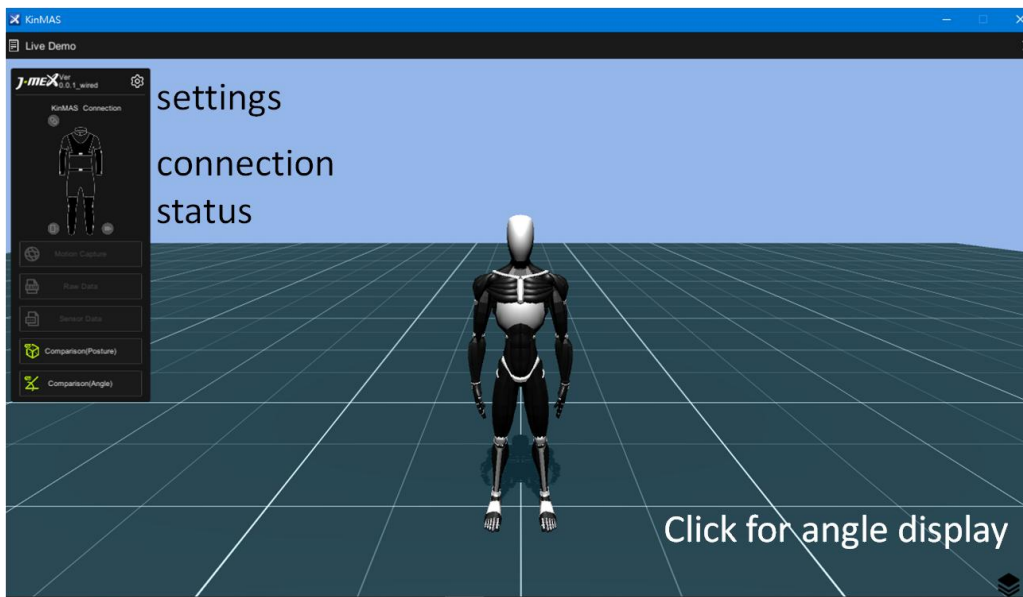If you are a first time user, you need to create a new account.

Forgot your password page. When you press "RESET PASSWORD" button, server will send a temporary password to your email.
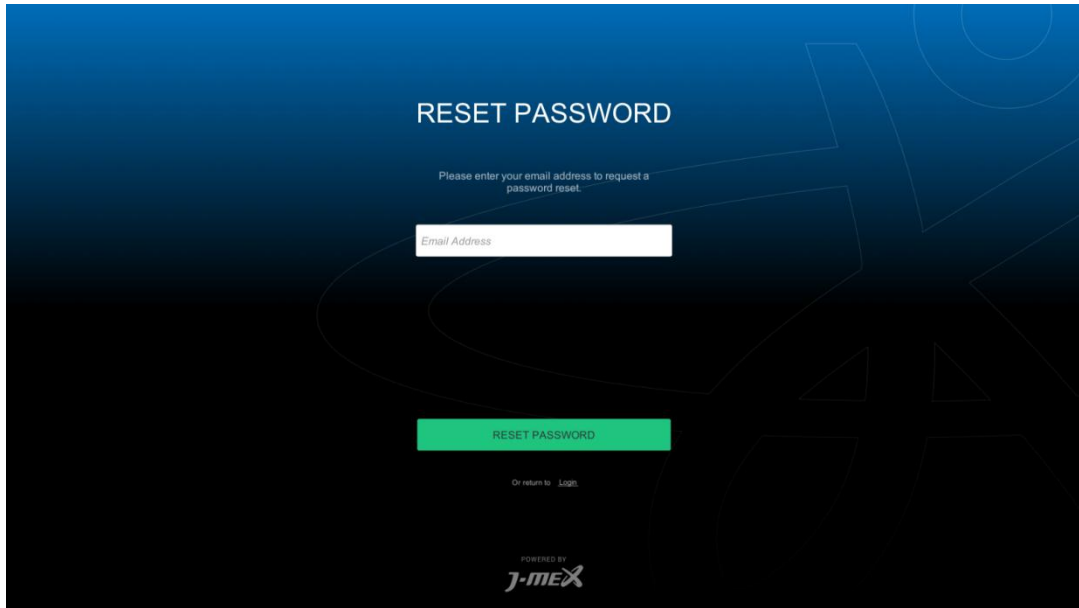
After you login successfully, application will sync data from Cloud.
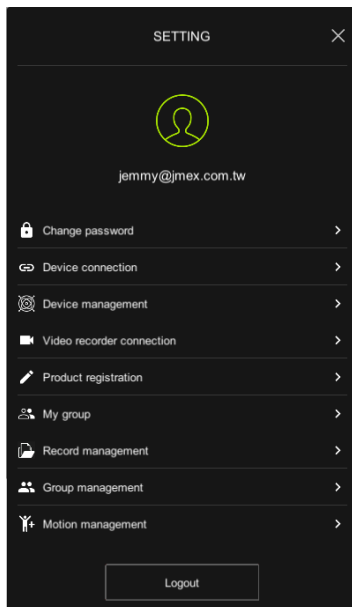

Live Demo

Control panel
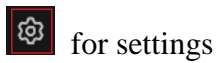
 for settings

Press button to exit.

Setting menu
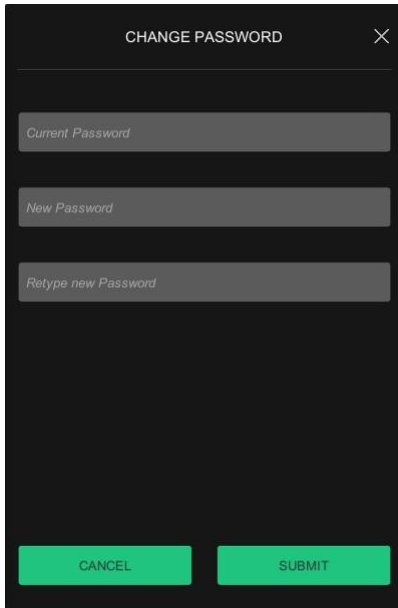
If you are the manager, you can see these two options: Group management and Motion management.


Change password

CHANGE PASSWORD   ×

Current Password

New Password

Retype new Password

CANCEL   SUBMIT

Device connection   🔗 Device connection   ›

Connect KinMAS with computer by using USB cable

DEVICE CONNECTION

Connection in progress

CANCEL

When all sensors turn bright yellow, KinMAS is connected

DEVICE CONNECTION

Connection successful

OK

If KinMAS is not plugged in correctly, a warning sign will pop up
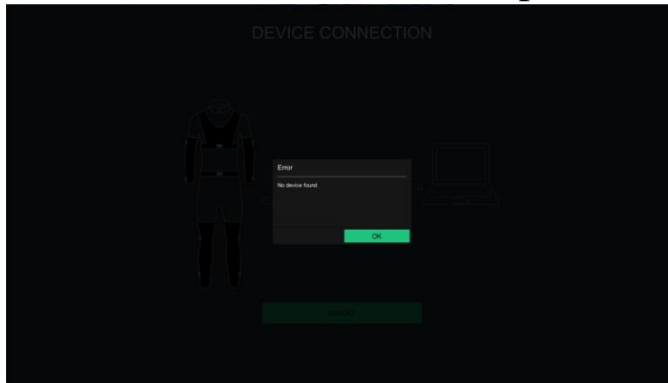
If you have never registered before, click "Register Now" to register the device
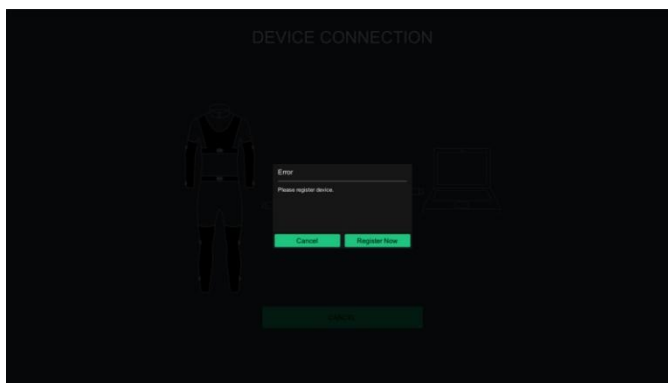
Device Management
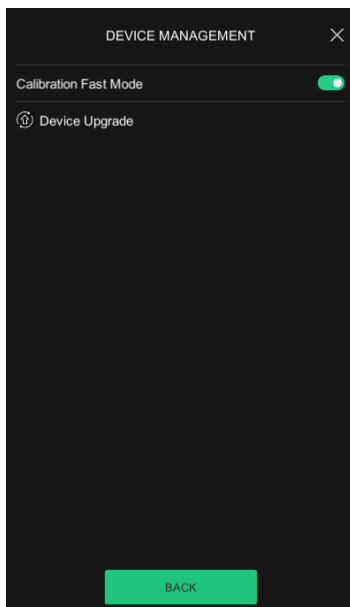
Calibration Fast Mode

When Fast Mode is on, the calibration is an easier pose of standing still. First time users are not recommended to use Fast Mode Calibration.

Device Upgrade

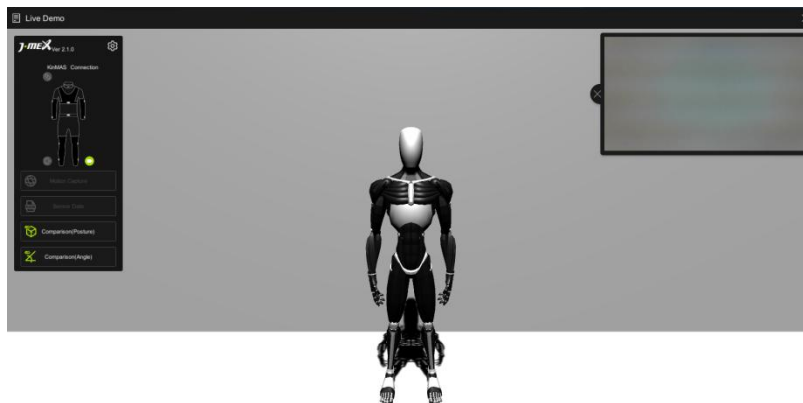Click it to check device version and upgrade to the newest version.

Video recorder connection

Click your camera on the list
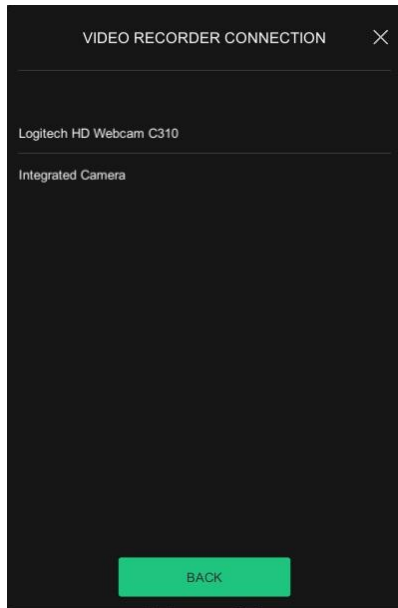
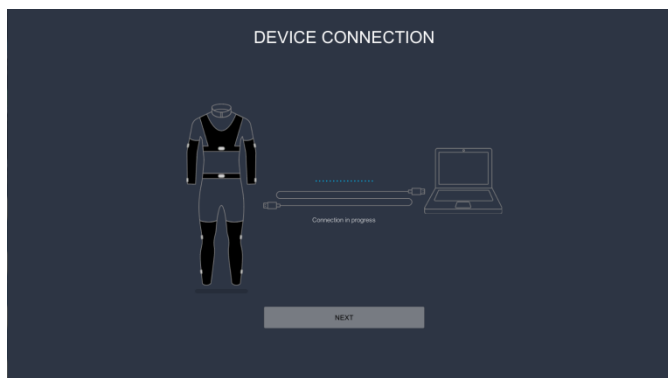After the camera is connected, video window appears on upper right corner.

Click ![X] to close camera.

Product registration

You need to register device when you use it for the first time.

Wait for the device to connect

After connecting successfully, please press "NEXT" button.

Press "REGISTER" button to register device.

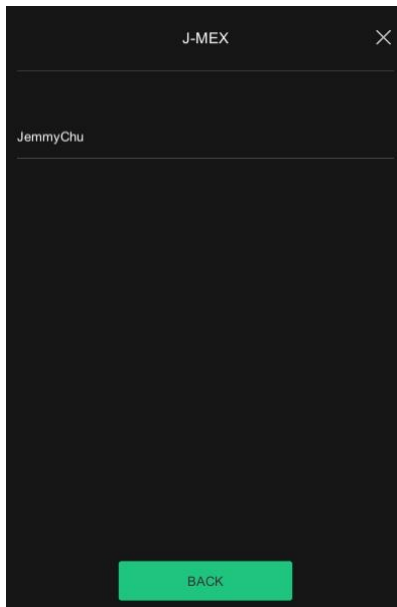Registration successful, press "OK" button to exit.
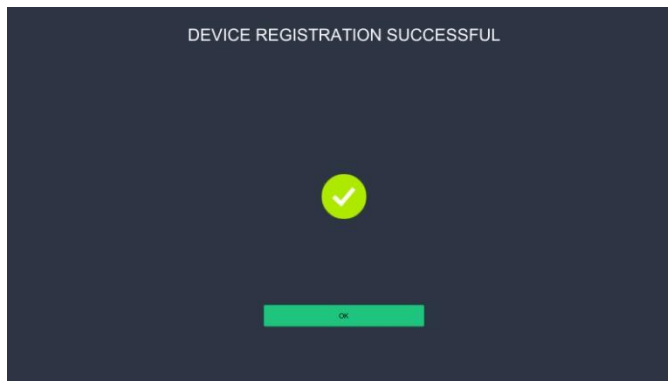
My Group

Group list

> Click item to see selected group members. If you are the manager, you can create group members. This is special function.
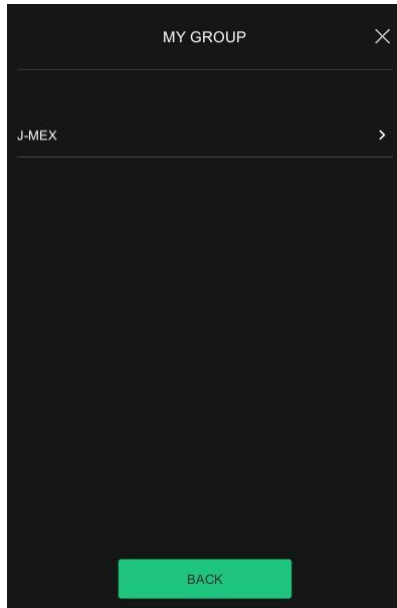
Group member list

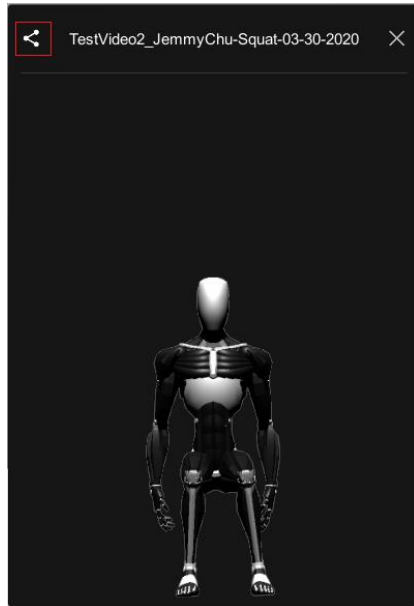Record Management

Show all records

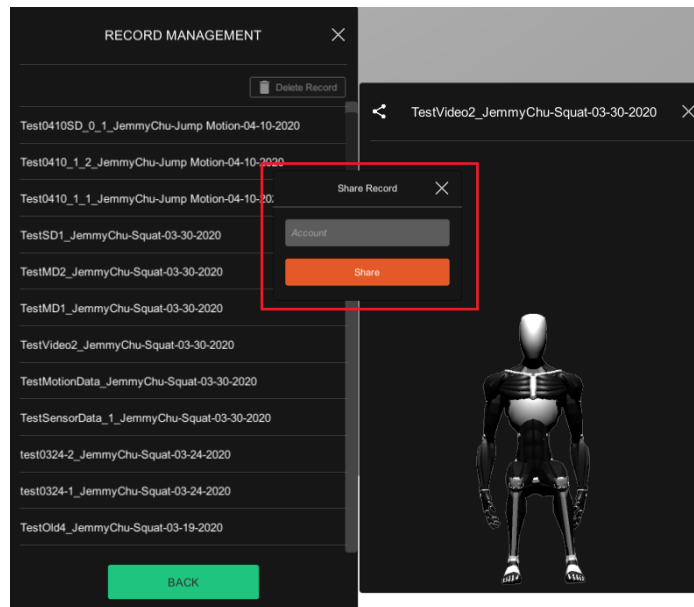Click record to preview, if you don't have any recorded file, it will download automatically.
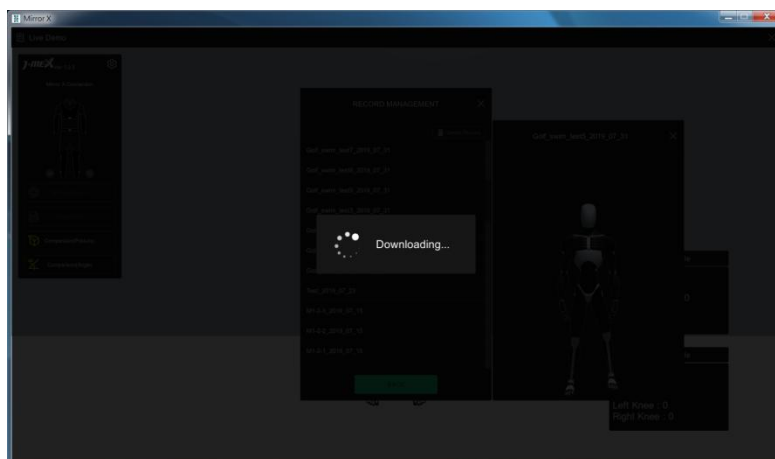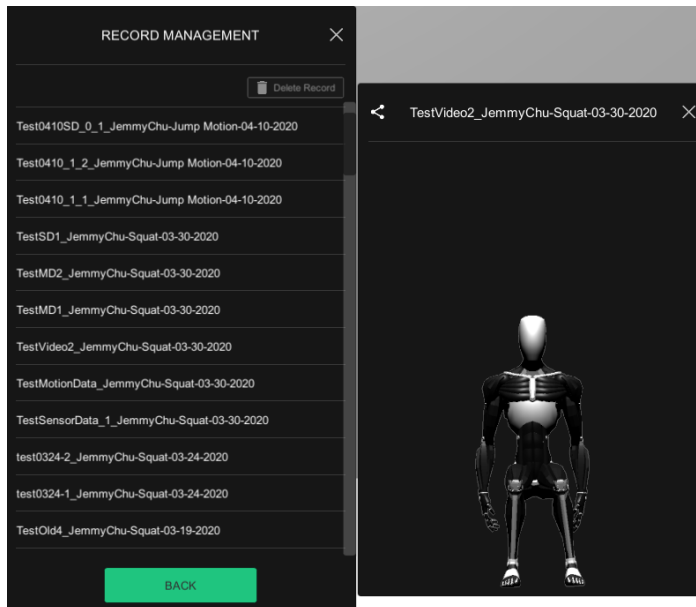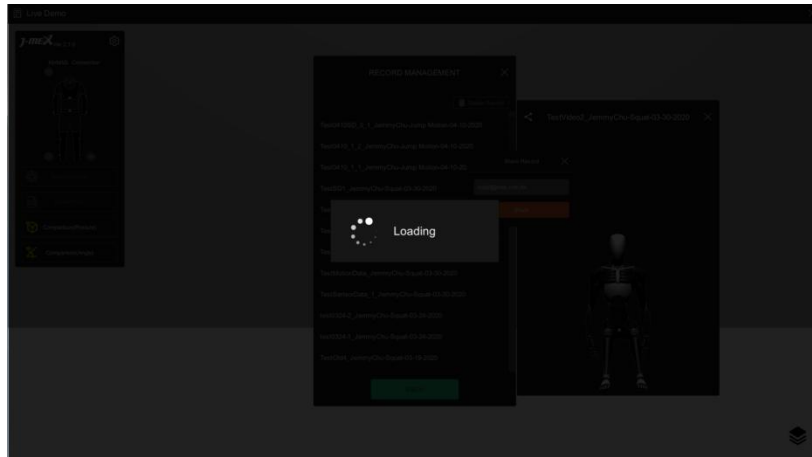

Share Record

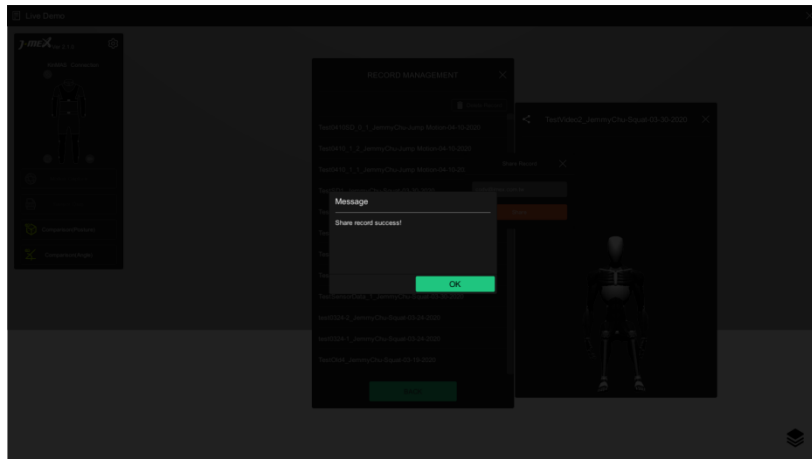See the upper left corner, click button to show share panel.

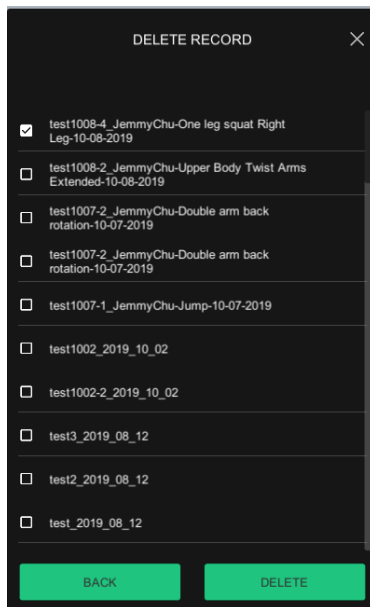Enter member account which you want to share in input field.

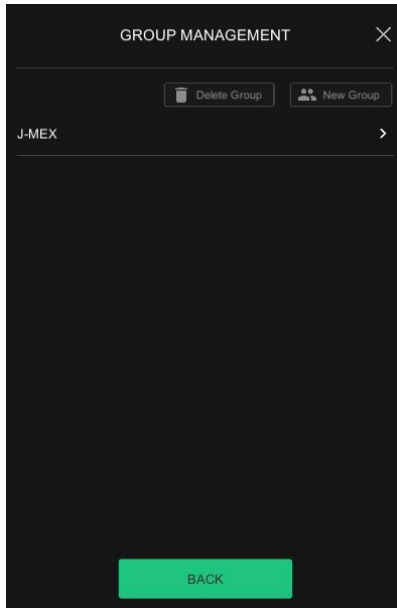Click share button and wait.

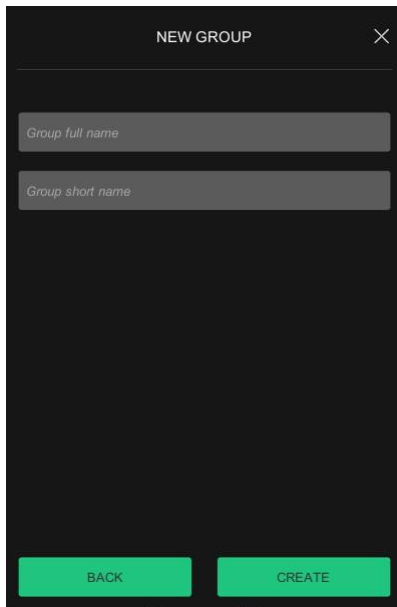When record is shared, this message box will appear.
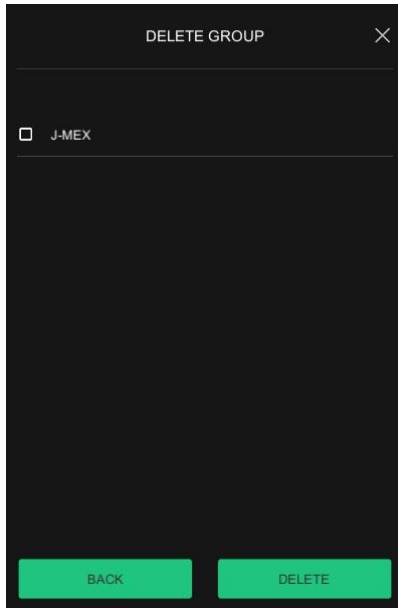

Delete Records

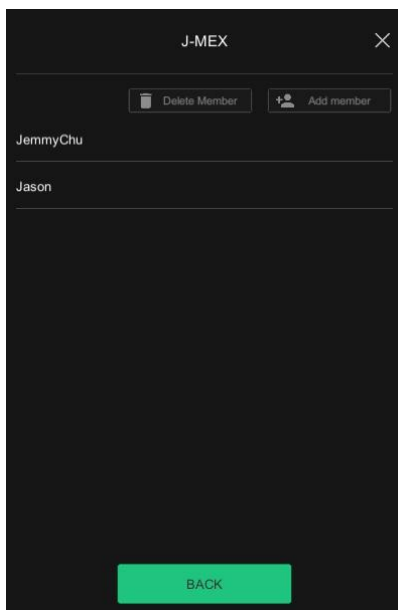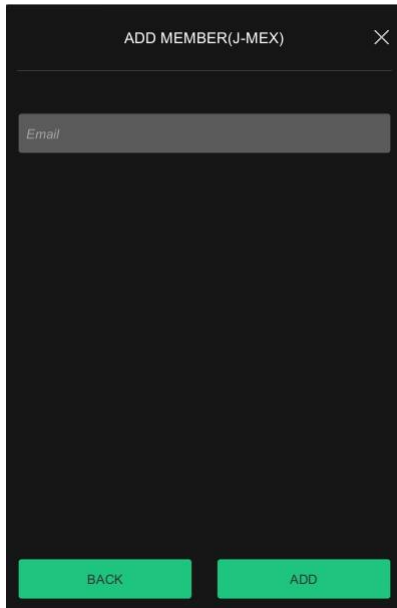
Group Management

Show your groups

New Group

Delete Group

Select group and it will show members in group which you selected.
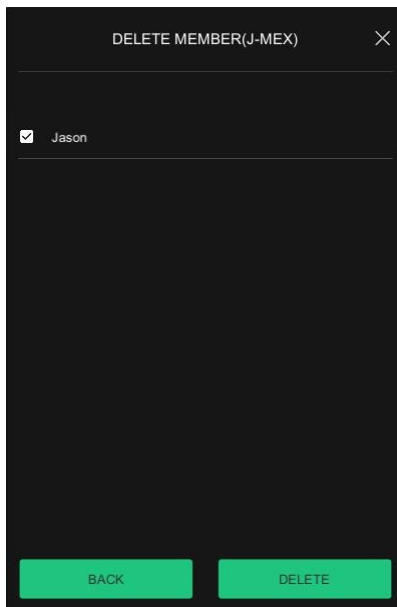

Add member

Enter email for the ones you want to invite and press "ADD" button to add user to your group.
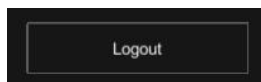
Delete member

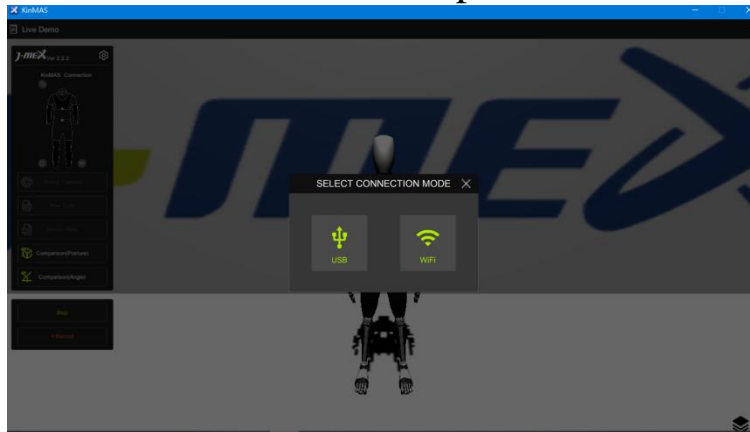Delete the member you selected.

Logout

 : Click to logout and return to login page.

4. Getting started with KinMAS

Click the left side model to connect or disconnect KinMAS.

    a.   Connect

        (1)   Select connection mode

(2) If you select USB mode, plug in extension wire to USB hub and connect to **computer** USB port.

(3) If you select Wi-Fi mode, plug converter to USB hub and connect to Android **cell phone**.
   Open KinMAS app on cell phone and select Computer Connect.
   Cell phone and computer must use the same Internet.
   KinMAS will automatically proceed to connect. If it fails to connect, you will need to manually type the IP.
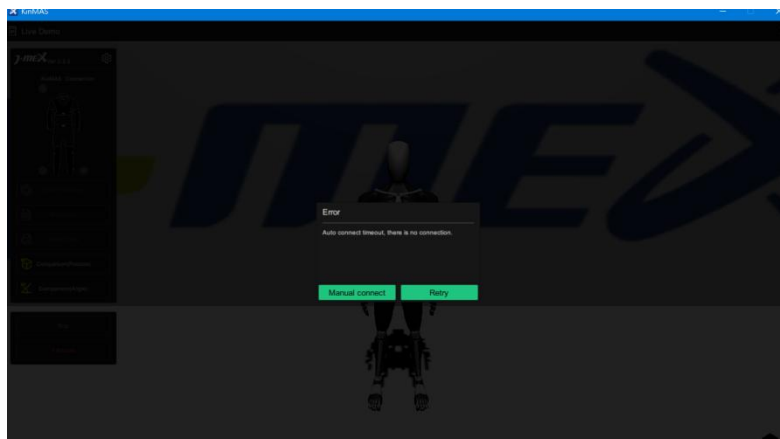
Open android app KinMAS Connect. For more information, please see Install KinMAS Development Kit on Android smart phone
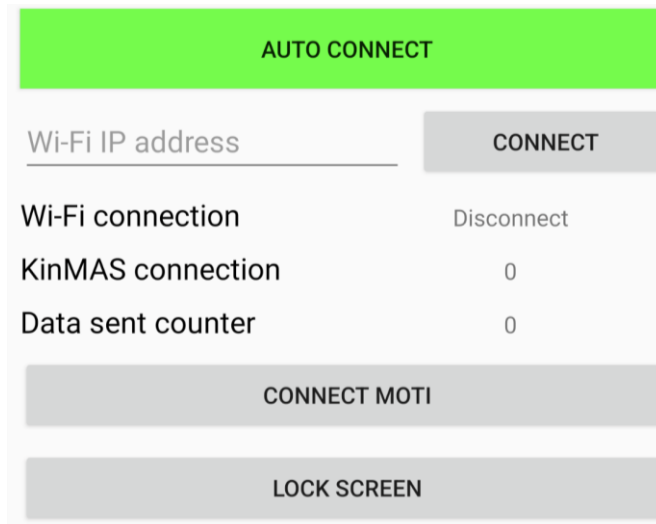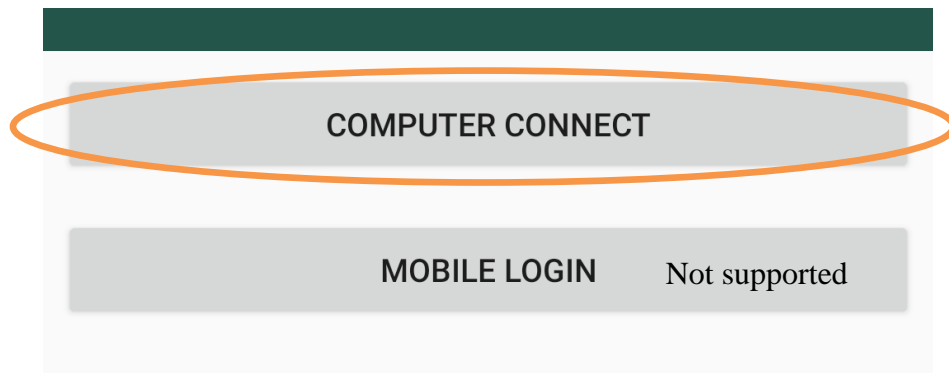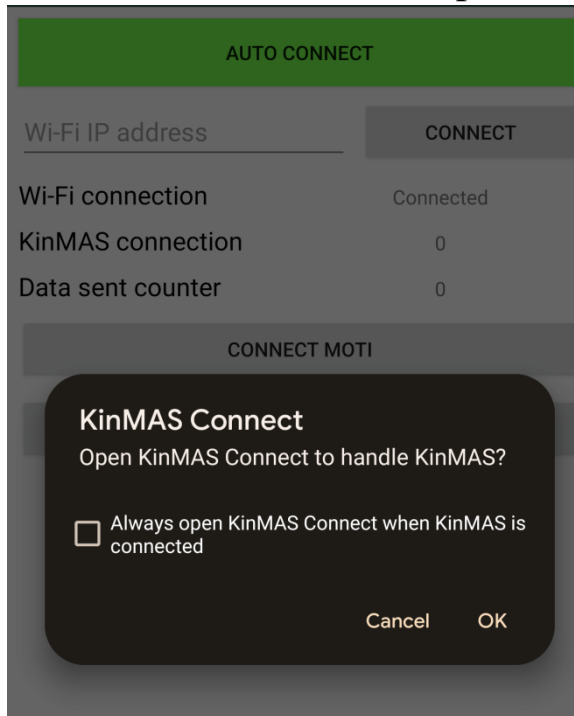
KinMAS Connect

J-MEX 工具

3+

加入願望清單

When the app is opened, you will see the following figure.

Click computer connect to proceed. Mobile login is not supported.

COMPUTER CONNECT

MOBILE LOGIN   Not supported

AUTO CONNECT

Wi-Fi IP address   CONNECT

Wi-Fi connection   Disconnect
KinMAS connection   0
Data sent counter   0
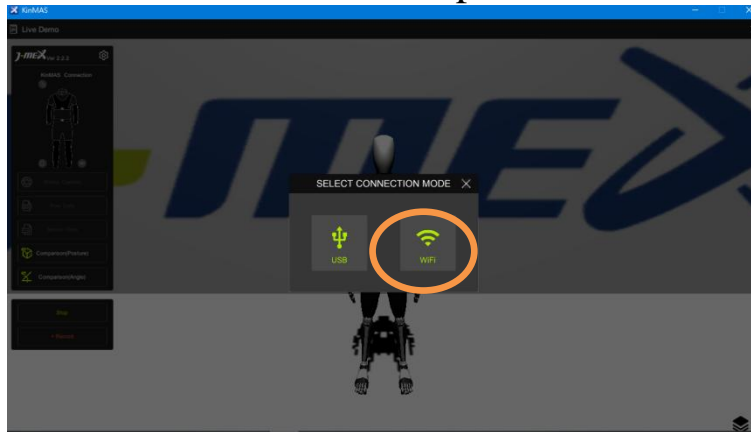
CONNECT MOTI

LOCK SCREEN

When you connect KinMAS with android phone, you need to allow permission.
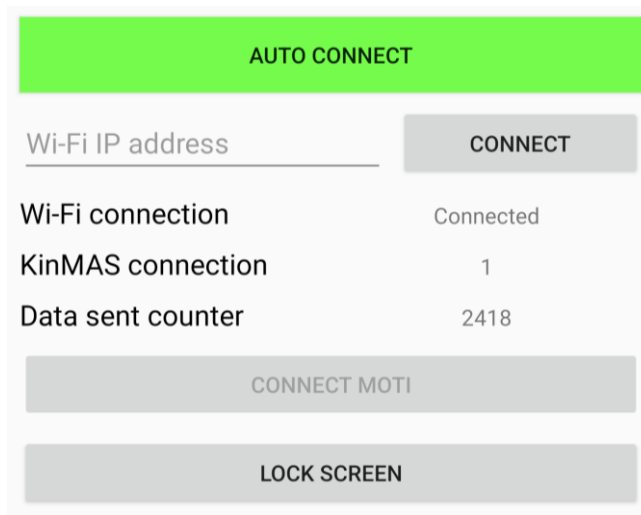
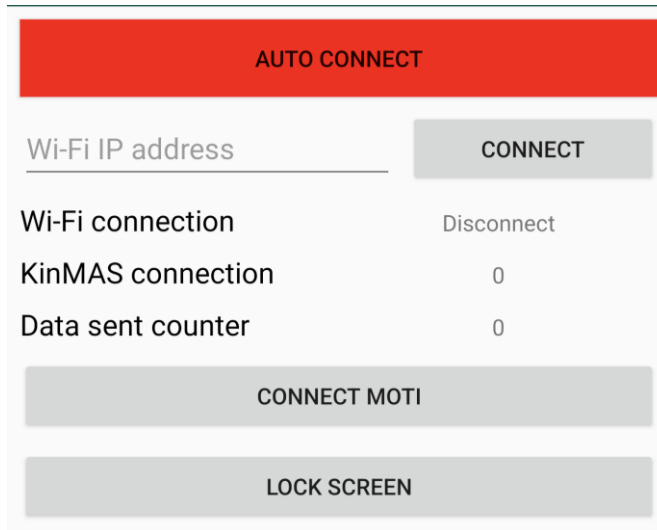KinMAS connection will appear 1 for half body and 2 for full body.
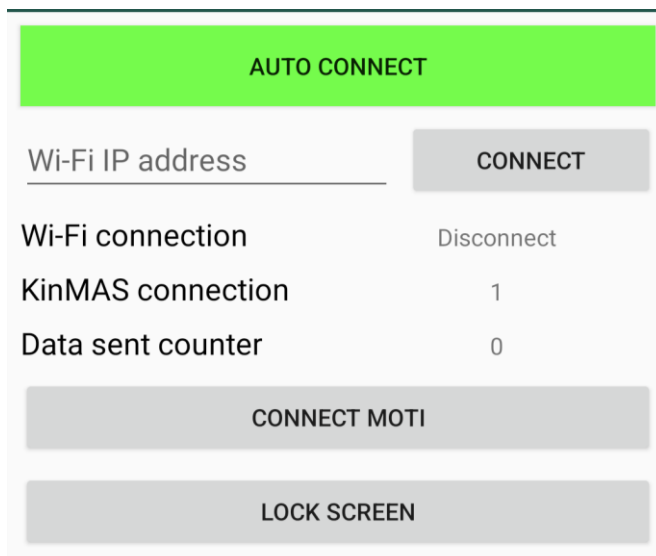
At the same time, click "wifi" on your computer.

When Wi-fi connection is successful, the "disconnected" will turn into "connected".

Another note, the auto connect is turned on when it is green. When auto connect is red, it means auto connect is turned off.

Auto Connect in red means the connection is turned off.

5. Install KinMAS Development Kit on Android smart phone

For installation, please scan the QR code with an Android phone
For more information, please visit or our company website:
        https://jmex.com.tw/tw/kinmas/

KinMAS phone APP is available in Google play store. Search "KINMAS Connect".

※Android 6.0 above is required to support KinMAS.

After successfully installing, please go to the next step below.

Connect KinMAS to Android Phone
        Find the right adapter to connect cell phone to KinMAS

If your cell phone is **Type C**	Connect type C male adapter onto Android phone. And connect type A female port to KinMAS USB Hub Type A adapter.
If your cell phone is **Micro USB**	Connect micro USB male adapter onto Android phone. And connect type A female port to KinMAS USB Hub.

Type C
Connector
(Male)

Type A port
(Female)
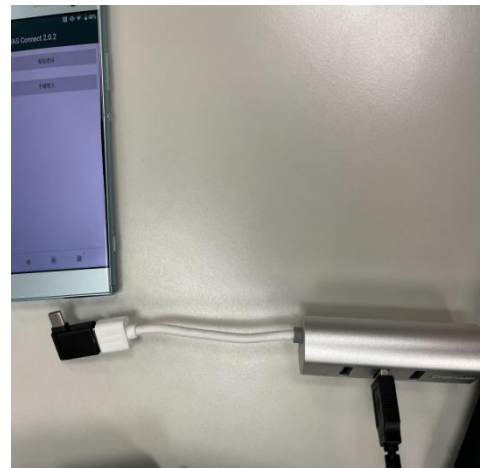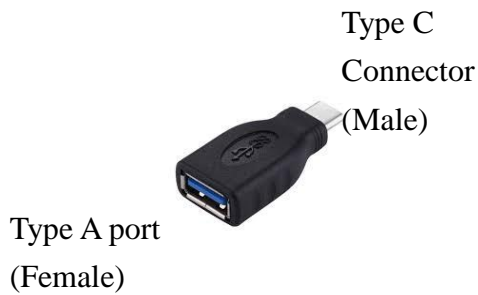
Make sure Wi-Fi connection is available on your phone and launch KinMAS app.

COMPUTER CONNECT

MOBILE LOGIN   Not supported
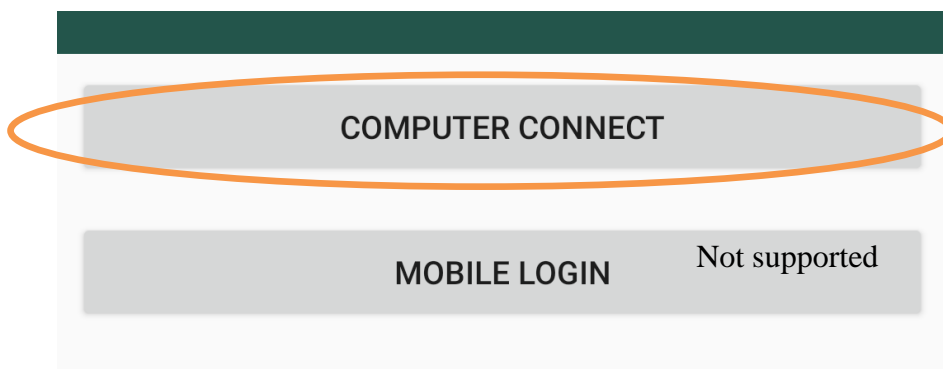
Click Computer Connect, connect KinMAS with a converter to your cell phone.

It asks whether you want to allow KinMAS to connect. Click OK to proceed.

This will pop up twice because there are lower and upper half body.

Set cell phone and computer Internet the same. Click for automatic connect.

Type in IP address shown on computer to this place. Then click "connect".

(Optional)To connect MOTI, click connect MOTI.

Either connect automatically or manually.

Internet on phone and computer must be the same.

Cell phone must turn on Bluetooth and GPS setting.

It is optional to connect MOTI. If you wish to connect MOTI, place MOTI to the position you wish to motion capture and press MOTI to turn on. Cell phone is connected to blue tooth, hence it will detect MOTI.
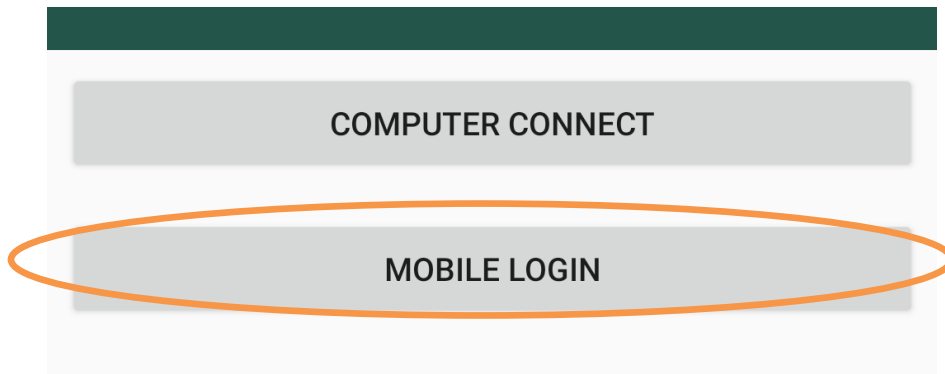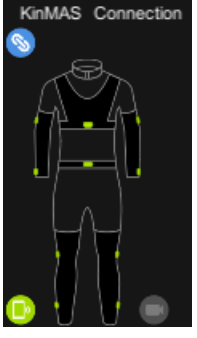
Currently, mobile login is not supported.

## 6. Introduction of connection status

Connection status:

	All devices are disconnected

KinMAS Connection	Wi-Fi device connected Lower left icon in bright yellow
KinMAS Connection	Only upper body and Wi-Fi device connected Lower left icon in bright yellow Upper left paperclip icon in blue
KinMAS Connection	Only lower body and Wi-Fi device connected Lower left icon in bright yellow Upper left paperclip icon in blue
KinMAS Connection	Both lower and upper body connected to Wi-Fi device Lower left icon in bright yellow Upper left paperclip icon in blue 10 sensors all lit up

	Lower and upper body connected to Wi-Fi device and video recorder Lower left icon in bright yellow Upper left paperclip icon in blue 10 sensors all lit up Lower right video icon in yellow

Control Button
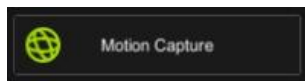
: Click it to motion capture.
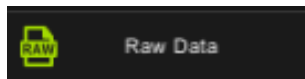
: Click it for collecting raw data.
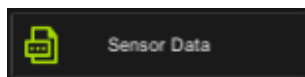
: Click it for collecting sensor data. The program is sending sensor data processed by algorithm.

: Click it to go to Comparison (Posture).
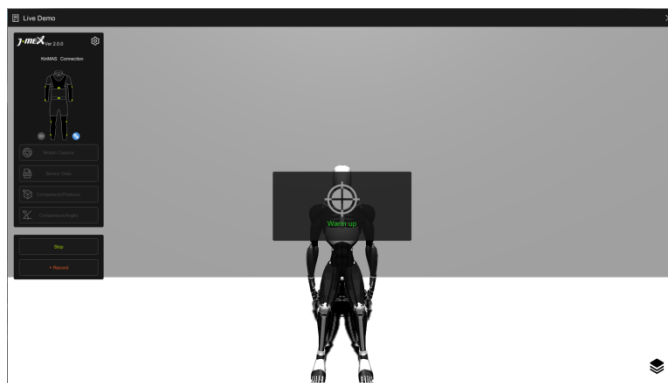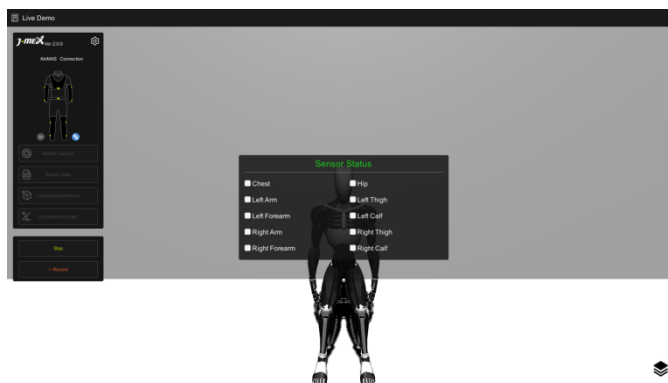
: Click it to go to Comparison (Angle).

Motion Capture
Calibration
    Select initial pose
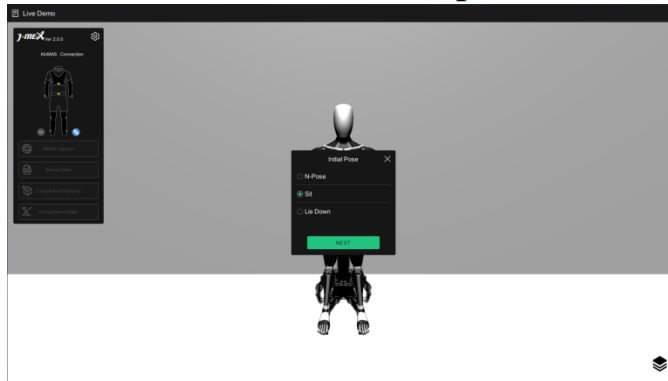
Step 1 Warm up

Swing sensors until white blocks turn green.

Step 2 Keep initial pose stable
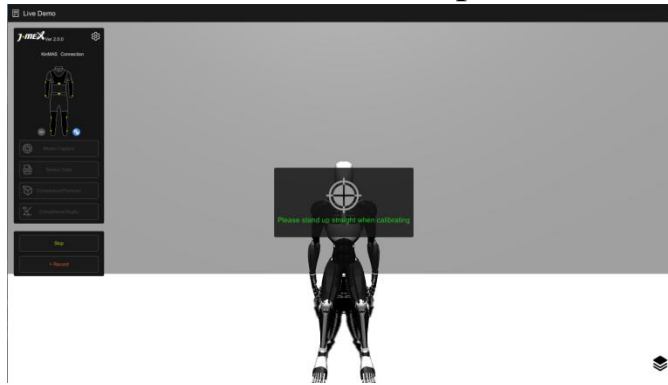
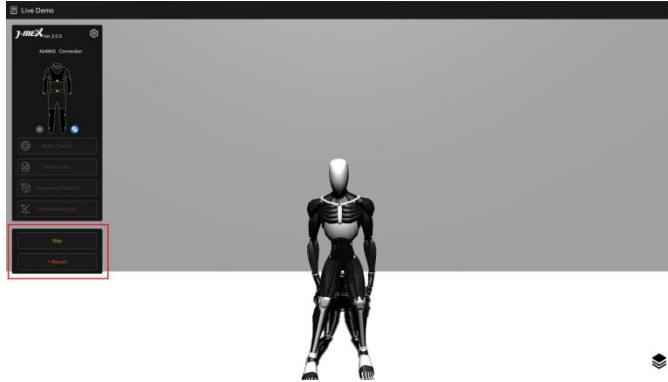Waiting for calibration to finish.
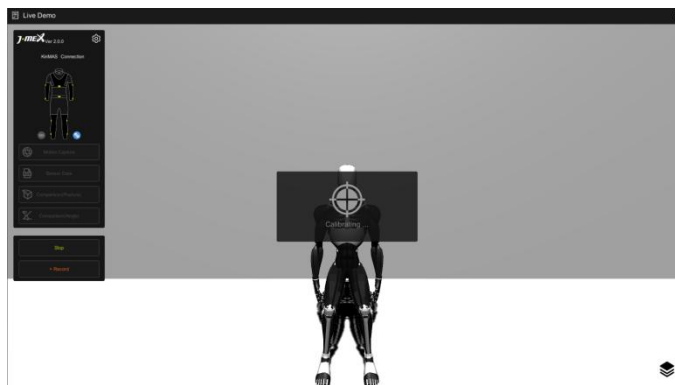
Calibration finish
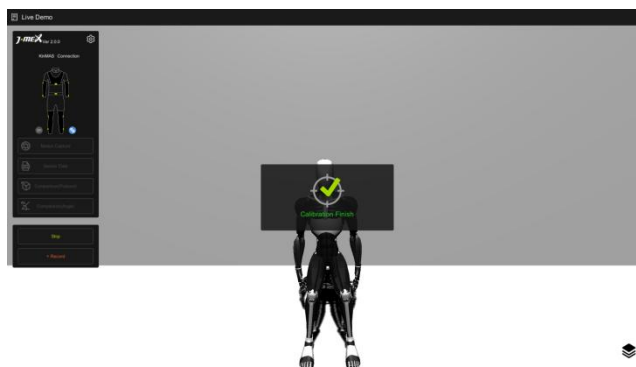
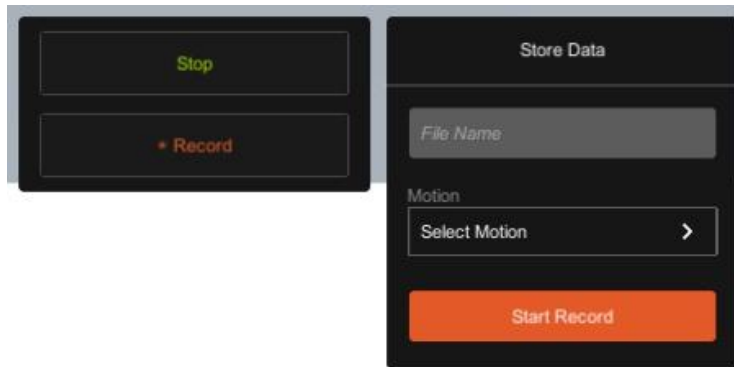After calibration, enjoy motion capture.
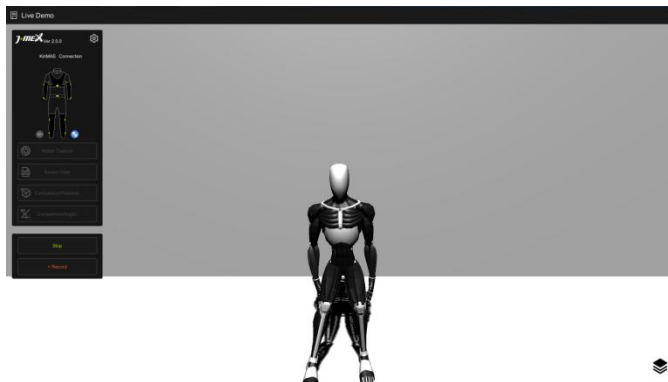
Sub control panel

Stop

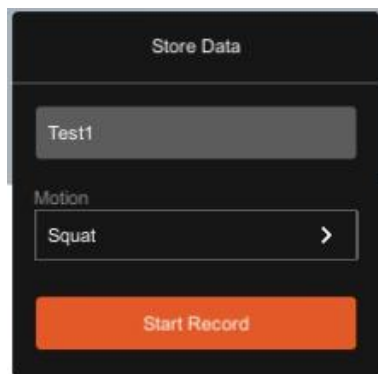Click "Stop" button to stop motion capture.

Record

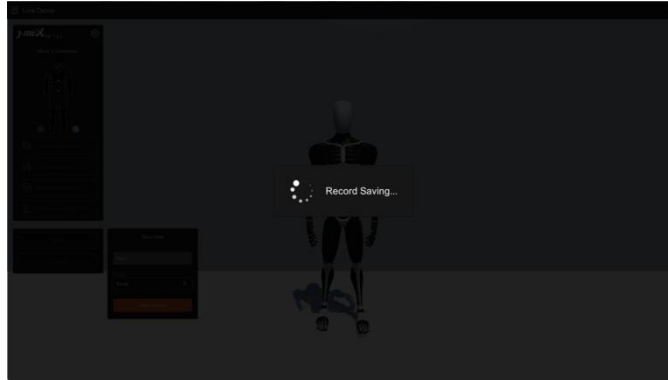Click "Record" button to show Store Data Panel.

Start Record

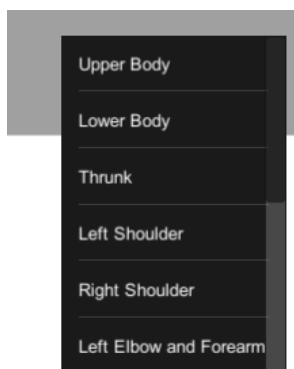Click "Start Record" button to start record, please remember to enter file name and select motion before you click "Start Record" button.

Stop recording and upload data to cloud.
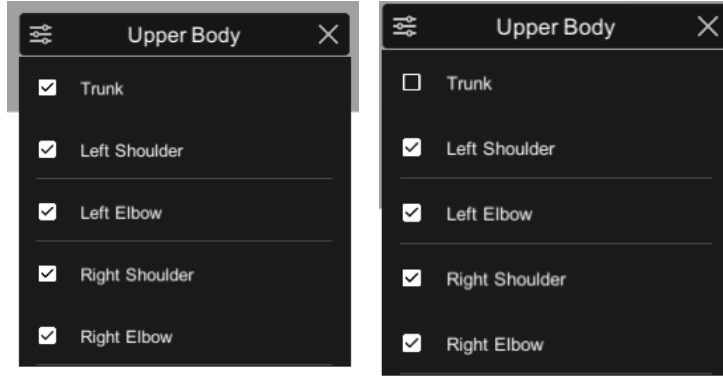
Angle Panel

Click angle control button to show angle position list.

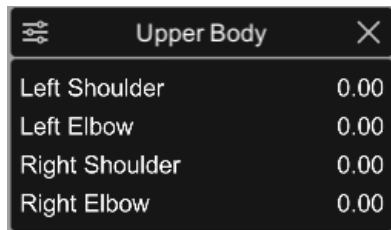Choose the position, then you will see the angle panel.

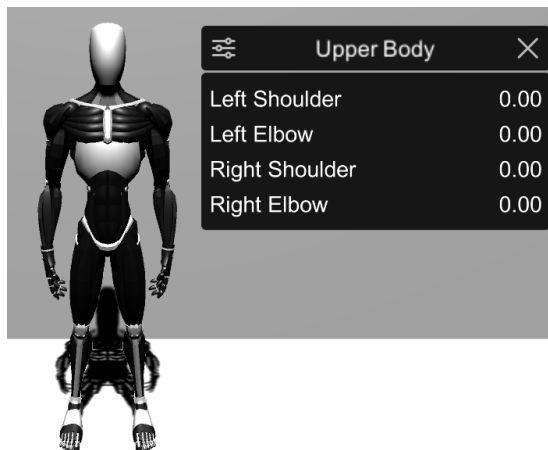Select angle

     Click ⚙ to select different angles.
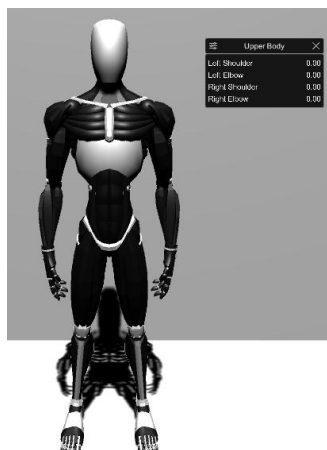
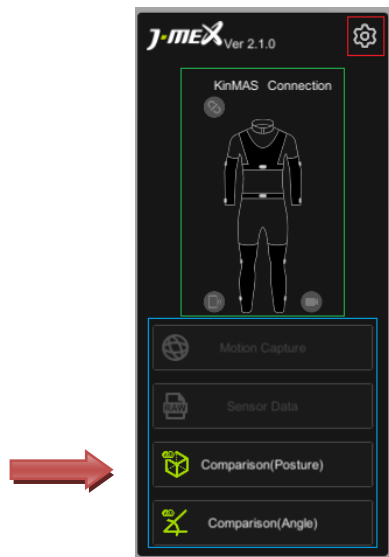Click ⚙ again to select angle.

Click ✕ to close angle button

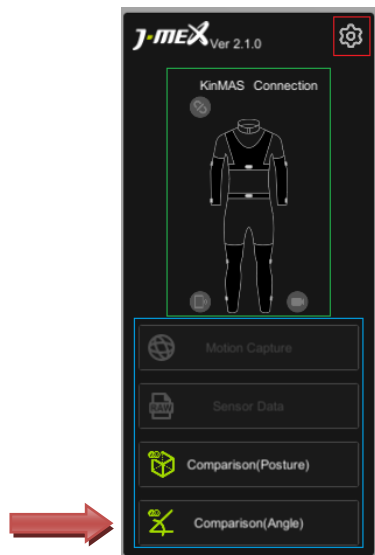Zoom in and out

Zoom in, use mouse wheel forward.
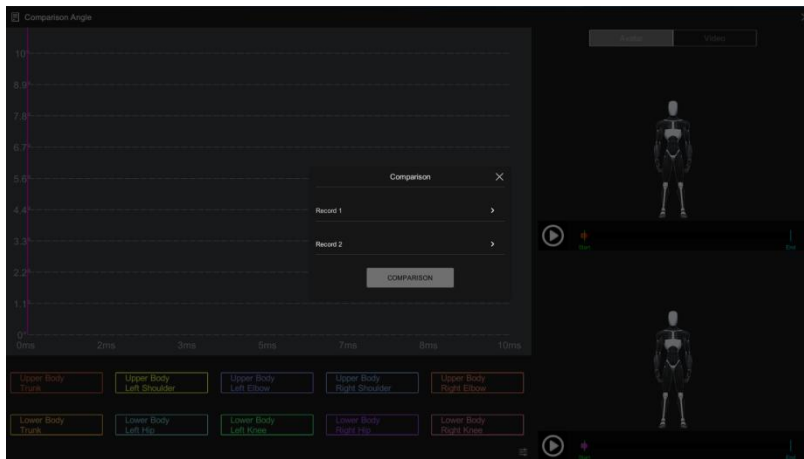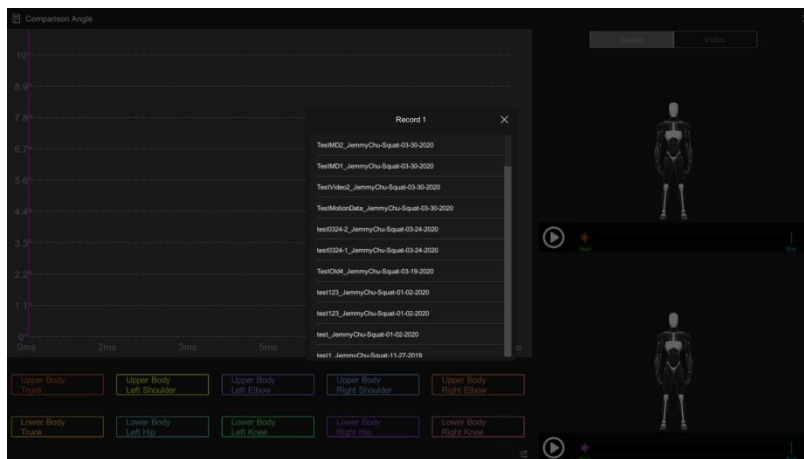

Zoom out, use mouse wheel backward.

Comparison (Posture) is a special feature that is not provided to general users.

Comparison (Angle)

Select 2 records to compare

For instance, click "Record 1" and "Record 2" to compare.

Comparison angle

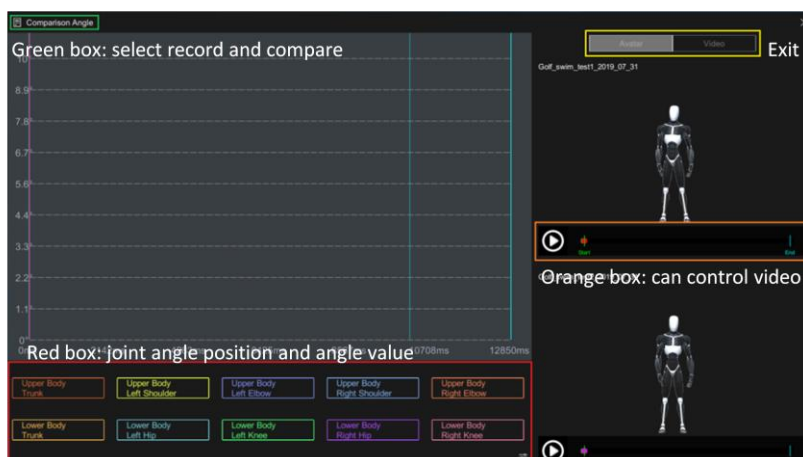   Red box: joint angle position panel and angle value.

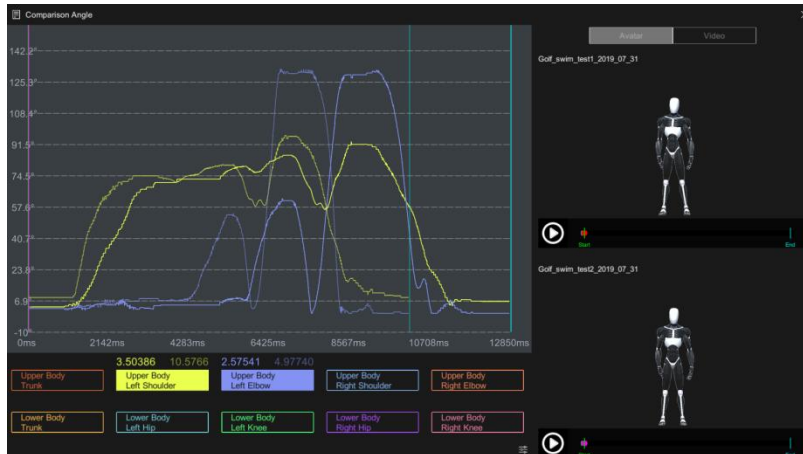   Green box: select record and compare again.

    Yellow box: click "Avatar" to show avatar and click "Video" to show video.
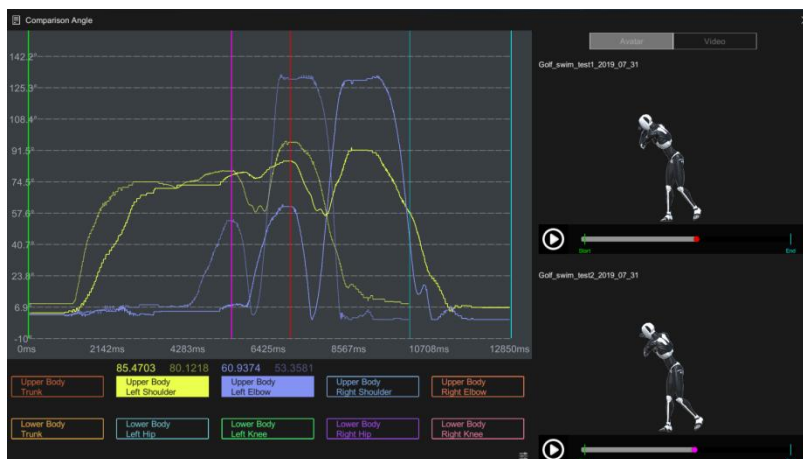
    Orange box: can control video
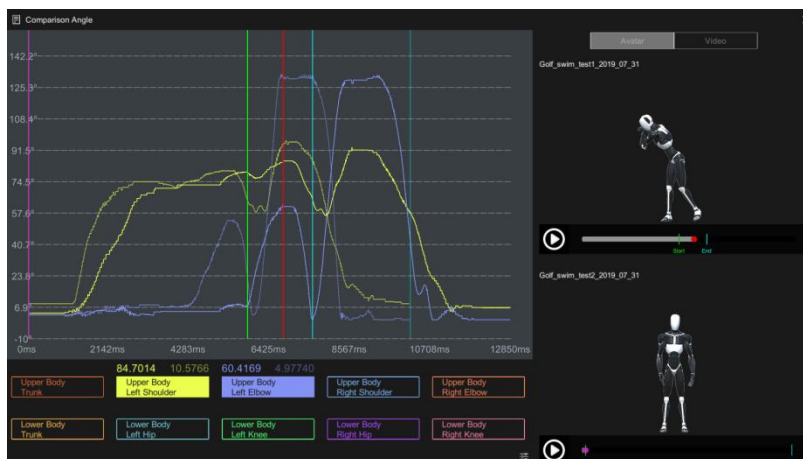
    X: Exit and go back to Live Demo page.

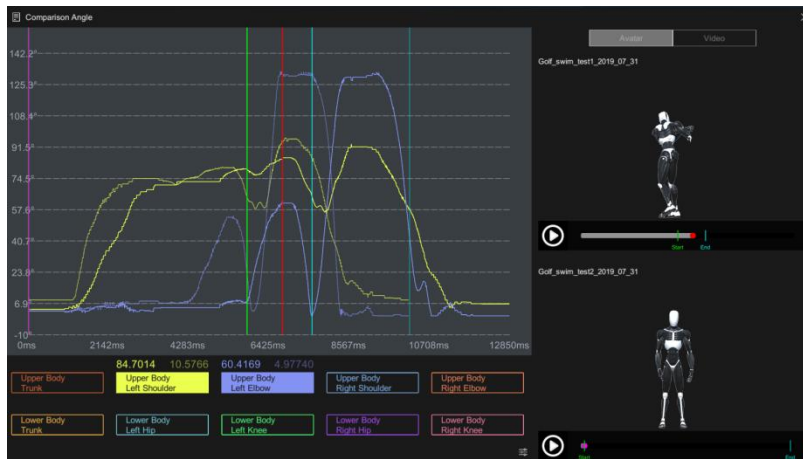Select joint angle position to display in chart and show angle value.

When you play the video or avatar, it will show the corresponding time and angle.

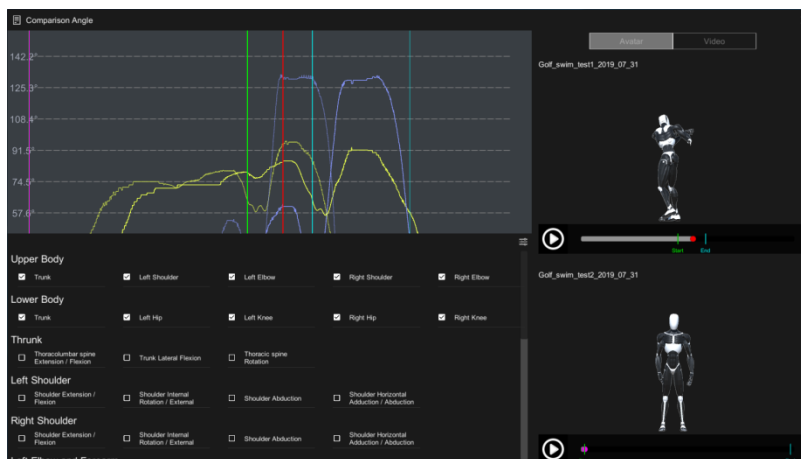Use start line and end line to limit the video.

If you wish to rotate avatar, press and drag by the left button of your mouse.
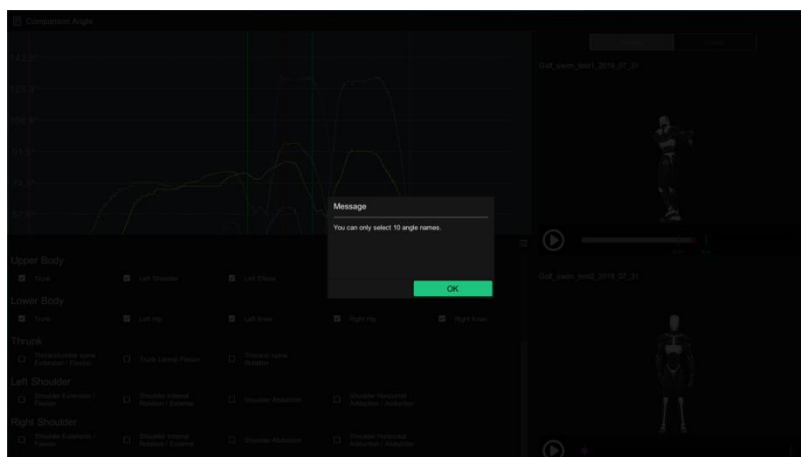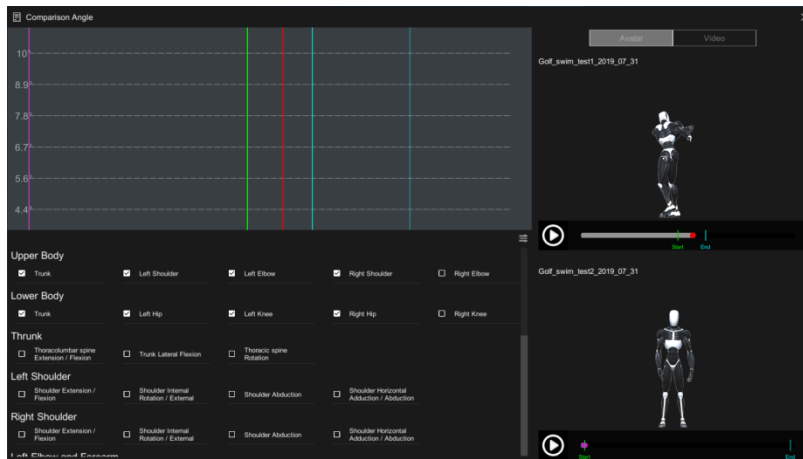
Select joint angle

Click ![icon] to select different angles.

Select up to 10 joint angles. If more than 10 angles are selected, an error message will pop up.
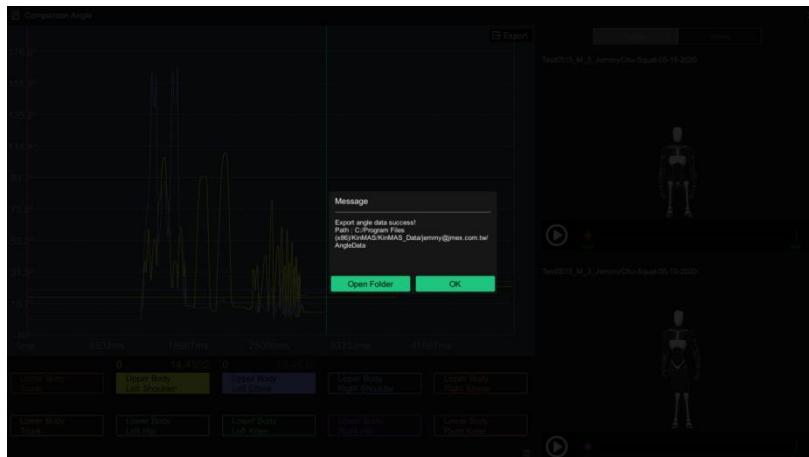

Click ![icon] again to select angle

Export

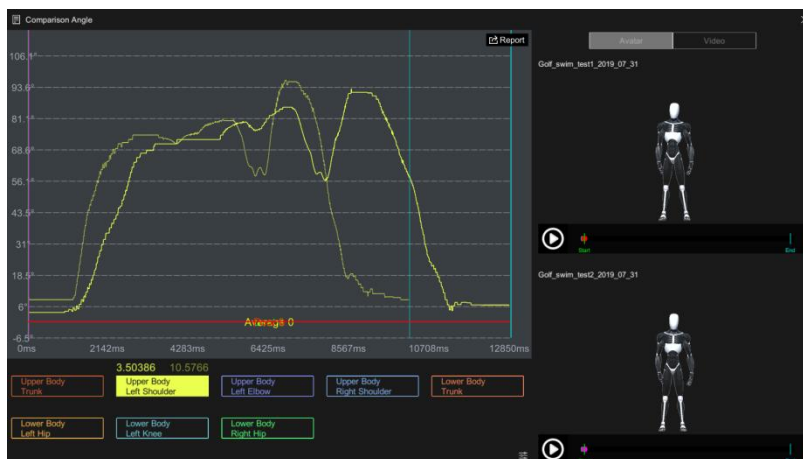After you select angle, you can see the "Export" button.

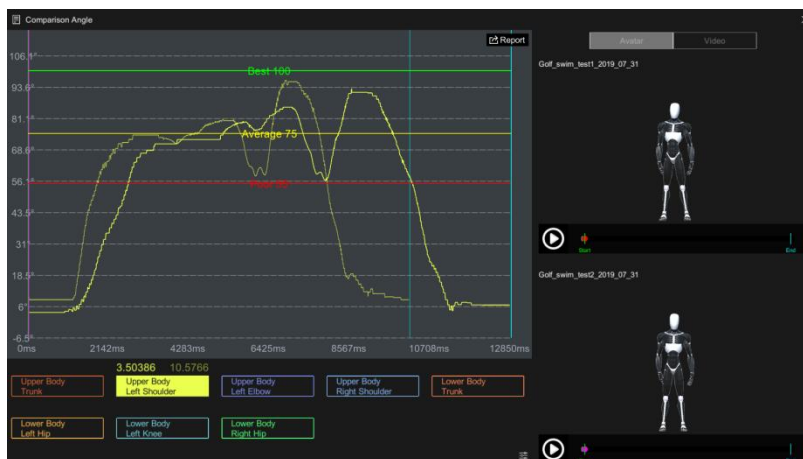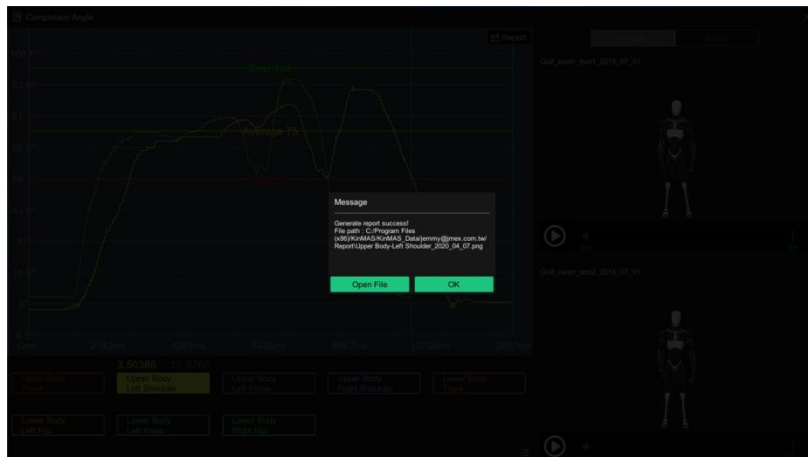Click "Export" button to export angle data.

Report

When you only select one angle, it will show report mode.

You can drag the line to your standard value.

Click [Report] to generate report

7. Troubleshooting

(1) (Live Demo) When avatar does not respond to some positions, please follow the steps below.

    A.   Close KinMAS tool

    B.   Disconnect and connect USB cable

    C.   Check the location where the error occurred and make sure the cable is connected perfectly

    D.   Plug-in USB cable then open KinMAS tool and try again

(2) (Live Demo) When avatar is working but fail to capture the movements, please follow the steps.

    A.   Please try more calibrations.

    B.   Please check the environment and stay away from metal or magnetic items. Calibrate again.