App Guide
Head Angle App

SageMotion
Wearable Biofeedback System

sagemotion

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Components

Hub

Nodes *(8x)*

Battery

Node Straps: *Medium (8x), Short (4x), Long (2x)*

Cable A *(10x)*
-Connect Hub to Battery
-Charge Nodes & Battery

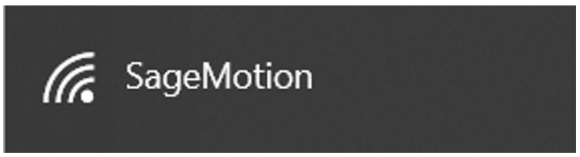
Cable B *(optional use)*
-Connect Hub to Computer

Node Charging Station

Wirelessly Connect to Computer or Cellphone

1) Connect Cable A to Battery and to Hub

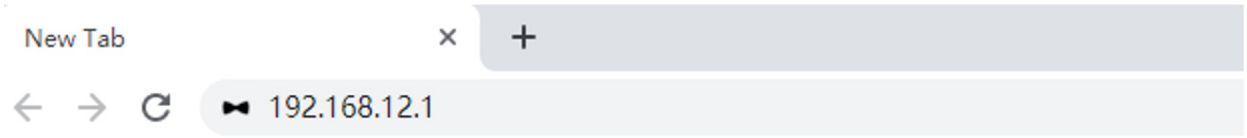
2) On Computer/Cellphone, Connect to Wi-Fi: “SageMotion”



Note 1: Need to wait for up to 1 minute for “SageMotion” to appear in Wi-Fi list. If it doesn’t appear, try turning the Wi-Fi off and then on again on the computer/cellphone.

Note 2: Hub is connected after clicking “Connect” even if in Windows it shows “Connecting” or “No internet, open”.

3) On Computer/Cellphone, in Chrome Address Bar, Go To http://192.168.12.1

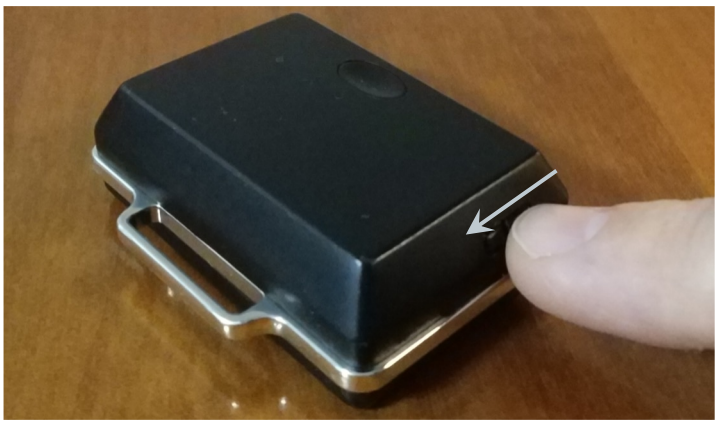


[Note] If Computer Doesn’t Have Wi-Fi: *plug in Cable B to the Hub and to the ethernet port of your computer, then in chrome address bar, go to* ***http://192.168.137.1***

Head Angle App

The purpose of the Head Angle App is to measure the three head angles in real time: Tilt, Rotation and Obliquity.

1) Turn on 2 Nodes



Slide switch toward middle to turn node on

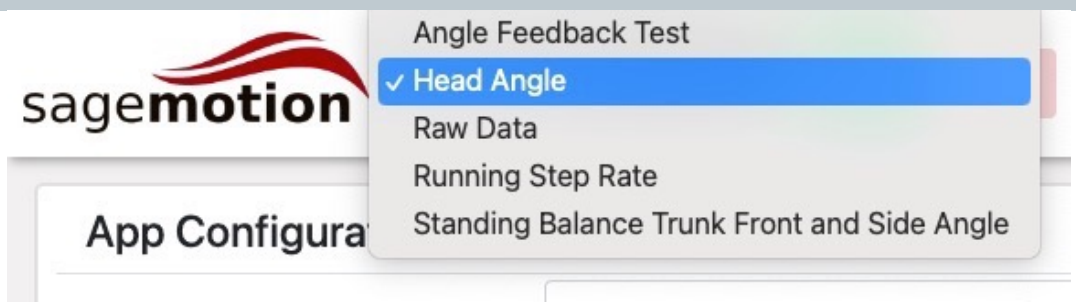
Green light will blink after the node is on and running

<u>Green LED (power and wireless connection)</u>
-**ON:** Power on, wirelessly *connected* to hub
-**OFF:** Power off
-**Blinking:** Power on, wirelessly *disconnected* to hub

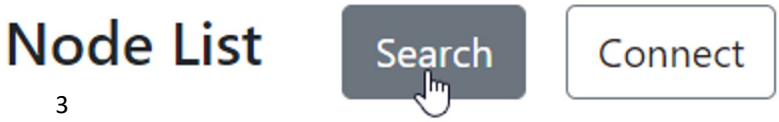
<u>Red LED (visual interface)</u>
-**ON:** Sync failure, switch node off then on again
-**OFF:** Normal operation
-**3 Blinks:** Triggered from blink button in interface

<u>Yellow LED (battery)</u>
-**ON:** Battery is charging
-**OFF:** Battery is full (cable plugged in) or charging cable is unplugged
-**Blinking:** Battery malfunctioning

2) Select "Head Angle" App

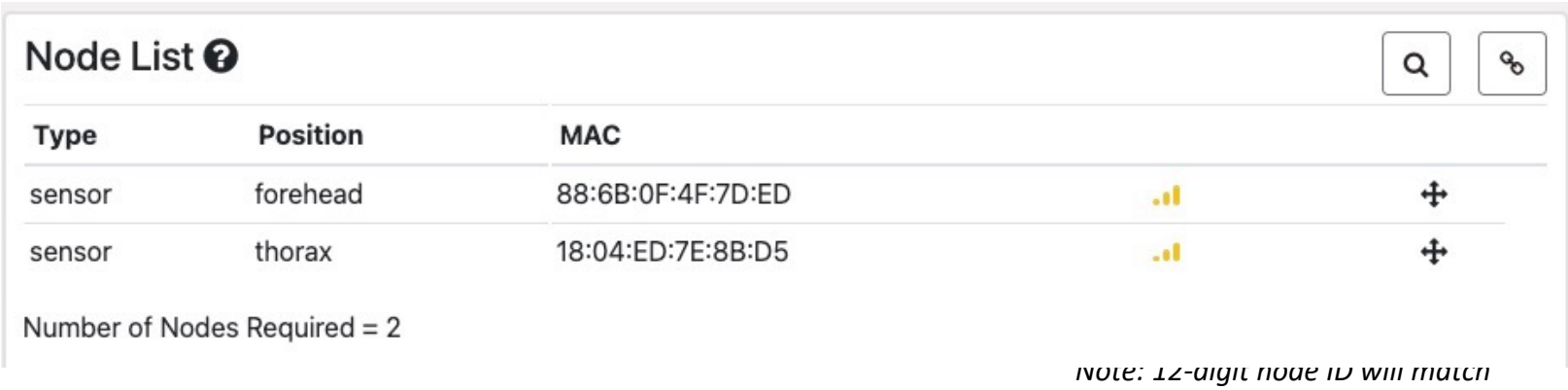


3) Click "Search"



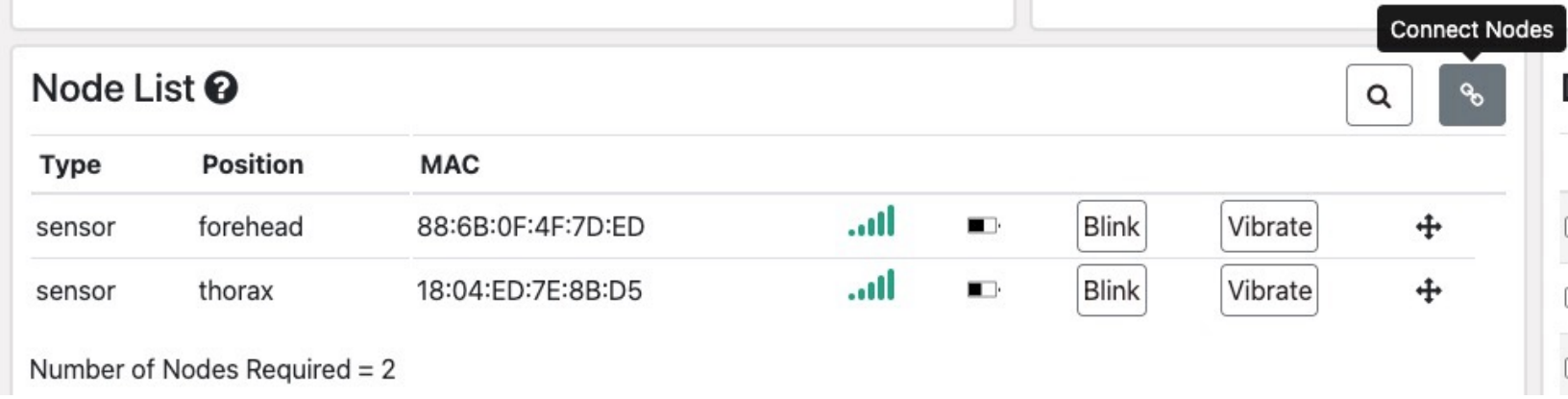
Head Angle App *(cont.)*

4) In the Type Dropdown Box, Select “sensor”



Note: 12-digit node ID will match the number in the MAC column

5) Click “Connect”

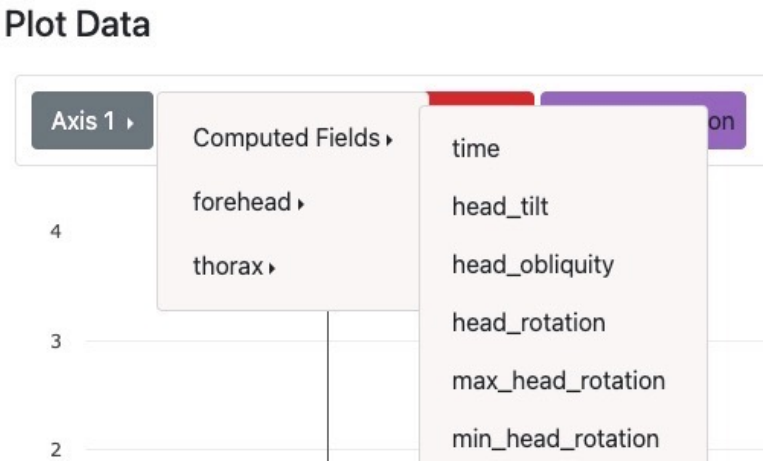


6) “Ready to collect data” Will Appear after Node Connection Complete

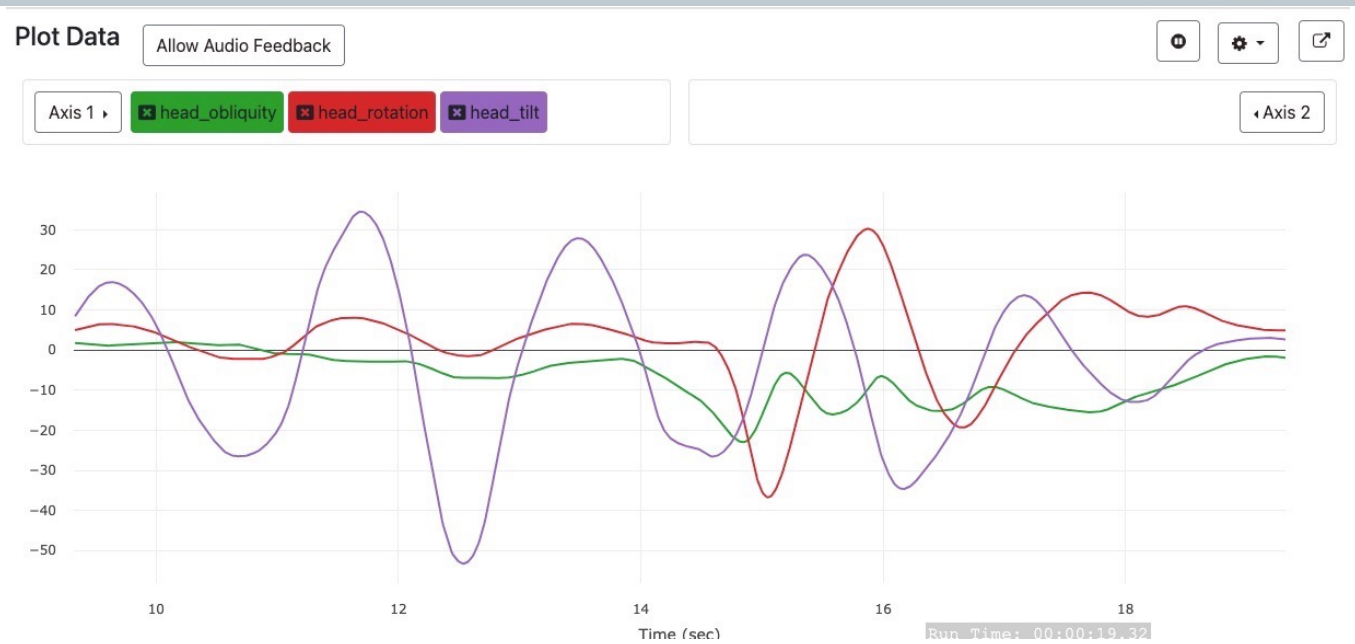
Head Angle App *(cont.)*

7) Click “Start” to Start Running App

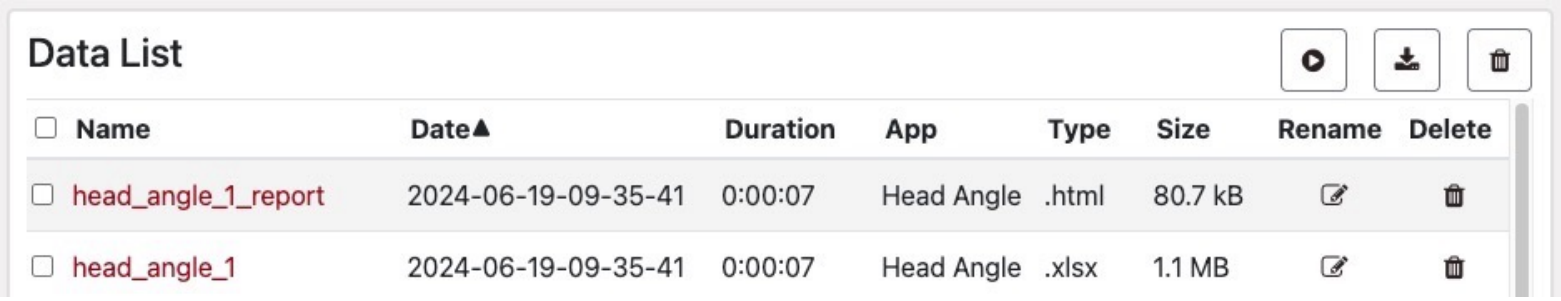
8) Click Computed Fields > head_tilt to Plot the head tilt angle



9) Run the app to plot the head angles in real time.. When Done, Click “Stop”



10) After Clicking “Stop”, a File from that Trial will Appear under Download Data. Click the File (e.g. head_angle_1) to Download it to the Computer or Phone.



11) Additionally, this app will create a summary report. Click the File (e.g. head_angle_1_report) to Download it to the Computer or Phone.

Description of Data in Downloaded File

Calculated Fields

1. **time (sec):** time since trial start
2. **head_tilt (deg):** the angle of the head tilt. Positive values are to the left, negative values are to the right.
3. **head_obliquity:** the angle of the head obliquity. Positive values are to the left, negative values are to the right.
4. **head_rotation:** the angle of the head rotation. Positive values are to the left, negative values are to the right.
5. **max_head_rotation:** the max angle of head rotation to the left achieved so far.
6. **min_head_rotation:** the max angle of head rotation to the right achieved so far.
7. **max_head_tilt:** the max angle of head tilt to the left achieved so far.
8. **min_head_tilt:** the max angle of head tilt to the right achieved so far.
9. **max_head_obliquity:** the max angle of head obliquity to the left achieved so far.
10. **min_head_obliquity:** the max angle of head obliquity to the right achieved so far.
11. **annotations**: if any annotations are sent to the dashboard chart, they will also be listed here.
12. **audio_feedback:** if any audio feedback is sent to the dashboard, it will also be listed here.
13. **user_defined_status:** the prompts displayed to the user on the dashboard, will also be listed here.

Sensor Raw Data Values

Please Note: Each of the columns listed below will be repeated for each sensor

- **SensorIndex:** index of raw sensor data
- **AccelX/Y/Z (m/s^2):** raw acceleration data
- **GyroX/Y/Z (deg/s):** raw gyroscope data
- **MagX/Y/Z (µT):** raw magnetometer data
- **Quat1/2/3/4:** quaternion data (Scaler first order)
- **Sampletime:** timestamp of the sensor value
- **Package:** package number of the sensor value