

HEROIC Guide

Use of low-cost EEG devices for brain monitoring

Thank you for volunteering to participate in our remote wearable electroencephalogram (EEG) study. In this study, you will use our experimental laboratory EEG software. Please follow this guide to properly use the software on the laptop provided with the wearable EEG headband provided.

Set Up

Time: at least 10 minutes

Please read the entire manual once before beginning the session.

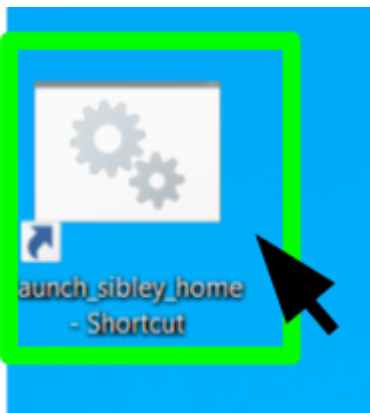
Open the EEG software: **launch_sibley_home**

Power ON the laptop. Clear your environment, avoid noisy locations and distractions.

Log into the laptop using the password provided on study enrolment. If the password was forgotten, please contact the study organizer.

Make sure the **volume** is appropriate by clicking on the volume settings on the bottom right of the screen or holding down the Windows button and F3 on the keyboard (volume buttons are labelled).

On the desktop, click on the **launch_sibley_home** icon to open the EEG software.



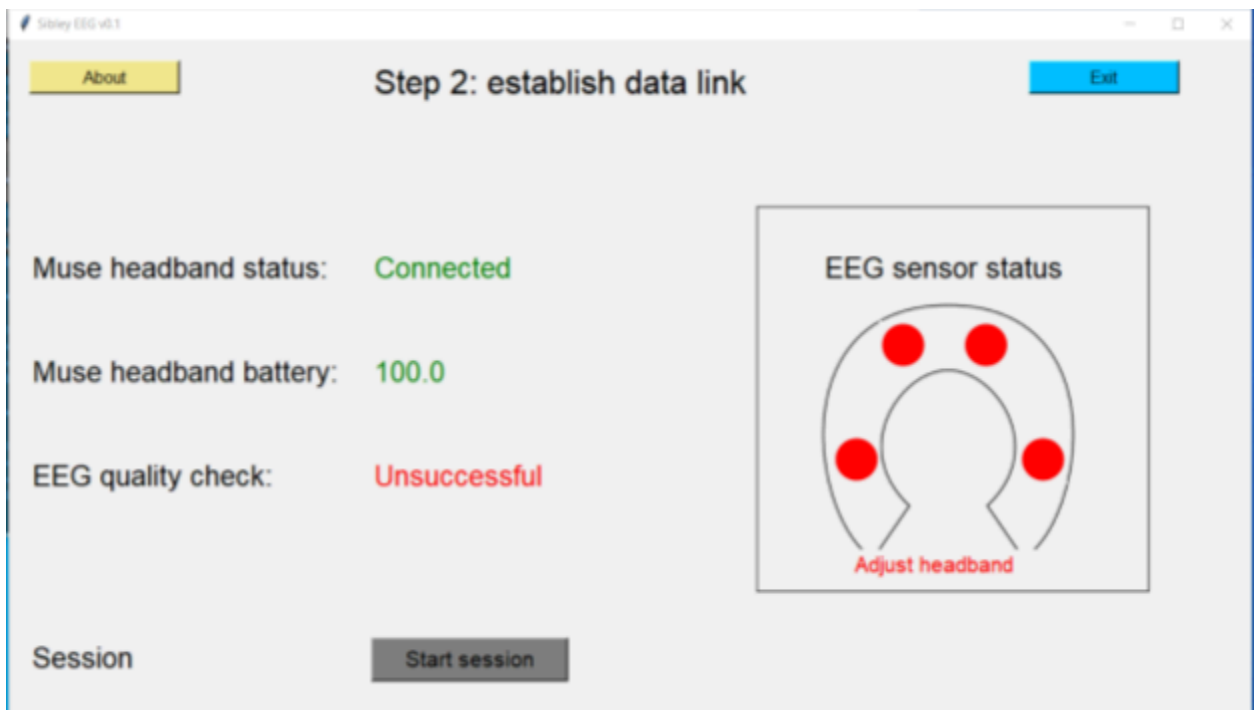
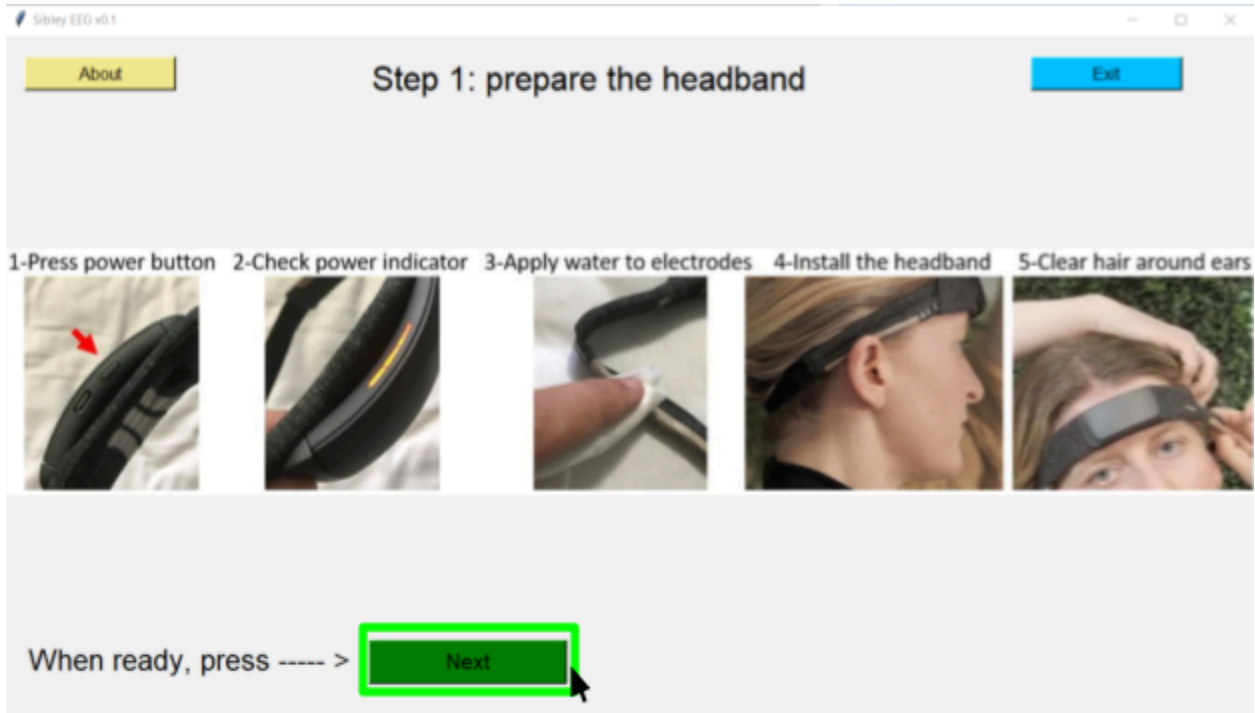
EEG Headband, Muse 2

Open the provided EEG's box and take the EEG headband out.

Power **ON** the EEG headband. The light on the earpiece should turn on.

Launch EEG App

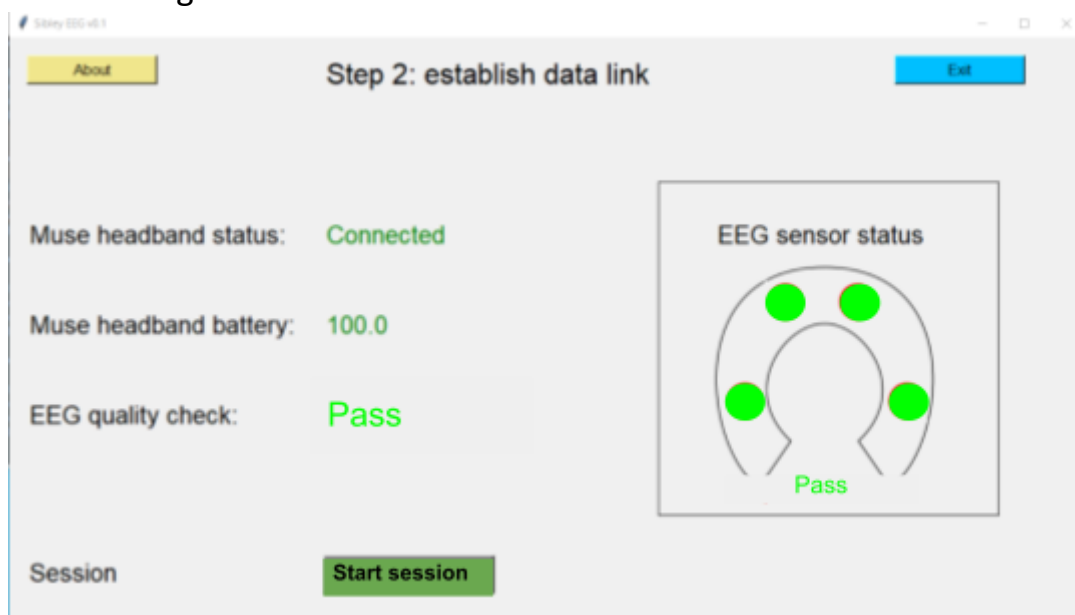
Once the EEG headband is powered ON, indicated with an LED light, on the *Control Panel* window, press the **Next** button.



Prepare the EEG headband

- Apply water to electrodes with a wet paper towel. Note that the rubber under the ear is also an electrode.
- The ear pieces are adjustable. To equip the device, please extend ear pieces to full length. Place the device against your forehead, the ear pieces should rest on your ears like glasses. Retract the ear pieces until the device is tight, but not uncomfortable.
- Clear any hair away from around the ears.
- Adjust the headband size to fit your head.
- make slight adjustments to the headband, to properly calibrate the headband as best you can.
 - For any of the following readings (TP9, AF7, AF8, TP10), **adjust the EEG as close as possible to your forehead and ears**, then start the session
 - TP9 refers to the electrode positioned above your left ear
 - AF7 refers to the electrode positioned on the left side of your forehead, adjust the EEG as close as possible to your forehead
 - AF8 refers to the electrode positioned on the right side of your forehead, adjust the EEG as close as possible to your forehead
 - TP10 refers to the electrode position above your right ear
 - relax and sit still in between each adjustment to allow all the signal readings to settle

Note: avoid movement as much as possible. Blinking will only briefly affect TP9 and TP10 signals



Start Session

Once all electrodes signal reading are **GREEN**, press **Start session** and follow all instructions prompted on the screen

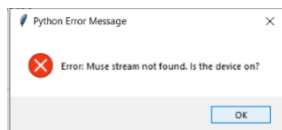
Note: this test will take approximately 10 minutes to complete, this excludes the set up time which is at least 10 minutes.

Press the **Start session** button.

If the *Control Panel* Window appears after the 1 minute of restful meditation time, then please click to minimize the window to complete the rest of the session.

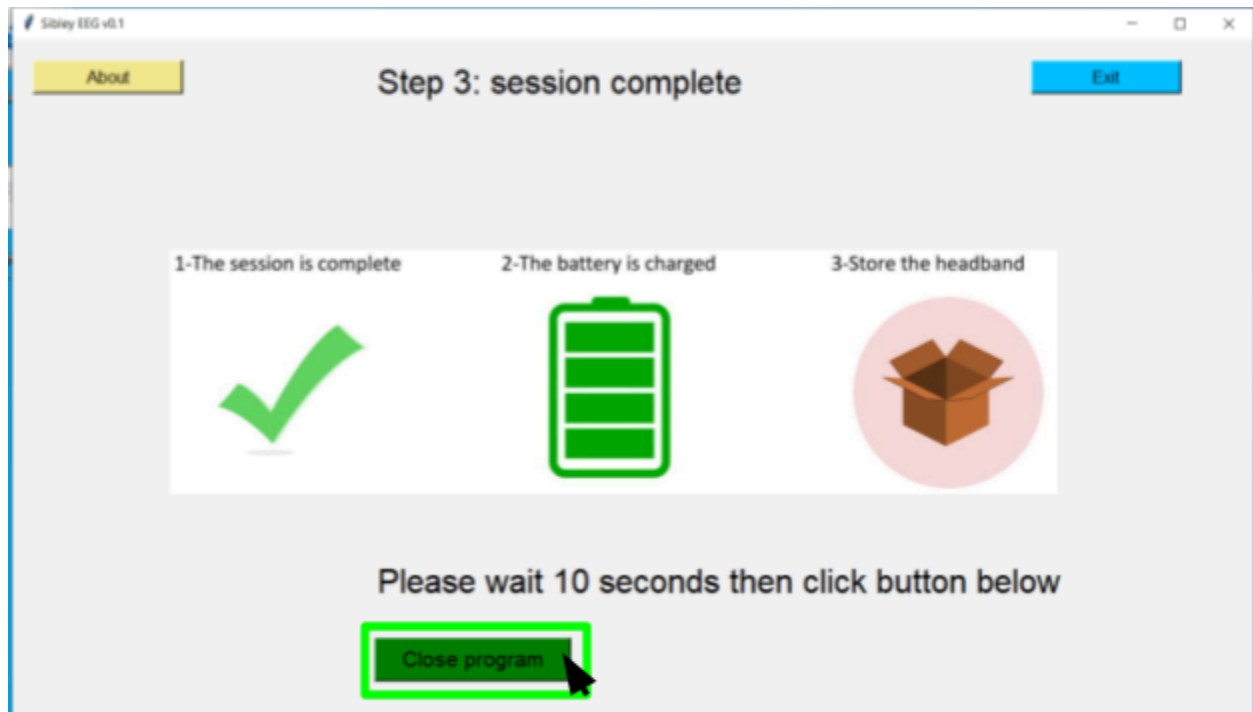
Here are the written instructions hidden by this window: “Focus on the centre of the screen and silently count the blue circles.” Sit back and relax and try to keep your eyes open throughout the entire session. Please try your best to minimize movement, blinking, or tension in the muscles as this can generate electrical activity that may interfere with the EEG signal.

- **Python Error Message:** this pop-up window prompts the error, “Error: Muse stream not found. Is the device on?” Select **OK** to close window, check if EEG headband is powered ON, and press Launch EEG App again.



Save Session

After the Session Completed screen clears, return to the *Control Panel* window and wait **at least 10 seconds** before pressing **Close program**. Exit the EEG software and close all remaining windows



Power OFF the EEG headband and charge the EEG headband when necessary, with the provided charger. Power OFF the laptop and charge the laptop when necessary.

Troubleshooting

If any issues persist, please exit the EEG software and then restart the software. Lastly, if you experience difficulty, exit all applications and software then restart the laptop and follow the instructions on this guide again.

Thank you very much for participating in this study, your contribution is appreciated.