LipSync

STARTUP GUIDE

March 2017

Version 1.2

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REVISION HISTORY

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About the LipSync

The LipSync is a mouth operated joystick that allows a person who has limited or no control of their hands and arms to control a cursor on a mobile phone, tablet or computer using only head movement. It is an open source assistive technology design hosted by Makers Making Change, a movement that connects volunteer makers with people with disabilities to create more affordable assistive technology.

Open source designs are freely released by their creators for people to make for themselves, modify or incorporate in their own designs without charge. Find out more about Makers Making Change at: http://www.makersmakingchange.com/

Need a build or a friend needs a build – join us.

Want to make a build – join us.

Want to fund a build for a person with a disability – join us.

What Do You Get?

Your volunteer maker should be provided with the following parts in your kit:

Part A - LipSync

Part B - Five mouthpieces

Part C - Mounting Arm

Part D - Mounting Bracket

Part E - USB splitter cable to connect to a mobile phone or tablet
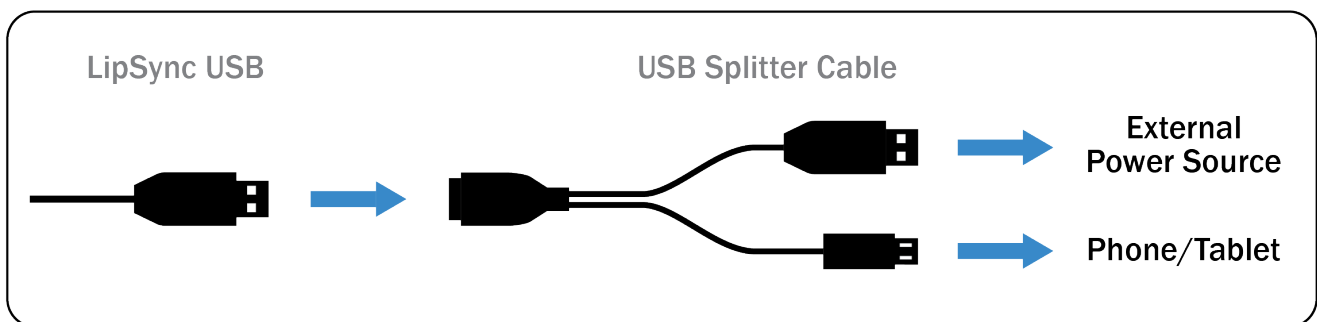
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Getting Started

The LipSync requires the following items to get started:

- A complete LipSync kit
- Computing device (mobile phone, tablet, or laptop) which supports a USB mouse
- External power bank (optional but recommended)
- Mounting solution for securing the Lipsync to a surface

Quick Start Guide

Before plugging the LipSync to a computing device, make sure of the following:

- Computing device is fully charged and/or uses an external power source (e.g. power bank).
- Computing device and LipSync are securely mounted to a stable surface (e.g. wheelchair, bed, or desk).
- LipSync USB, USB splitter cable and external power source are plugged together (see diagram below) and that the cables are long enough and properly secured. If you are using a computer, the LipSync USB can be directly plugged into a computer USB port.

LipSync USB   USB Splitter Cable   External Power Source   Phone/Tablet

Wheelchair Mounting

Every wheelchair has different points available for mounting. Try out different areas and see what works best. Common mounting points available on power wheelchairs are the headrest rail, back of wheelchair, armrest rail, under chair cushion, chair rail, and footplate.

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Supplied in your kit is the mounting bracket you decided on. If you have not worked with a maker on deciding on a mounting system you will have to consult a local assistive technology professional.

Checklist for After Mounting

- ☐ Is the clamp secure and does not move?
- ☐ Is there clearance around the wheels, wires, and chair frame with the mount attached?
- ☐ Does the wheelchair fit through doorways?
- ☐ Is the mount secured so it can't be snagged on obstructions as the user drives around?
- ☐ Is the driving view of the user clear with no obstructions?
- ☐ Is the mobile device within viewing angle of the LipSync?
- ☐ Can the user easily reach the LipSync to use it?
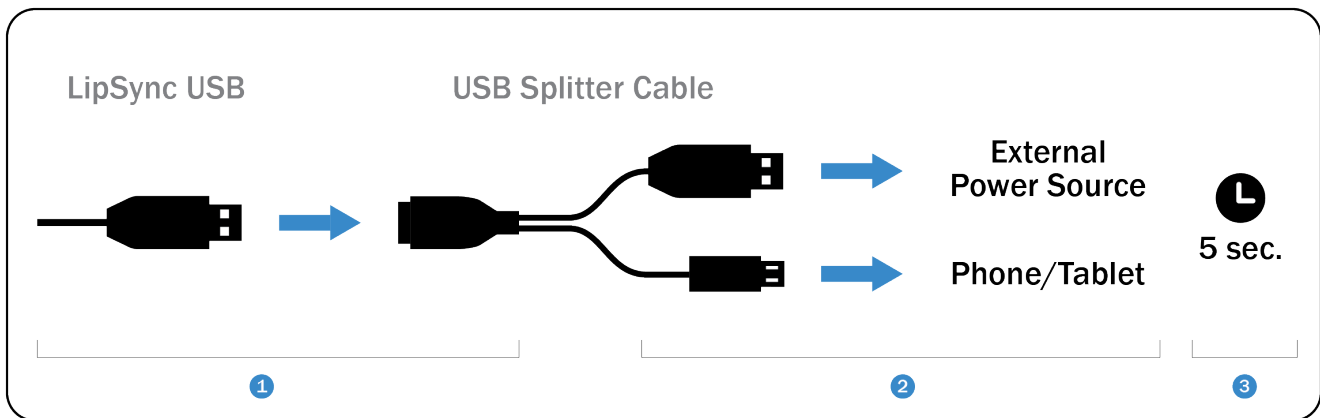
How to Mount the LipSync to a Desk

1. Find a clear space on the front edge on your desk or table.
2. Orient the mount bracket as shown being careful not to move the LipSync around.
3. Tight the screen to secure the bracket to the desk or table.
4. Adjust the mounting arm so the LipSync is within easy reach and tighten the knob when the arm is in the desired position.

External Power Bank

The LipSync can be powered using an optional external power supply (power bank, power brick or portable power supply) of at least 2700mAH or higher. This prevents the LipSync from drawing battery from your mobile or tablet. The power bank is only supplying power to the LipSync and the mobile or tablet will not be charged.

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Plugging into the LipSync

The order in which you connect the USB cables may affect how the LipSync functions. Plug the cables in the following order:

1. Connect the LipSync USB plug to the USB adapter cable's receptacle.
2. Connect the other end of the USB adapter cable into the computing device.
3. Wait 5 seconds for the LipSync to complete the LED initialization sequence of blinking red and green four times.

Note: If you are using a desktop or laptop computer you will only need to connect the LipSync USB plug to an available computer USB port.

Using the LipSync with Mobile Phones and Tablets

Not all mobile phones and tablets support external pointing devices like the LipSync or other mouse replacements. Please check with your manufacturer before purchasing a tablet or mobile phone. Apple iOS phones currently do not support external mice. Only some Android mobile phones and tablets support the LipSync. Look to see if your device supports "USB OTG HID," which is also know as the "Universal Serial Bus On the Go Human Interface Device" profile.

You are going to need some help using your device with the LipSync. Some actions like zooming in or zooming out normally require you to pinch in or out with your fingers. On some Samsung mobile devices and tablets there is an application called Assistant Menu. Assistant Menu puts a small menu on the screen that allows quick access to important functions that cannot be

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accessed without physically touching the device, such as the HOME button, the BACK button, Zoom IN and OUT, Screen Capture, Volume UP and DOWN and RESTART.

To turn on the Assistant Menu go the **SETTING** application. Select **MY DEVICE**. Then select **ACCESSIBILITY.** Select **DEXTERITY AND INTERACTION.** Select **ASSISTANT MENU.**

A little square ICON will appear on your screen

The ICON will always appear on the screen. By clicking on it you will have access to all the important additional functions. You can move the icon around by clicking and dragging on it. The actual process for turning on Assistant Menu might be different on your device depending on how the manufacturer implemented it.

Not all phones will have Assistant Menu. If you find you phone does not have Assistant Menu, you can download an application like *Assistive Touch For Android*, *Back Button*, *Handy Soft Keys*, *Simple Control* or *Floating Toucher* from the Android Play Store. These applications will provide access to at least the HOME and BACK functions, which are important to accessing all the features of the phone and a handful of other functions. The other functions provided depend on the application so look for the application that gives you the functions you need.

A swiping action is required on some mobile device to unlock it. Not everyone is able to do the swiping action. You can avoid this by setting the phone so that the Screen Lock in the Settings Menu is set to None. Alternatively, an application called *Keep Screen On* can be used. The application is available on the Android Play Store and it will prevent the phone from going to sleep so you do not have to swipe to get access to the applications on your phone. However, this will drain the battery on your phone quicker.

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Using the LipSync

FOR MOBILE DEVICES:

Short puff (~1 sec.): tap

Long puff (~3 sec.): tap and drag

Very long puff (~5 sec.): home position reset

Short sip (~1 sec.): back button

Long sip (~3 sec.): scrolling function

Useful Function Example:

Tap and drag: inputting a pattern into the security pattern lock screen, keyboard swipe typing, scrolling a precise distance

Scrolling: panning through home and application screen page, panning through scrollable pages and apps

Home position reset: resolving cursor drift issue

FOR WINDOWS PCs:

Short puff (~1 sec.): left mouse click

Short double puff (~1 sec. each): double-click

Long puff (~3 sec.): left mouse click and drag

Very long puff (~5 sec.): home position reset

Short sip (~1 sec.): right mouse click

Long sip (~3 sec.): scrolling function

Useful Function Example:

Click and drag: rearrange icons on desktop, dragging files to trash bin, highlight text

Right click: open secondary menu for cut, paste, select all, etc.

Scrolling: mouse wheel scrolling instead of clicking and dragging scroll bar

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Joystick Calibration

1 Press both speed adjustment buttons on the back of the LipSync simultaneously for a few seconds

2 LED slowly blinks red & green 5 times

x 5 — 3 sec. pause

3 When LED blinks green 6 times, move the mouthpiece to the 12 o'clock position (up direction)

x 6

4 LED blinks red 1 time when position is measured

x 1

5 When LED blinks green 6 times, move the mouthpiece to the 3 o'clock position (right direction)

x 6

6 LED blinks red 1 time when position is measured

x 1

7 When LED blinks green 6 times, move the mouthpiece to the 6 o'clock position (down direction)

x 6

8 LED blinks red 1 time when position is measured

x 1

9 When LED blinks green 6 times, move the mouthpiece to the 9 o'clock position (left direction)

x 6

10 LED blinks red 1 time when position is measured

x 1

11 LED will rapidly blink red and green 6 times when calibration is complete

x 6

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Speed Control

The LipSync has 9 speed control levels with the default level set to 5 when first initialized. Cursor movement and smoothness is influenced by the screen size and the pixels per inch (PPI) value.

To adjust the cursor sensitivity and speed, set the computing device's cursor speed to its slowest setting to start and then adjust the LipSync speed control buttons until you get a speed that is comfortable for you. If the speed is still not fast enough, gradually increase the speed on the mobile device or computer.

INCREASE CURSOR SPEED:

1. Pressing the upward facing triangular button ▲ on the rear of the LipSync will increase the cursor speed level.
2. The LED will blink red the number of the cursor speed level (i.e. 1 blink indicates the first and also the lowest cursor speed level)
3. Once the maximum cursor speed level is reached, the LED will rapidly flash red and green 10 times indicating you are at the highest possible cursor speed level.

DECREASE CURSOR SPEED:

1. Depressing the downward facing triangular button ▼ on the rear of the LipSync will decrease the cursor speed level.
2. The LED will blink red the number of the cursor speed level. (i.e. 9 blinks indicates the ninth and also the highest cursor speed level)
3. Once the minimum cursor speed level is reached the LED will rapidly flash red and green 10 times indicating you are at the lowest possible cursor speed level.

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Troubleshooting

Q: Why doesn't the cursor appear on the screen when I plug in the LipSync?

POSSIBLE SOLUTION:
- Wait 5 seconds for the system to initialize. Moving the mouthpiece before the 5 seconds is complete will affect the calibration.
- If the cursor does not appear after 5 seconds, disconnect the USB adapter cable from the mobile device or the LipSync USB cable from the computer. Reconnect the cable to the electronic device and wait for the blinking sequence to complete before moving the mouthpiece.

Q: Why does my cursor drift across the screen when I am not moving the LipSync?

POSSIBLE SOLUTION:
- Wait 5 seconds for the system to initialize. Moving the mouthpiece before the 5 seconds is complete will affect the calibration.
- If the cursor does not appear after 5 seconds, disconnect the USB adapter cable from the mobile device or the LipSync USB cable from the computer. Reconnect the cable to the electronic device and wait for the blinking sequence to complete before moving the mouthpiece.

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