# Overview

This document contains the necessary information to build the Modular Mounting System for the LipSync Hub.

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# Maker Checklist

This list provides an overview of the steps required to build and deliver the device.

## Maker To Do List

* Read through the Assembly Guide to become familiar with required components, tools, supplies, and safety gear and overall assembly steps.
* Talk to User about customization options (e.g., color, any special requests, etc.)
* Order hardware components
* Gather tools, supplies, and safety equipment.
* Assemble the device
* Print “User Guide”

## Items to Give to User

* Assembled, tested stand
* “User Guide”

# Tool List

**Optional**

* Superglue
* ¼” Wrench

# Customization Guide

**Hardware**

While the stand is designed for commercial ¼-20 hardware, it is also possible to use the 3D printed nuts and bolts included in the Maker Guide and build files if commercially available ¼-20 hardware is difficult to source in small amounts.

The original Modular Mounting System used M5 hardware, and the LipSync Hub Modular Mounting System is compatible with M5 (although it may be loose when nut is not tightened) and M6 hardware.

**3D Prints**

The components of the LipSync Hub Modular Mounting System are derived from the [Modular Mounting System](https://www.thingiverse.com/thing:2194278) on Thingiverse. While the LipSync Hub Modular Mounting System is designed for use with ¼-20 hardware as opposed to the M5 hardware on the original design, it is possible to use the LipSync Hub adaptor with the existing Modular Mounting System for a larger variety of arms and bases.

# 3D Printing Guide

## 3D Printing Summary

|  |  |
| --- | --- |
| **Metrics** | **Single Unit** |
| Total Print Time (min) | 1h10m |
| Total Number of Components | 9 |
| Typical Total Mass (g) | 41 |
| Typical Number of Print Setups | 1 |

## 3D Printing Settings

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Print File Name** | **Qty** | **Total Print Time (hr:min)** | **Mass (g)** | **Infill (%)** | **Support(Y/N)** | **Layer Height/ Nozzle Diameter(mm)** | **Notes** |
| StandBaseLowPoly.stl | 1 | 2:32 | 18 | 20 | N | 0.2/0.4 |  |
| StandArmLowPoly.stl | 1 | 1:23 | 9 | 20 | N | 0.2/0.4 |  |
| StandAdaptorLowPoly.stl | 1 | 1:12 | 8 | 20 | N | 0.2/0.4 |  |
| Adaptor Pin.stl | 1 | 0:05 | 1 | 20 | N | 0.2/0.4 |  |
| PrintableBolt.stl | 2 | 0:12 | 1 | 20 | N | 0.2/0.4 |  |
| PrintableBoltWithHandle.stl | 1 | 0:10 | 1 | 20 | N | 0.2/0.4 |  |
| PrintableKnob.stl | 2 | 0:34 | 1 | 20 | N | 0.2/0.4 |  |

## Post-Processing

* Optional: Printed bolts can be used with metal nuts, such as the T-Nut in the LipSync Hub, to break in the threads

## Examples of Quality Prints

**Photo of Device**

|  |  |  |  |
| --- | --- | --- | --- |
| **PrintableKnob.stl** | **PrintableBolt.stl** | **PrintableBoltWithHandle.stl** | **Adaptor Pin.stl** |
| A blue plastic tube on a tile surface  Description automatically generated | A blue object on a tile surface  Description automatically generated | A purple plastic toy on a tile surface  Description automatically generated | A purple eraser on a white surface  Description automatically generated |
| **StandArmLowPoly.stl** | **StandAdaptorLowPoly.stl** | **StandBaseLowPoly.stl** | |
| **A purple object on a white surface  Description automatically generated** | **A purple object on a white surface  Description automatically generated** | A purple object on a white surface  Description automatically generated | |

# Assembly Guide

## Required Components

|  |  |
| --- | --- |
|  | **BOM**   1. StandBaseLowPoly.stl 2. StandArmLowPoly.stl 3. StandAdaptorLowPoly.stl 4. Adaptor Pin.stl 5. PrintableBoltWithHandle.stl 6. PrintableBolt.stl 7. PrintableKnob.stl |

## Required Tools

* Superglue (Optional)
* ¼” wrench (Optional)

### Step 1: Attach the arm to the base

Slide the two pronged end of the arm into the three prongs on the base, lining up the holes. Slide a 1/4-20 bolt through the hole so that the hex head of the bolt fits in the hex slot on the base. If you don't have access to a ¼-20 bolt, the 3D printable bolt can be used instead.

A hand holding a purple object

Description automatically generated A purple object on a white surface

Description automatically generated A purple object with a metal ball

Description automatically generated

### Step 2: Attach the adaptor to the arm

Slide the two pronged end of the adaptor to the three prongs on the arm, lining up the holes. Slide a 1/4-20 bolt through the hole so that the hex head of the bolt fits in the hex slot on the base. If you don't have access to a ¼-20 bolt, the 3D printable bolt can be used instead.

A purple plastic arm on a desk

Description automatically generated A purple plastic object on a desk

Description automatically generated A purple object on a table

Description automatically generated

### Step 3: Attach the pin to the adaptor

Place the octagonal pin in the slot on the adaptor. Superglue can be used to fix it in place if it is a loose fit.

A purple plastic object with a hole

Description automatically generated

### Step 3: Attach the hub to the adaptor

Place the adaptor on the back of the hub, so the octagonal pin fits into the screw hole above the ¼-20 T-Nut. Use a ¼-20 bolt, or the 3D printed bolt with a handle

A hand holding a plastic object

Description automatically generated A hand holding a plastic tool

Description automatically generated

### Step 4: Pose the Hub Stand

Loosen the nuts on both ends of the arm. Adjust the angle of the adaptor and base util the LipSync Hub is located in desired height and angle. Tighten both bolts to lock it in place.

A red and blue device

Description automatically generated