
# SHY GUY BUILD GUIDE

Version 11.06.2024

# PROLOG

Before you begin on your journey, a word of caution.

In the comfort of your own home, you are about to assemble a robot. This machine can burn or electrocute you if you are not careful. Please do not become the first SHY GUY fatality. There is no special Reddit flair for that.

Please, read the entire manual before you start assembly.

Most of all, good luck!
THE SHY GUY TEAM

Finally, thank you to Christoph, Kai and Jakob who always support my work.

# TABLE OF CONTENTS

# INTRODUCTION

## PART PRINTING GUIDELINES
We recommend you follow these Guidelines.

## 3D PRINTING PROCESS:
Fused Deposition Modeling (FDM)

## MATERIAL:
PLA / ABS

## LAYER HEIGHT:
Recommended: 0.2mm

## EXTRUSION WIDTH:
Recommended: Forced 0.4mm

## INFILL TYPE:
Gyroid

## INFILL PERCENTAGE:
Recommended: 40%

## WALL COUNT:
Recommended: 4

## SOLID TOP/BOTTOM LAYERS:
Recommended: 5

## FILE NAMING
By this time, you should have already downloaded our STL/3MF files. You might have noticed that we have used a unique naming convention for the files. This is how to use them.

## COLOR:
Example: Brown_ServoHolder.3mf
We have added Color to the front of any STL file that is intended to be printed with this color.

## SUPPORT AND MULTIMATERIAL:
Example: MultiColor_Title.3mf
All files will print **without support**, if your 3D printer is well calibrated!

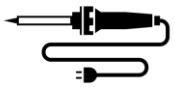
In addition, you will notice the MultiColor file. The title must be printed as a multi-material. No color changer is necessary for this. See the chapter "Print multimaterial" for more information.

# OVERVIEW OF TOOLS

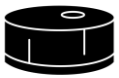
## TOOLS YOU WILL NEED

You will need the following tools. You should also be familiar with them and know how to use them.

SOLDERING IRON



SOLDERING TIN



STRING CUTTER

SCISSORS

WIRE STRIPPER (OPTIONAL)

SCREWDRIVER

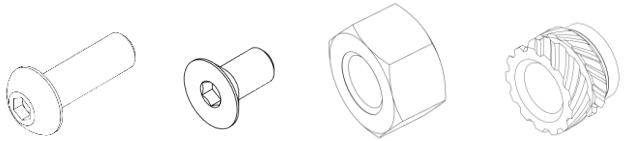
HOT GLUE GUN

SCALPEL

SUPER-GLUE

# PARTS LIST

You can source your parts from amazon, aliexpress, ebay or from your local parts store.



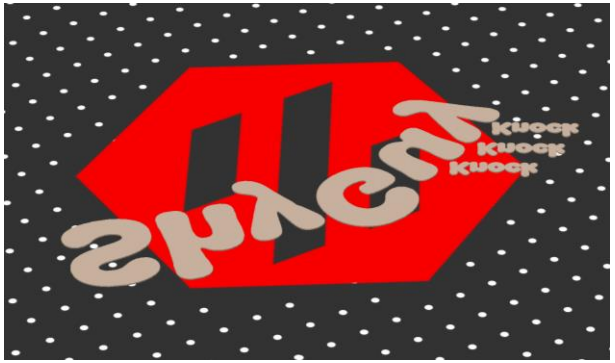

| Part | Quantity | Description | Approximate price (Aliexpress - EUR/USD) | |
|---|---|---|---|---|
| M2x6 BHCS | 6 | Mounting the display / accelerometer | <0,20€ | <0.21$ |
| M2x10 BHCS | 2 | Mounting the servo holder | <0,20€ | <0.21$ |
| M2x10 BHCS | 2 | Mounting the servo (1/2) | <0,20€ | <0.21$ |
| M2 hex nut | 2 | Mounting the servo (2/2) | <0,20€ | <0.21$ |
| M2x6 BHCS | 4 | Mounting the base cover | <0,40€ | <0.43$ |
| M2x4mm heat set insert | 10 | For all screw holes (See Ruthex) | 1,00€ | 1.07$ |
| M8 hex nut | 10 | Extended Feet (optional) | 0,50€ | 0.54$ |
| Wemos S2 mini | 1 | Microprocessor | 1,50€ | 1.61$ |
| SG90 Micro servo | 1 | For opening the slider | 2,00€ | 2.14$ |
| GMT130-V1.0 display IPS 240x240 | 1 | Display | 2,50€ | 2.68$ |
| 8Ω 2W speaker 28mm | 1 | Sound output | 2,50€ | 2.68$ |
| GY-291 ADXL345 | 1 | Accelerometer | 1,50€ | 1.61$ |
| CJMCU-832 PAM8302A 2.5W | 1 | Audio amplifier module | 1,50€ | 1.61$ |
| Solder wires 0.14-0.25qmm | 50cm | Use different colors for recognizability | <1,00€ | <1.07$ |
| Shrink tubing | 20cm | Electrical insulation | <0,50€ | <0.54$ |
| Total | | | <15€ | <16$ |

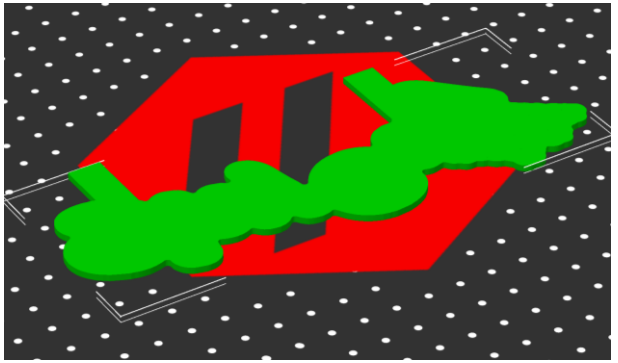

# TITLE FRAME ASSEMBLY

# PRINT TITLE FRAME MULTIMATERIAL

## PRINT HOUSING

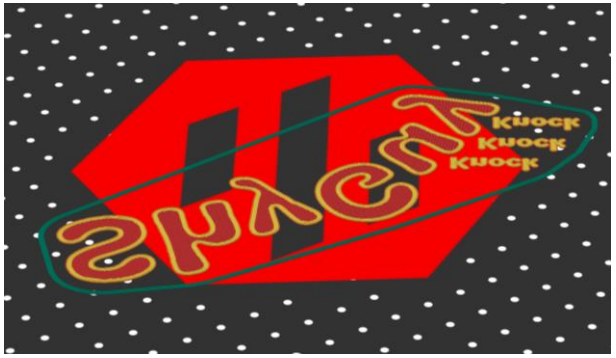
It is possible to print the title with two colors **without a multi material unit** or color changer like the Prusa MMU or Bambu Lab AMS. The .3mf files are designed to print them as is, in two separate consecutive printing operations.
Step 1: Slice two different files. The first one only containing the characters ***ShyGuy KnockKnockKnock*** and the second with the remaining title carrier material.
Step 2: Print the first file with the black color you are using.
Step 3: Directly after the end of printing, go to the printer settings and set the bed temperature back to 55°C (PLA). This will prevent the printed characters from cooling down and from detaching from the print bed.
Step 4: Remove the skirt from the printer bed and change filament manually to brown color.
Step 5: Print second file. The printer will wrap the letters and fuse them into a single first layer.

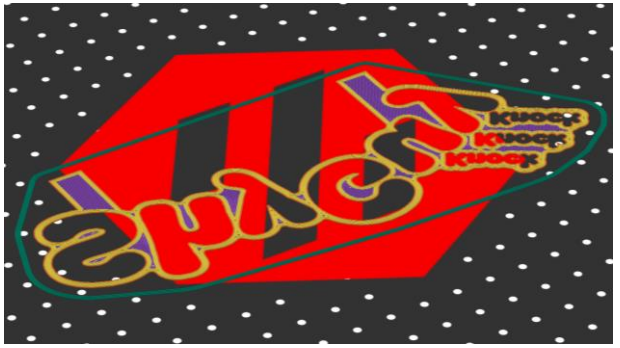




## PRACTICE MAKES PERFECT

It's a bit challenging and you have to exercise patience and also start one or two more attempts. But it works and the result is stunning!





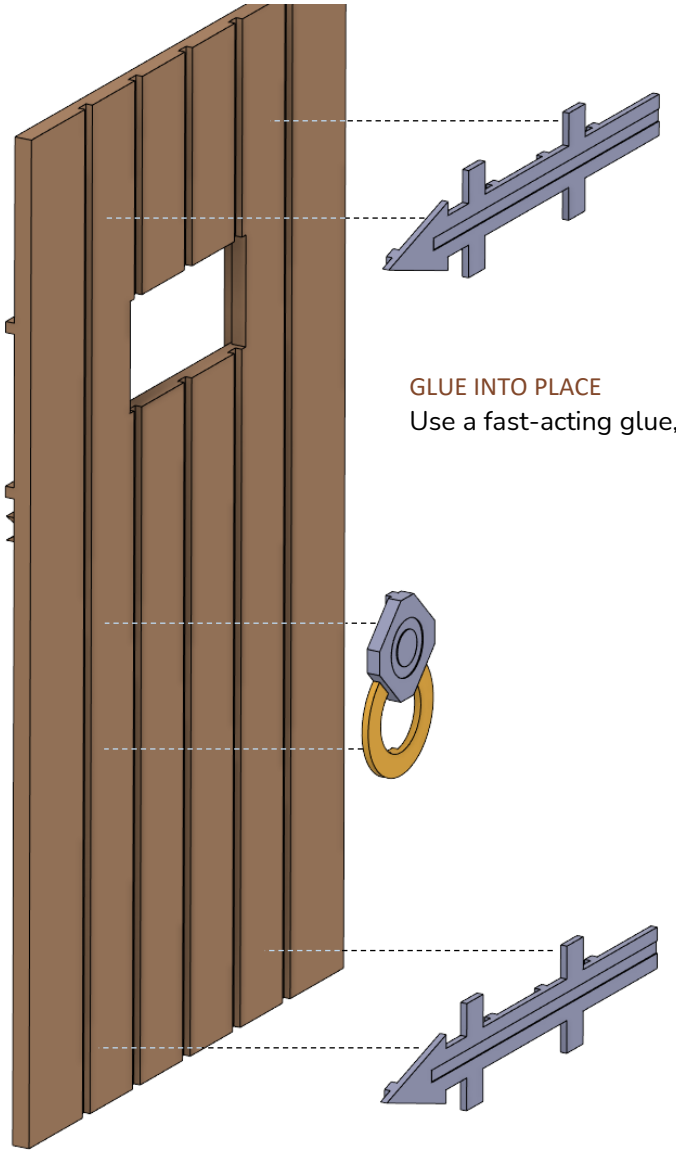
# TITLE FRAME


GLUE INTO PLACE

Use a fast-acting glue, like super-glue.


# DOOR ASSEMBLY

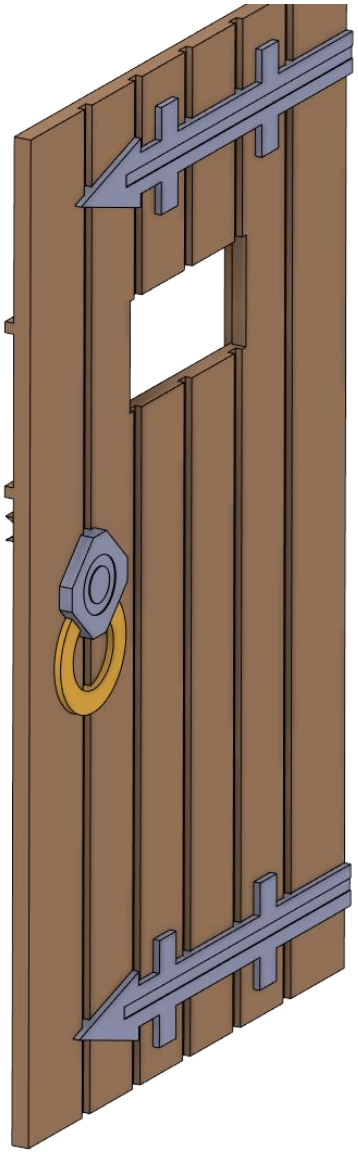
# DOOR



GLUE INTO PLACE

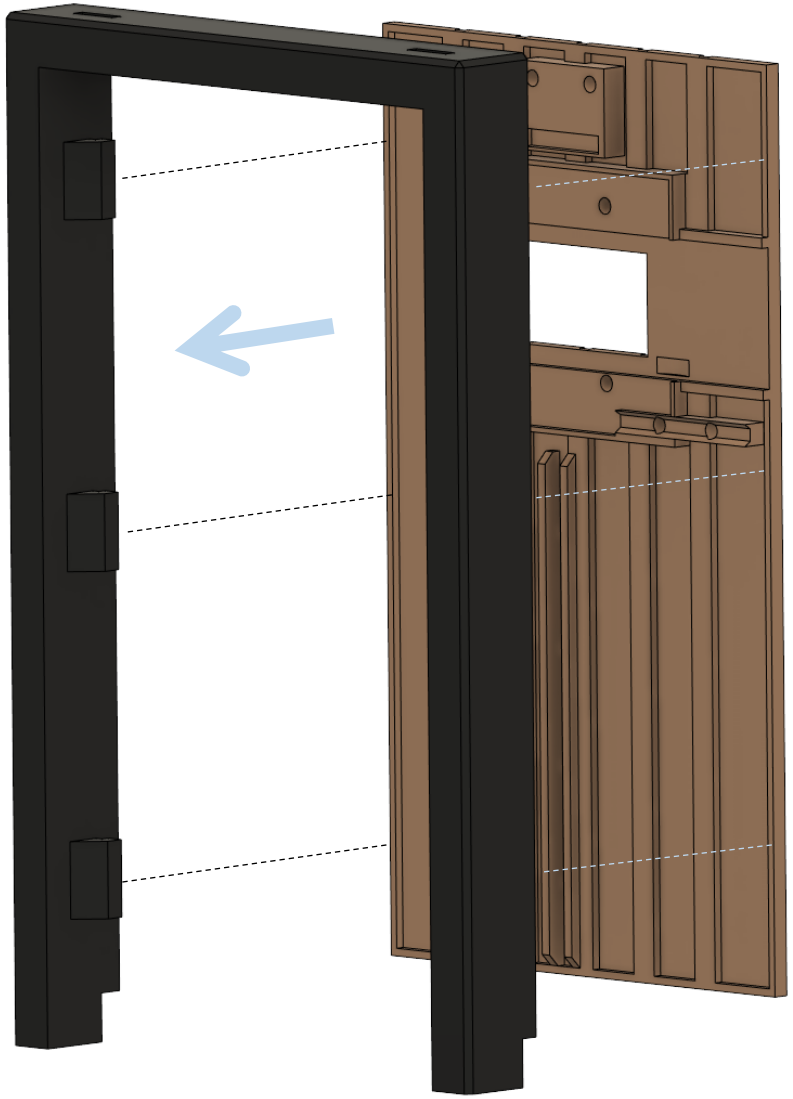
Use a fast-acting glue, like super-glue.






# DOOR FRAME ASSEMBLY

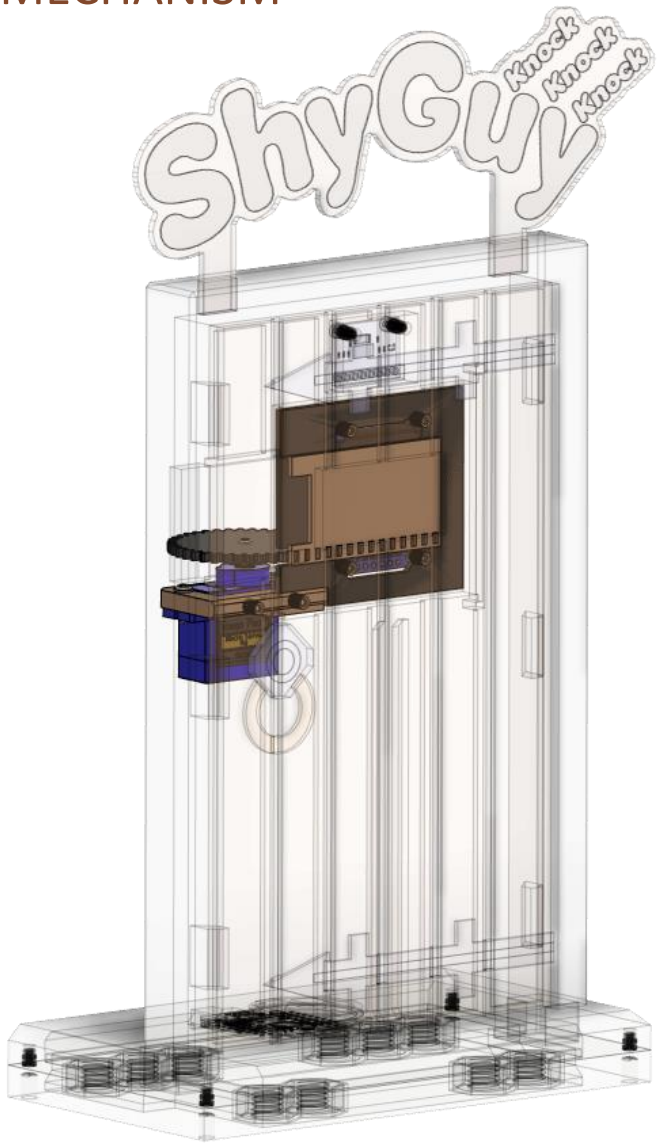
# DOOR FRAME



### GLUE INTO PLACE

Use a fast-acting glue, like super-glue.

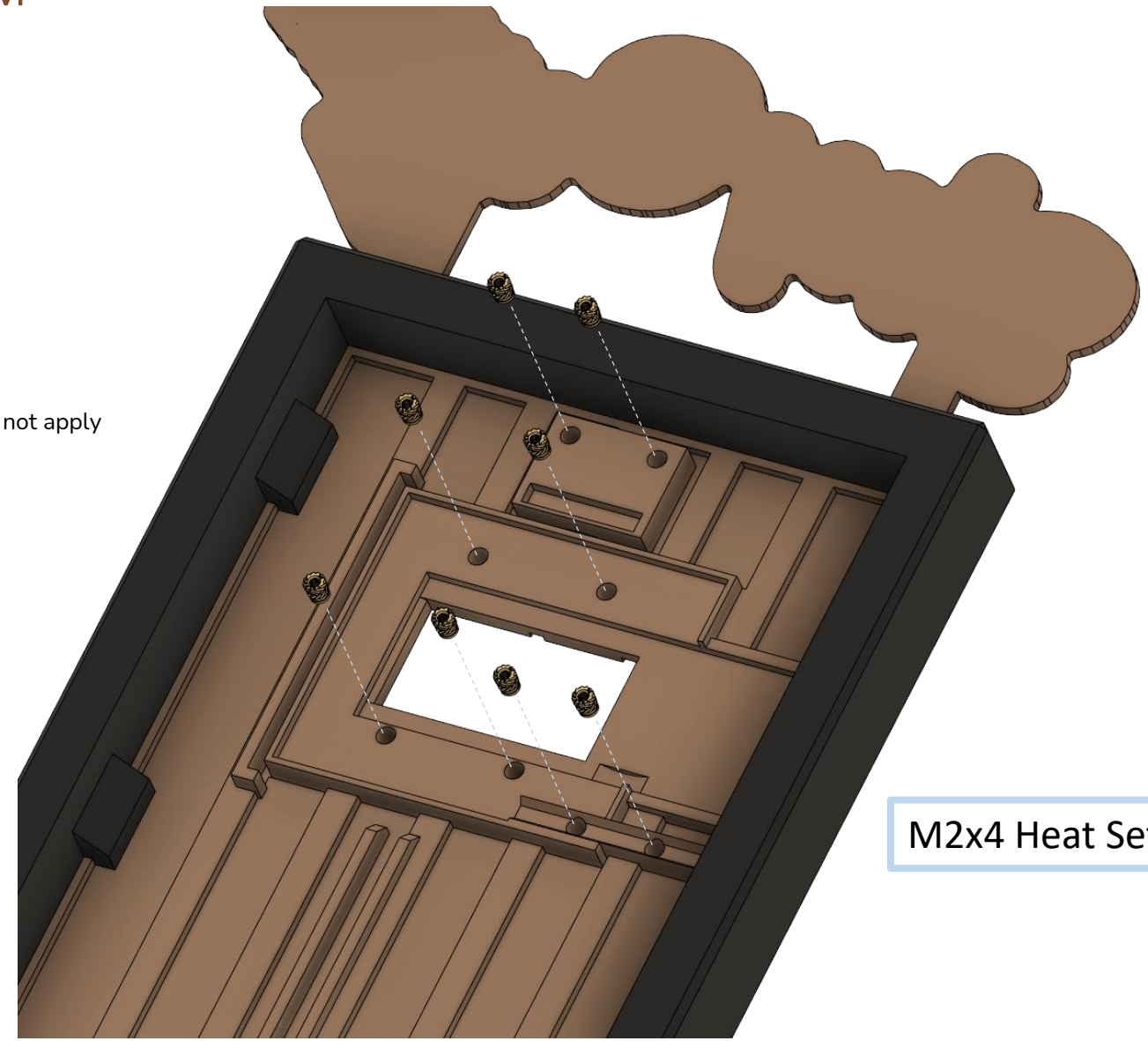
## SLIDER MECHANISM




# SLIDER ASSEMBLY

# SLIDER MECHANISM

TIP:
If you printed with PLA, do not apply to much heat.

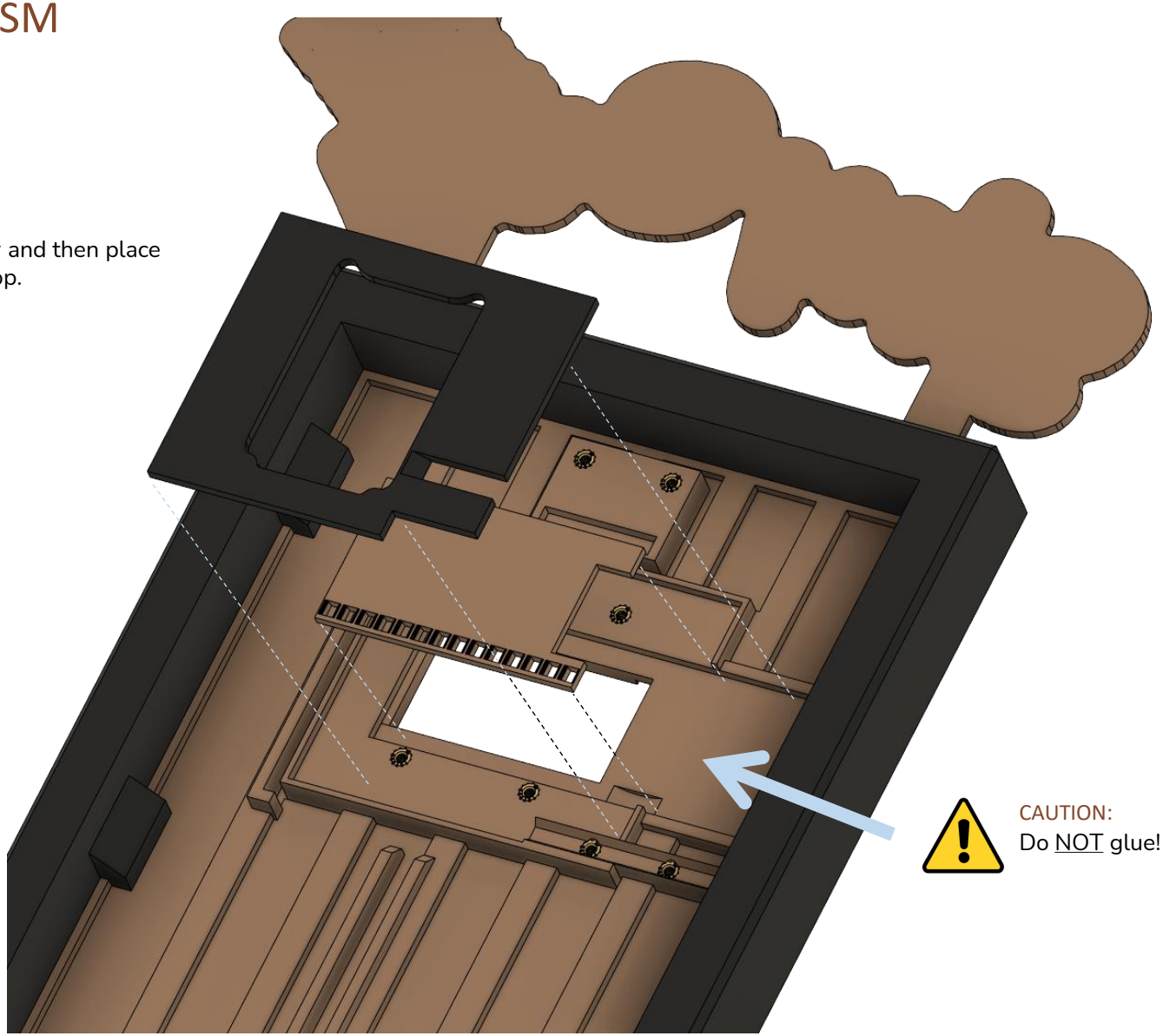


M2x4 Heat Set Inserts

# SLIDER MECHANISM

INSERT

First insert the slider and then place the black cover on top.



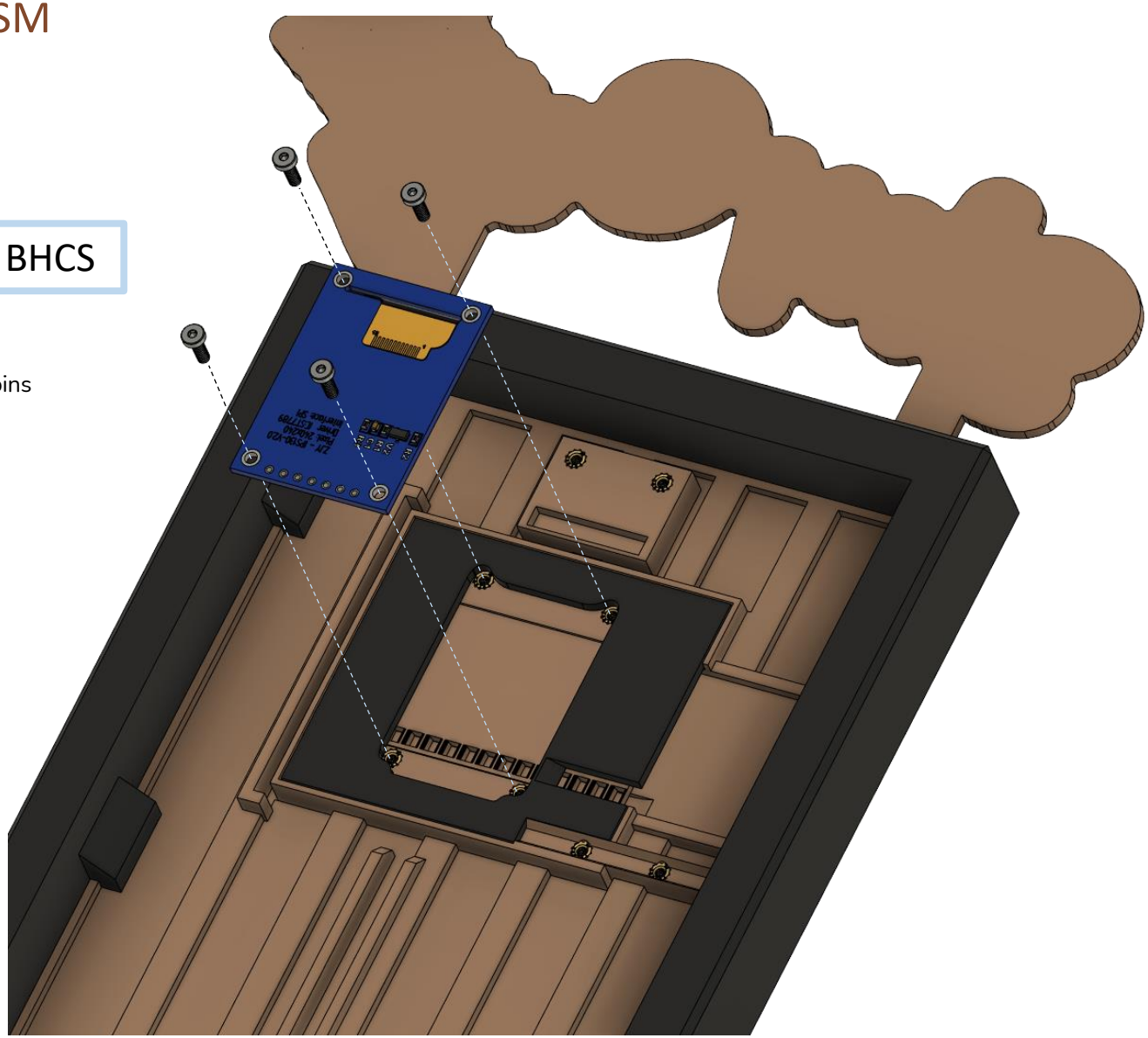
CAUTION:

Do NOT glue!

# SLIDER MECHANISM

M2x6 BHCS

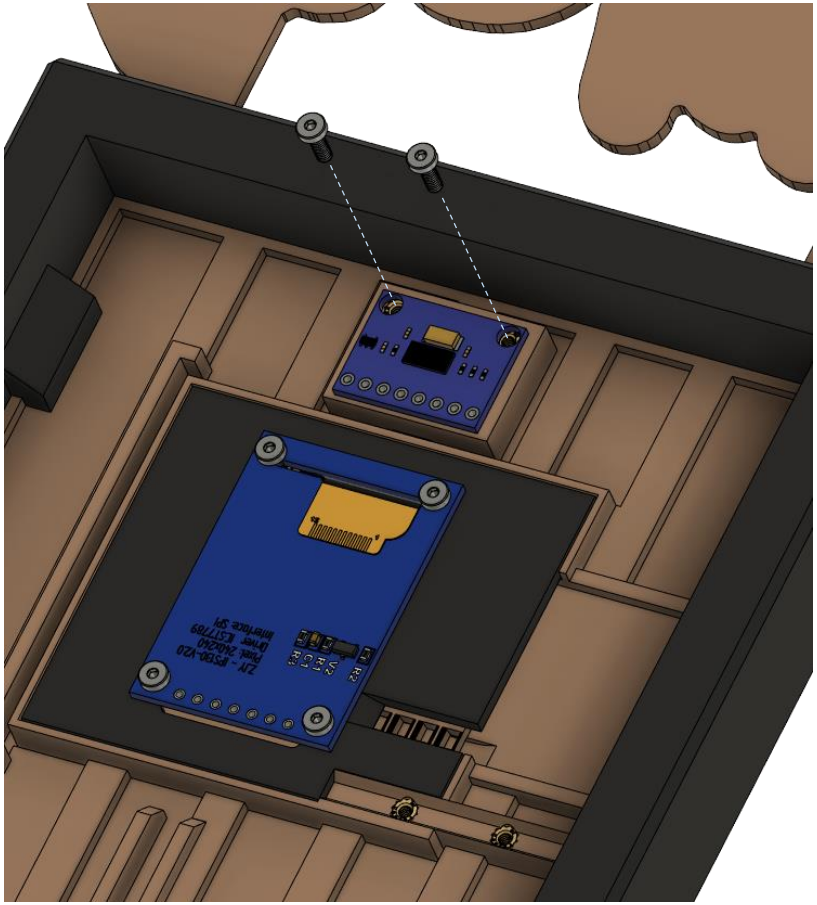
TIP:
Make sure to solder the header pins before mounting the display.



# SLIDER MECHANISM

TIP:
Make sure to solder the header pins before mounting the accelerometer.

M2x6 BHCS

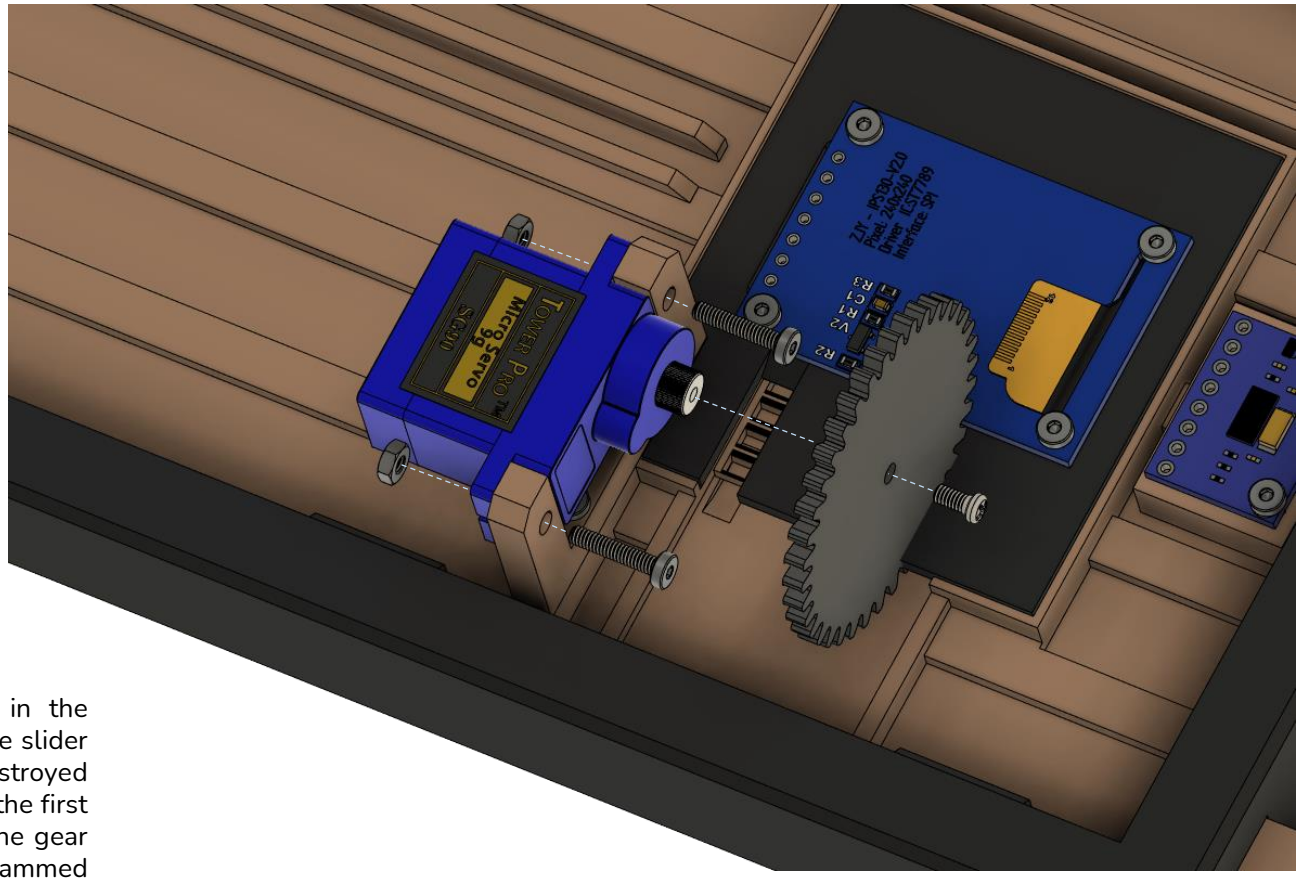


M2x10 BHCS

# SLIDER MECHANISM

M2 hex nuts

M2x10 BHCS



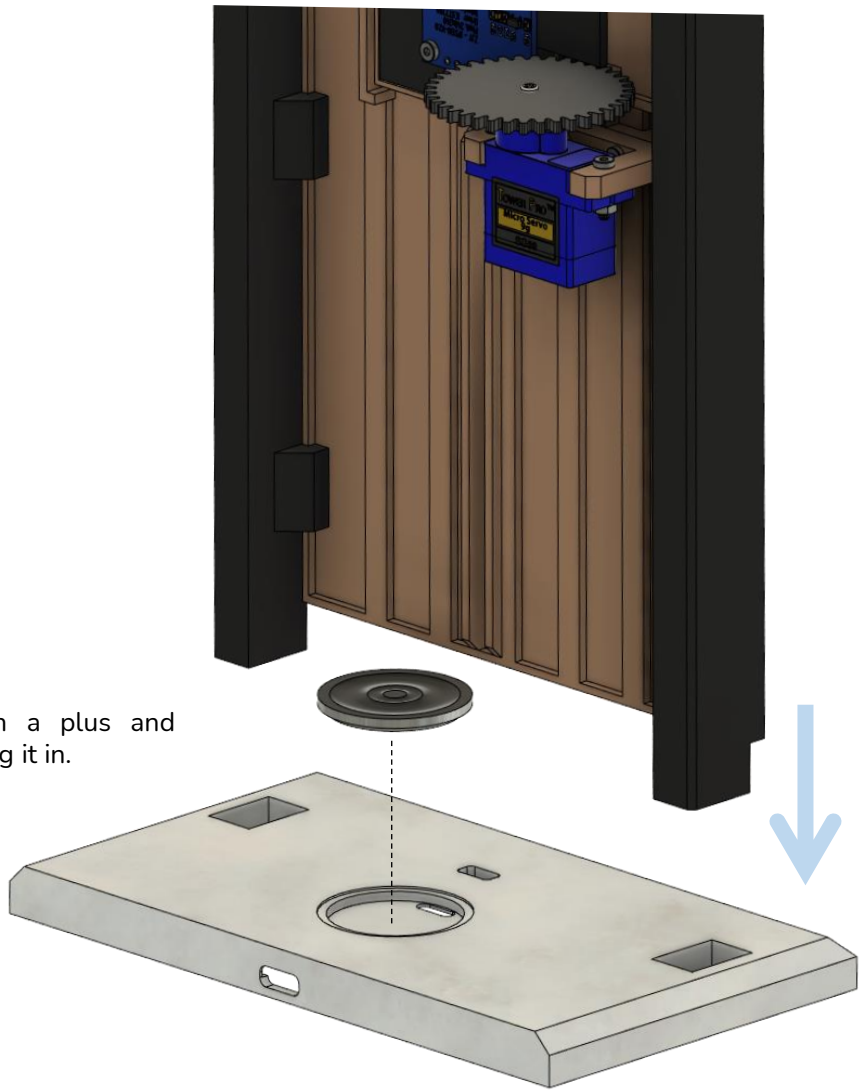

Servo screw (SG90 included)

TIP:

Make sure that the servo is in the correct position in relation to the slider to prevent it from being destroyed later when it is switched on for the first time. If you are unsure, leave the gear wheel off until you have programmed the controller.


# BASE ASSEMBLY

# BASE

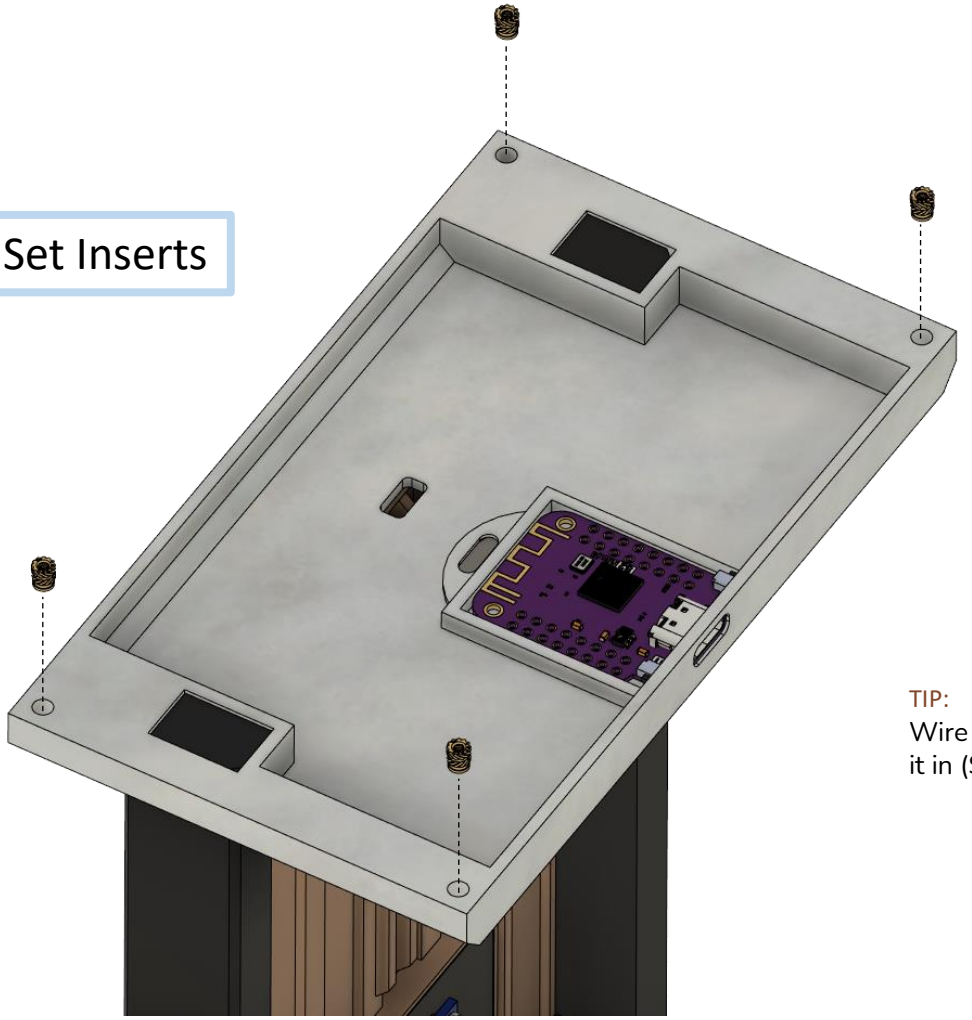


TIP:
Wire the speaker with a plus and minus cable before gluing it in.

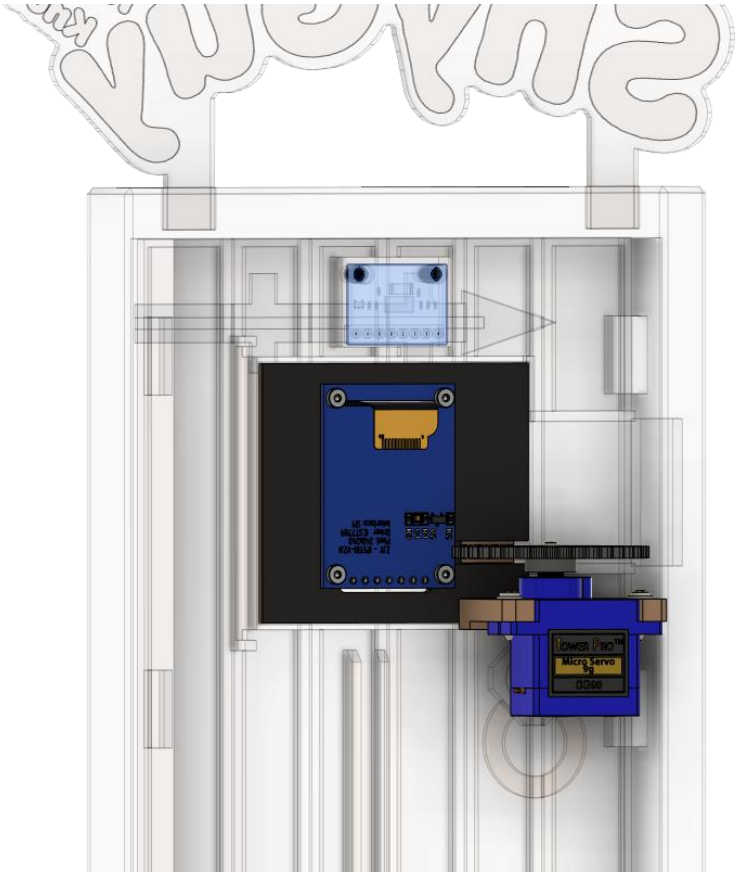
GLUE INTO PLACE
Use a fast-acting glue, like super-glue.

# BASE

M2x4 Heat Set Inserts



TIP:
Wire the Wemos S2 Mini before gluing it in (See next chapter “Electronics”).

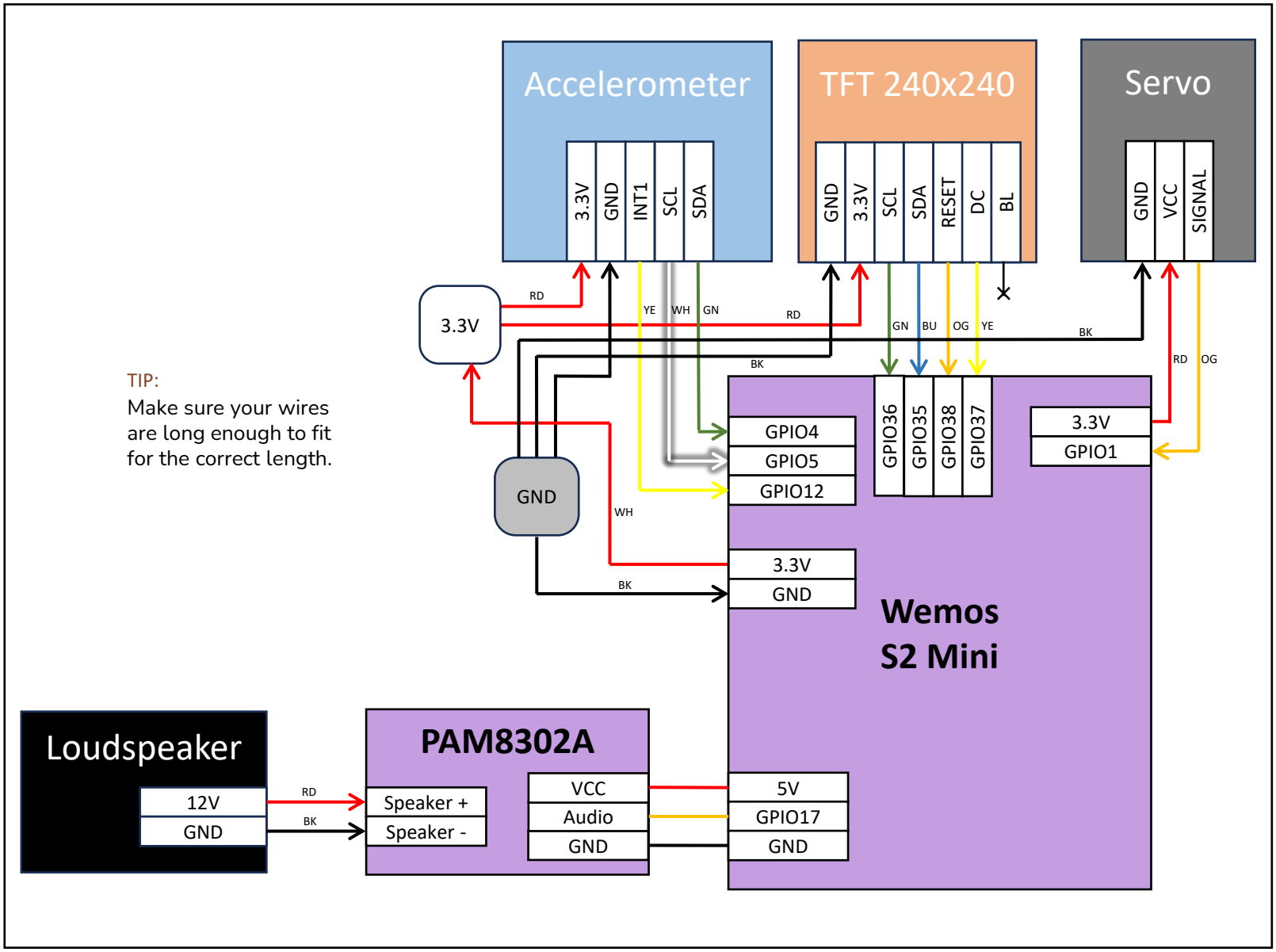



# ELECTRONICS

# ELECTRONICS

WIRING:

Use this electrical wiring diagram to solder all your parts together.

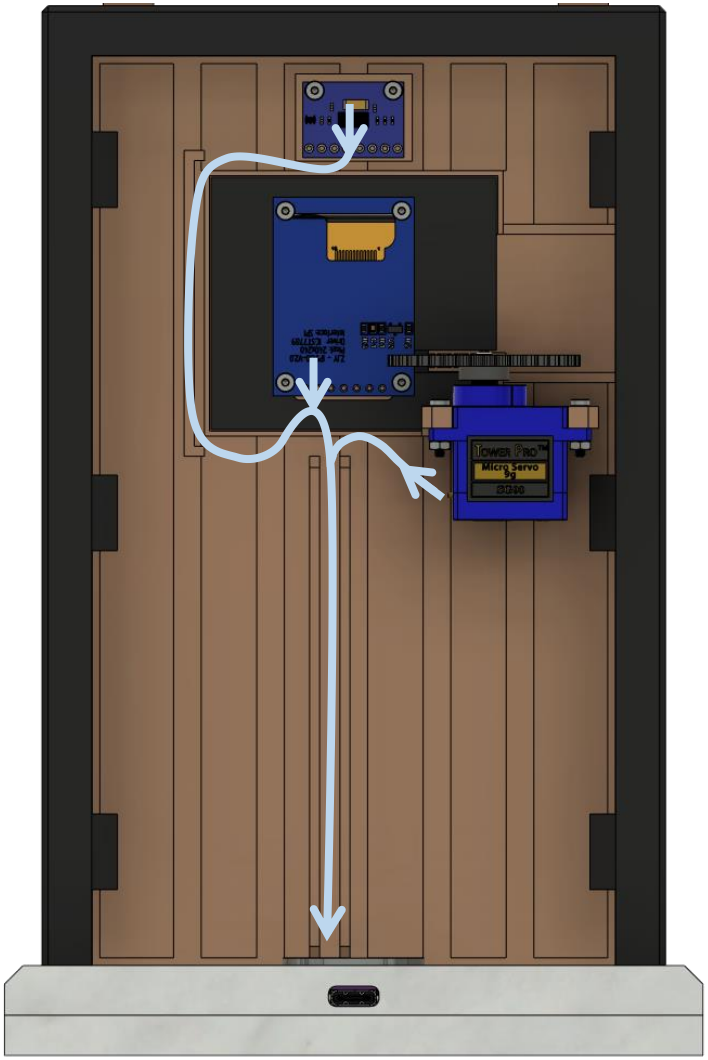



TIP:

Make sure your wires are long enough to fit for the correct length.

# ELECTRONICS

TIP:
Use the cable ducts to lay the cables neatly.




# FINAL ASSEMBLY

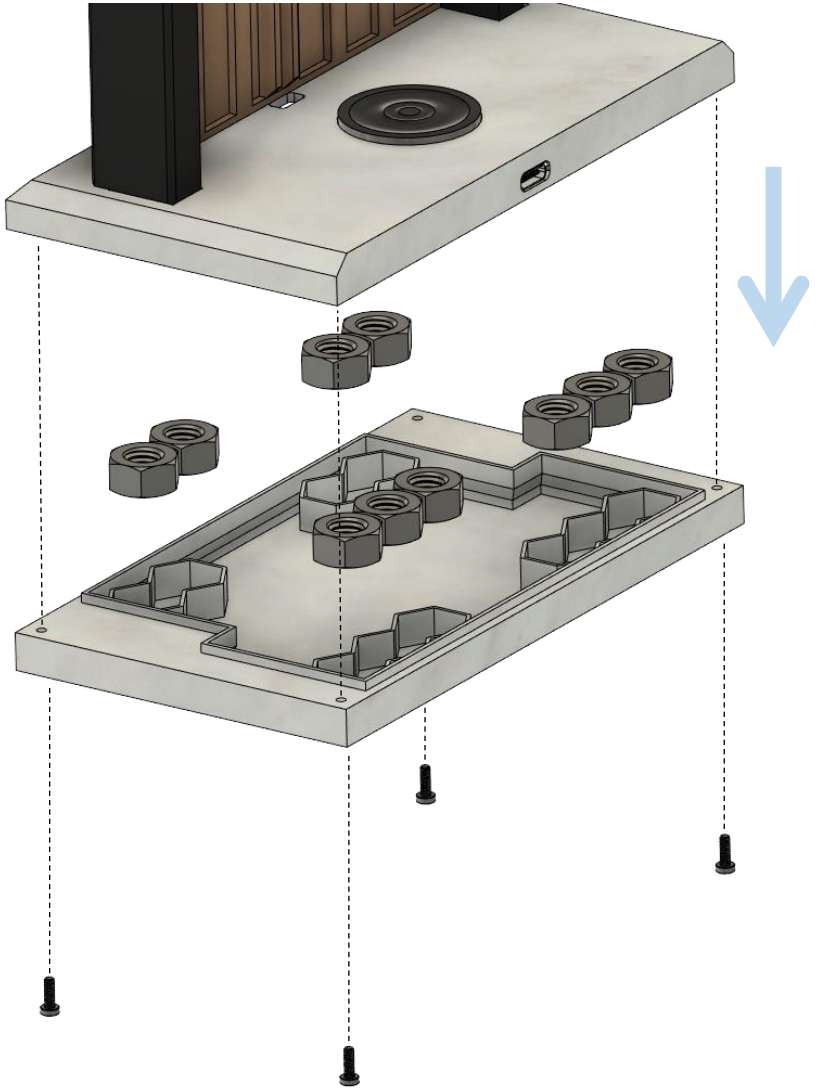
# FINAL ASSEMBLY

M8 hex nuts

GLUE INTO PLACE

Use a fast-acting glue, like super-glue.

M2x10 BHCS



# NEXT STEPS

## ASSEMBLY COMPLETED! … NEXT STEP: SETUP & TEST

This manual is designed to be a reference manual for the build process. Next step is to upload the firmware to the Wemos S2 mini and start testing for its function.

You can find the firmware here:


https://github.com/flo199213/ShyGuy


Have fun with your Shy Guy.