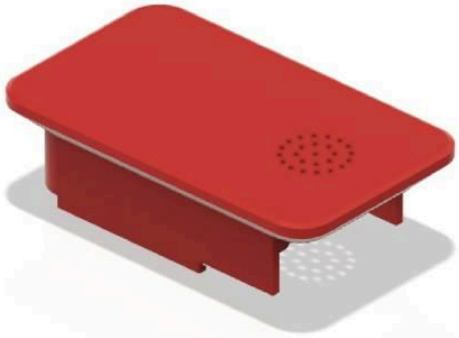
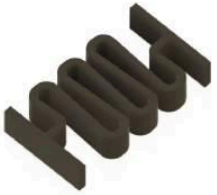
Assembly Instruction
FlickOut - Mini Punching Ball Arcade Game

Parts



TPU

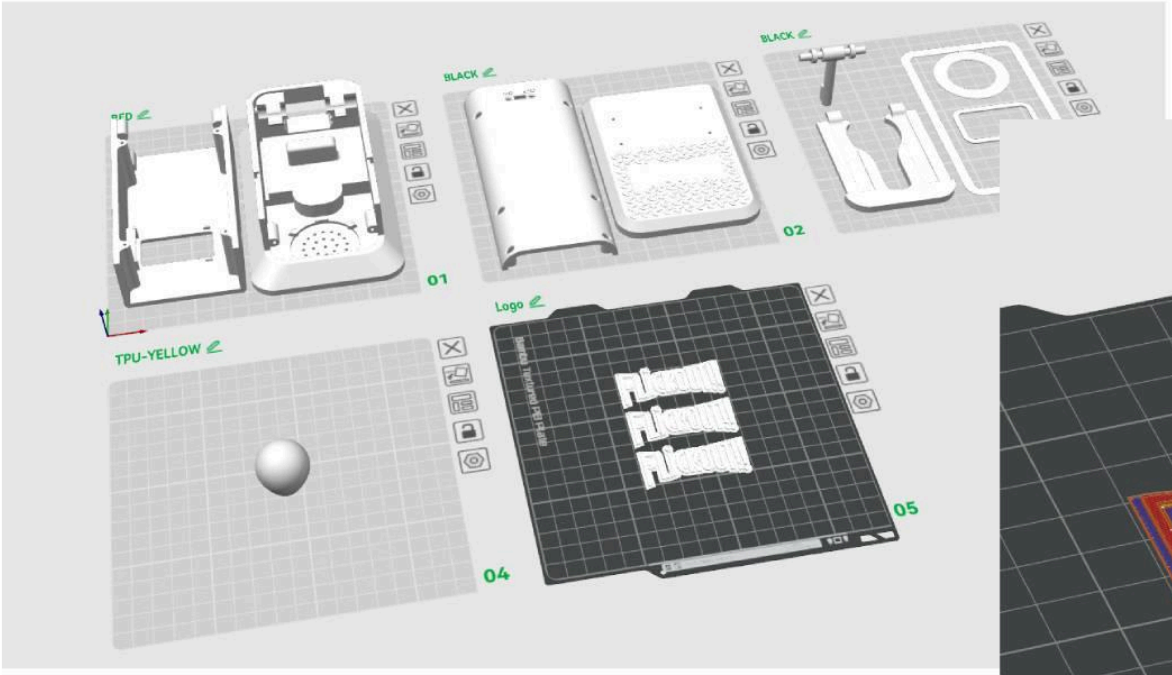
X3

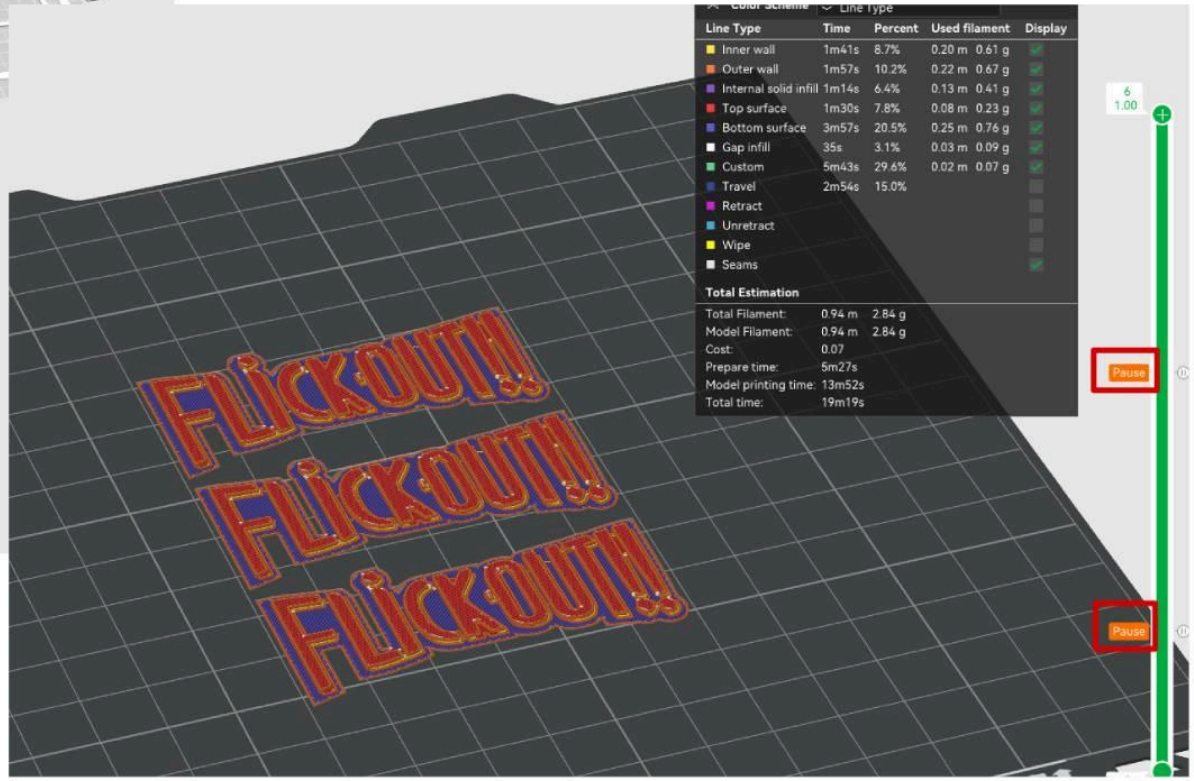


Printing Instruction

I separated the parts across different print plates based on colors and materials for easier printing.

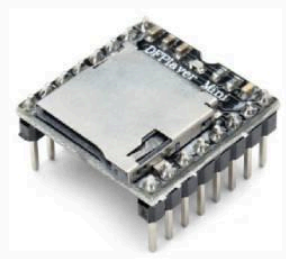
There are no particular difficulties during printing; I use basic PLA as well as a no-name TPU filament for the ball.
I added 2 pauses at layer 2 and 4 for the logo print (I don't have an AMS) to allow you to change filaments.





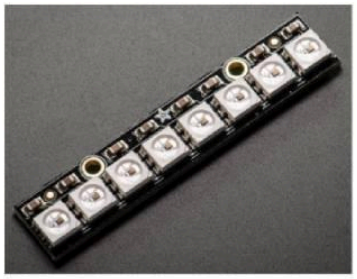
External Components

Lilygo T-Dispay S3 **X1**



DF Mini Player **X1**

SD card (max 32 GB) **X1**

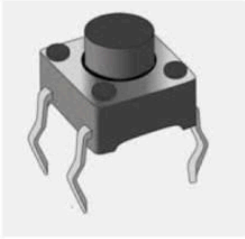


NeoPixel Stick **X1**

Speaker 40mm **X1**

Lipo 1s 1000 mah

Dupont Jumper Wires
female to female



Push Button
6X6X5 **X1**

47K resistor **X1**

SS12F15 **X1**

BT8X2 self tapping
Screws **X10**

M2X8 screws
and Nuts **X2**

FSR Force sensor
0-30 Kg **X1**

10X5X4 ball bearing **X2**

Tools

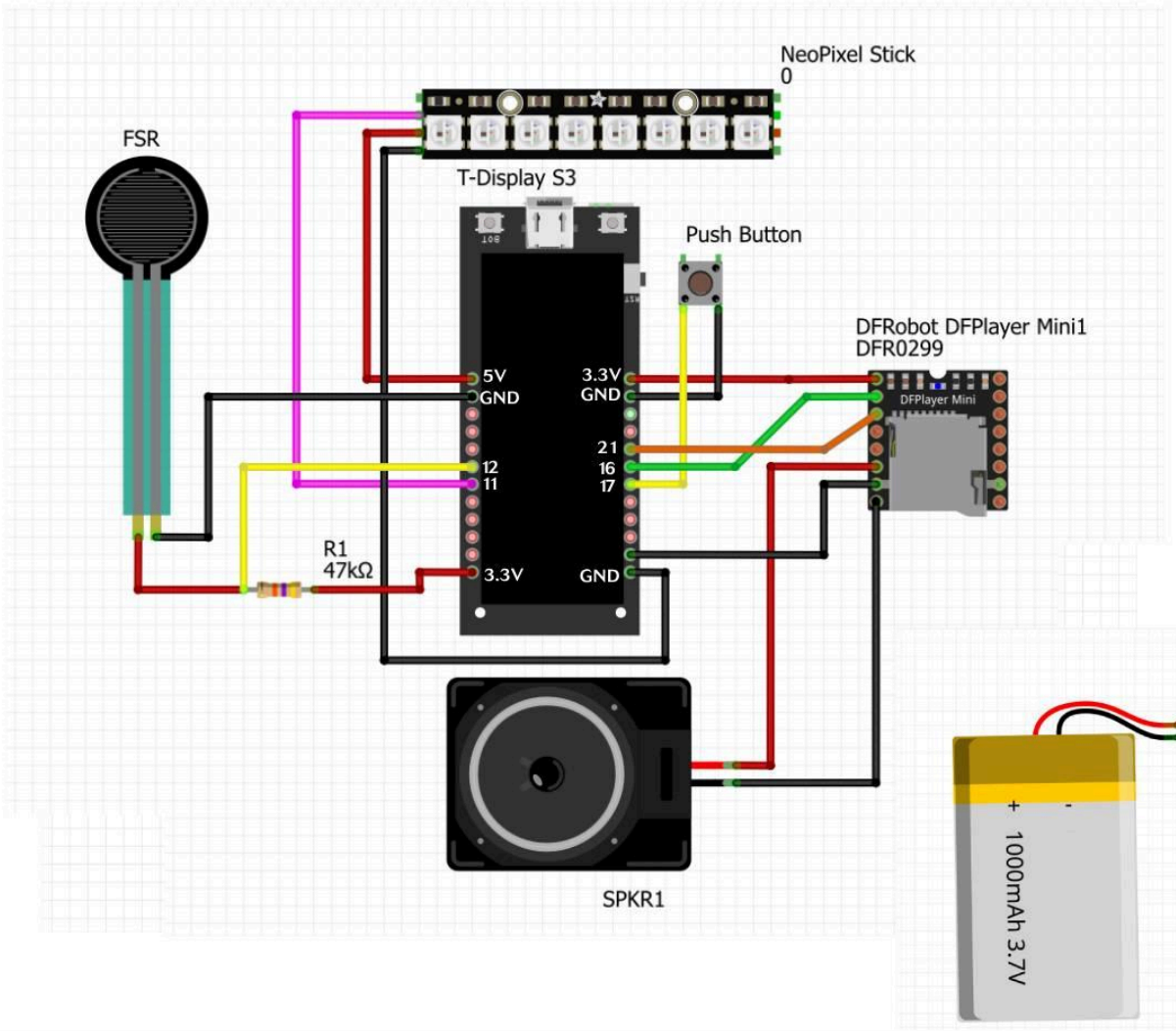
Even though I tried to keep it as simple as possible, this build is not plug and play.
Some simple soldering is essential.

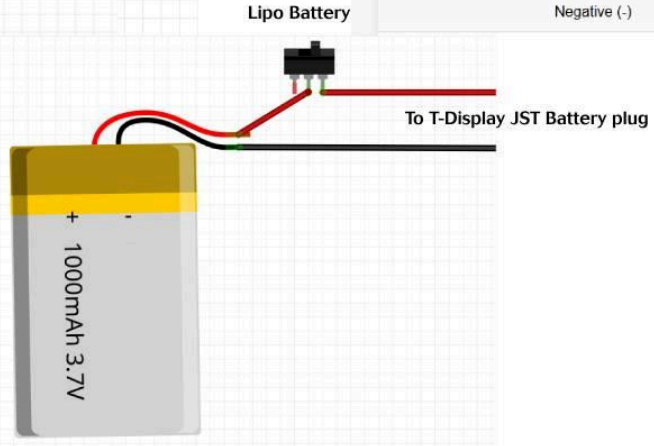
You will therefore need:

-A soldering iron
-Heat shrink tubing
-Wire cutters
-Super glue
-Double side tape
-1.5 Hex ScrewDriver (the one that came with yor bambu printer works well)
-1.5 cross ScrewDriver

Electronics

Before starting the assembly, please test the electronic setup to ensure that everything is working correctly.

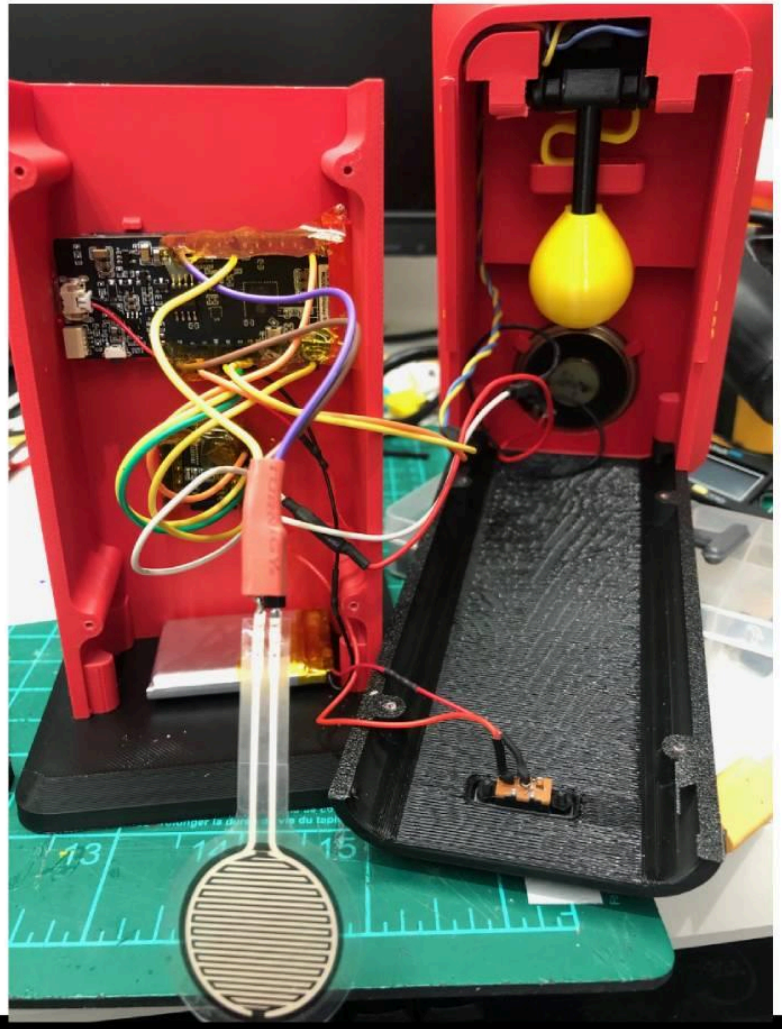


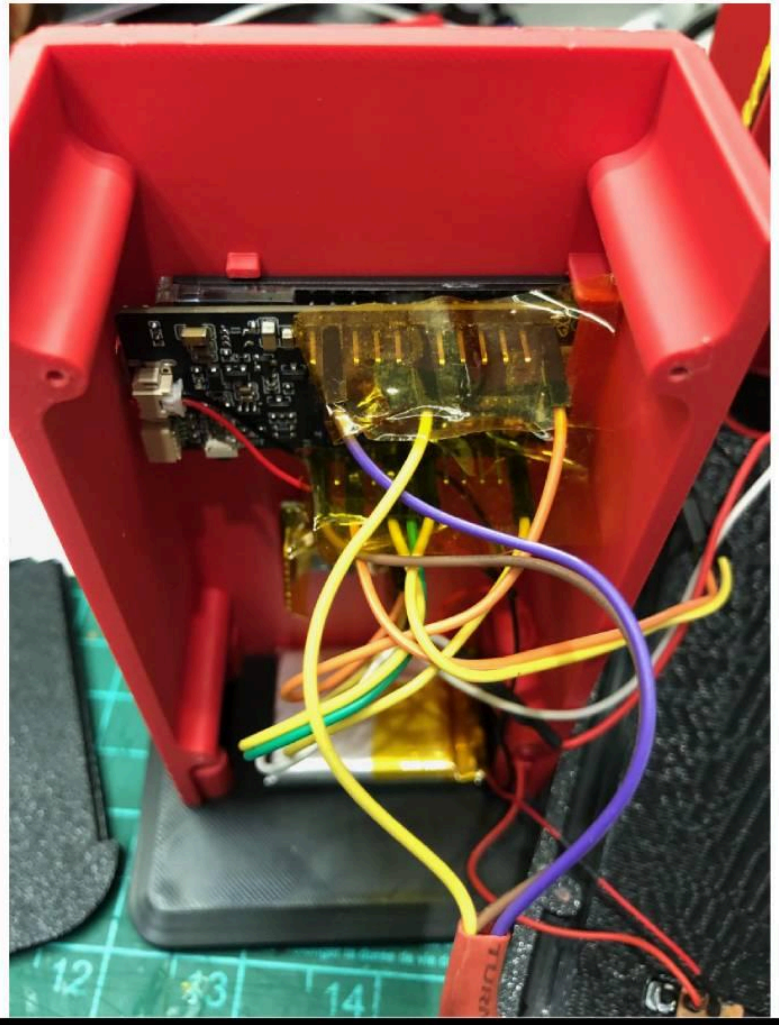


COMPONENT	PIN/CONNECTION	T-DISPLAY S3 GPIO	FUNCTION
• **DFPlayer Mini**	VCC	`3.3V`	Power Supply
	GND	`GND`	Ground
	RX	`GPIO 16 (TXD2)`	Serial Data Receive
	TX	`GPIO 21 (RXD2)`	Serial Data Transmit
	SPK+	`DFPlayer SPK+`	Audio Output
	SPK-	`DFPlayer SPK-`	Audio Return
• **Force Sensor (FSR)**	Pin 1	`GPIO 12`	Analog Input
	Pin 2	`GND`	Ground
	Pull-up Resistor	`GPIO 12 to 3.3V (via 47kΩ resistor)`	Voltage Divider Reference
• **External Button**	Pin 1	`GPIO 17`	Digital Input (Internal Pullup)
	Pin 2	`GND`	Ground
• **NeoPixel Stick (8 LEDs)**	VCC	`3.3V`	Power Supply
	GND	`GND`	Ground
	Data In	`GPIO 11`	Digital Data Signal
• **LiPo Battery**	Positive (+)	`JST Connector`	Power Input + Battery Monitor (GPIO 4)
	Negative (-)	`JST Connector`	Ground

Electronics

The majority of connections are made without soldering using jumper wires.(secured by Kapton tape)
All that remains is to solder the force sensor resistor, the speaker wires, the push button, as well as the ON/OFF switch to the battery.



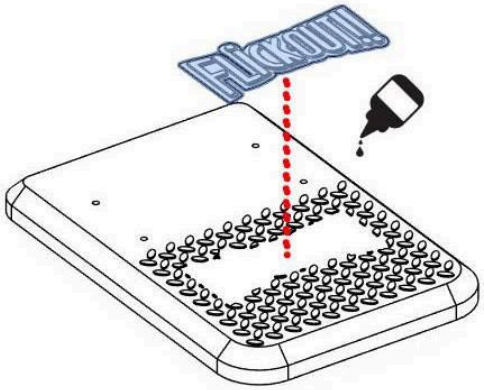


Software

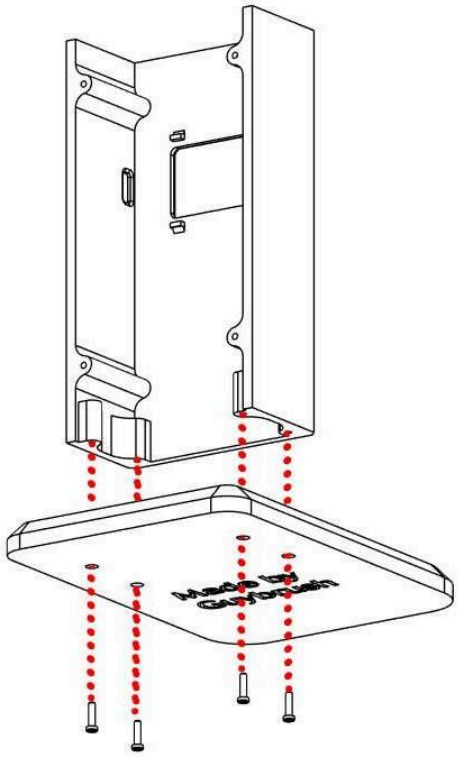
Please find the software in the dedicated gitHub repository

https://github.com/GuybrushTreep/Flick-Out

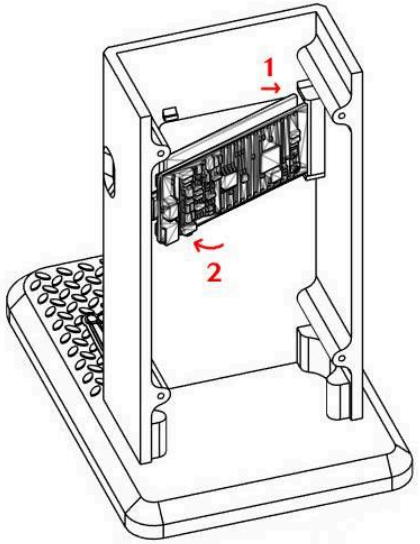
Assembly



Glue the logo on the stand

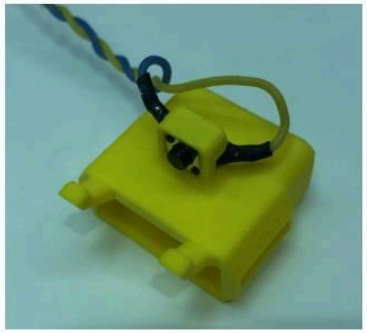


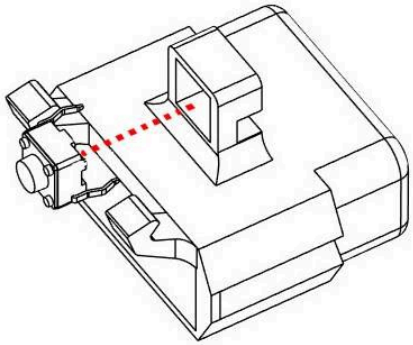
Screw the main frame to the stand using 4 2X8 self tapped screws



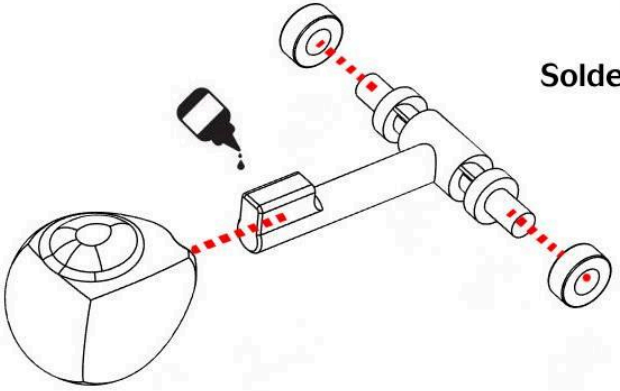
Insert the T-display into its housing on the right side, then gently slide it to the left to lock it in place.

Assembly

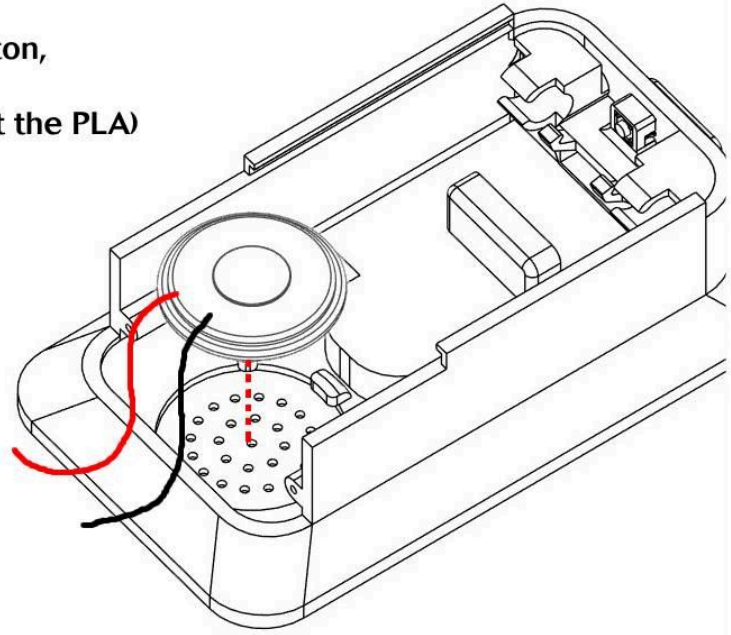




Cut off the two unnecessary legs of the push button,
then insert it into its housing.
Solder the two wires to the legs. (Be careful not to melt the PLA)

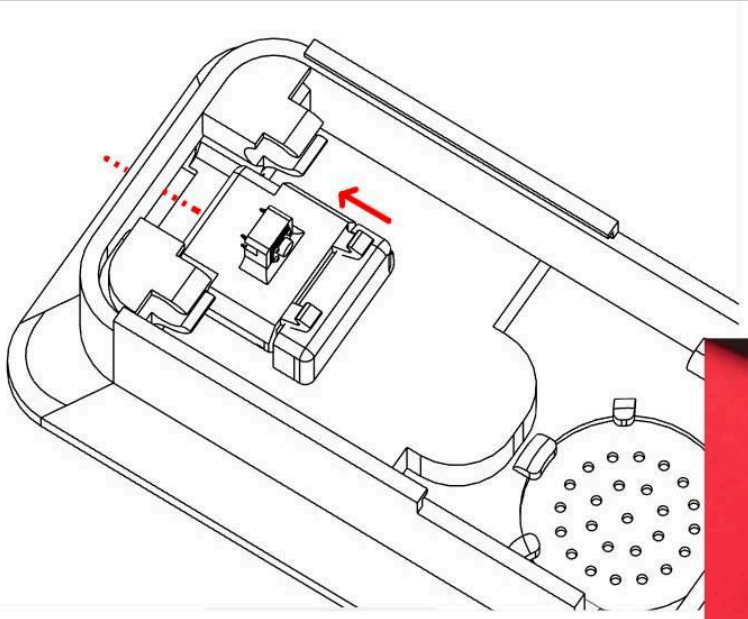


Press-fit the two bearings onto the axle,
then glue the ball (be careful to insert it fully).

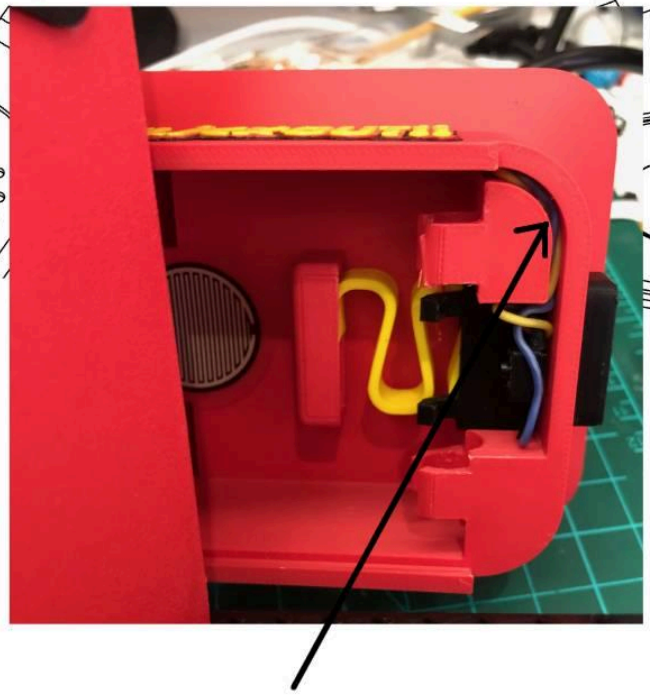


Press-fit the speaker into its housing by sliding
it in from the side.

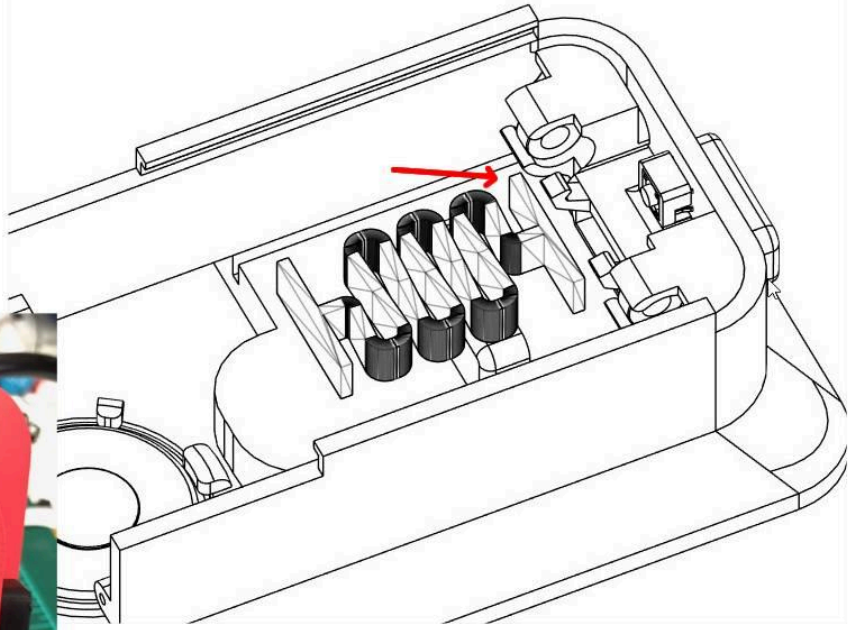
Assembly



Insert the button into its housing.

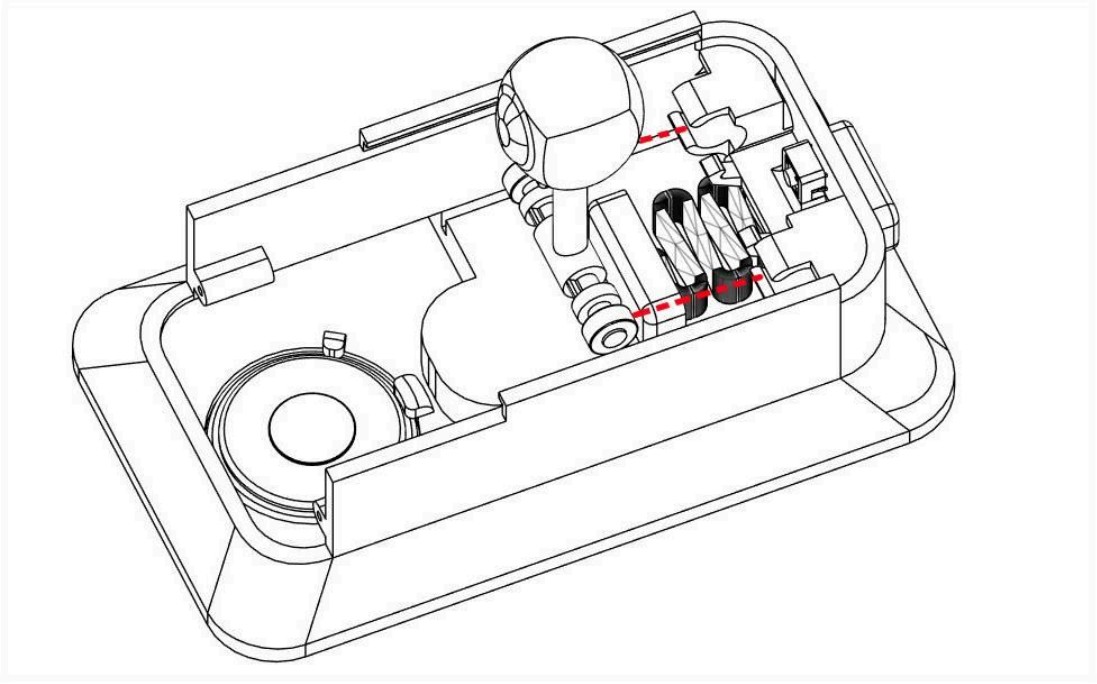


Note the presence of a cable pass-through for the push button wires.

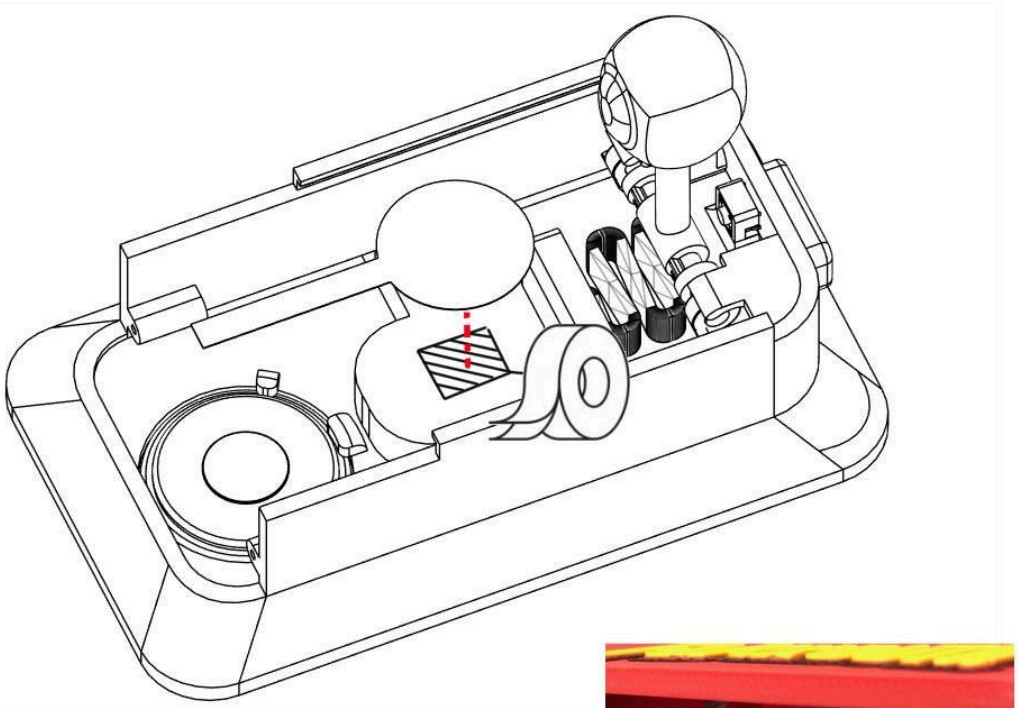


Then press-fit the spring starting by inserting it into the button.
It's quite tight but it will eventually go in.

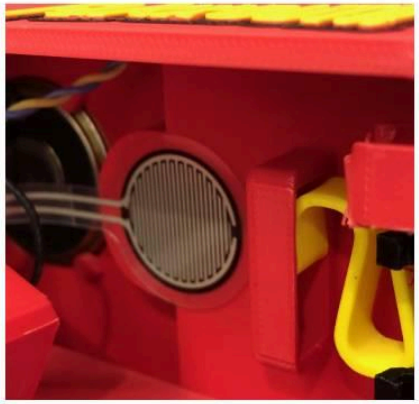
Assembly



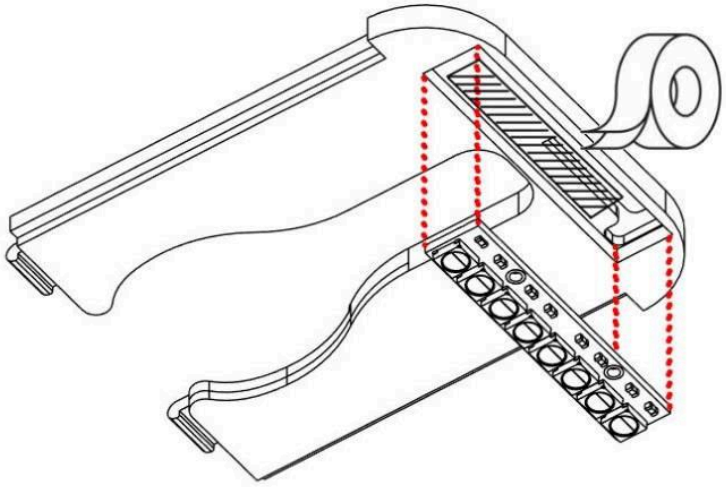
Press-fit the arm into its housings.



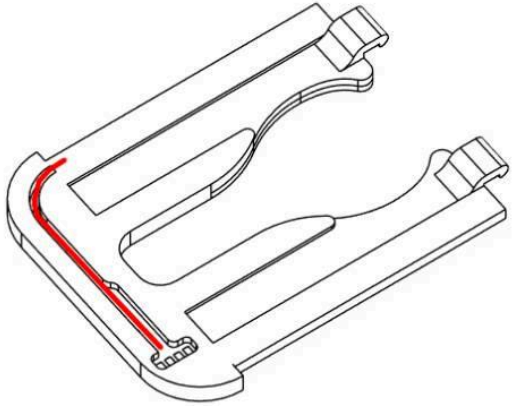
Glue the force sensor using double-sided tape.
Be careful to center it perfectly in relation to the ball.



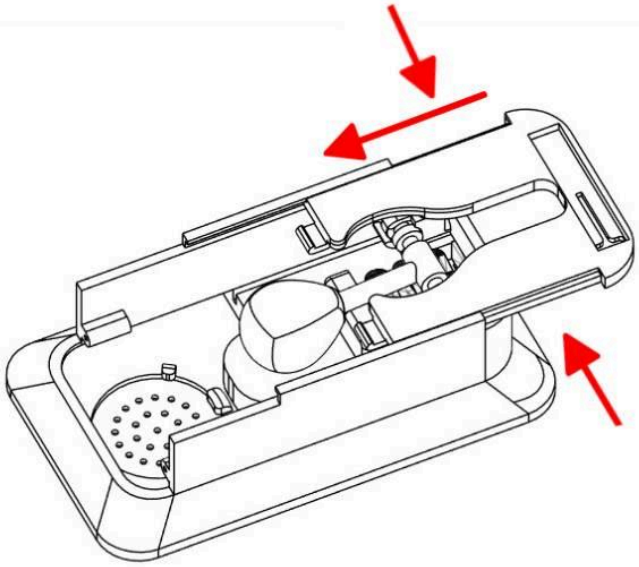
Assembly



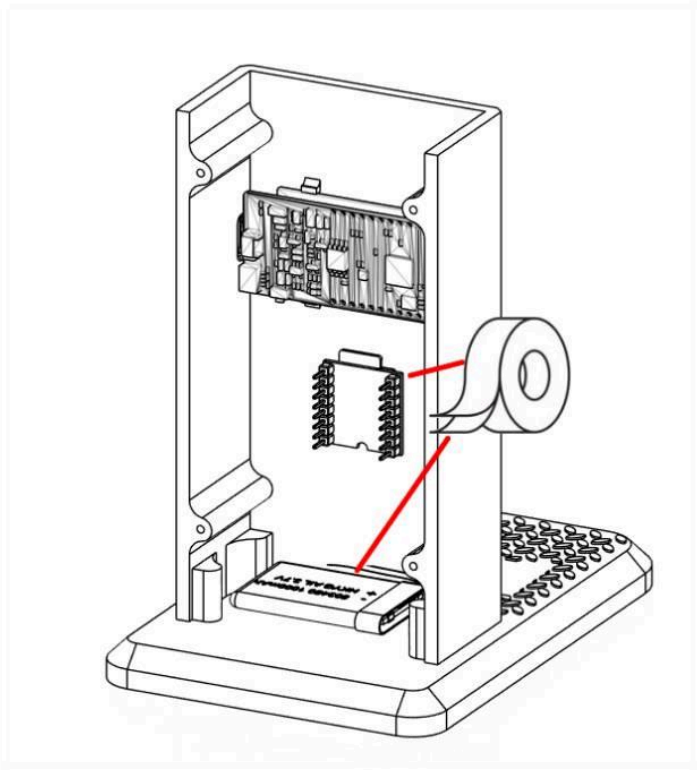
Insert and attach the neopixel stick using double-sided tape



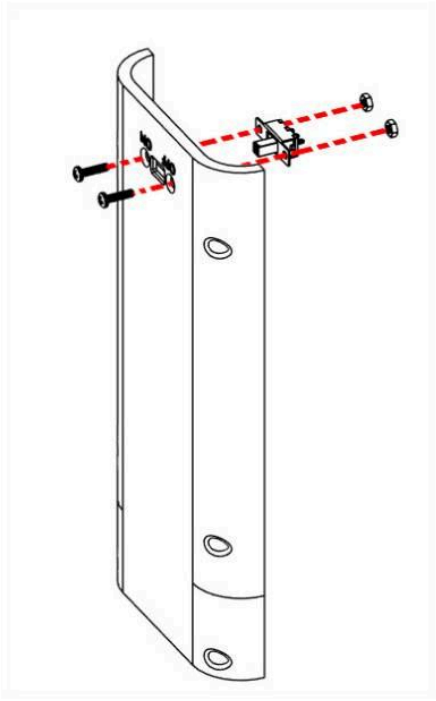
Run the wires through the groove designed for this purpose



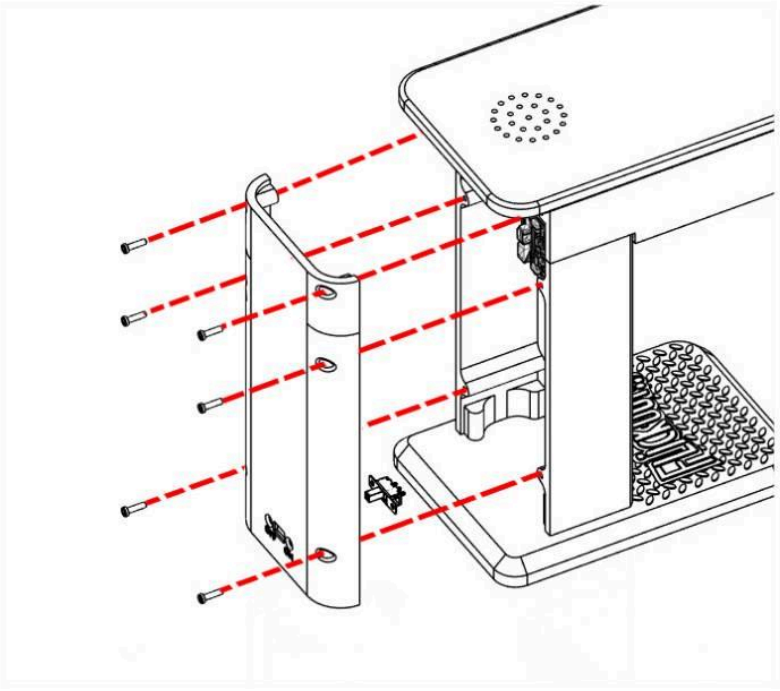
Slide the cover gently, you must press on the sides to make it go through



Attach the DF mini player as well as the battery using double-sided tape



Screw the switch to the back cover



And finally, screw the back cover using 6 self-tapping screws