



ASSEMBLY GUIDE

V1.3

WELCOME!

This is a big project - I hope you'll enjoy putting it together! To make it digestible, these steps have you assemble the 8 main parts individually and then put them together. This can make it easier to complete part of the process and come back to it later.

There are two versions of this project:

- **The CyberBrick version** is remote controlled with servos and motors. It is the default version of the project.
- **The Wired version** is not remote-controlled and requires fewer electronic components (saving on the total cost). This version requires printing a few small extra parts. Differences in assembly instructions are noted in the instructions.

All of the big parts are compatible with both versions. If you'd like, you could start with the Wired version and later upgrade to the CyberBrick version.

A Few Tips

- You can click the link in the bottom right corner of each page to jump to that section of the assembly video.
- Test as you go - it's much easier to tweak something when you're assembling a single part vs. after everything is done. I recommend testing each trap as it is assembled - you can use the [wiring diagram](#) for CyberBrick in the Final Assembly section to make sure your servos and motors are connected to the correct ports.
- Try not to over-tighten screws so that the base pieces are not damaged.

What you'll need

- M2, 2.5 & 3 bits (an electric screwdriver is recommended)
- Glue (optional)
- Pliers or tweezers
- Side cutters

STEPS

- A - [CONTROLLER](#)
- B - [BRIDGE TOWER](#)
- C - [TIMER TOWER](#)
- D - [LAVA CONVEYOR BELT](#)
- E - [LAVA TOWER](#)
- F - [RIVER BELT & SW BASE](#)
- G - [STAIR TRAP](#)
- H - [NW BASE](#)
- I - [NE BASE](#)
- J - [SE BASE](#)
- K - [FINAL ASSEMBLY](#)



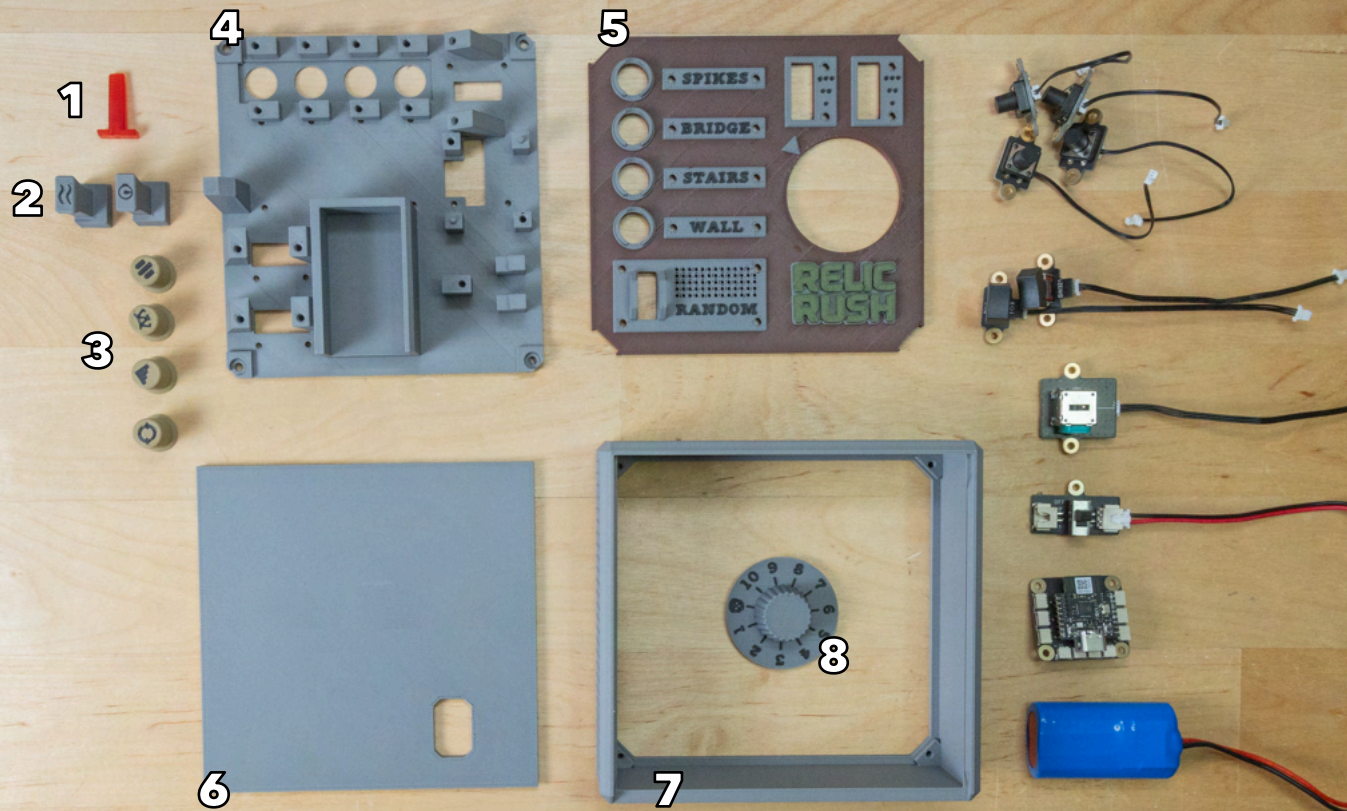
Assembly video: you can follow along with each step in [this video](#).

Also, you can click on the "Watch Step" button on each page to skip to that part of the assembly video.

CONTROLLER

Hardware used for this section:

Part	Qty.
2.6x8 Self Tapping Screws - AA004	5
10x4x3mm Ring Magnet - CC003	1
Remote Control Transmitter Shield - XA005	1
Multi-Function Core Board - XA003	1
Three-Position Rocker Switch - XA010	2
Power Switch Module with 2Pin XH2.54 Connector - XA007	1
Momentary Button Module - XA008	4
14500 7.4V 800mAh Li-ion Battery - PC003	1
Single-Axis Joystick Module - XA009	1
M2.5 Button Head Cap Machine Screws - AA050	33



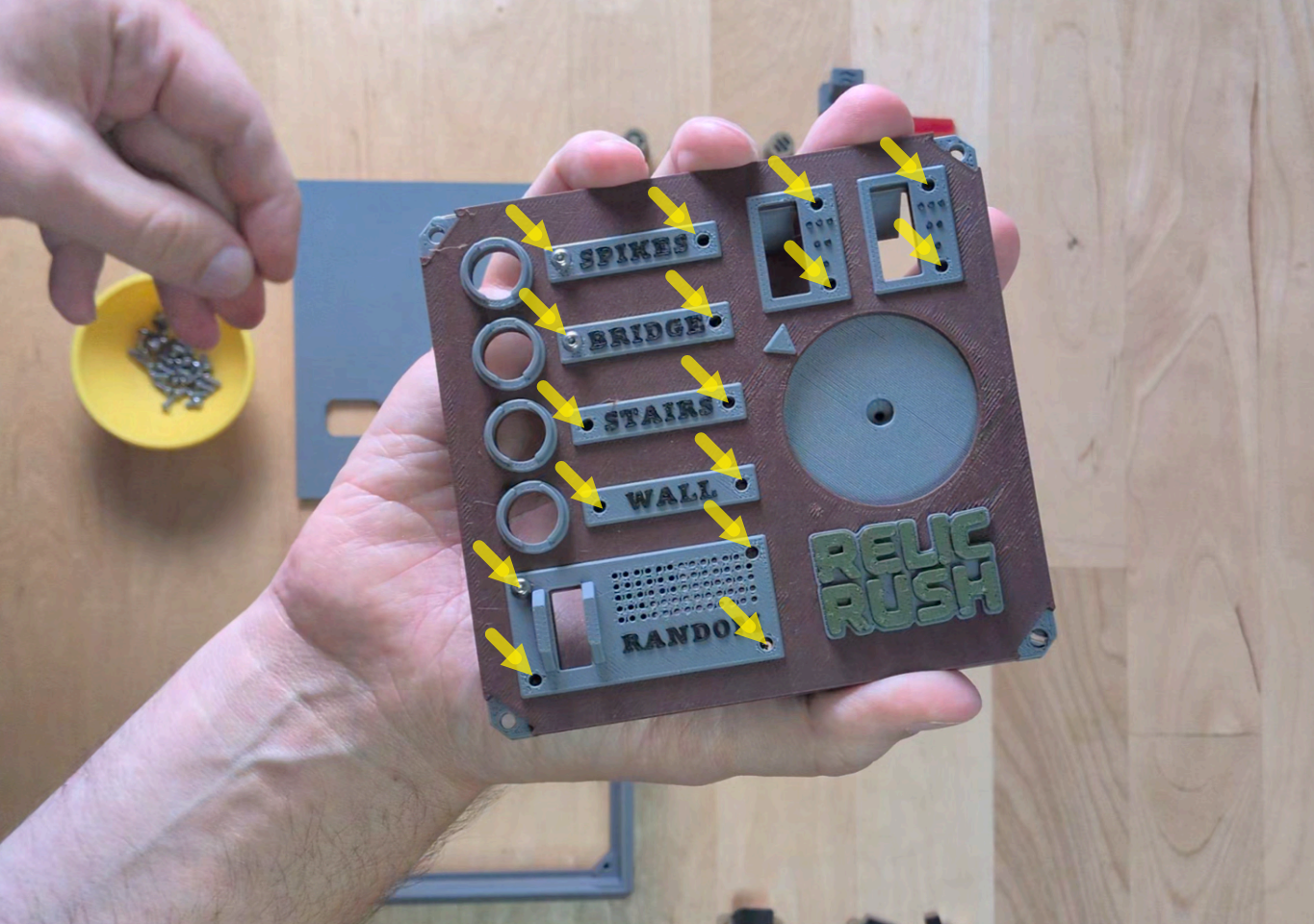
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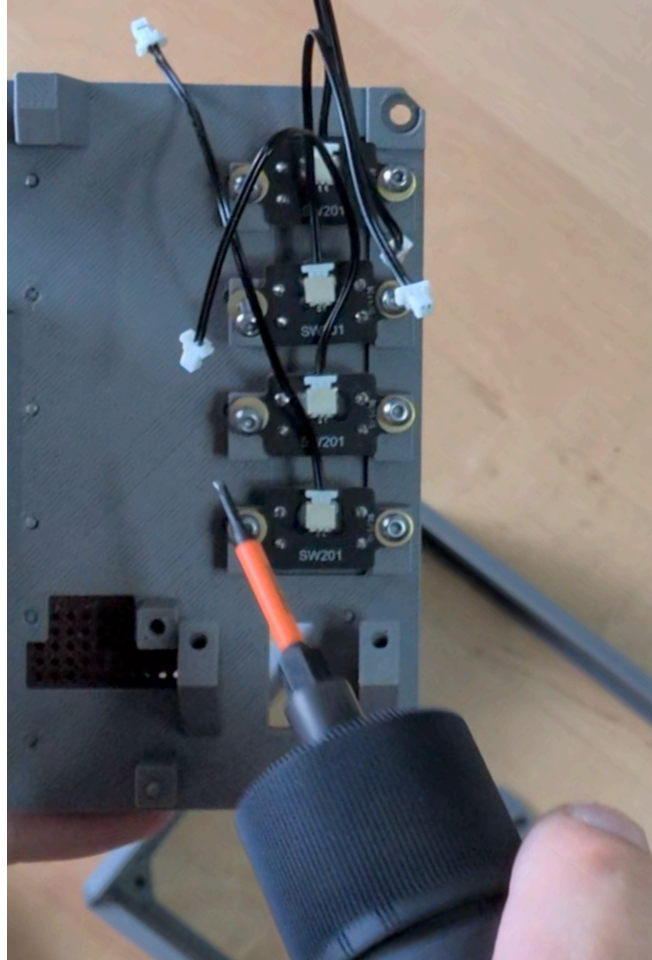
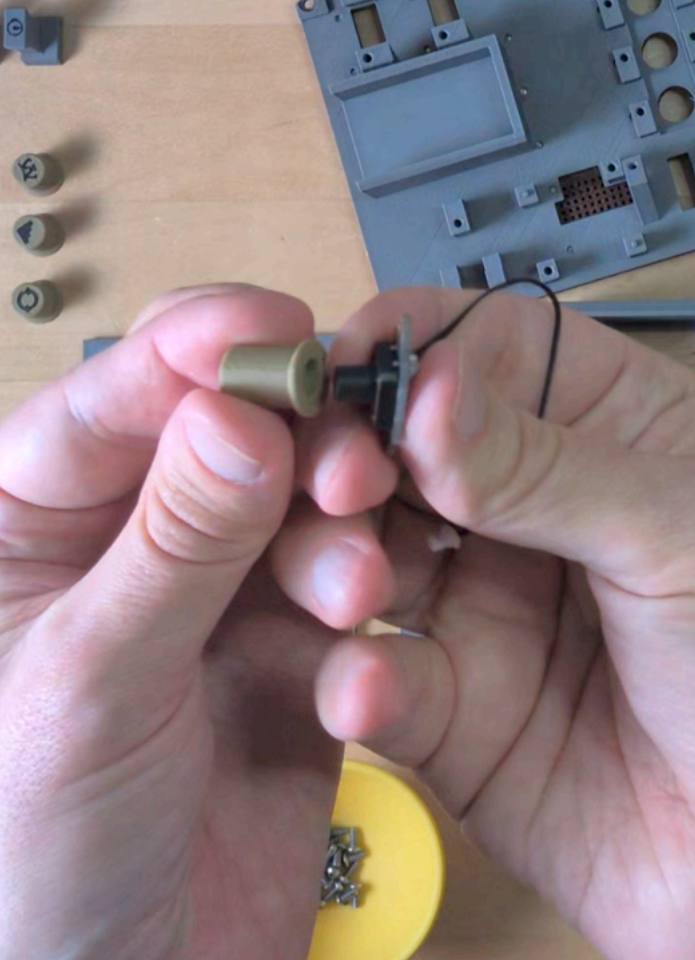
Controller Parts

1. Joystick
2. (2) Rocker Covers
3. (4) Button Covers
4. Electronics Plate
5. Front Cover
6. Back Cover
7. Case
8. Dial

2

Attach the electronics plate to the front cover using (16) M2.5 Button Head Cap Machine Screws.

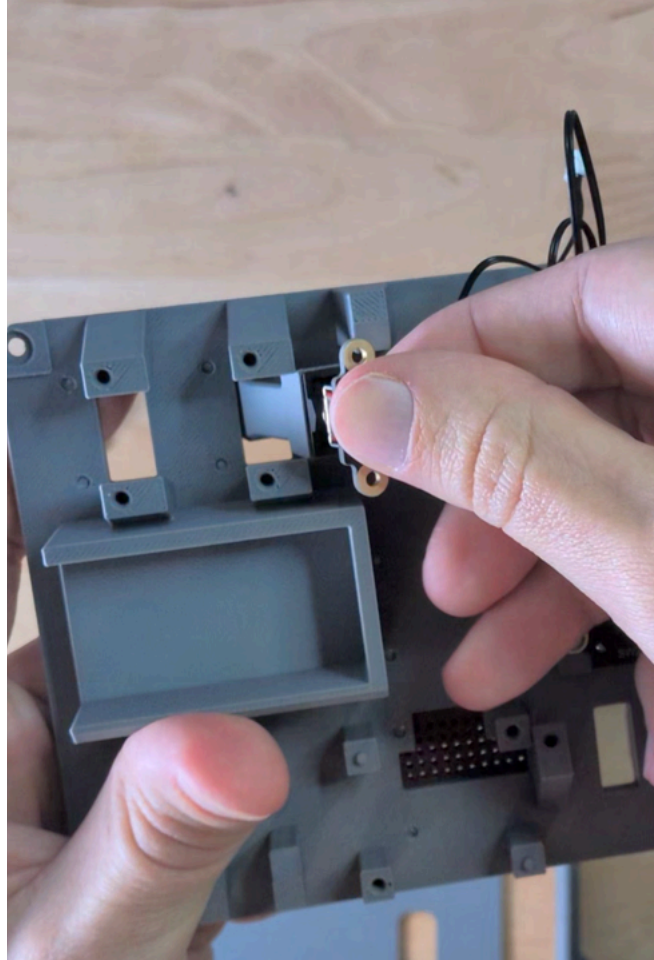
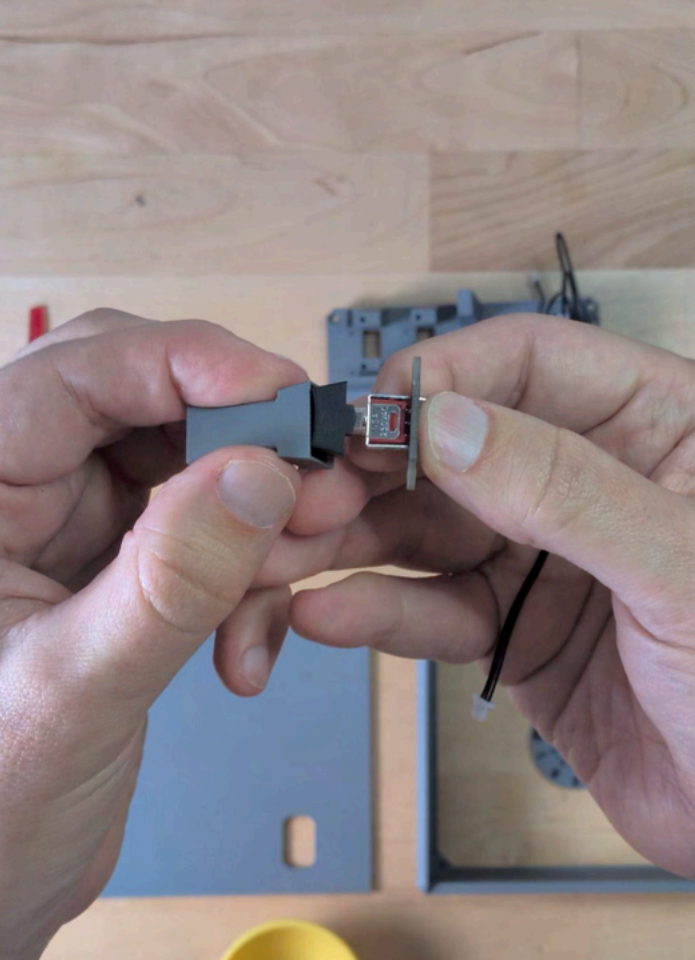




3

Press the 4 button covers onto the (4) Momentary Button Modules then press them into the electronics base with their wire oriented as shown in the photo.

Attach using (8) total M2.5 Button Head Cap Machine Screws.

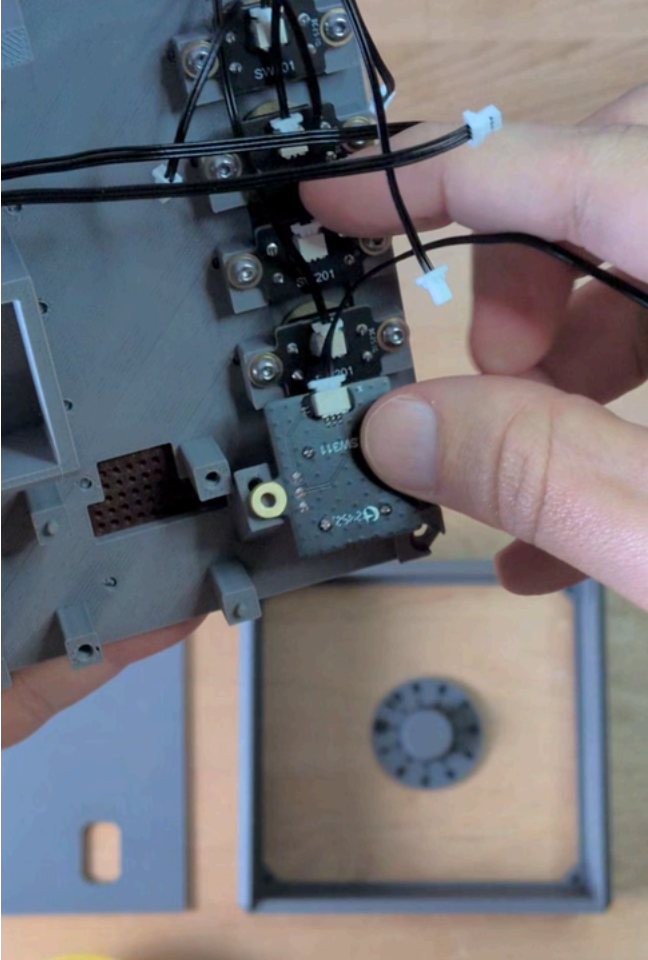


4

Press the rocker covers onto the (2) Three-Position Rocker Switch being sure to orient them as shown.

Press these into the slot as shown. It'll be a right fit and it helps to start at a 45 degree angle.

Attach with a total of (4) M2.5 Button Head Cap Machine Screws.



5

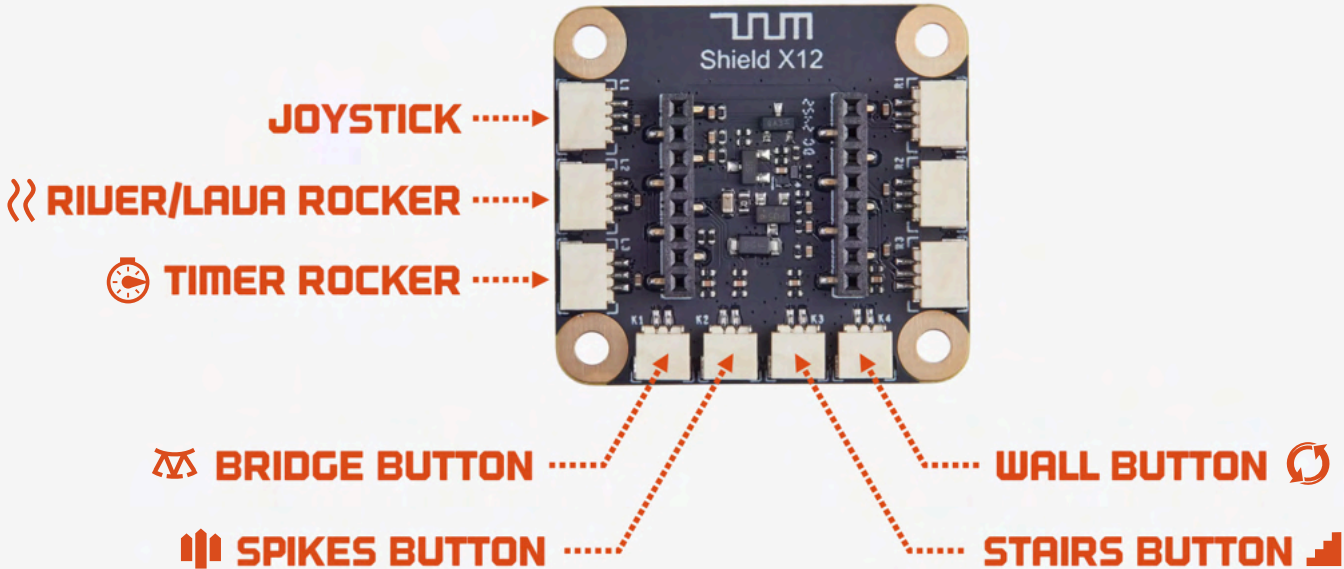
Use side cutters to trim off the sides of the red joystick and then press it onto the (1) Single-Axis Joystick Module .

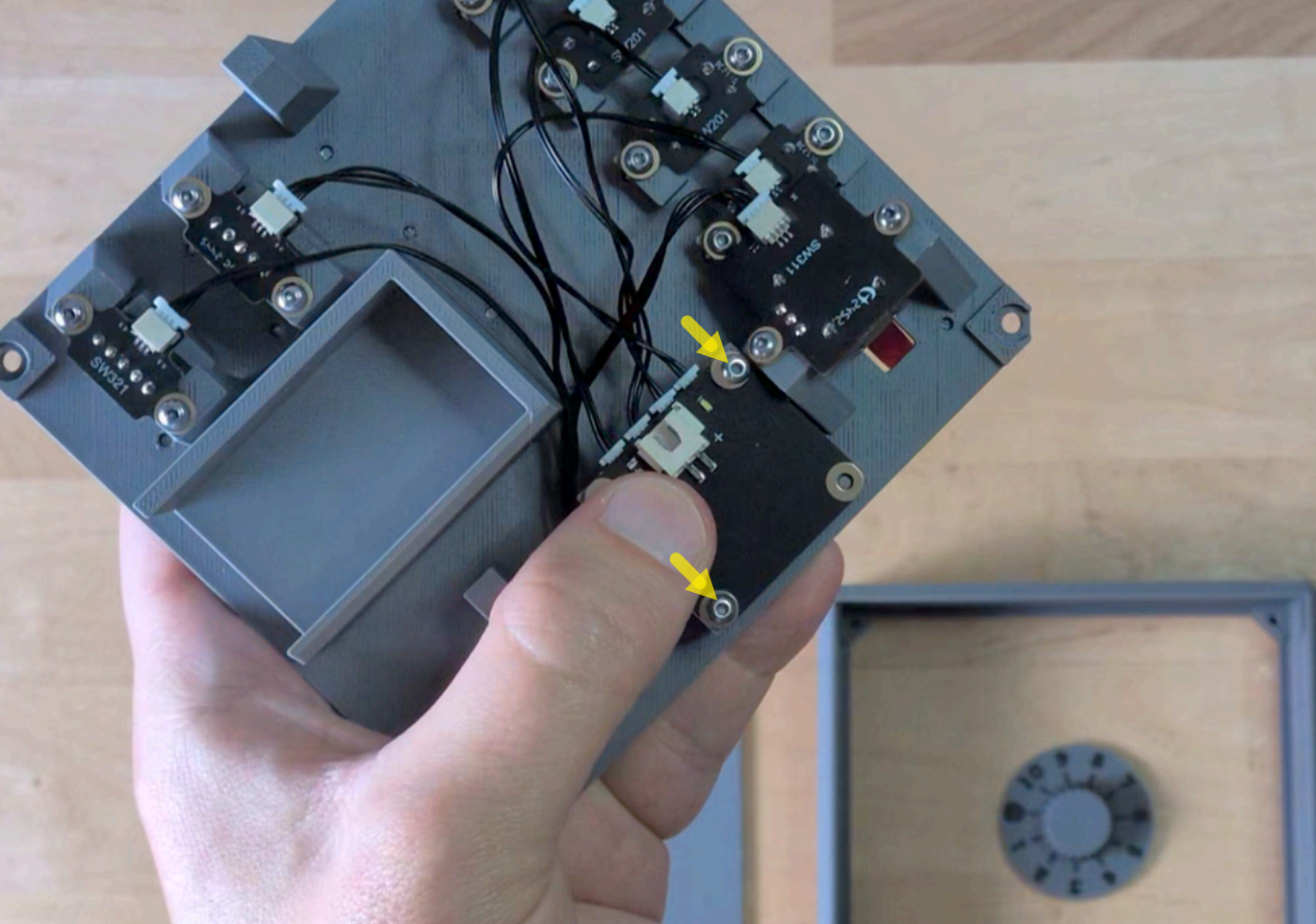
Press the joystick through the electronics base (orient the wire as shown) and attach with (2) M2.5 Button Head Cap Machine Screws.

6

Attach the buttons, joystick and 3-way rockers to the CyberBrick board as indicated in this diagram.

You can use the icons on the front of the remote to ensure that you are connecting the correct control to each port.





7

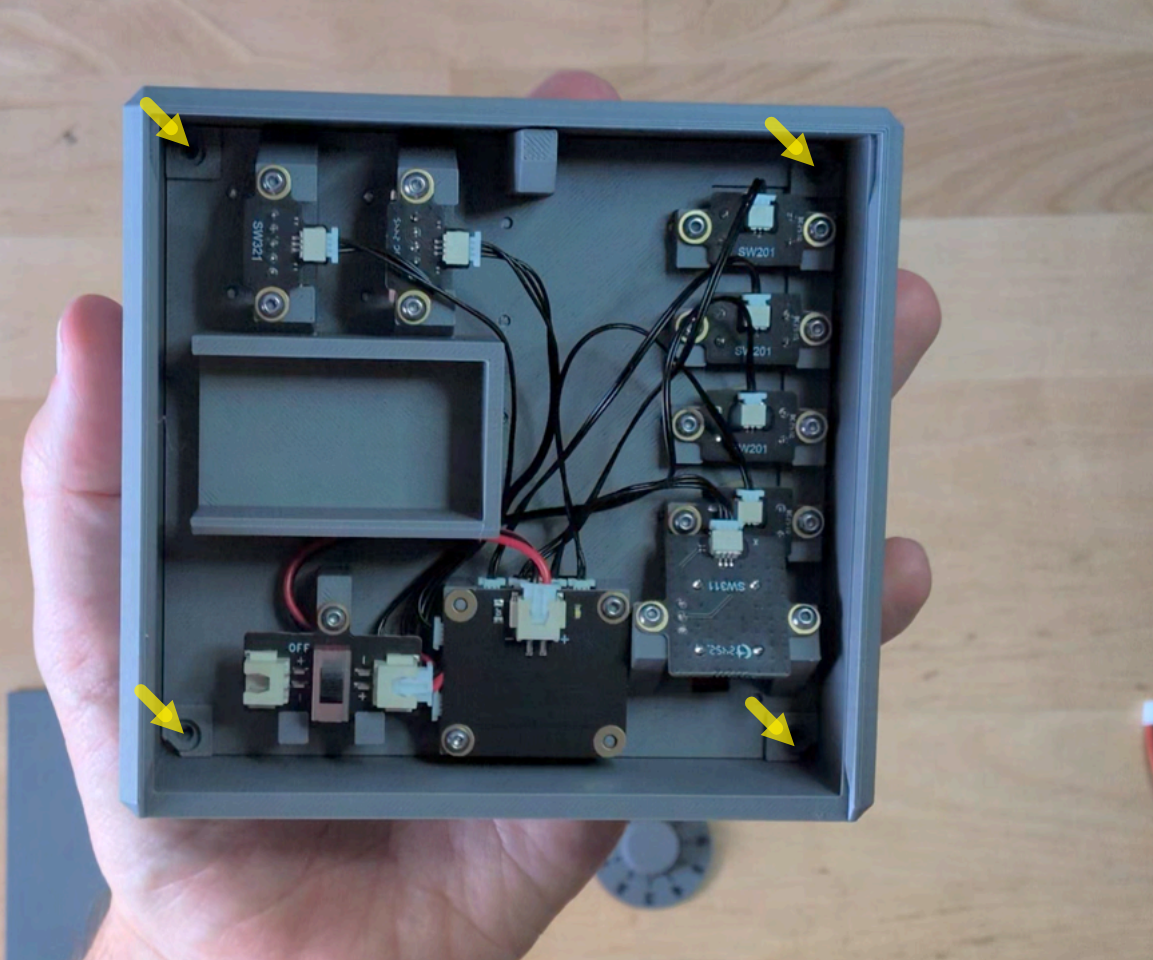
Attach the CyberBrick board to the electronics base using (2) M2.5 Button Head Cap Machine Screws.

8

Attach the (1) 14500 7.4V 800mAh Li-ion Battery to the (1) Power Switch Module with 2Pin XH2.54 Connector

Connect the included XH2.4 wire between the power switch and the CyberBrick board.

Attach the power switch to the electronics base with (1) M2.5 Button Head Cap Machine Screws.



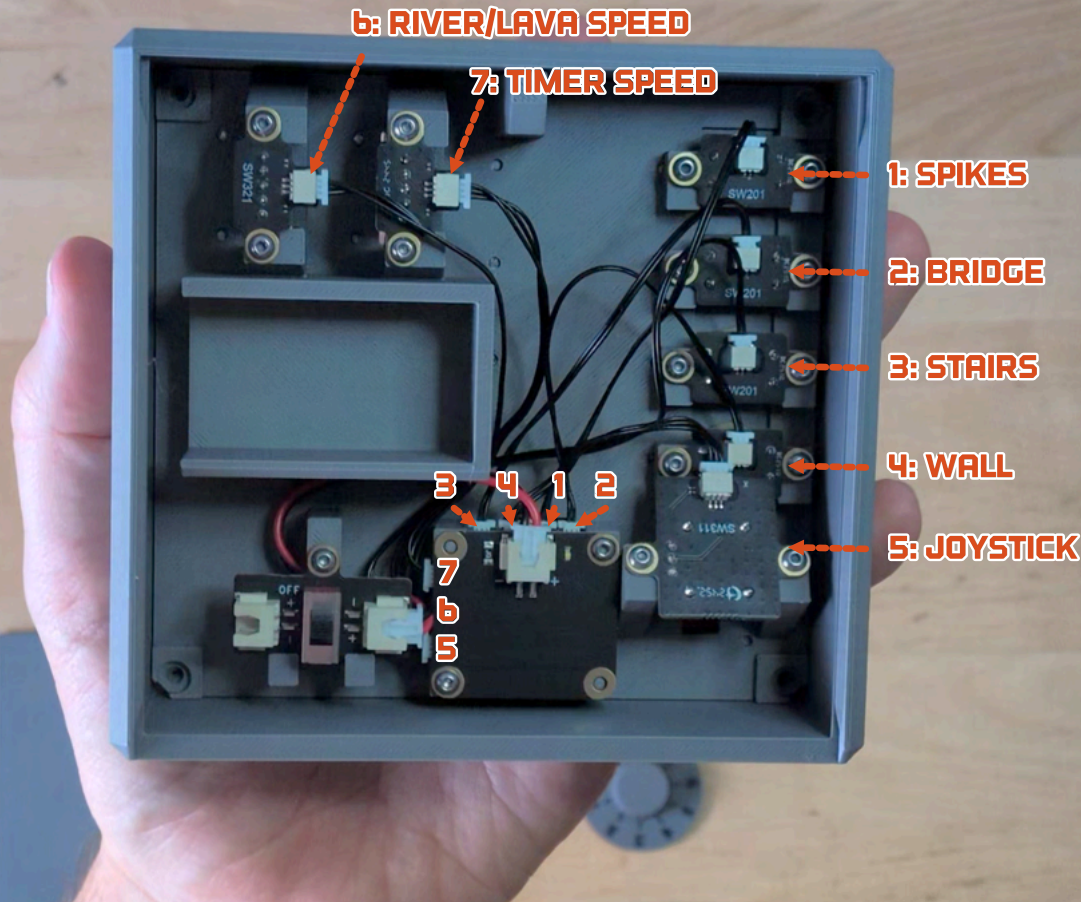
9

Place the combined electronics base/ front cover into the case with the face pointing down. The power switch should be oriented towards the opening of the channel where the back cover will be attached. You will need to place one side of the board in at an angle so that it can clear the overlapping part of the case.

Attach the electronics base to the cover using (4) 2.6x8 Self Tapping Screws.

10

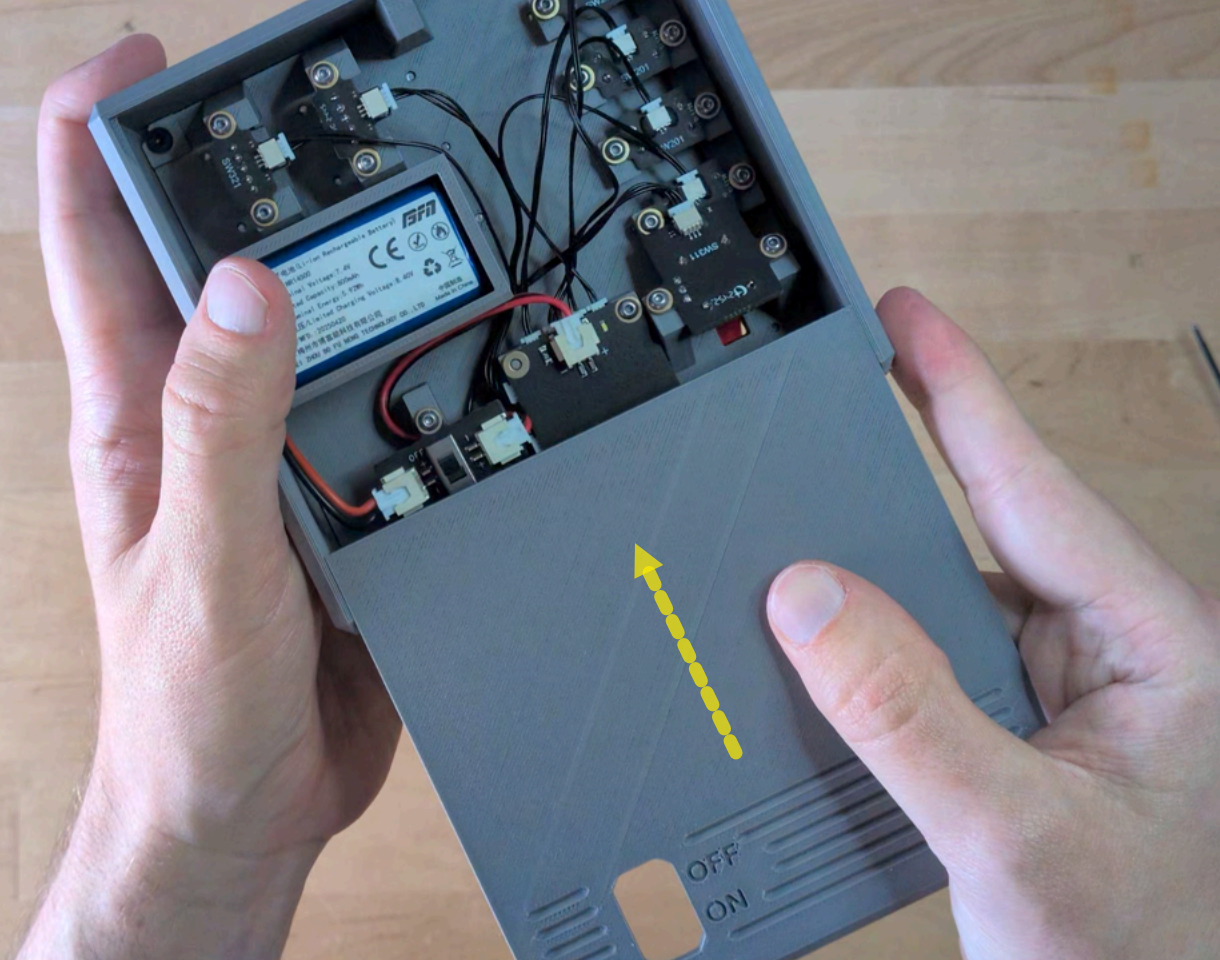
For reference, here is what the wiring looks like from the back.



11

Attach the battery to the power switch and place it in the slot.

Slide the the back cover onto the case so that the opening is over the power button.





12

Attach (1) 2.6x8 Self Tapping Screw to the front in the center of the circular area.

Press (1) 10x4x3mm Ring Magnet into the back of the dial so that it is flush. Glue should not be needed.

Place the dial onto the cover over the screw.

Configure & Pair Remote

Although the CyberBrick board won't be installed into the game board until the end of the process, it's helpful to configure it now. This will allow you to test elements as you build them & fix any issue before the full game is assembled.

First, install the software which you can [download here](#).

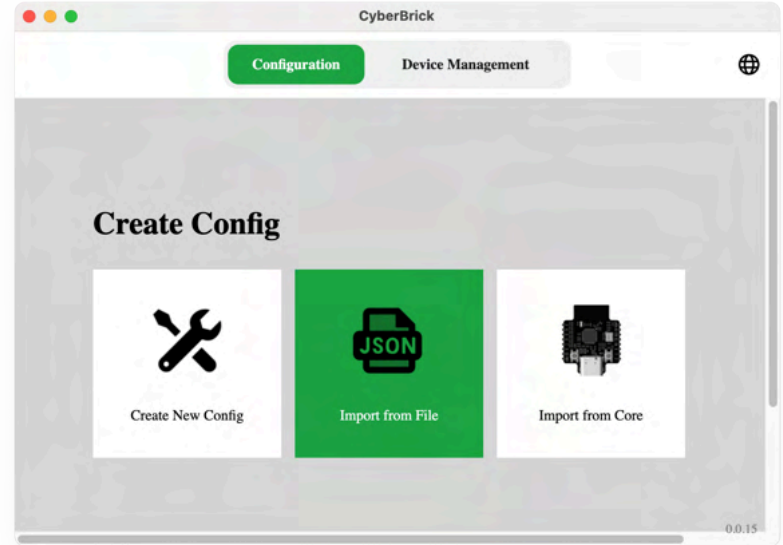
Power on the controller.

Attach a battery to the receiver board - you can do this directly or use the power switch.

With both boards powered on, open the CyberBrick app on your phone or desktop and choose the Relic Rush project and click Open on the JSON file.

Press Choose Core for each of the boards and follow the on-screen prompts to pair them.

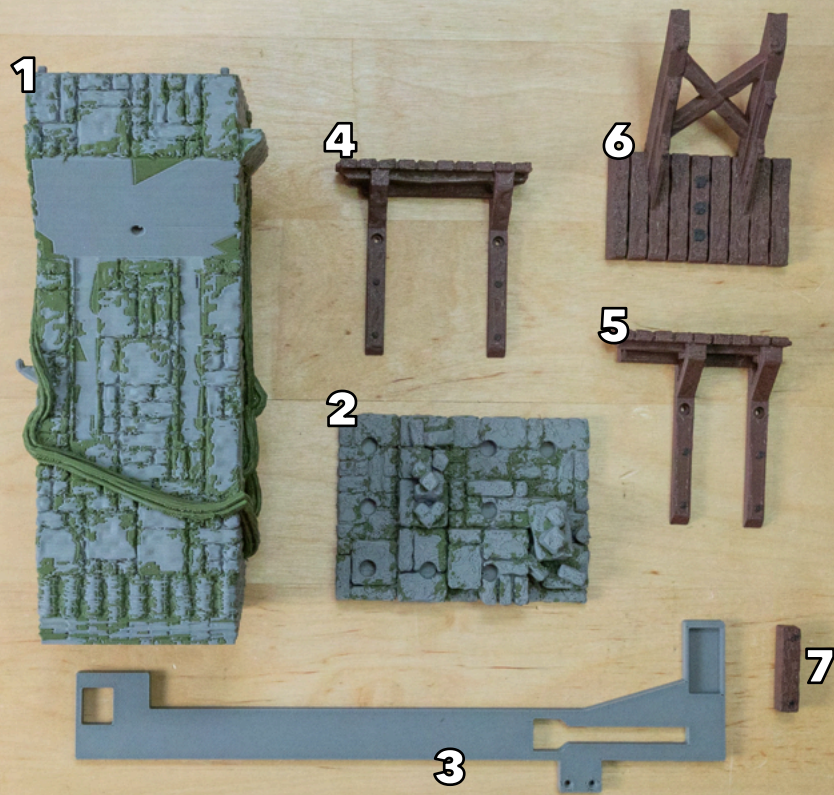
Finally, send the project config to the boards.



BRIDGE TOWER

Hardware used for this section:

Part	Qty.
Rectangular Magnet - 20x10x3 - CB004	3
2.6x8 Self Tapping Screws - AA004	1
2x8 Self Tapping Screws - AA094	4



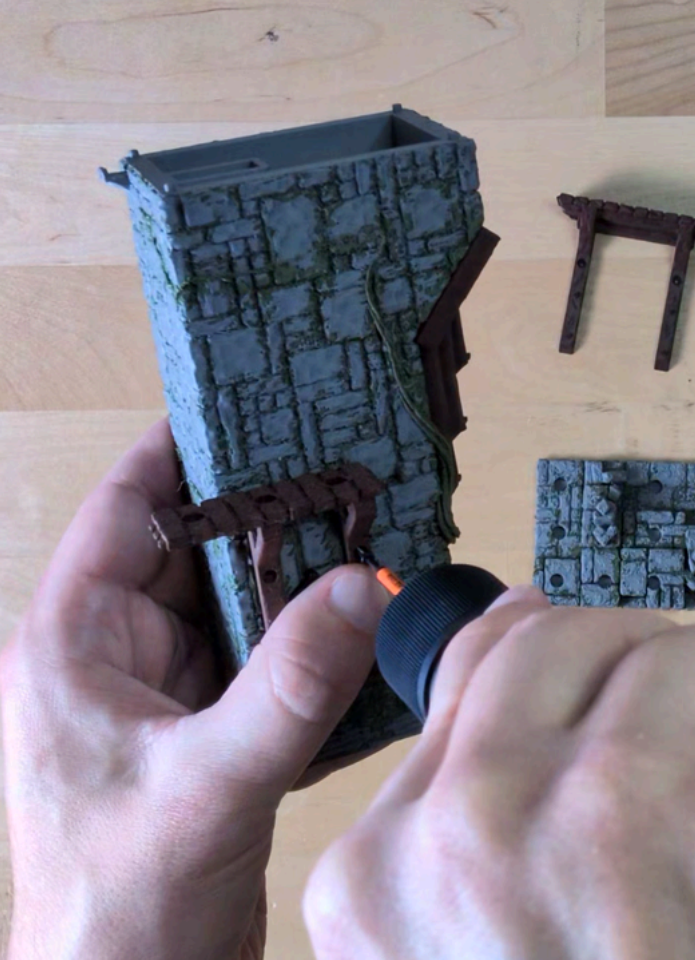
1

1. Bridge tower
2. Lid
3. Magnet Rod
4. Scaffold
5. Scaffold
6. Back Scaffold
7. Magnet Rod Cover

2

Use (1) 2.6x8 Self Tapping Screw to attach the back scaffold.

You'll be driving the scrip from the interior of the tower (which may be a tight fit - a long hex bit can help).



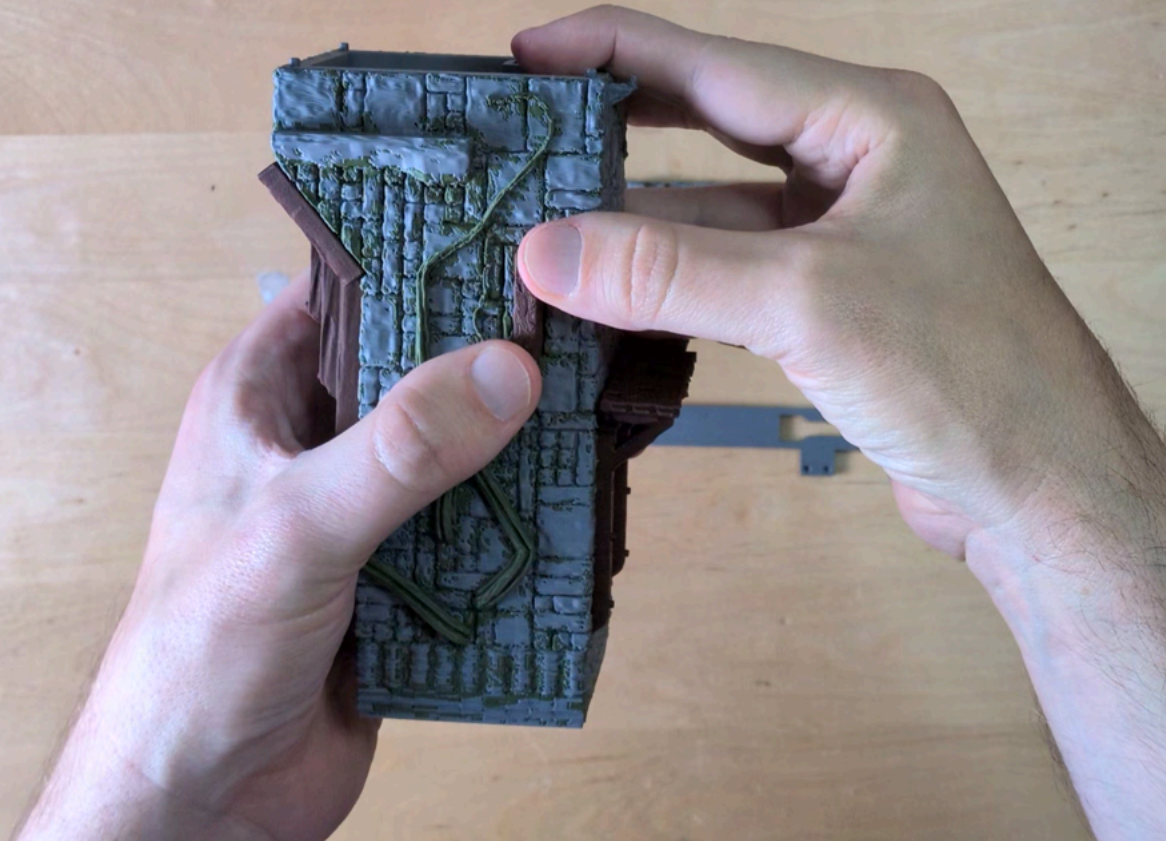
3

Use (4) 2x8 Self Tapping screws to attach the two bridge tower scaffolds.

Note that there are flat areas in the brick to which these will align. Do not over-tighten the screws.

4

Press the Magnet Rod Cover into place - it should protrude a small amount on the outside and not extend into the interior space at all.



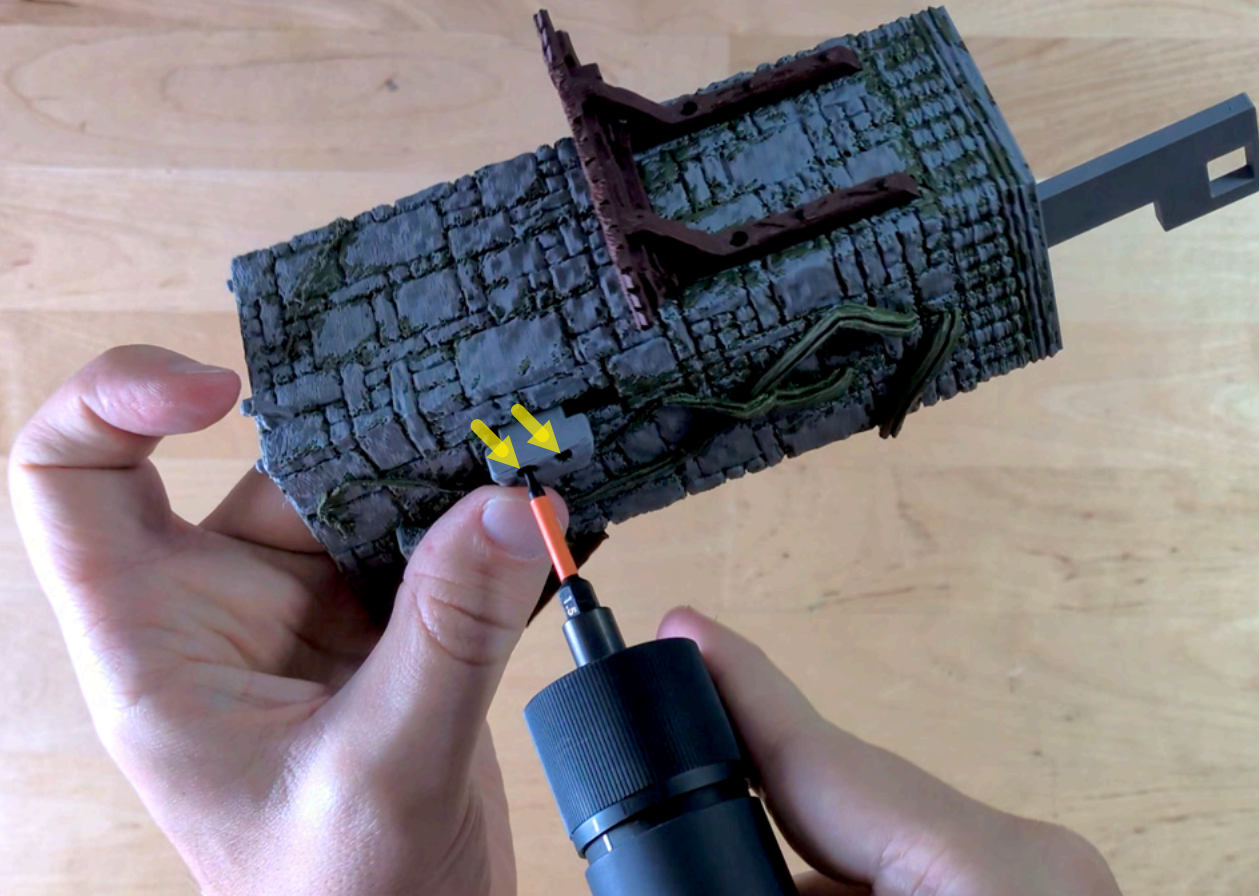
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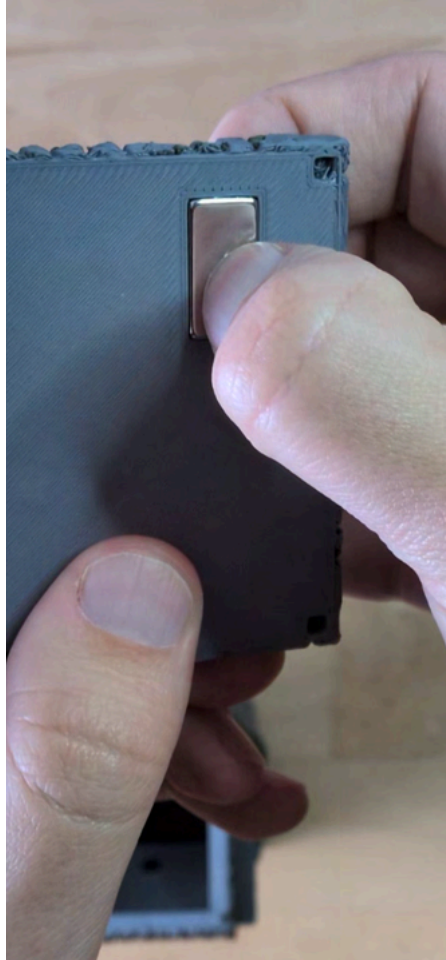
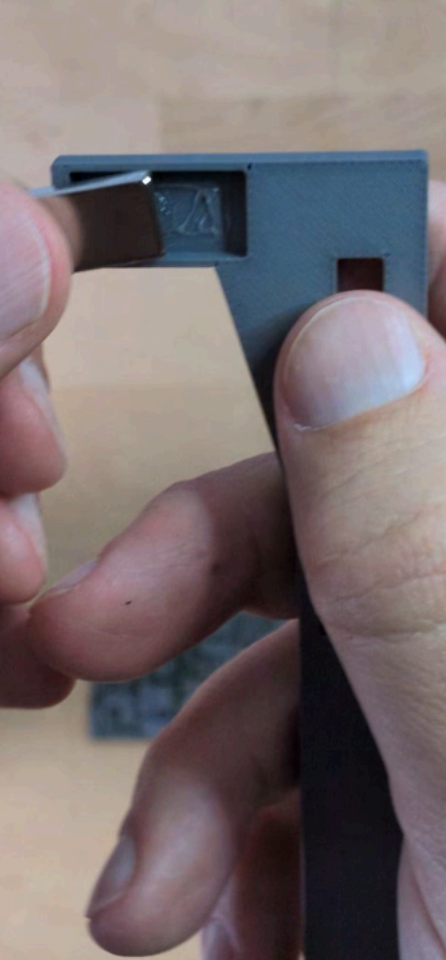
WIRED VERSION ONLY

If building the Wired version:

Instead of attaching the cover mentioned in the previous step, attach the magnet rod manual cover using (2) 2x10 Self Tapping screws.

You will have to hold the magnet rod in the interior so that the screws will engage.



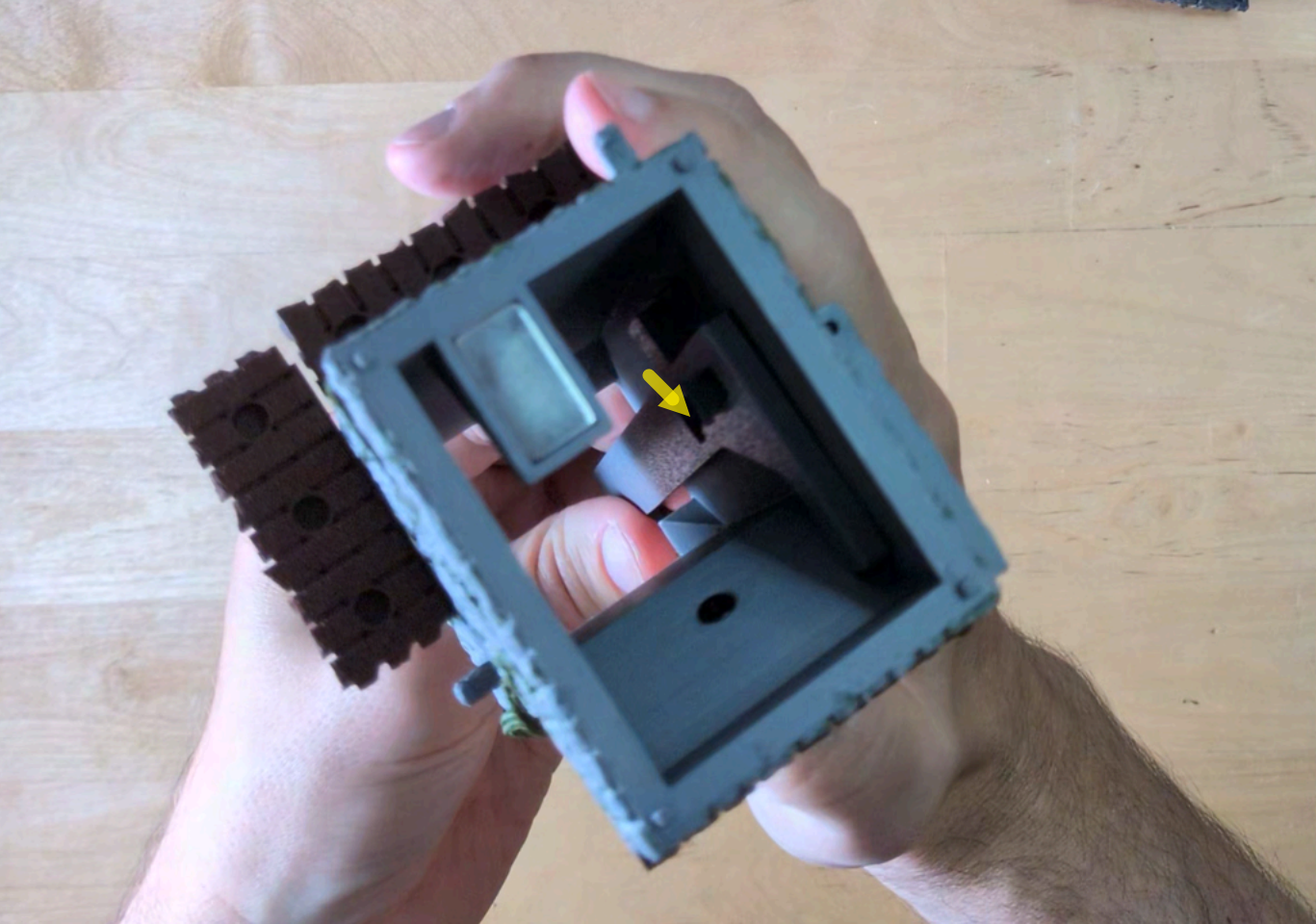


6

Glue a 20x10x3 rectangular magnet into the magnet rod.

Glue a 20x10x3 rectangular magnet into the slot at the top of the tower and another into the lid.

Be sure to check the polarity before gluing and also press the magnets firmly into place so that they have enough clearance.



7

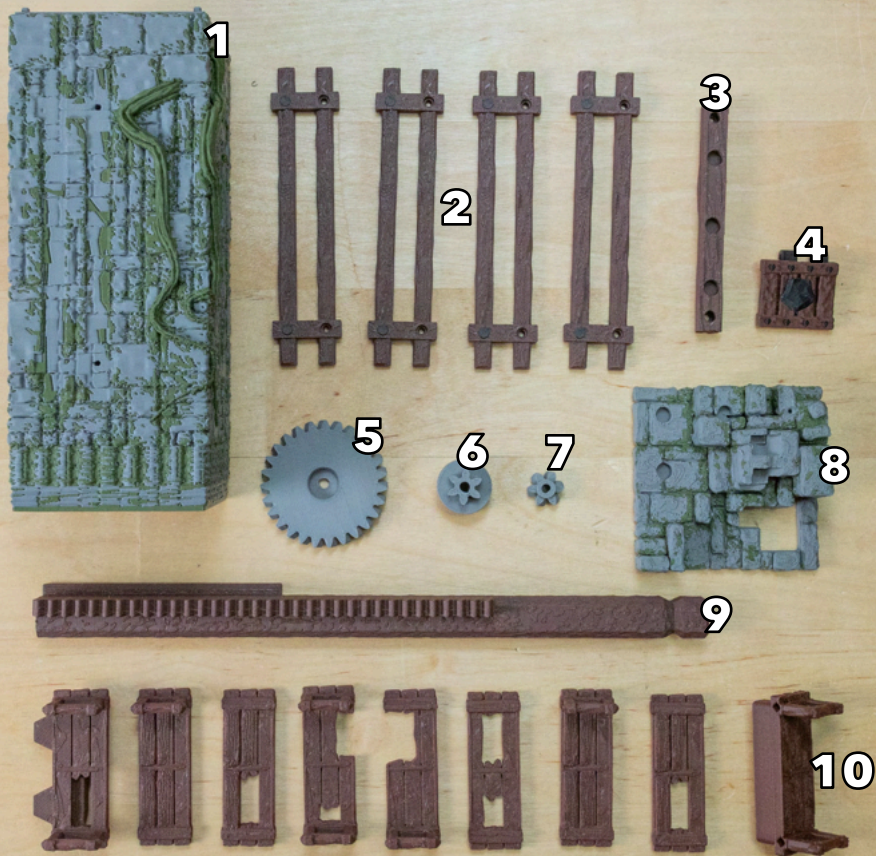
After the glue on the magnet rod dries, slide it over the peg in the tower - be sure it isn't being hindered by the magnet rod cover.



TIMER TOWER

Hardware used for this section:

Part	Qty.
Black Nylon Cord - MF001	1
Rectangular Magnet - 20x10x3 - CB004	3
2.6x8 Self Tapping Screws - AA004	1
2x6 Self Tapping Screws - AA093	1
2x10 Self Tapping Screws - AA192	1
2x8 Self Tapping Screws - AA094	8
BT3x30 Self Tapping Screws - AA113	1
N20 Single Shaft Worm Gear Motor 25rpm - LA008	1
300mm Wire Pair with SH1.0 - XC014	1
10x4x3mm Ring Magnet - CC003	2



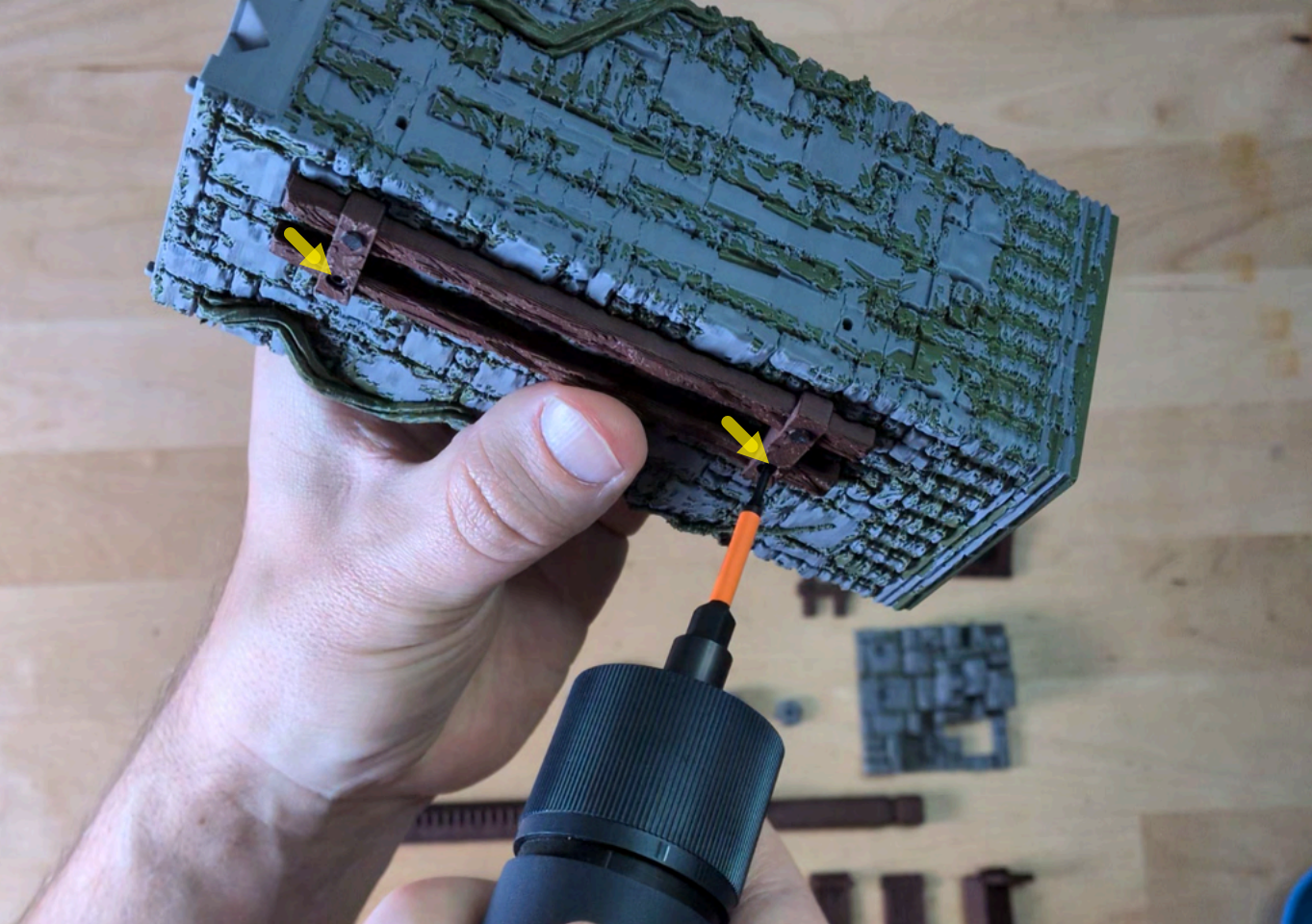
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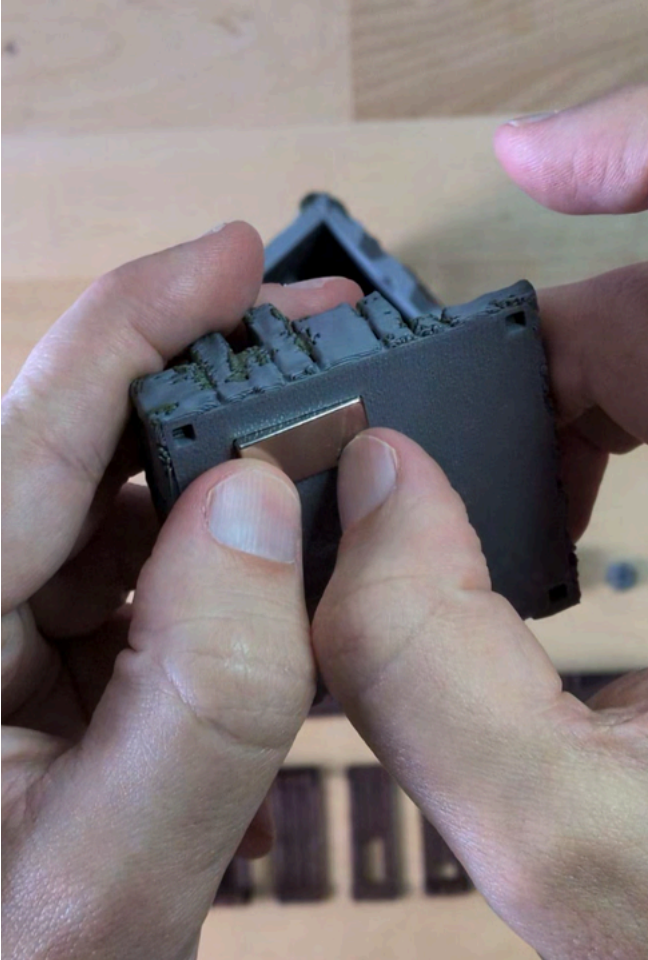
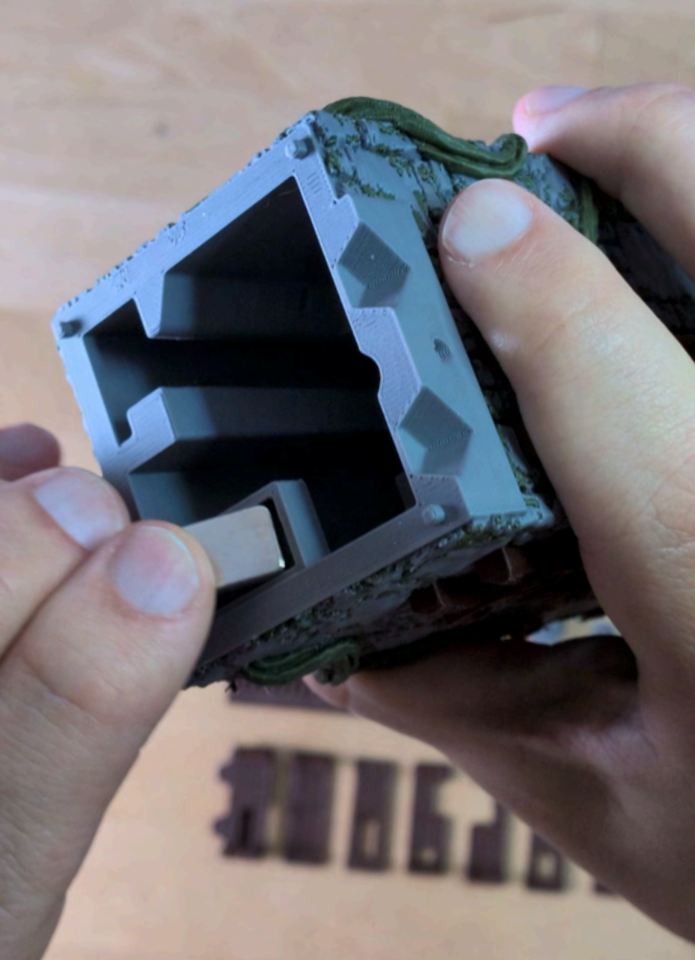
1. Bridge Tower
2. (4) Scaffolds
3. Balance Beam
4. Dice Tilt Platform
5. Big Reduction Gear
6. Small Drive Gear
7. Motor Gear
8. Lid
9. Rack Gear
10. Bridge Segments

2

Use (8) 2x8 Self Tapping screws to attach the four timer tower scaffolds. Note that there are flat areas in the brick to which these will align.

Do not over-tighten the screws.

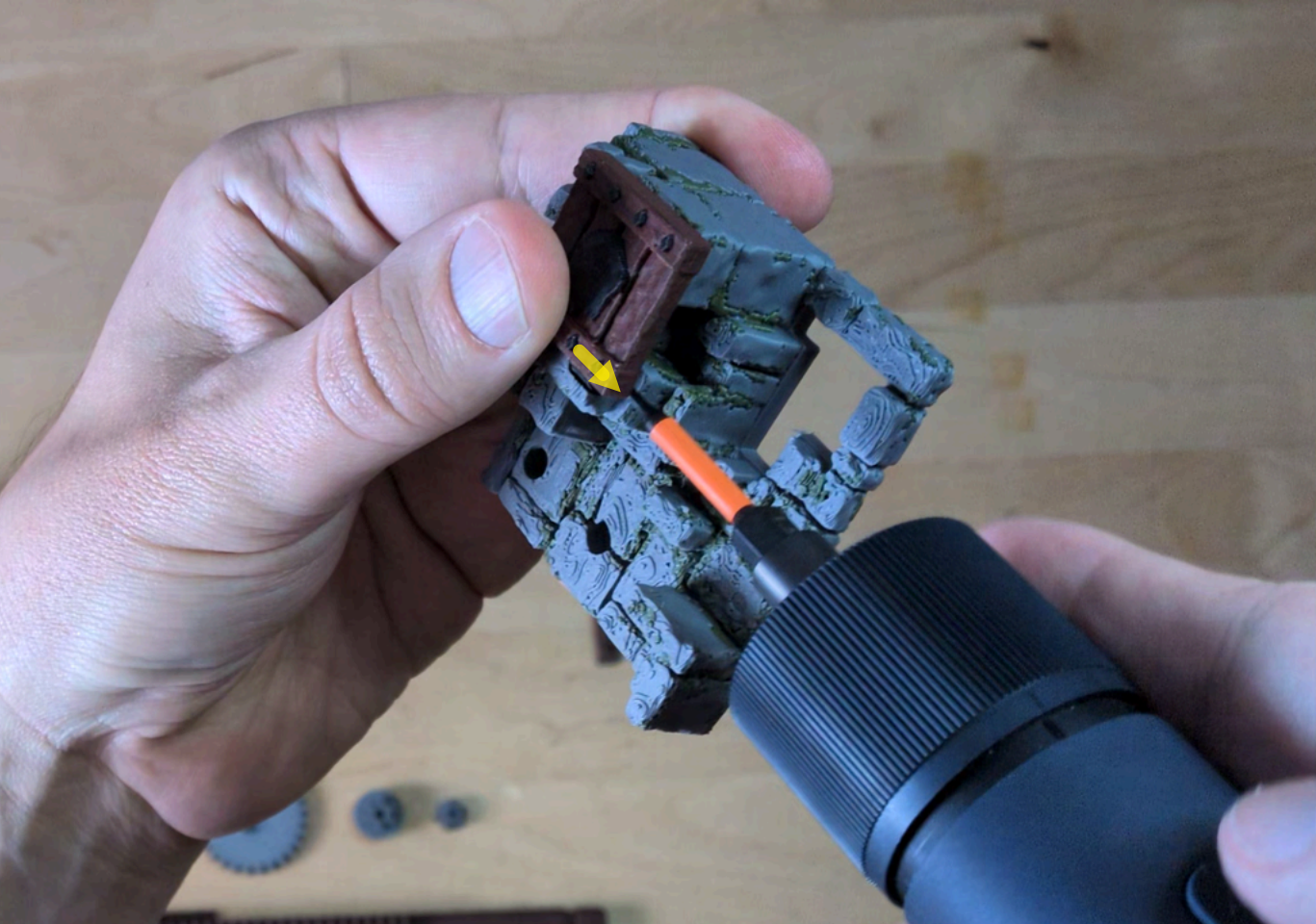




3

Glue a 20x10x3 rectangular magnet into the slot at the top of the tower and another into the lid.

Be sure to check the polarity before gluing and also press the magnets firmly into place so that they have enough clearance.



4

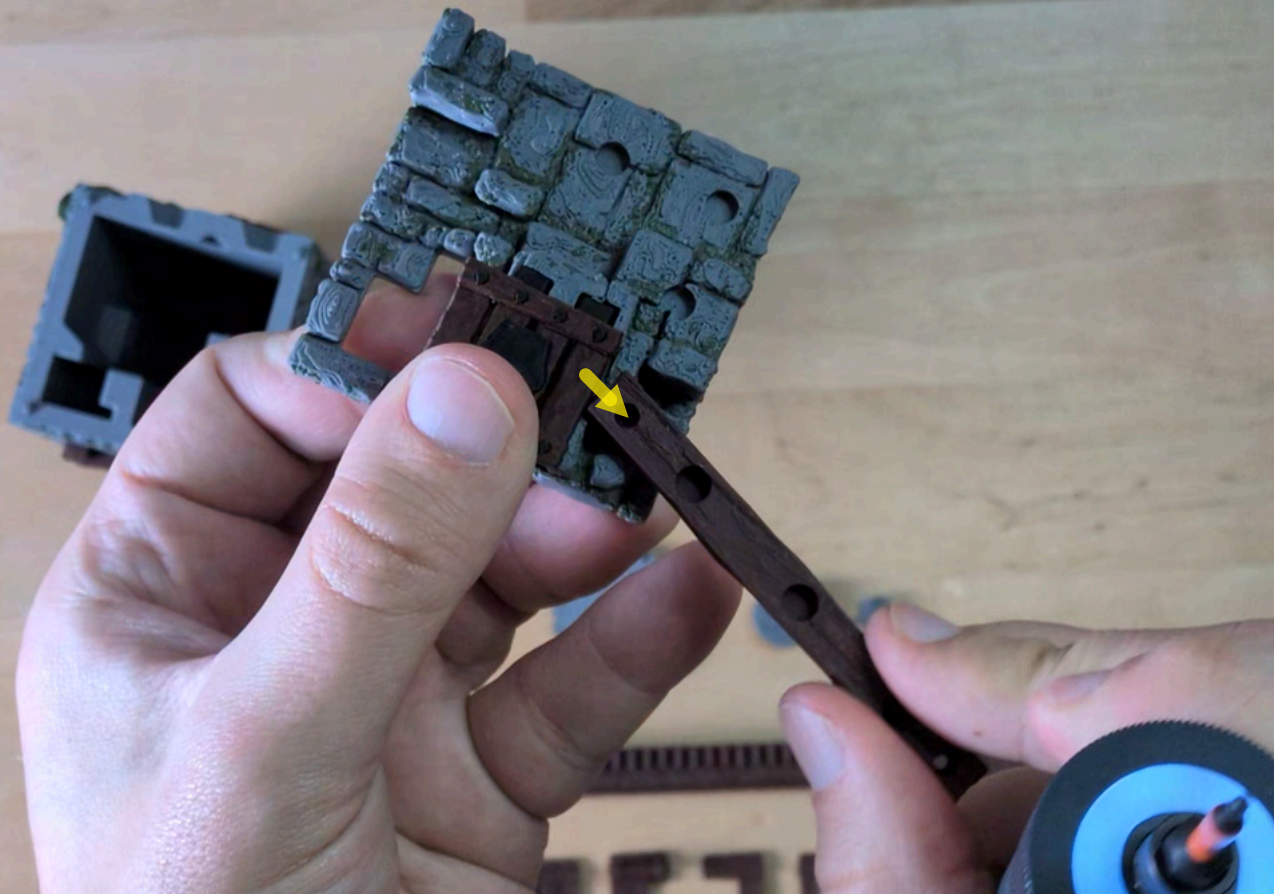
Attach the Dice Tilt Platform to the Timer Tower Lid with (1) 2x10 Self Tapping screw.

Do not over-tighten - this piece should be slightly loose and move freely.

5

Attach the Balance Beam to the Timer Tower Lid using (1) 2x6 Self Tapping screw.

You can keep this loose so that it can be moved out of the way when taking off the lids





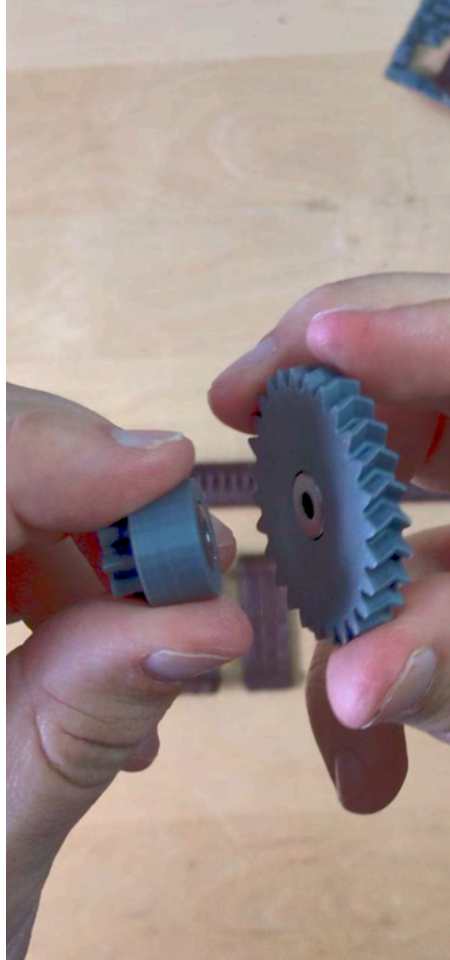
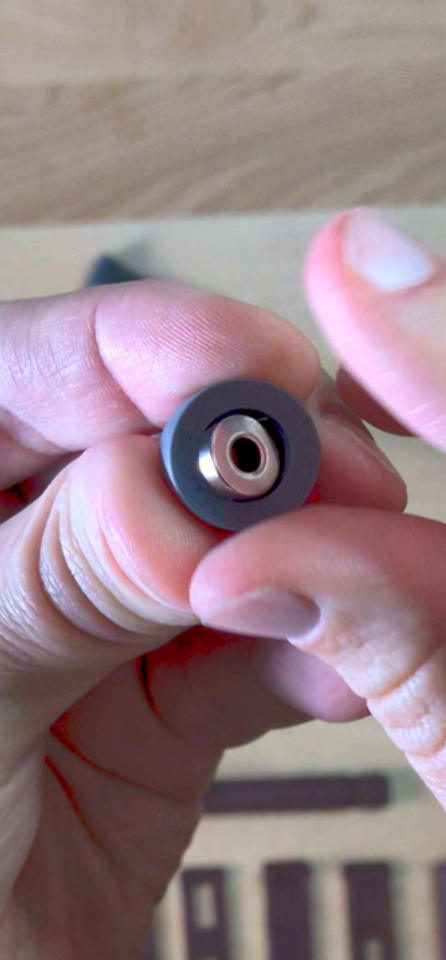
6

Press the motor gear onto the N20 Single Shaft Worm Gear Motor firmly and attach the 300mm SH1.0 wire to the motor.

Slide the motor into the slot in the tower interior with the gear facing up and towards the center of the tower.

This can be tricky & it may be easier to work from the bottom of the tower with long tweezers or thin pliers.

If building the Wired version, you can **skip** this step.



7

Press a 10x4x3mm Ring Magnet into both the Small Driver Gear and Big Reduction Gear.

These should only need a press-fit but glue can be used if they are not secure.

Allow the gears to attach magnetically

If building the Wired version, you can **skip** this step.

8

Lower the combined gears into the tower so that the big reduction gear rests on the motor gear.

Use (1) BT3x30 Self Tapping Screw from the outside of the tower to act as a shaft for these gears.

Be very careful not to over-tighten this screw.

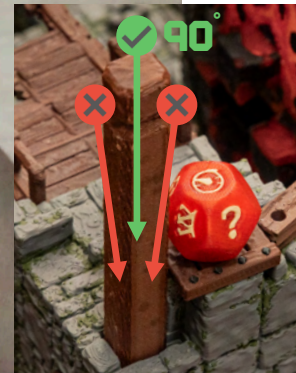
If building the Wired version, you can *skip* this step.

9

Drop the Rack Gear down into the tower through the hole in the lid - noting the alignment.

The knob should be oriented towards the top.

If building the Wired version, you can **skip** this step.



Tip: press the rod straight down at 90° when installing it and when pressing it to reset the timer during the game. The rod can get stuck or be difficult to press when pressing at an angle.

You can also apply a small amount of the lubricant that comes with CyberBrick to the gears.

10

To assemble rule bridge, align the pieces in the order shown. Note that the 2nd & 3rd pieces (from either direction) have little ramps that help make their surface level when the bridge is drooping in the middle.

Orientation is important for the piece that includes a magnet. The magnet should be closer to the 'outside' edge of the bridge.

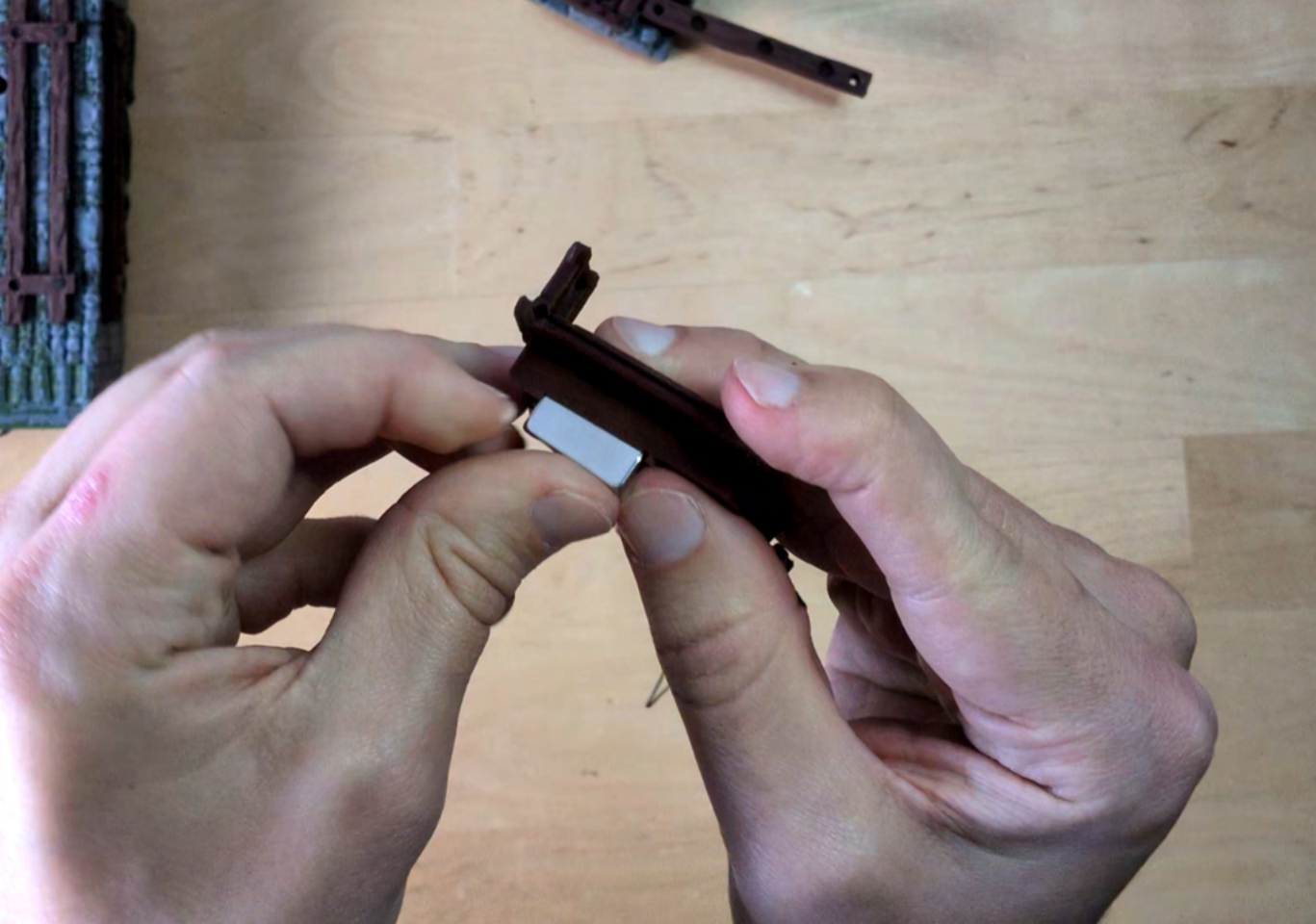
Thread the behind Black Nylon Cord through the holes in the bridge pieces - starting and ending where indicated.

It can help to use a needle or even to apply some superglue to the cord to make it stiff and easier to thread.

Ensure that the string is snug and tie it off. You can use a drop of superglue on the knot but don't do this (or trim any excess) until later.



Tip: You won't be installing the bridge until later in the process. Leave it loosely tied for now with some excess nylon cord. If the bridge isn't fitting well during installation, you can then loosen it slightly if needed.



11

Glue a 20x10x3 rectangular magnet into the slot at the end of the bridge.

Be sure to check the polarity of this magnet - it will be attaching through the Bridge Tower to the magnet rod on that tower.

12

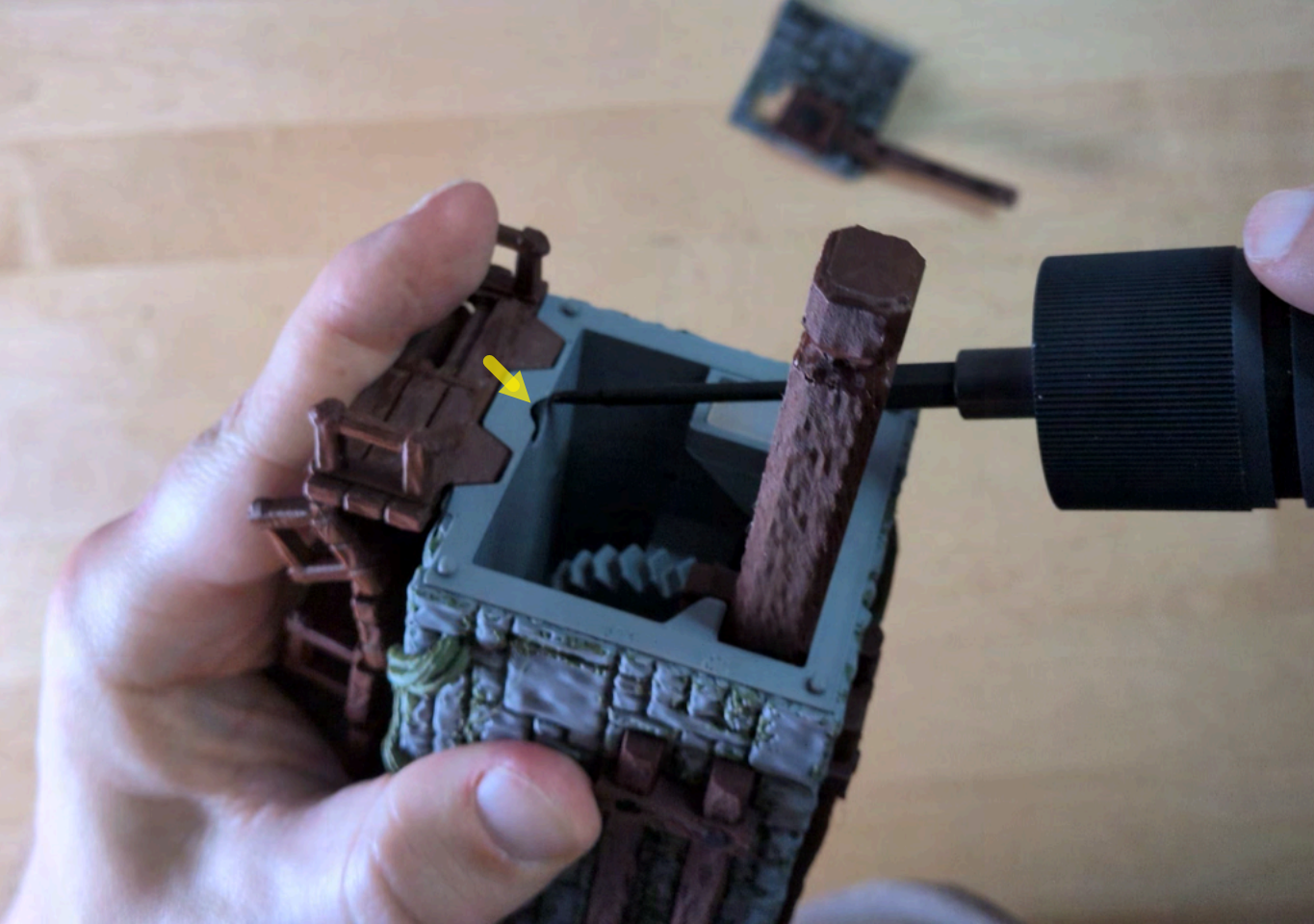
Attach the end of the bridge to the Timer Tower with (1) 2.6x8 Self Tapping Screw at a 45° angle.

This better done manually so that you don't strip the screw - go slowly and don't over-tighten.

If the screw fails, you can use glue.

Test the motor before continuing.

You can use the [wiring diagram](#) in the Final Assembly section to temporarily wire the motor up to the receiver for the purposes of testing.



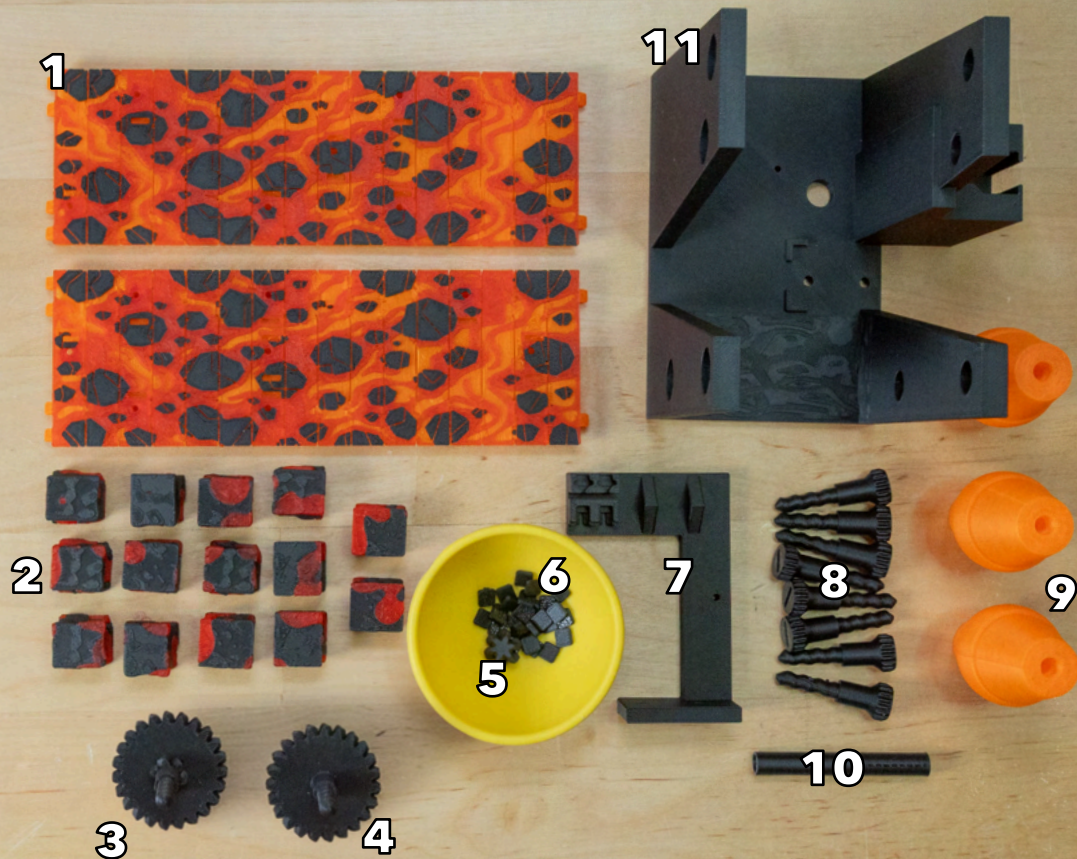
LAVA CONVEYOR BELT

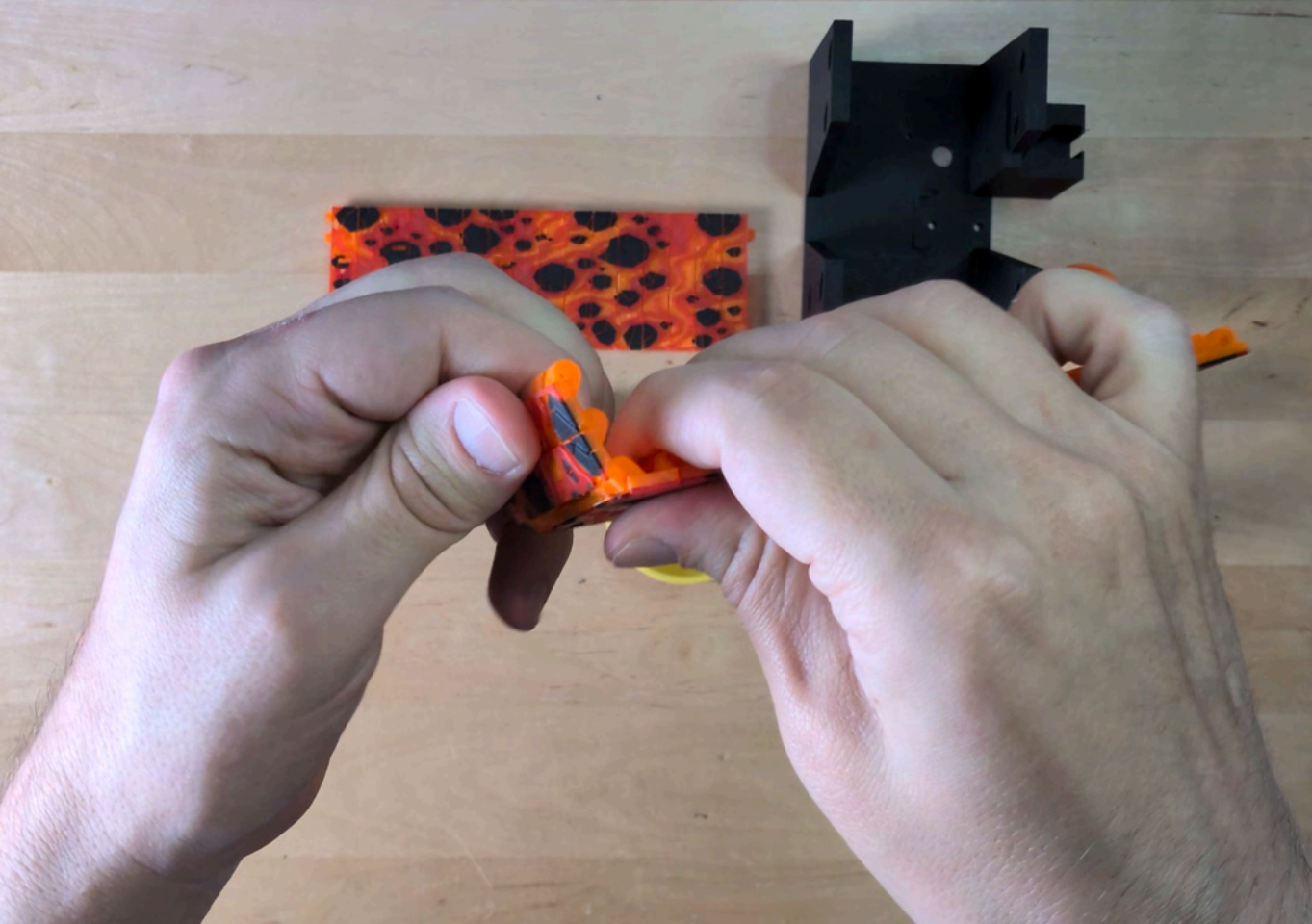
Hardware used for this section:

Part	Qty.
MR128 Ball Bearings - EA004	8
2.6x8 Self Tapping Screws - AA004	2
2x10 Self Tapping Screws - AA192	4
2x8 Self Tapping Screws - AA094	14
N20 Single Shaft Worm Gear Motor 25rpm - LA008	1
100mm Wire Pair with SH1.0 - IC004	1
33.7×13.85mm Rubber Tire - LA027	3
WS2812 RGB LED (2 pcs) - KB003	4
WS2812 LED Hub - XA006	1

1

1. Lava Belts
2. Lava Rocks
3. Reduction Gear
4. Gear
5. Motor Gear
6. Lava Rock Pegs
7. LED Holder
8. Pins
9. Wheels
10. Shaft
11. Frame





2

Ensure that the conveyor belt parts can move freely.

Depending on your printer and filament, the sections of the belt can be slightly 'stuck' and need to be loosened. I find it easiest to press down on the hinges from the back and onto a table to break them apart if needed.

Use firm pressure but be careful not to press too hard and damage the hinge. If any of the parts are not moving freely, use some pressure to rotate them back-and-forth rapidly until their movement is free.

3

Attach the lava blocks to the lava conveyor belt pieces using (14) 2x8 Self Tapping screws.

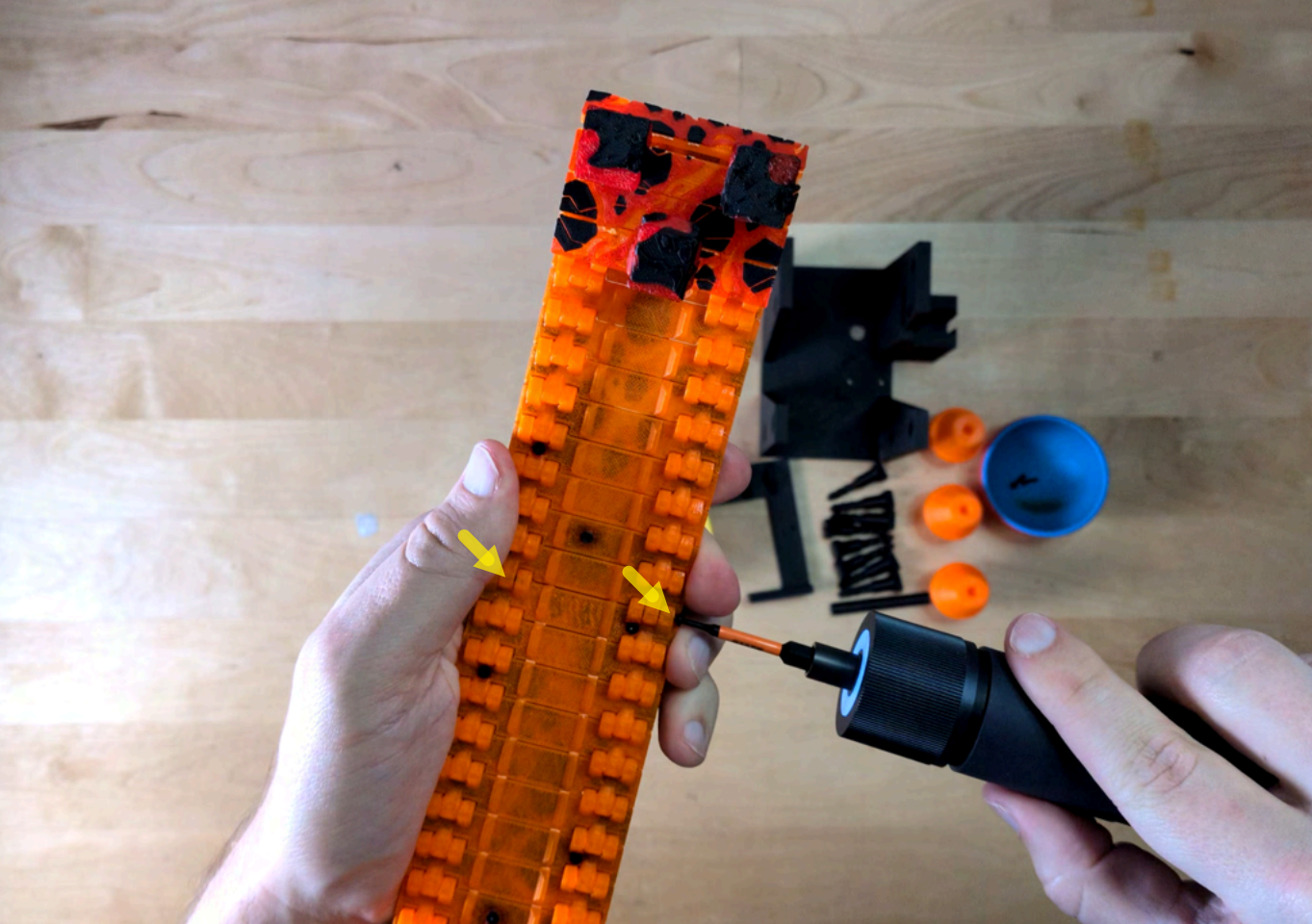
You can insert the small pegs into the slot on the lava blocks to help align them and hold them in place without rotating while you are driving in the screw - the sides have 1 peg and the center blocks have 2. Note that there is a preferred direction for the blocks to face - orient them so that they are all pointing the same direction and so that they are fully on the flat sections of the conveyor belts (not the portions with texture).

These pieces can be glued instead of using screws but this can be less reliable. I find it helpful to already have a screw on my bit before aligning a block - that way can hold the block in place with one hand while driving the screw with the other.

4

When the blocks are attached to both belts, use (4) 2x10 Self Tapping screws to attach the two conveyor belt sections.

Be sure not to over-tighten - the hinge should be able to move freely.

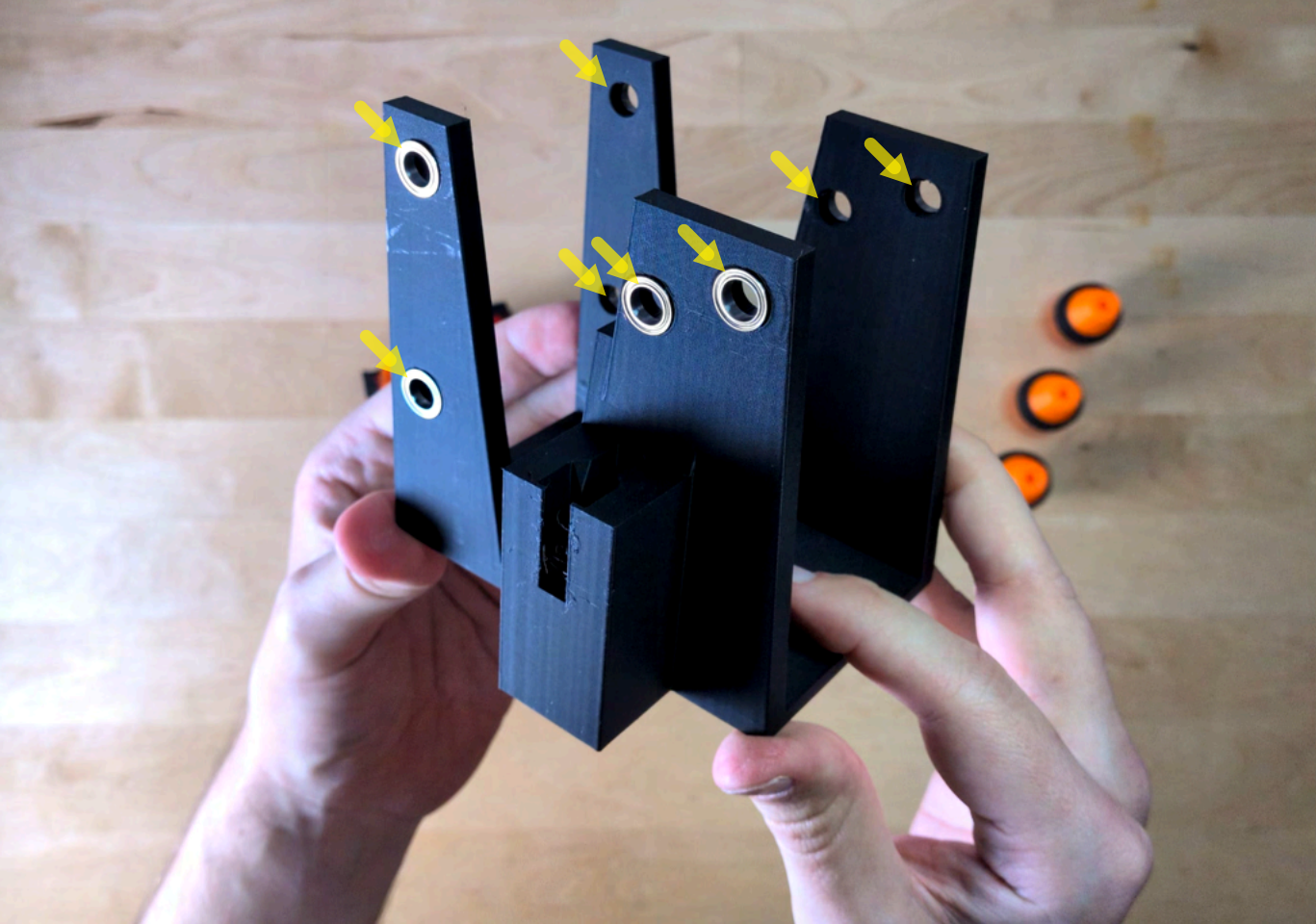


5

Place (3) 33.7×13.85mm Rubber Tires over the wheels.

Note that there is rim on one side of the tires and this should align to the flat part of the wheel so that the tire is locked in place.





6

Press (8) MR128 Ball Bearings into the slots on the side of the frame.

These are press fit - make sure that they are fully pressed in and level.

It can help to start a bearing and then use a flat surface (like the bottom of a table) to press them into place.

7

Place the lava conveyor belt over the side of the frame.

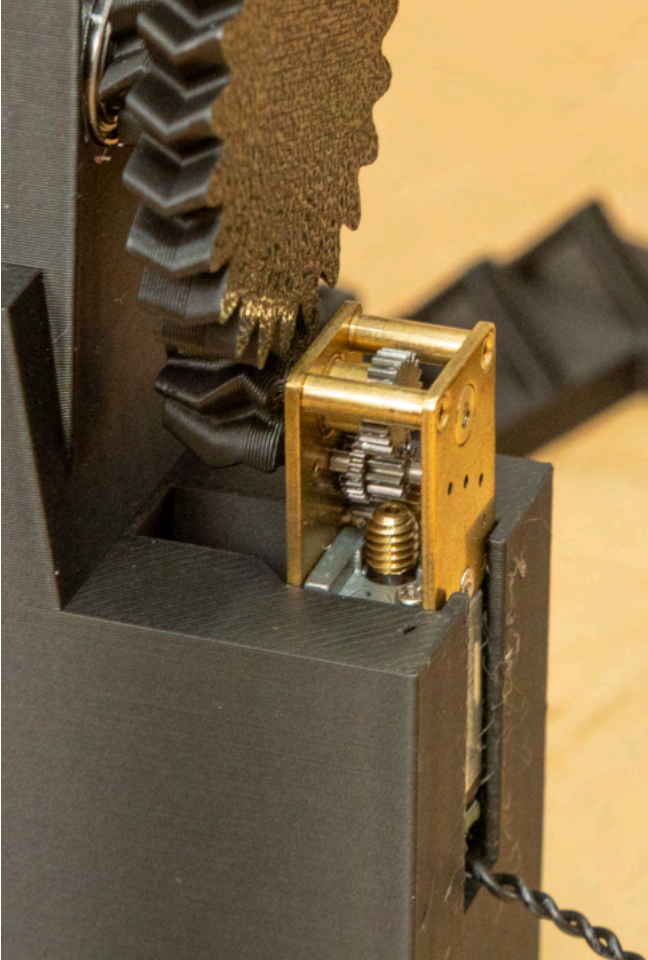
Make sure the lava blocks are oriented so that their 'free' parts (the side not attached with a screw) is oriented towards the front, flat part of the waterfall.



8

Place the motor gear onto the N20 Single Shaft Worm Gear Motor and ensure that it is fully seated.

Slide the motor down into the slot with the 100mm SH1.0 wire feeding out through the bottom.



9

This part can be a little tricky but if you take your time, it shouldn't be a problem.

Insert the gear through the top bearing on the wider side of the frame - this should be the same side near where the motor will be placed.

Next, insert the reduction gear into the bearing just below the previous one. The lower gear will screw into the smooth shaft while the upper gear will screw into one of the tire wheels. It can help to do this a little at a time & it will be a tight fit.

When fully inserted, both gears should be engaged and also connected to the motor gear. When these are aligned, screw two pins through the opposite bearings and ensure that they are right (by hand).

The video of this step may help clarify



10

Rotate the lava conveyor belt so that it is seated on the tires.

Use (4) more pins to attach the (2) remaining wheels within the belt and tighten by hand.

11

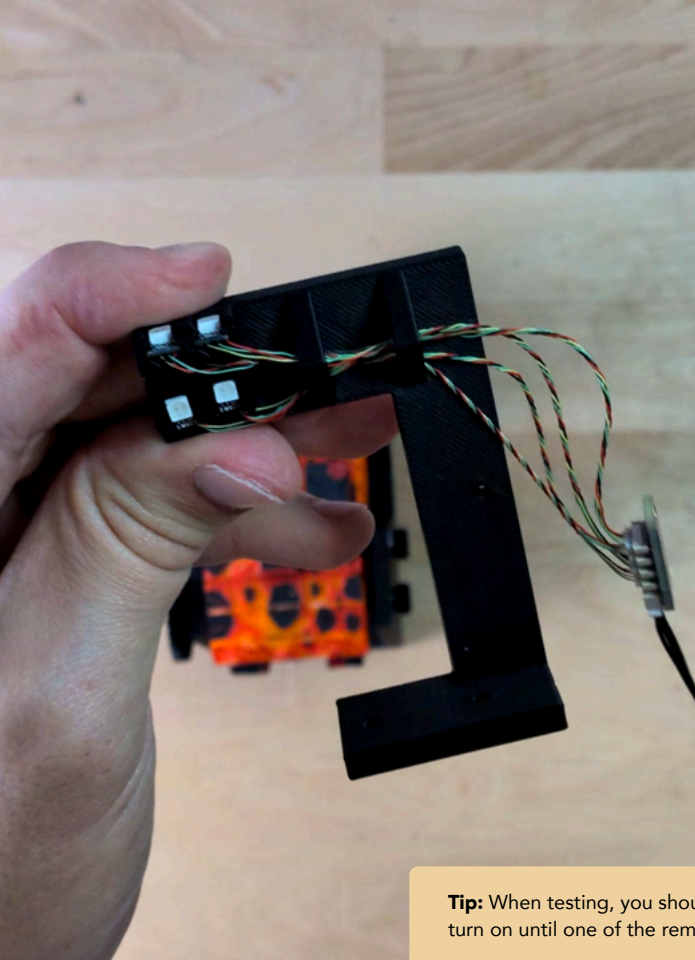
Attach (4) WS2812 RGB LED to a WS2812 LED Hub. Feed the LEDs through the triangular slot in the LED Holder and then insert them into the 4 channels with the LEDs facing out.

Align the LED Holder to the base of the frame and attach with (2) 2.6x8 Self Tapping Screws.

Test both the motor and LEDs before continuing. You can use the [wiring diagram](#) in the Final Assembly section to temporarily wire the motor up to the receiver for the purposes of testing.

If building the Wired version:

Instead use the Manual LED Holder with the 3030 5V LED Board which will slide into place. Attach a 100mm SH1.0 wire to the LED



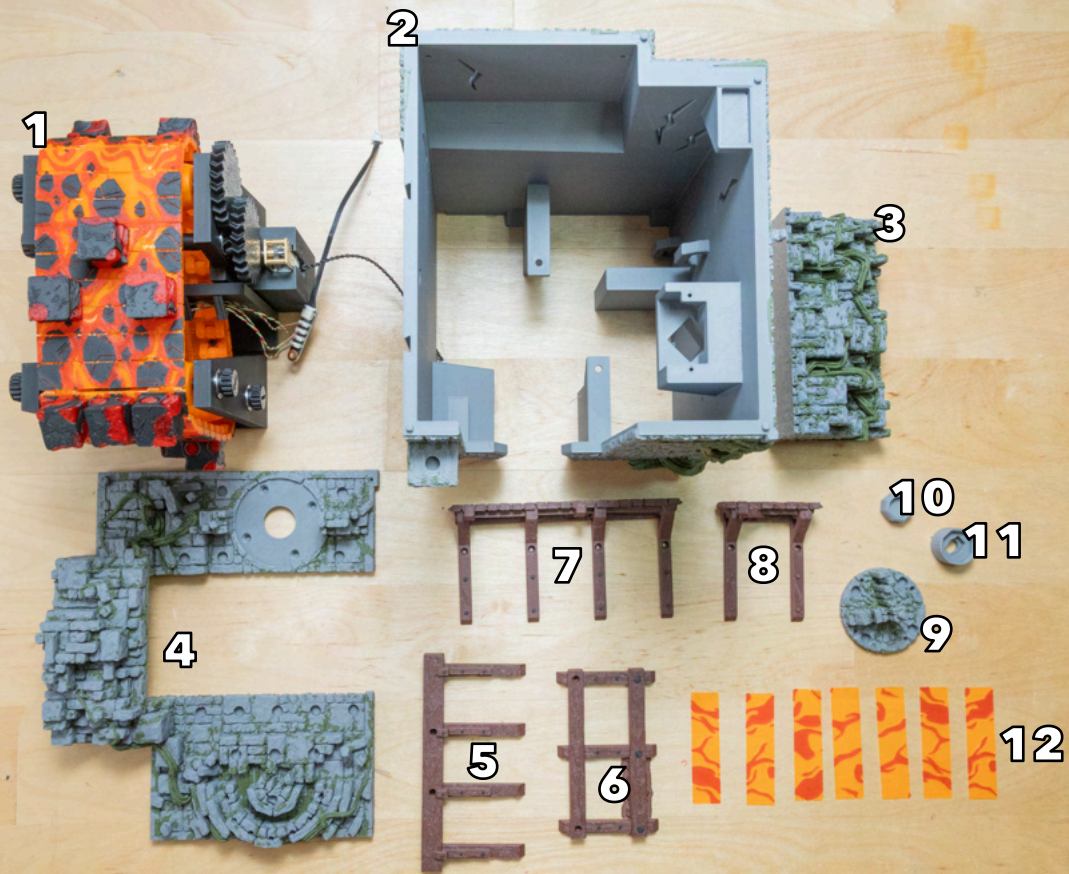
Tip: When testing, you should know that the lights won't turn on until one of the remote buttons is pressed.



LAVA TOWER

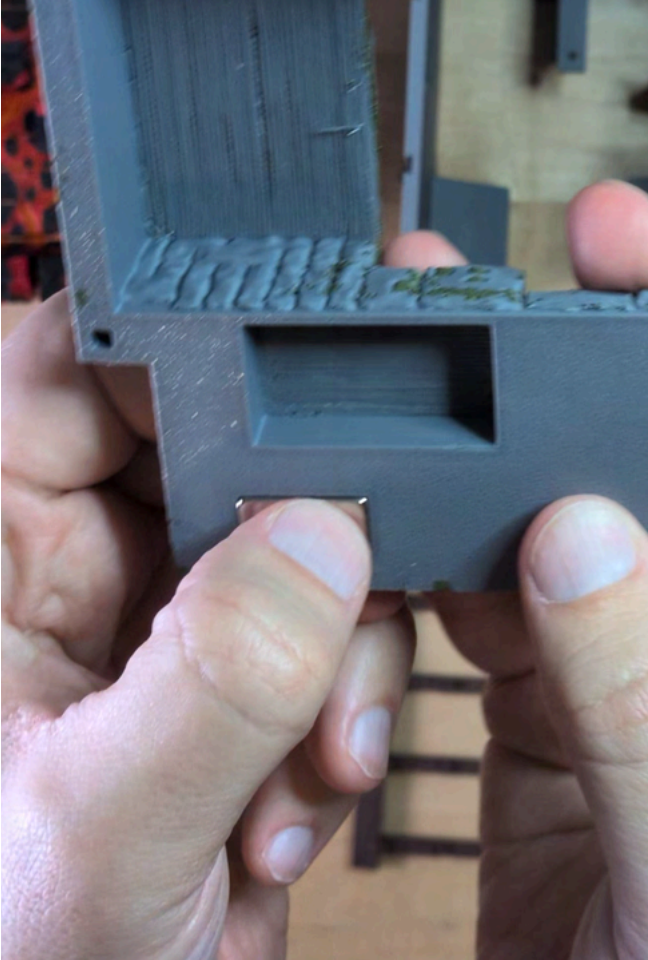
Hardware used for this section:

Part	Qty.
Rectangular Magnet - 20x10x3 - CB004	2
2.6x8 Self Tapping Screws - AA004	3
2x8 Self Tapping Screws - AA094	10
10x4x3mm Ring Magnet - CC003	2
9g Continuous Rotation Servo - 360° - PG002	1



1

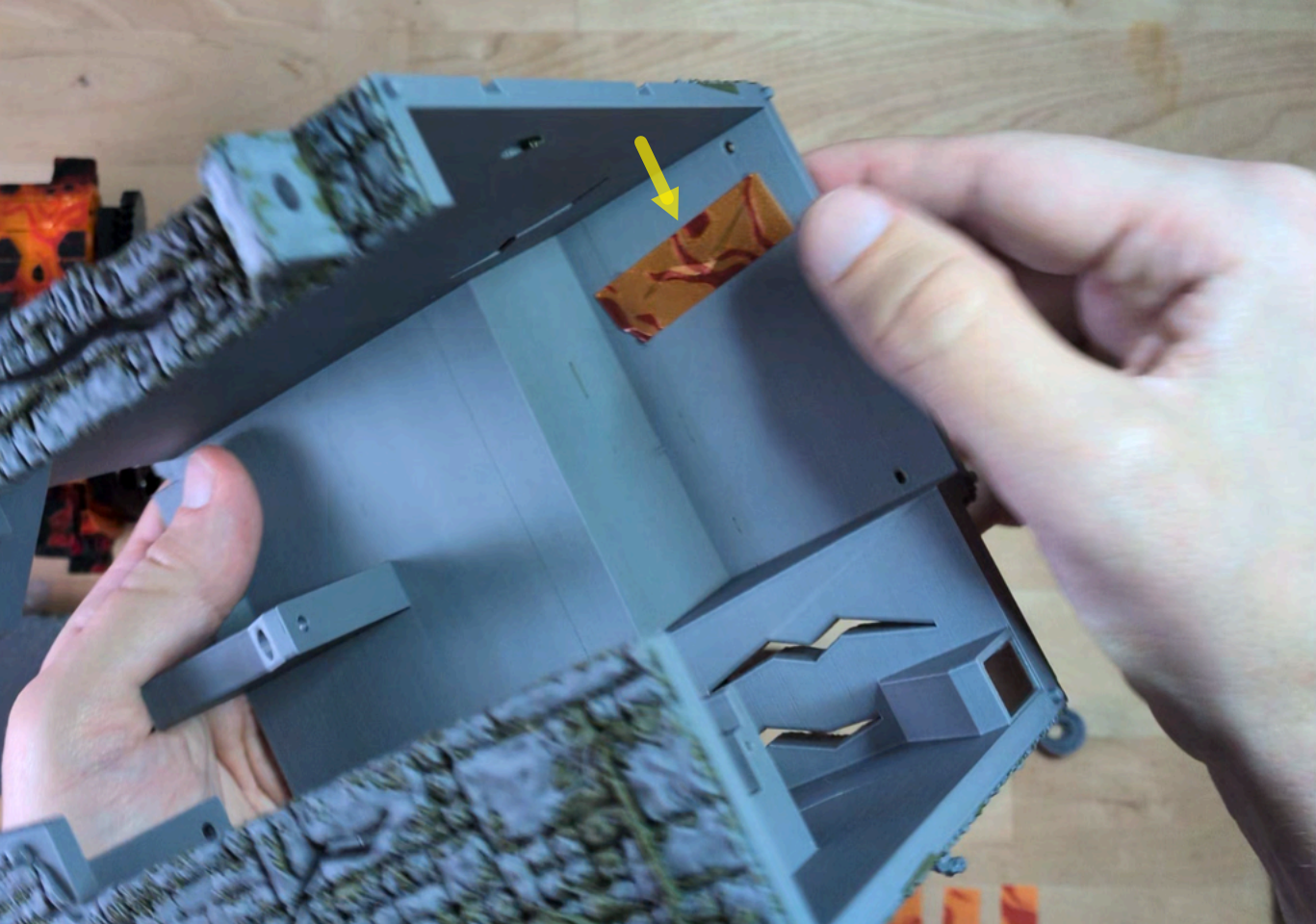
1. Lava Conveyor Belt Assembly
2. Lava Tower
3. Relic Support
4. Lid
5. Scaffold A
6. Scaffold B
7. Scaffold C
8. Scaffold D
9. Spin Trap Disc
10. Rod
11. Servo Gear
12. Lava Gels



2

Glue a 20x10x3 rectangular magnet into the slot at the top of the tower and another into the lid.

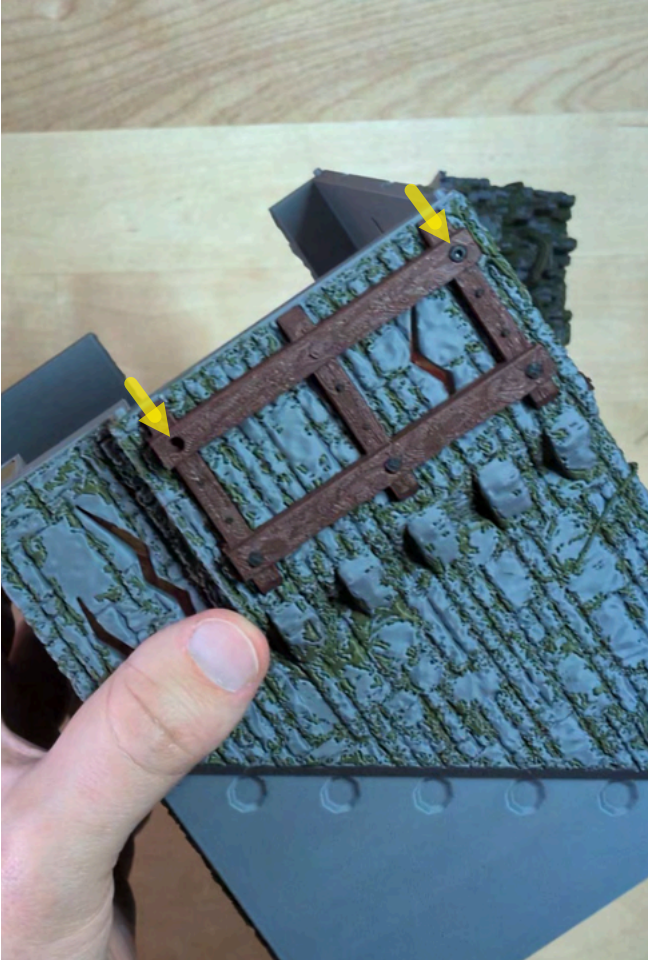
Be sure to check the polarity before gluing and also press the magnets firmly into place so that they have enough clearance.



3

Glue the lava gels into the interior of the tower to cover the cracks.

Use only a couple of small dots of glue so that you can remove or replace these later if needed.

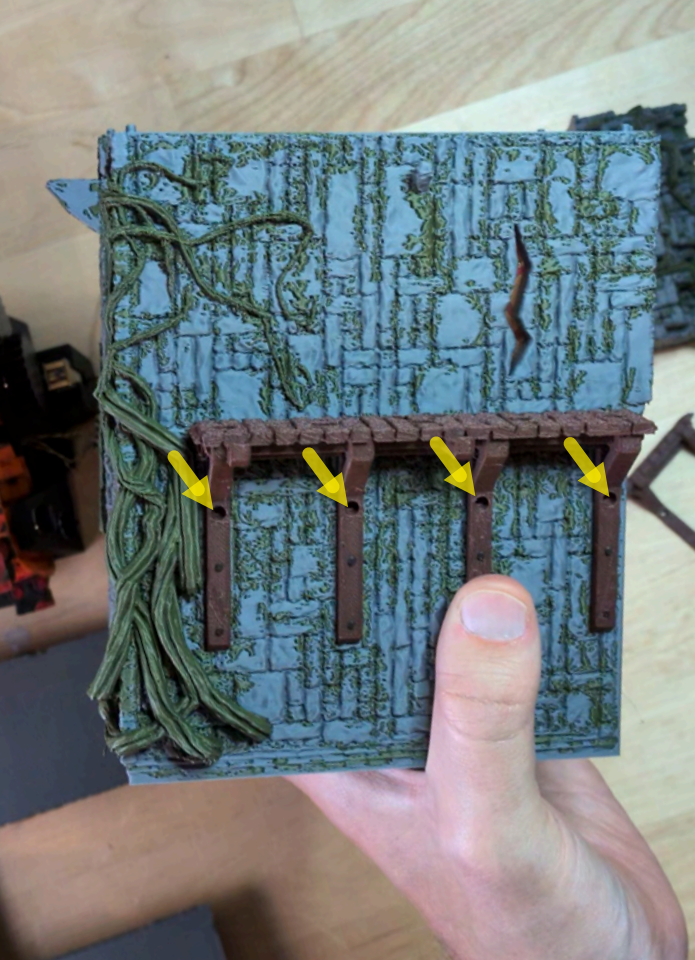


4

Use (4) 2x8 Self Tapping screws to attach the first 2 lava tower scaffolds.

Note that there are flat areas in the brick to which these will align.

Do not over-tighten the screws.

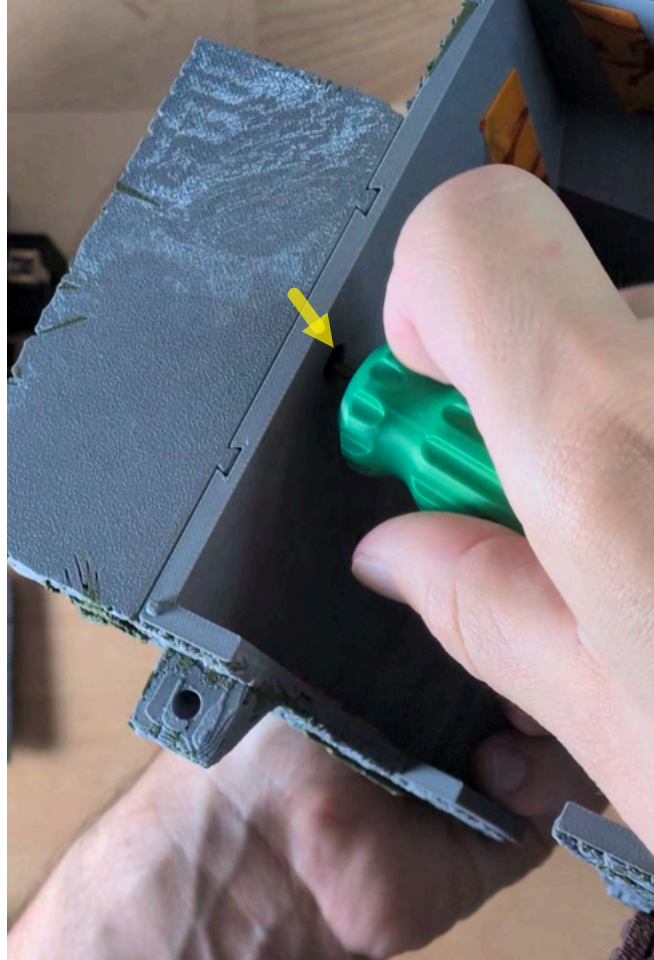
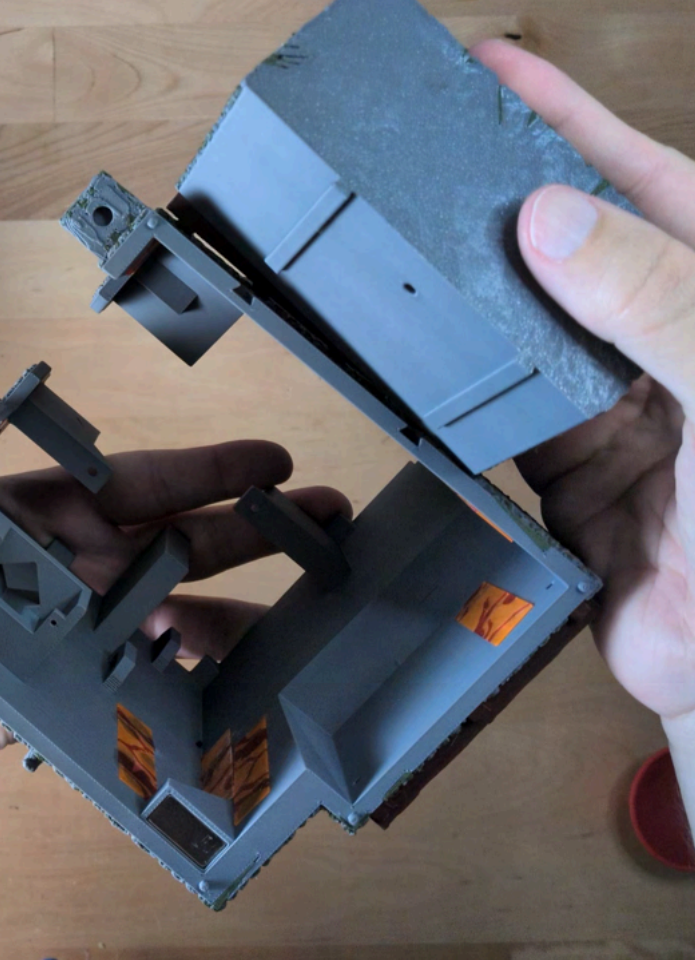


5

Use (6) 2x8 Self Tapping screws to attach the second 2 lava tower scaffolds.

Note that there are flat areas in the brick to which these will align.

Do not over-tighten the screws.



6

Slide the Relic Support part down onto the Lava Tower using the alignment channels.

Secure with (1) 2.6x8 Self Tapping Screw which will be driven from the inside of the tower.

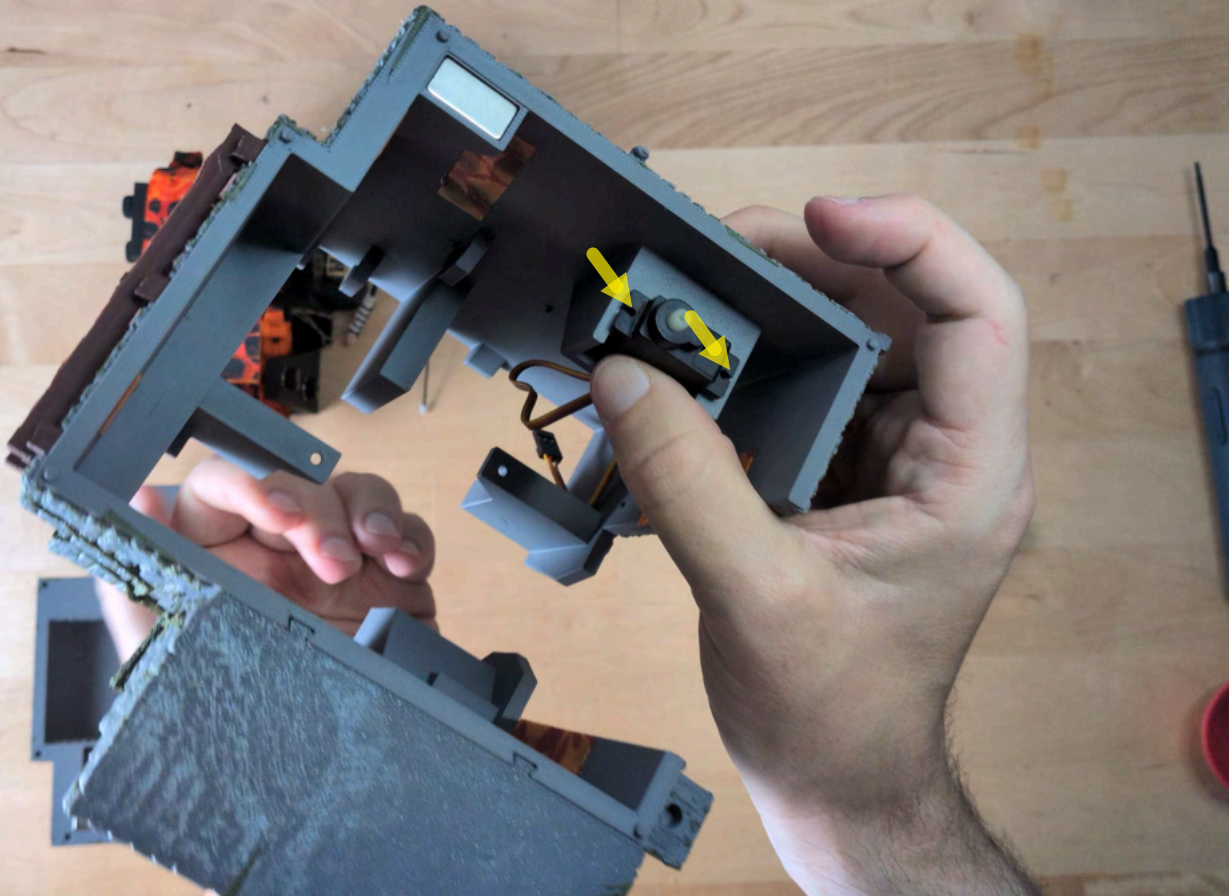
If this area is too small for your driver, I recommend printing a driver like [this one](#).

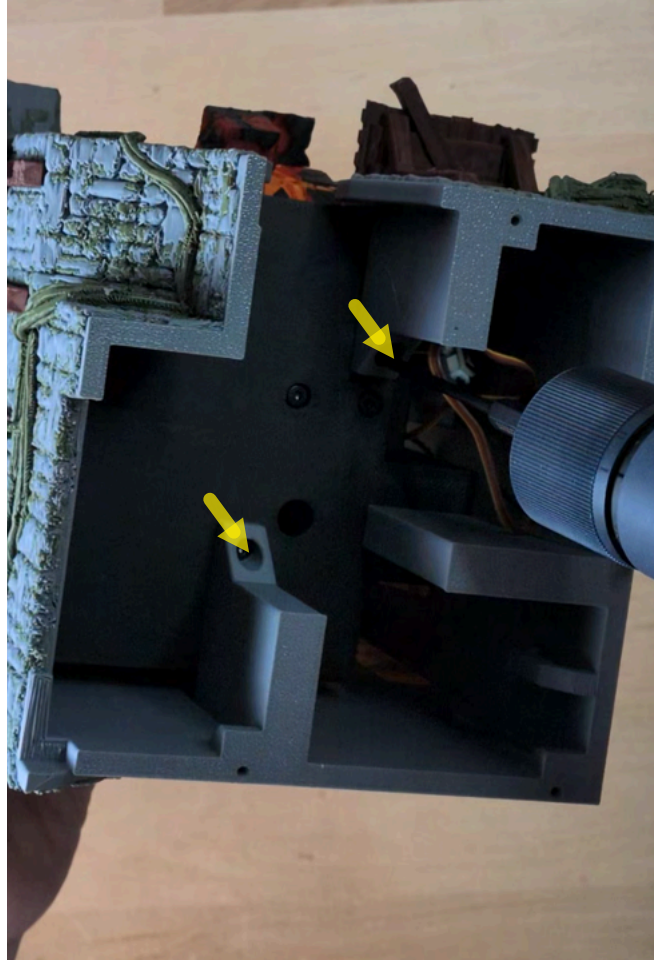
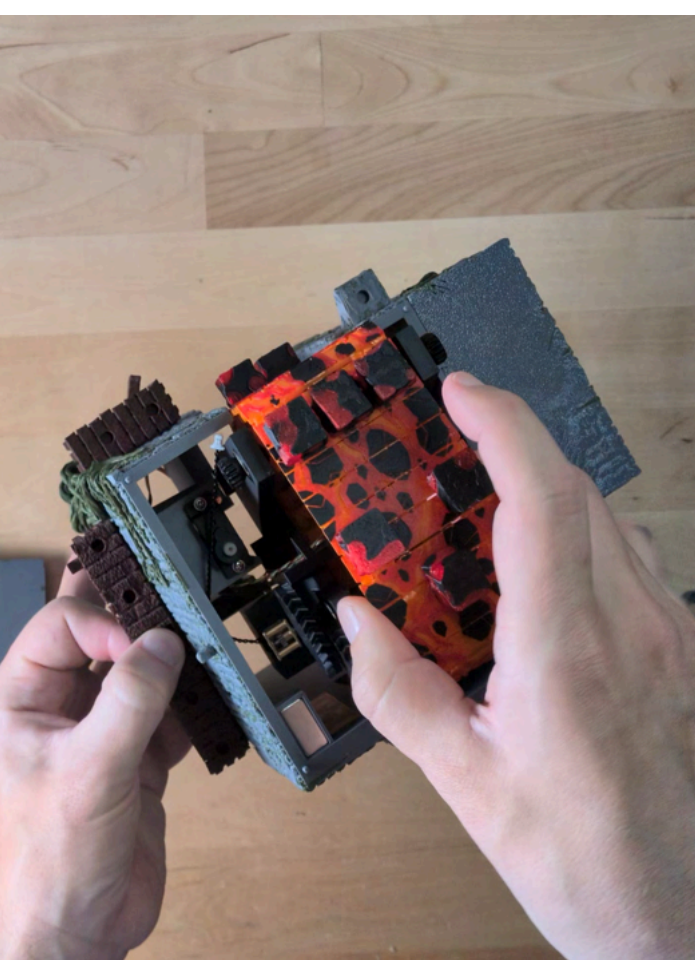
7

Attach a 360° 9g Servo Motor (be sure that it's a 360° type) where shown with the servo cable fed through the hole in the bottom.

Use the 2 longer screws that came with the servo to attach it.

Note the orientation of the servo & ensure that it points the same direction as the example.





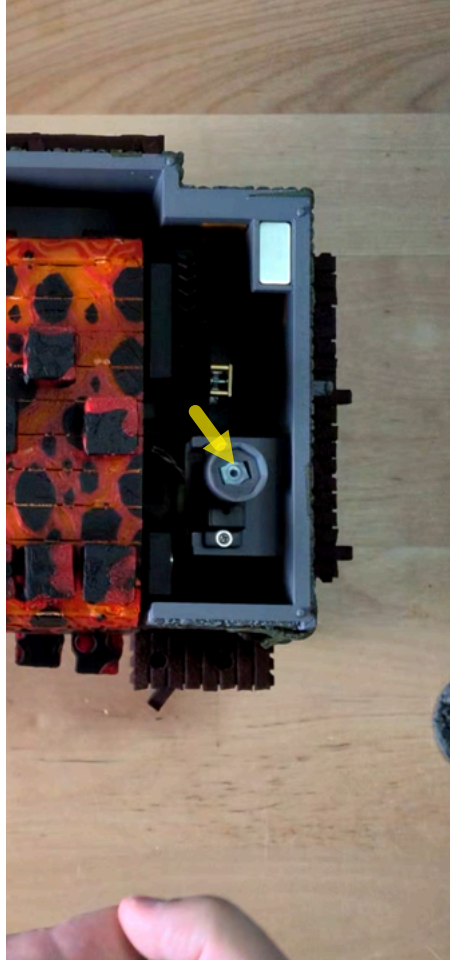
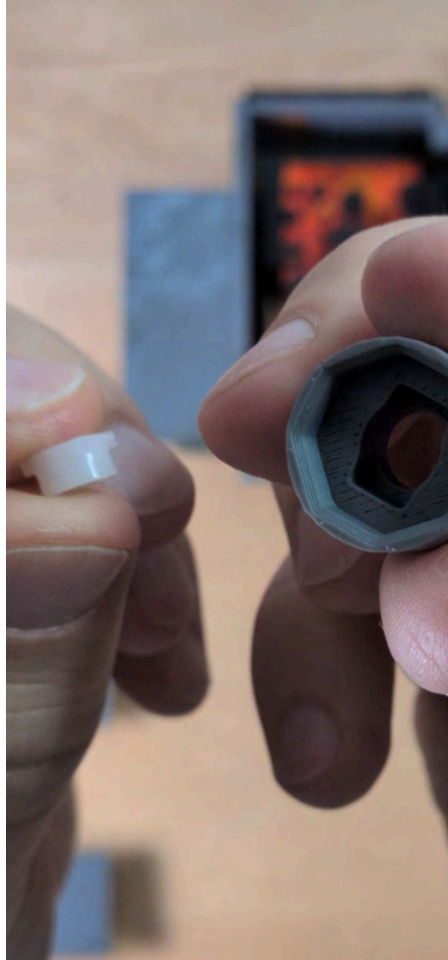
8

Lower the completed Lava Conveyor Belt assembly down into the tower with the vertical portion of the lava flow facing the front.

Be careful to not pinch the wires from the motor or lights and ensure that they are freely hanging into the lower part of the tower.

Attach the assembly using (2) 2.6x8 Self Tapping Screws, driven from below and through the base of the Lava Tower.

Be cautious with the alignment of these screws - it may help to hold the tower upside down in your off-hand.

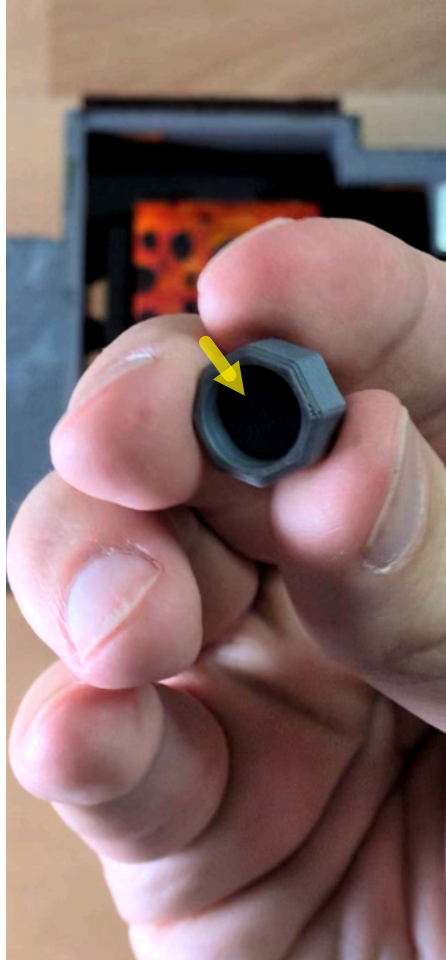
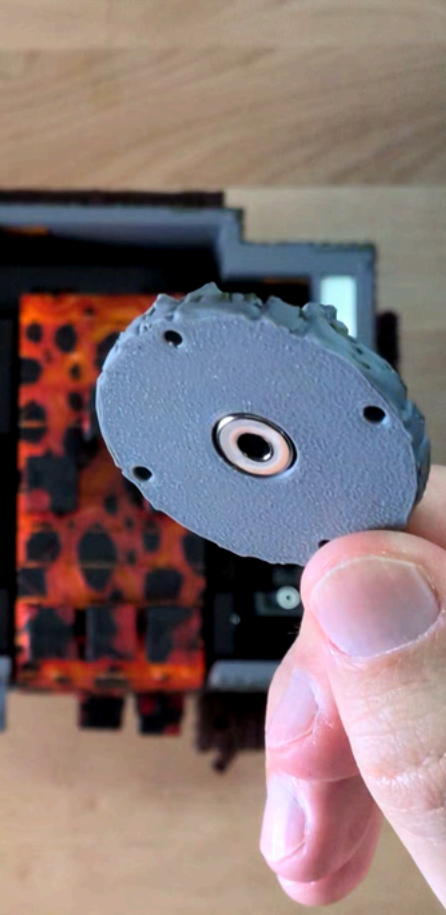


9

Use side cutters trim off the arms of a servo horn so that they are almost flush with the interior slot.

Press this trimmed arm down into the servo gear with the arm nubs are at the top and the slot is facing down.

Press this down onto the servo and use the small screw that came with the servo to attach it.



10

Press a 10x4x3mm Ring Magnet into both the Rod and Spin Trap Disc.

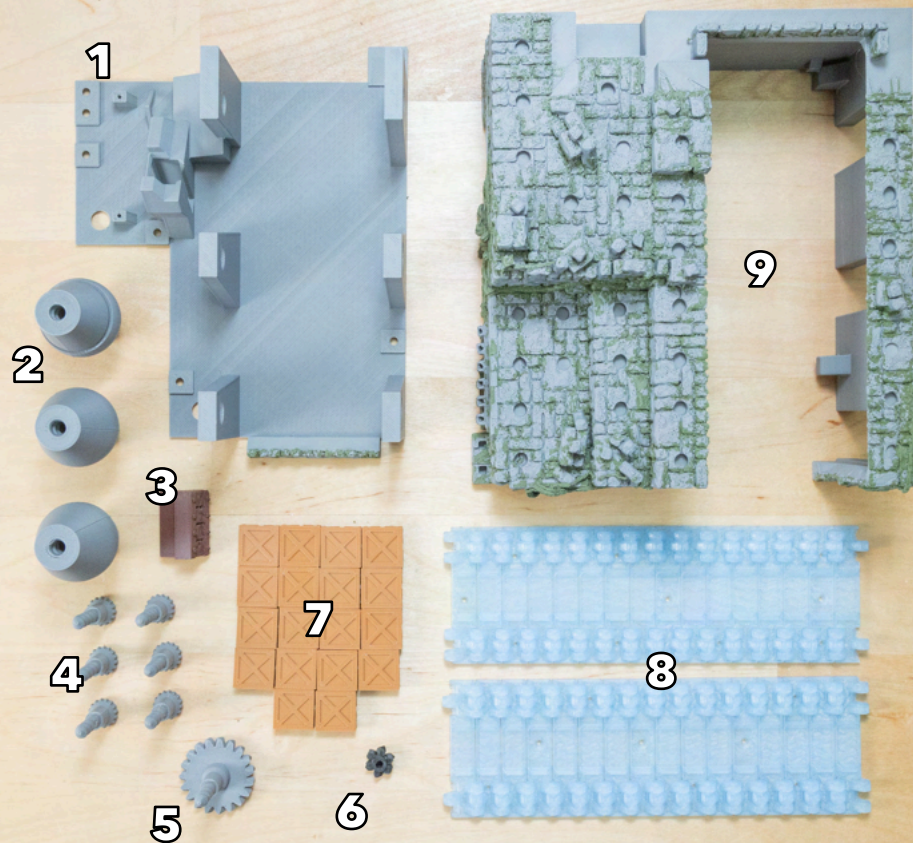
Then, press the rod (magnet side up) into the servo gear

Test both the servo before continuing. You can use the [wiring diagram](#) in the Final Assembly section to temporarily wire the servo up to the receiver for the purposes of testing.

RIVER BELT & SW BASE

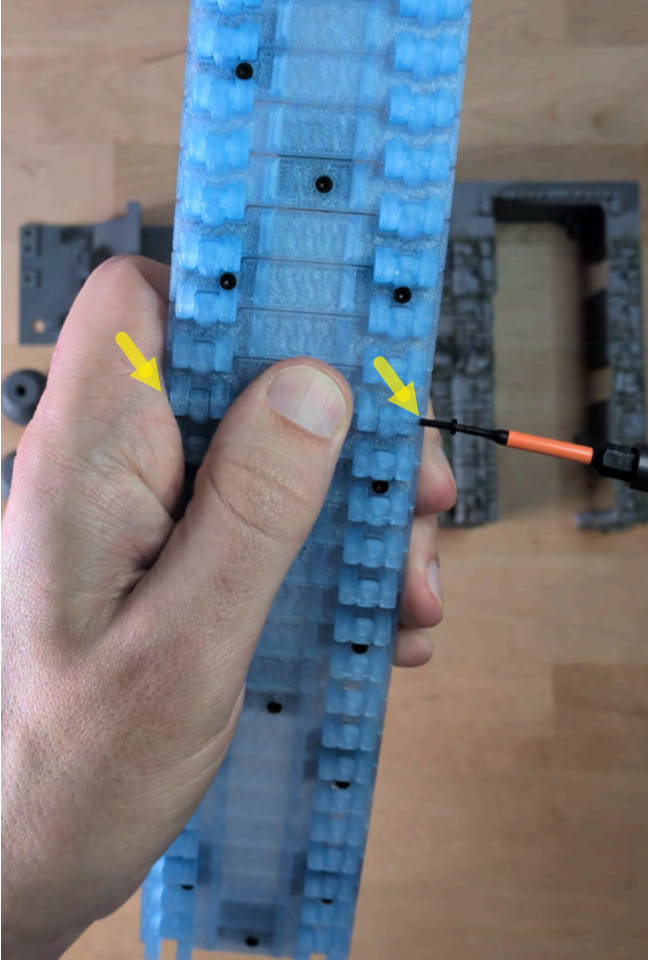
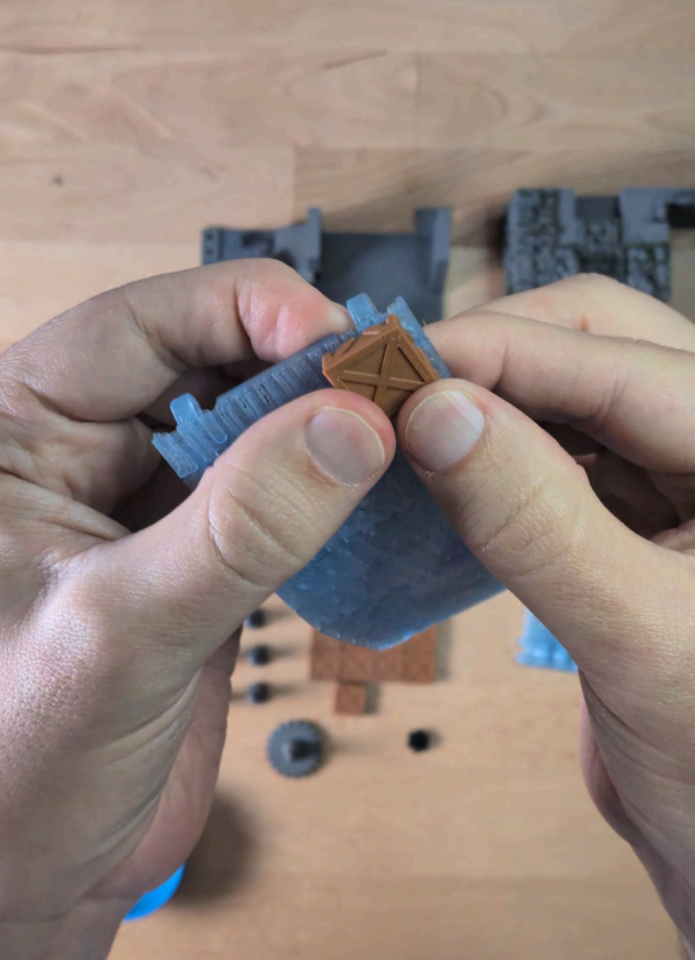
Hardware used for this section:

Part	Qty.
MR128 Ball Bearings - EA004	6
2.6x8 Self Tapping Screws - AA004	7
2x6 Self Tapping Screws - AA093	18
2x10 Self Tapping Screws - AA192	4
N20 Single Shaft Worm Gear Motor 25rpm - LA008	1
300mm Wire Pair with SH1.0 - XC014	1
33.7×13.85mm Rubber Tire - LA027	3



1

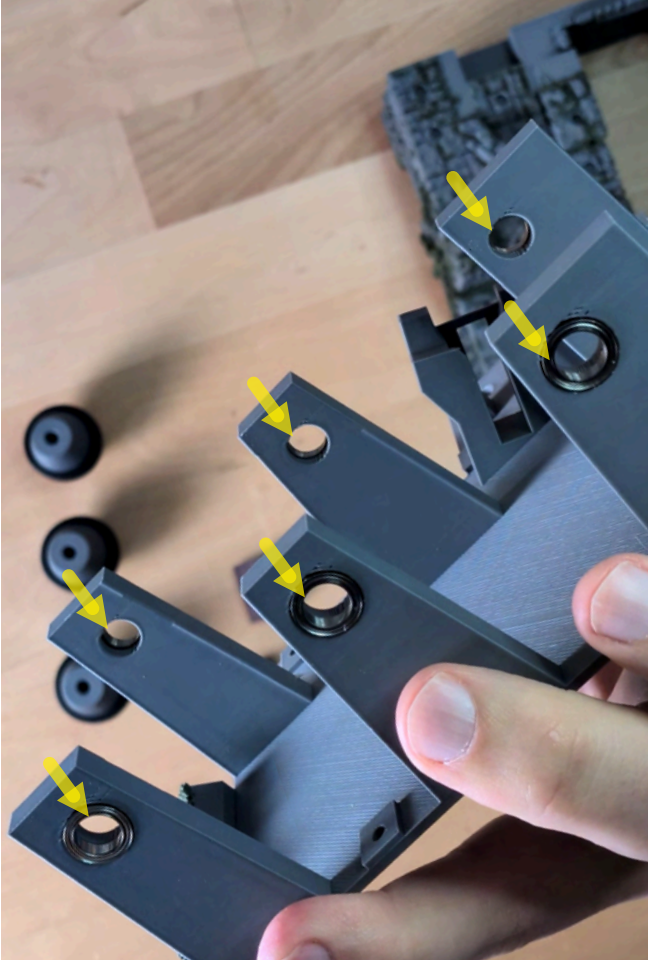
1. Frame
2. Wheels
3. River Power Attachment
4. Pins
5. Gear
6. Motor Gear
7. Crates
8. River Conveyor Belts
9. SW Base



2

Use (18) 2x6 Self Tapping screws to attach the crates to the river conveyor belts.

Use the identical process that was used for the lava conveyor belt for these steps, including attaching the two conveyor belt pieces with (4) 2x10 Self Tapping screws once the crates have been added.

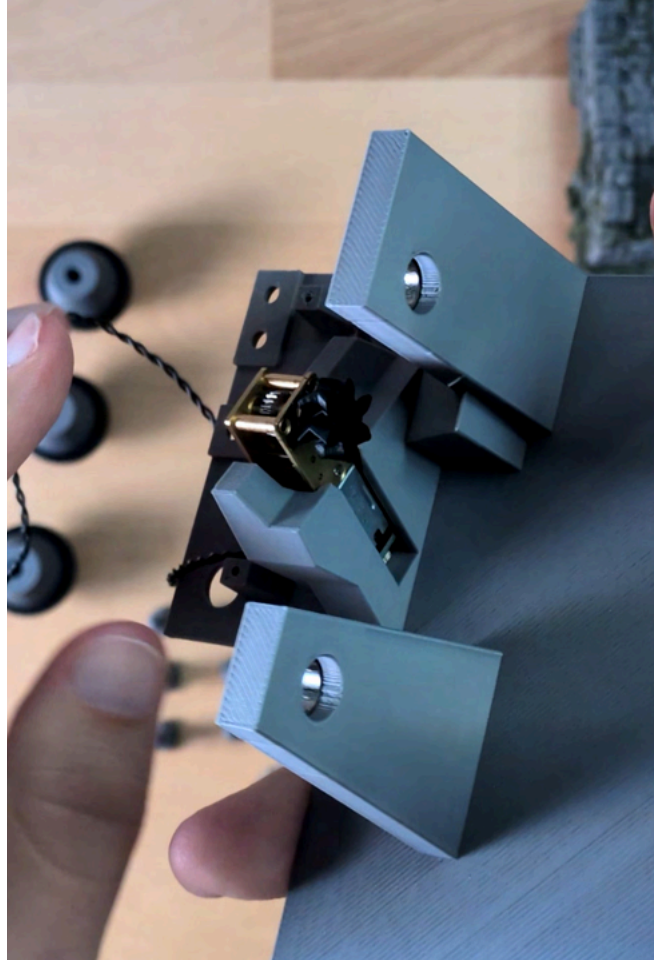
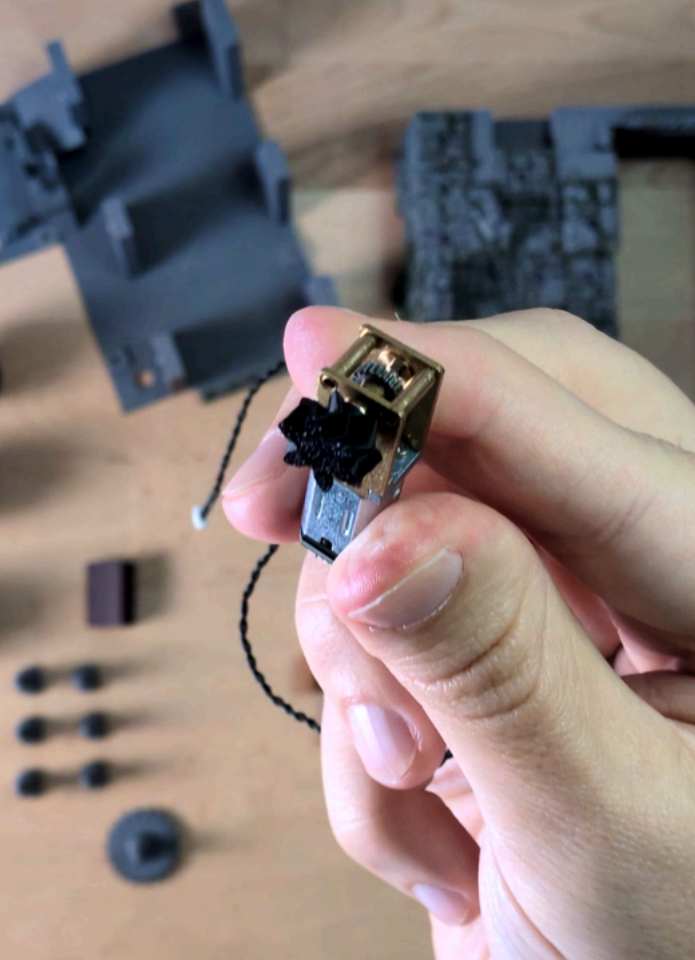


3

Place (3) 33.7×13.85mm Rubber Tires over the wheels. Note that there is rim on one side of the tires and this should align to the flat part of the wheel so that the tire is locked in place.

Press (6) MR128 Ball Bearings into the slots on the side of the frame. These are press fit - make sure that they are fully pressed in and level.

It can help to start a bearing and then use a flat surface (like the bottom of a table) to press them into place.

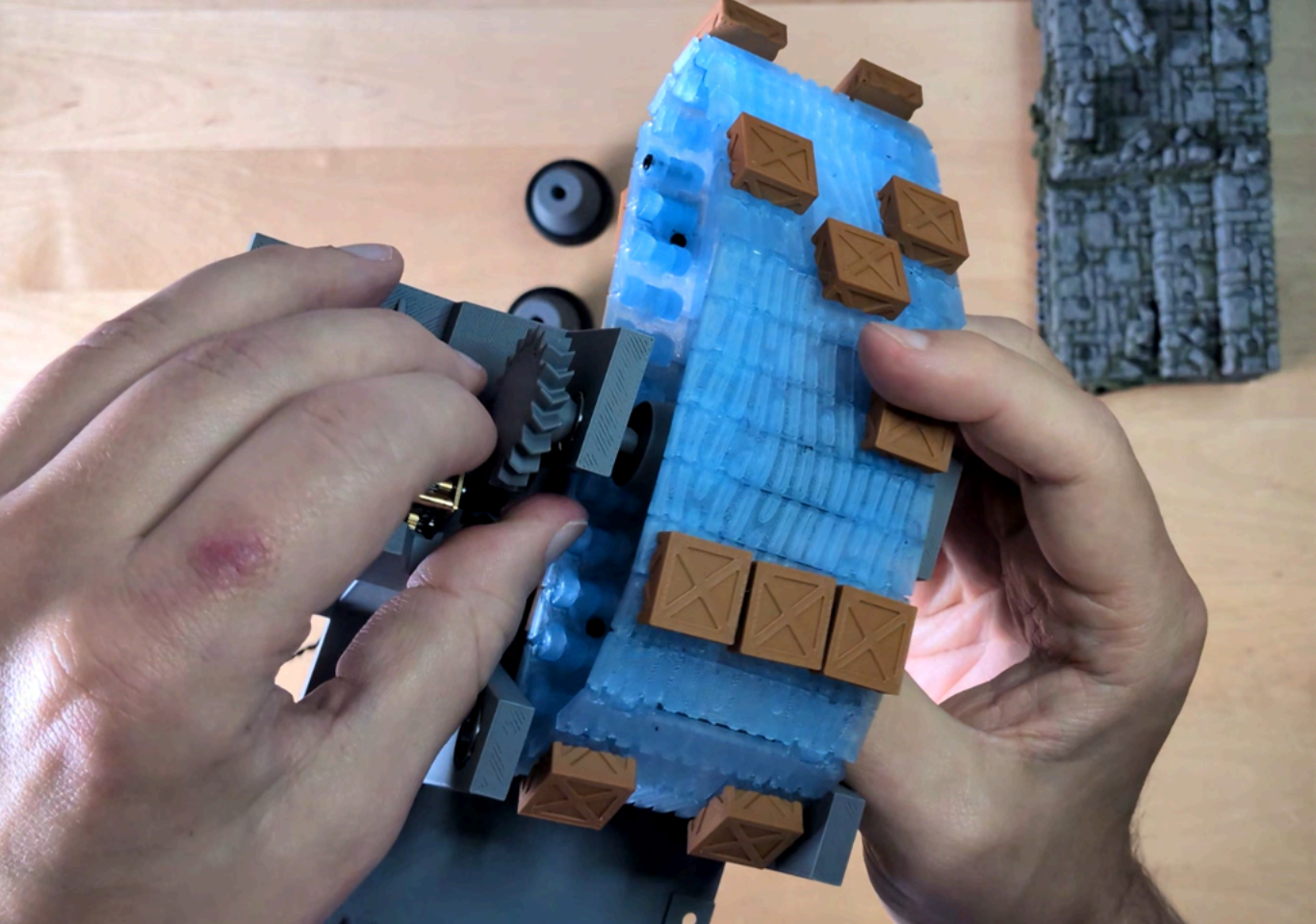


4

Place the motor gear onto the N20 Single Shaft Worm Gear Motor and ensure that it is fully seated.

Slide the motor down into the slot with the 300mm SH1.0 wire feeding out through the bottom (if you are completing the Wired version, just use the shorter wire that came with the motor).

The gear should be pointing towards where the conveyor belt will be added.



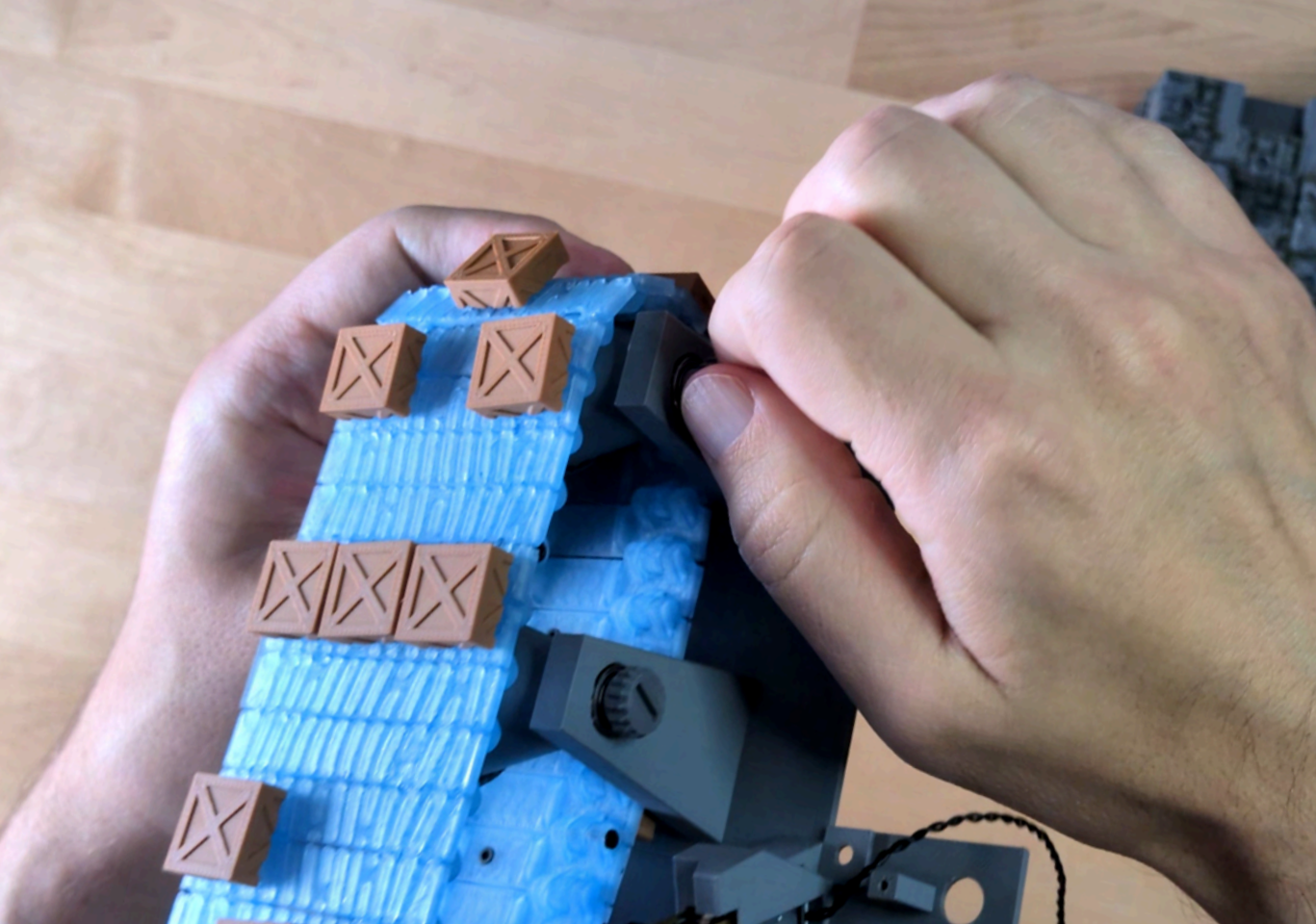
5

Insert the gear through the top bearing nearest the motor, screwing it into one of the wheels.

Use a pin to attach the other side of the wheel through the bearing on that side of the frame.

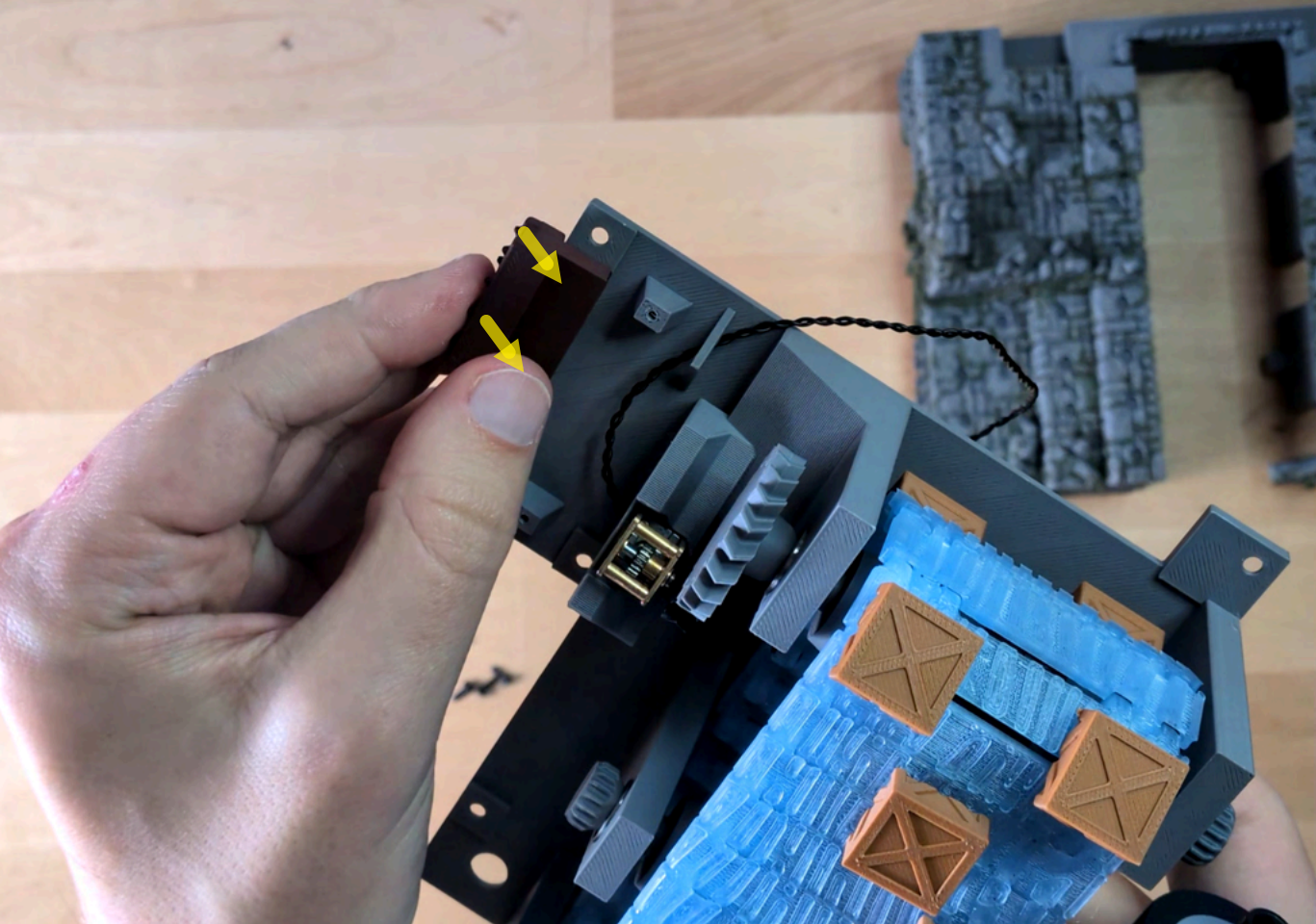
When fully inserted, the gear should be engaged and also connected to the motor gear.

Ensure the pins are tight (by hand).



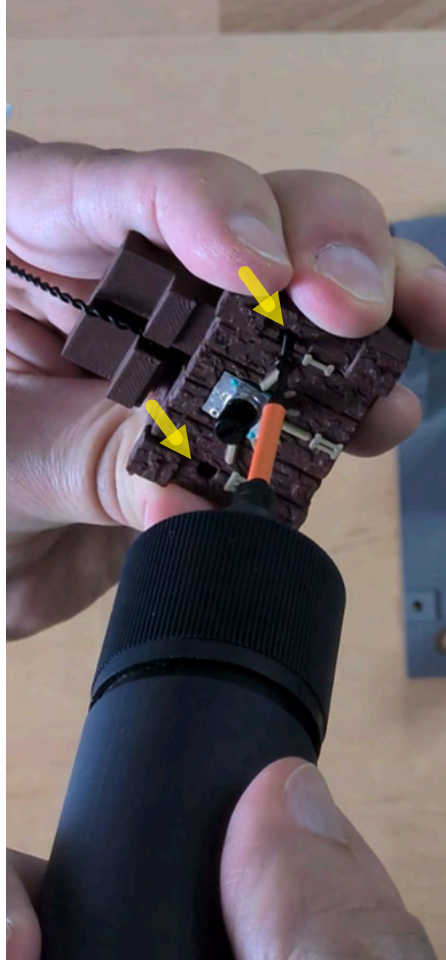
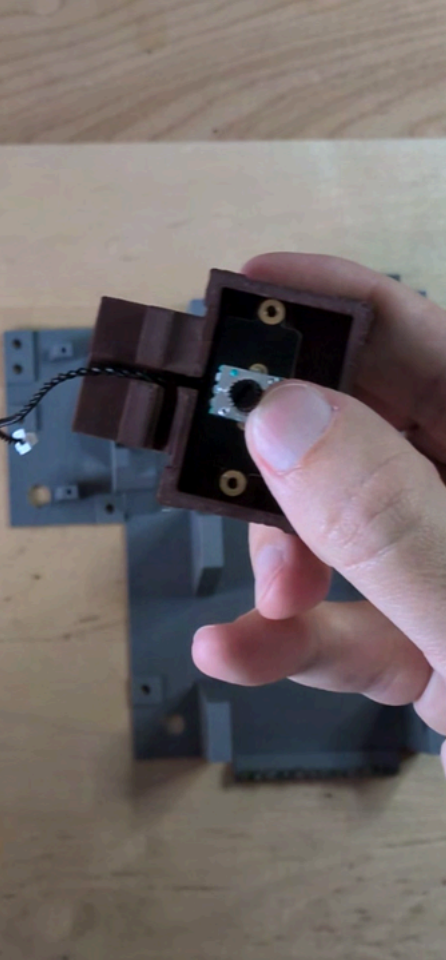
6

Use (4) more pins to attach the (2) remaining wheels within the belt and tighten by hand.



7

Use (2) 2.6x8 Self Tapping Screws to attach the River Power Attachment to the frame.



8

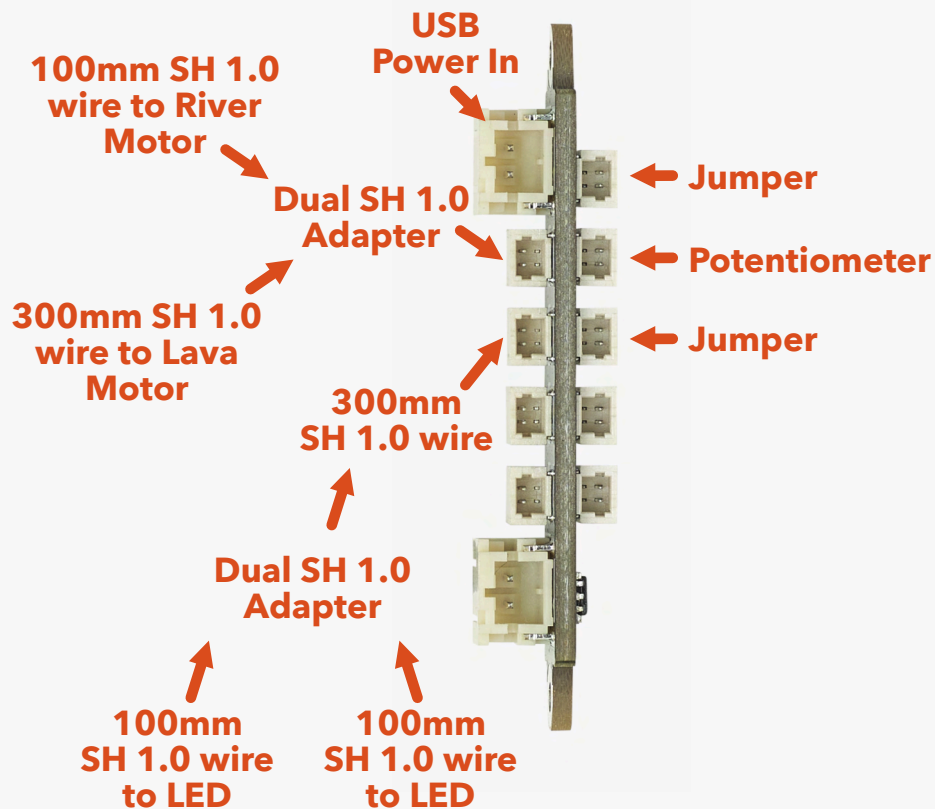
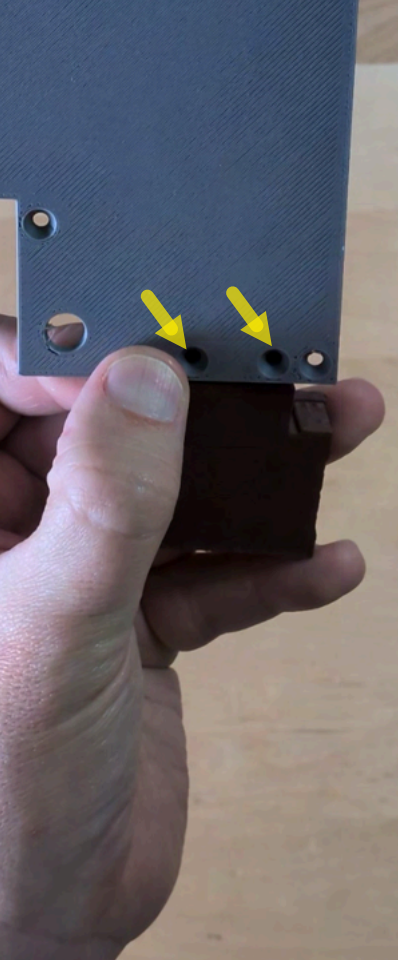
WIRED VERSION ONLY

If building the wired version:

Place the potentiometer into the manual power base and feed the SH1.0 wire (that came with the potentiometer) through the channel in the back.

Attach the lid with (2) 2x10 Self Tapping screws that will also keep the potentiometer in place.

Press the dial onto the potentiometer.



9

WIRED VERSION ONLY

Attach the River Power Manual Base to the frame (2) 2.6x8 Self Tapping Screws.

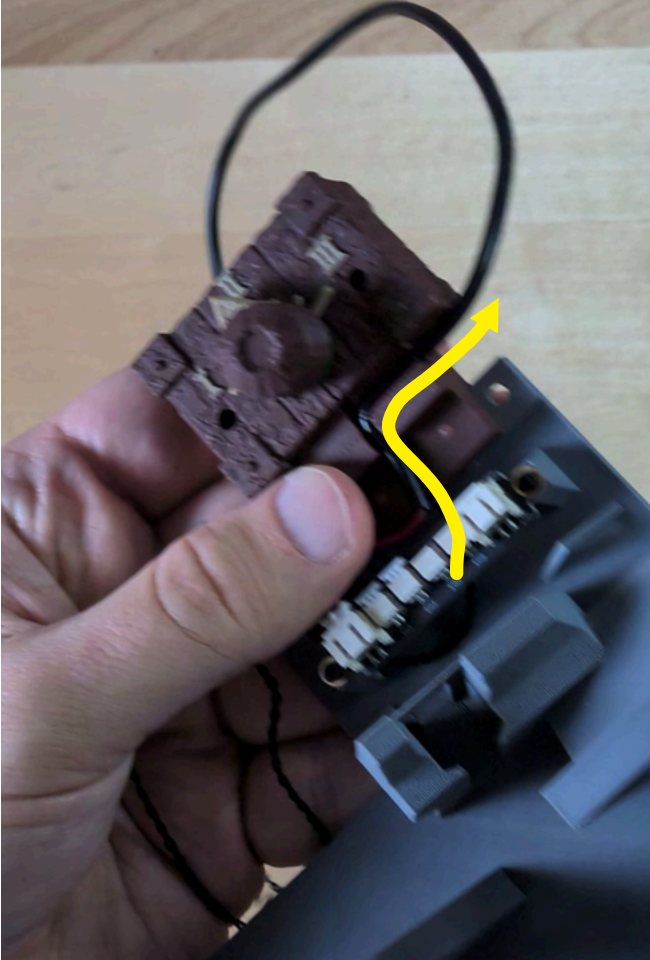
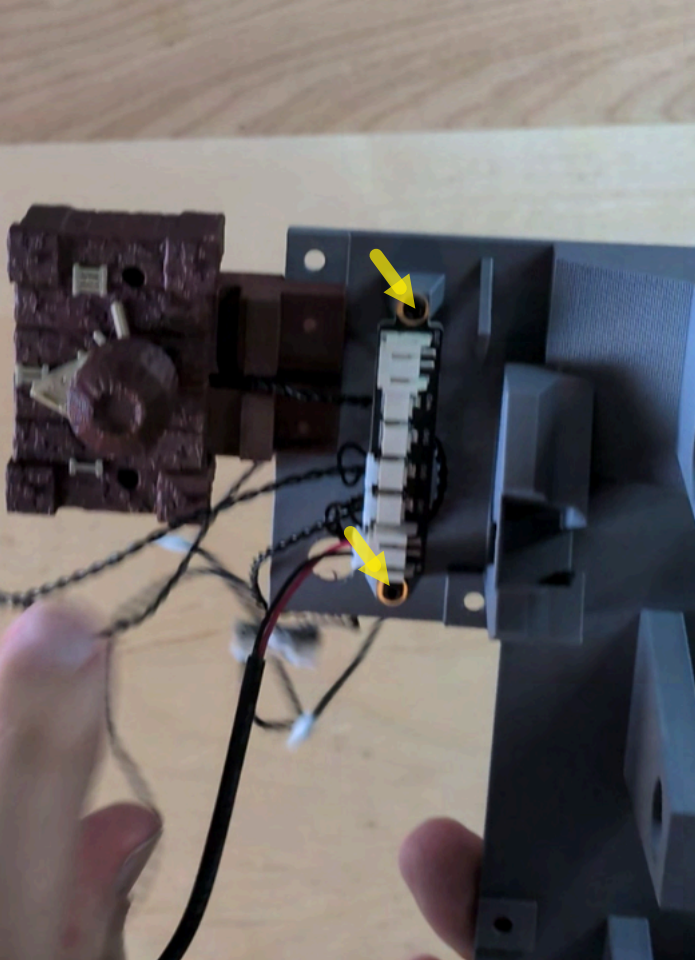
Attach the motor, potentiometer & 300mm SH1.0 wire, jumpers and SH1.0 to Dual SH1.0 Adapter as shown in the diagram.

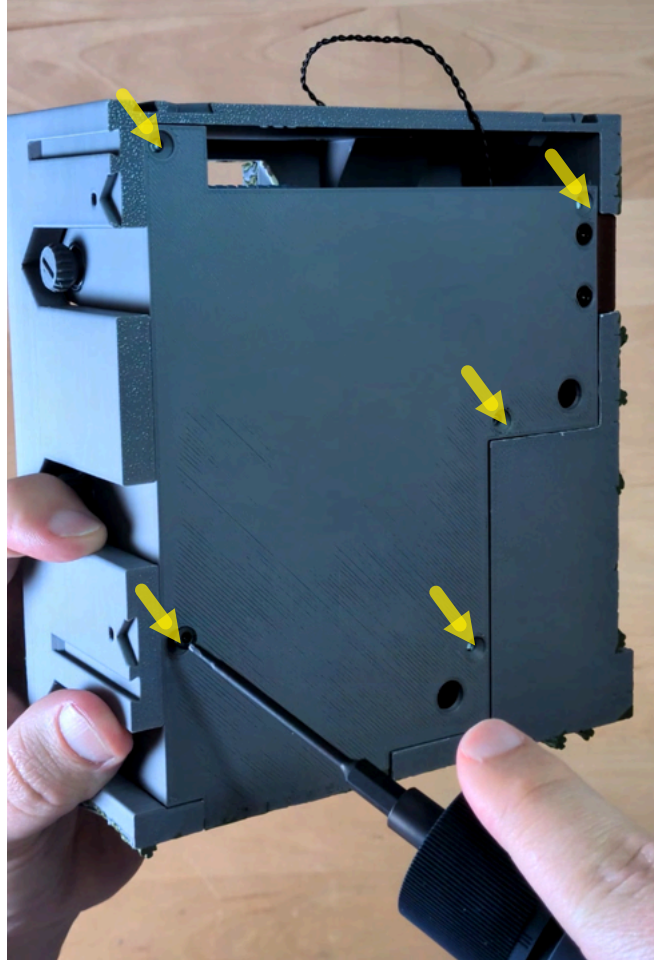
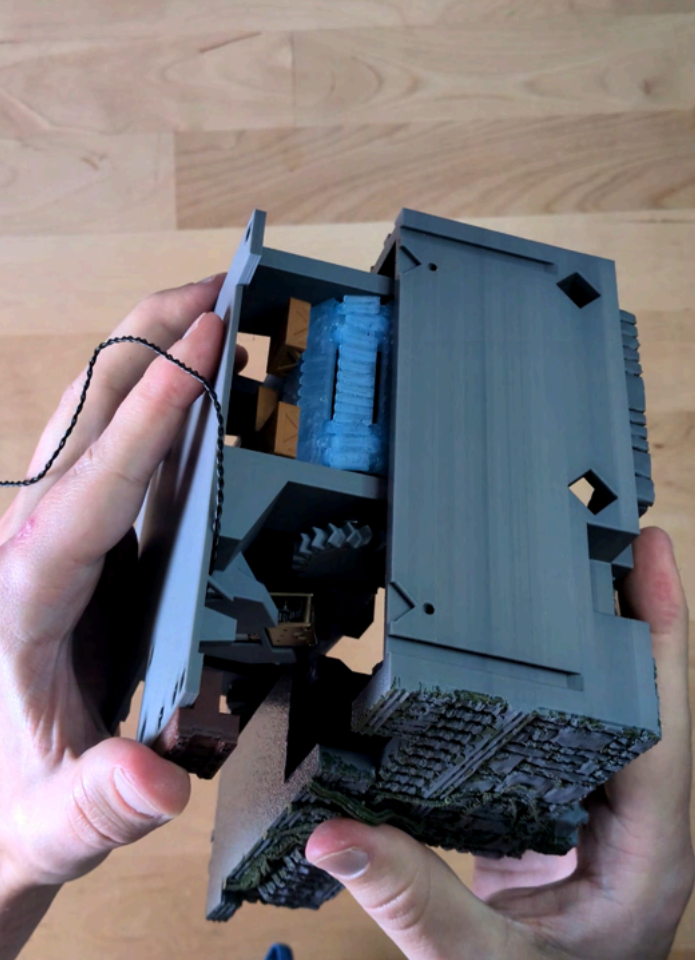
10

WIRED VERSION ONLY

Attach the power distribution board to the frame using (2) 2x6 Self Tapping screws.

Feed the USB cable back through the channel towards the potentiometer.





11

Insert the river assembly up through the bottom of the SE base and ensure that the SH1.0 wire is hanging out through the bottom (you'll need it for a later step). The Power Attachment area will be a snug fit.

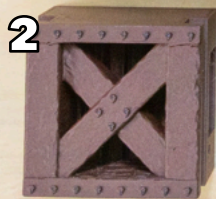
Use (5) 2.6x8 Self Tapping Screws to attach the river assembly to the SE Base.

Test the river part before continuing. You can use the [wiring diagram](#) in the Final Assembly section to temporarily wire this motor up to the receiver for the purposes of testing.

NE BASE

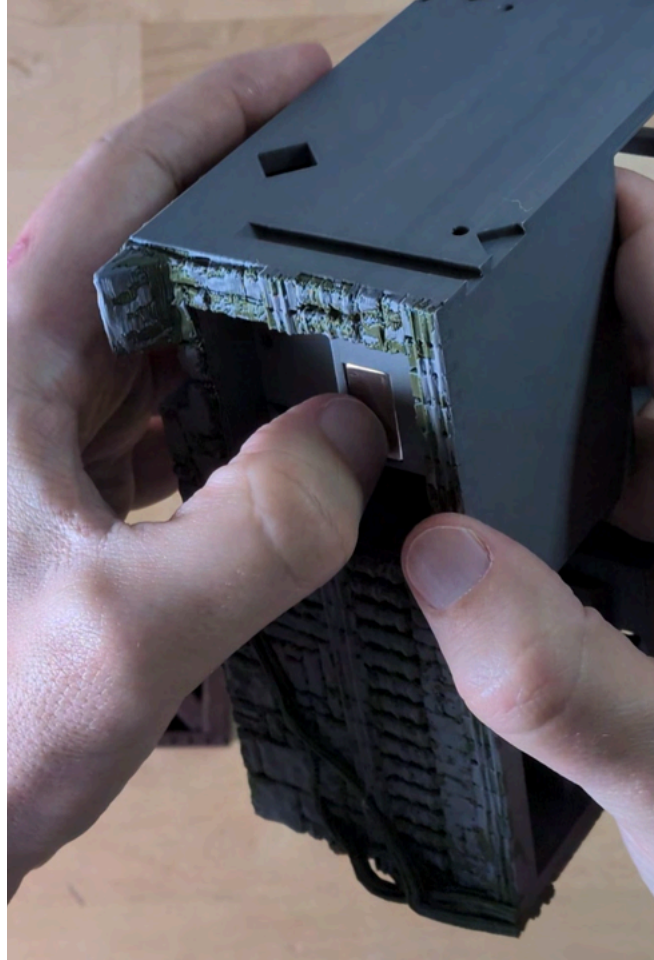
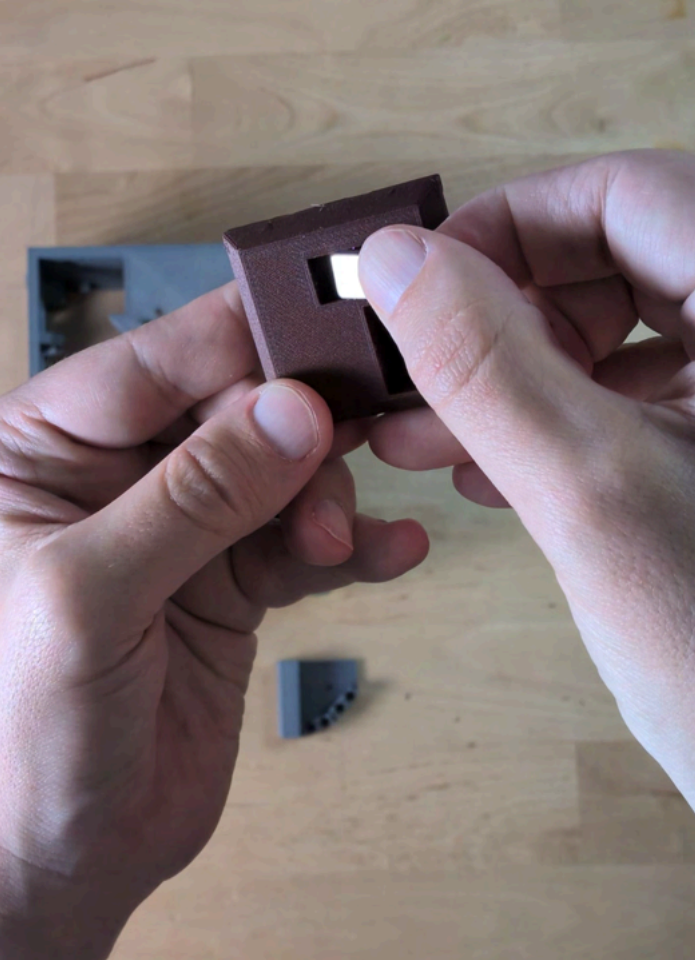
Hardware used for this section:

Part	Qty.
Rectangular Magnet - 20x10x3 - CB004	2
2.6x8 Self Tapping Screws - AA004	3
WS2812 RGB LED (2 pcs) - KB003	4
WS2812 LED Hub - XA006	1
Power Switch Module with 2Pin XH2.54 Connector - XA007	1
14500 7.4V 800mAh Li-ion Battery - PC003	1



1

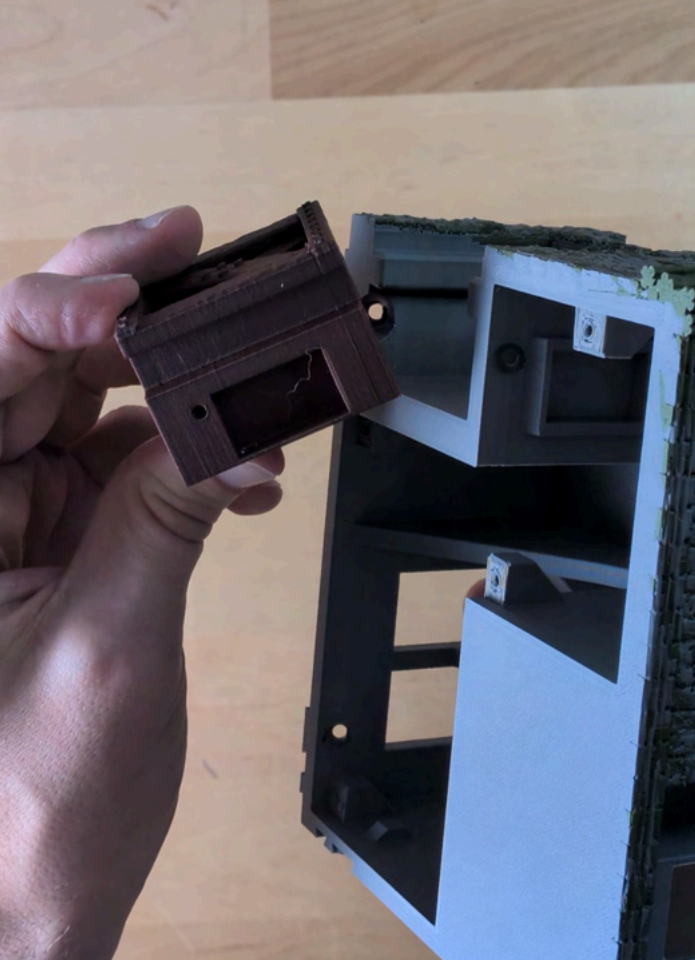
1. NE Base
2. Expansion Slot
3. Battery Cover
4. LED Holder



2

Glue a 20x10x3 rectangular magnet into the Power Switch Cover and another into the base.

Be sure to check the polarity before gluing and also press the magnets firmly into place so that they have enough clearance.



3

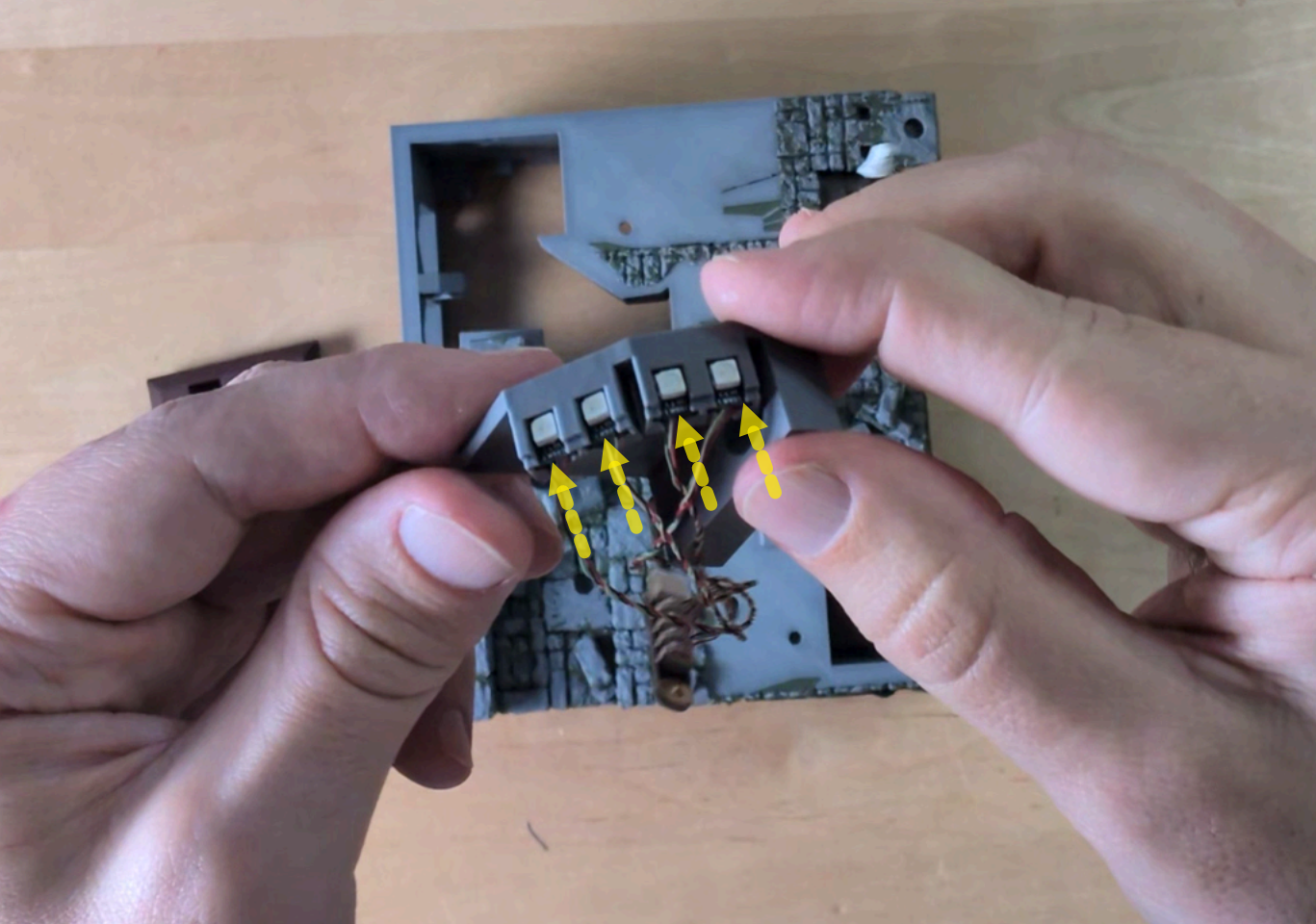
Slide the NE expansion slot into place and attach with (1) 2.6x8 Self Tapping Screw at a 45° angle.

This part is easy to get upside down so check to ensure that the screw is aligned to the bottom before attaching it.

4

Attach (4) WS2812 RGB LED to a WS2812 LED Hub.

Insert the LEDs into the 4 channels of the LED Holder with the LEDs facing out.



WIRED VERSION ONLY

If building the Wired version:

Instead use the Manual LED Holder with the 3030 5V LED Board which will slide into place.

Attach an 100mm SH1.0 wire to the light.

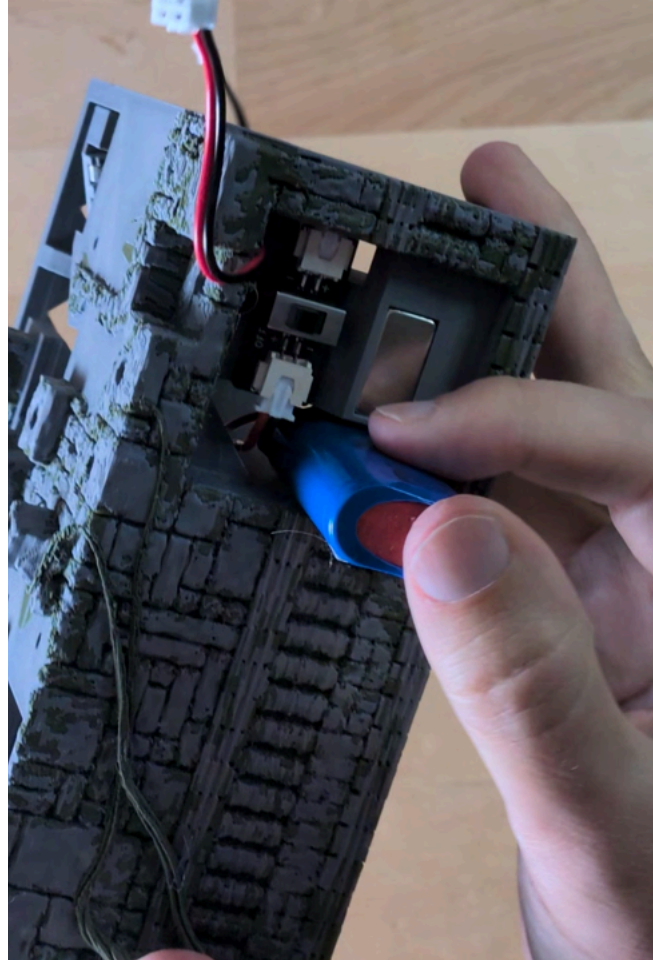
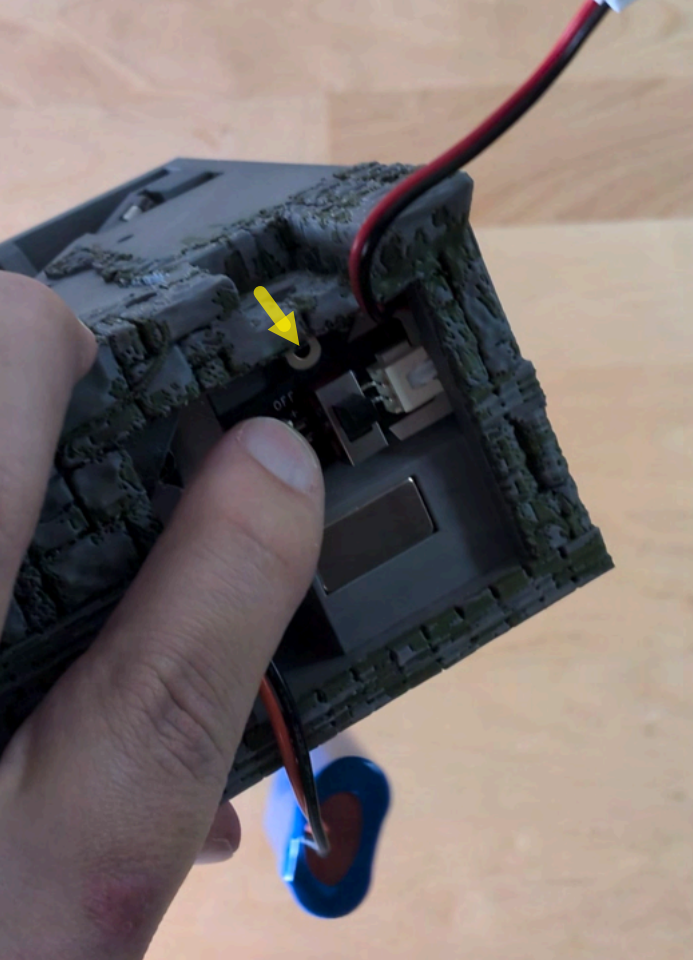
5

Align the LED Holder to the base of the base and attach with (1) 2.6x8 Self Tapping Screw at a 45° angle.

There are two holes for screws but only one is needed - the bottom one is likely more easy to reach.

WIRED VERSION ONLY

If building the Wired version: Mount the LED holder using the same process described above.



6

Attach (1) 100mm Wire with 2Pin XH2.54 to the Power Switch Module and a 14500 7.4V 800mAh Li-ion Battery to the other side of the switch

Use (1) 2.6x8 Self Tapping Screw to attach the switch to the base - making sure to leave the loose wire outside of the base (it will be used later).

Slide the battery into the slot next to the switch (orienting the side with the wires to go in first)

To recharge, you can remove the battery completely or just disconnect it to plug in the charger.

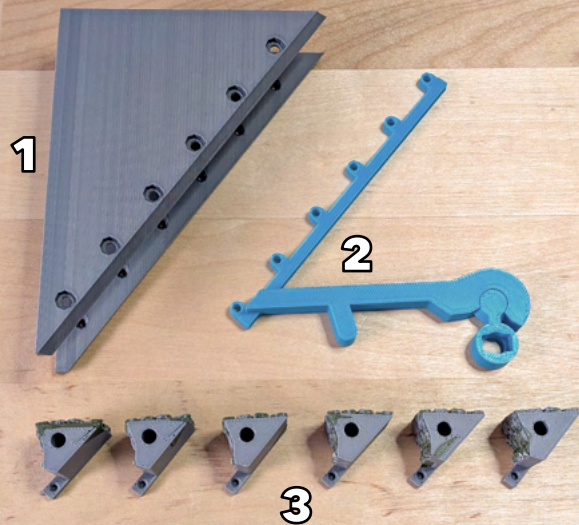
STAIR TRAP

Hardware used for this section:

Part	Qty.
2.6x8 Self Tapping Screws - AA004	7
BT3x30 Self Tapping Screws - AA113	6

1

1. Frame
2. Slide Rail
3. Stairs



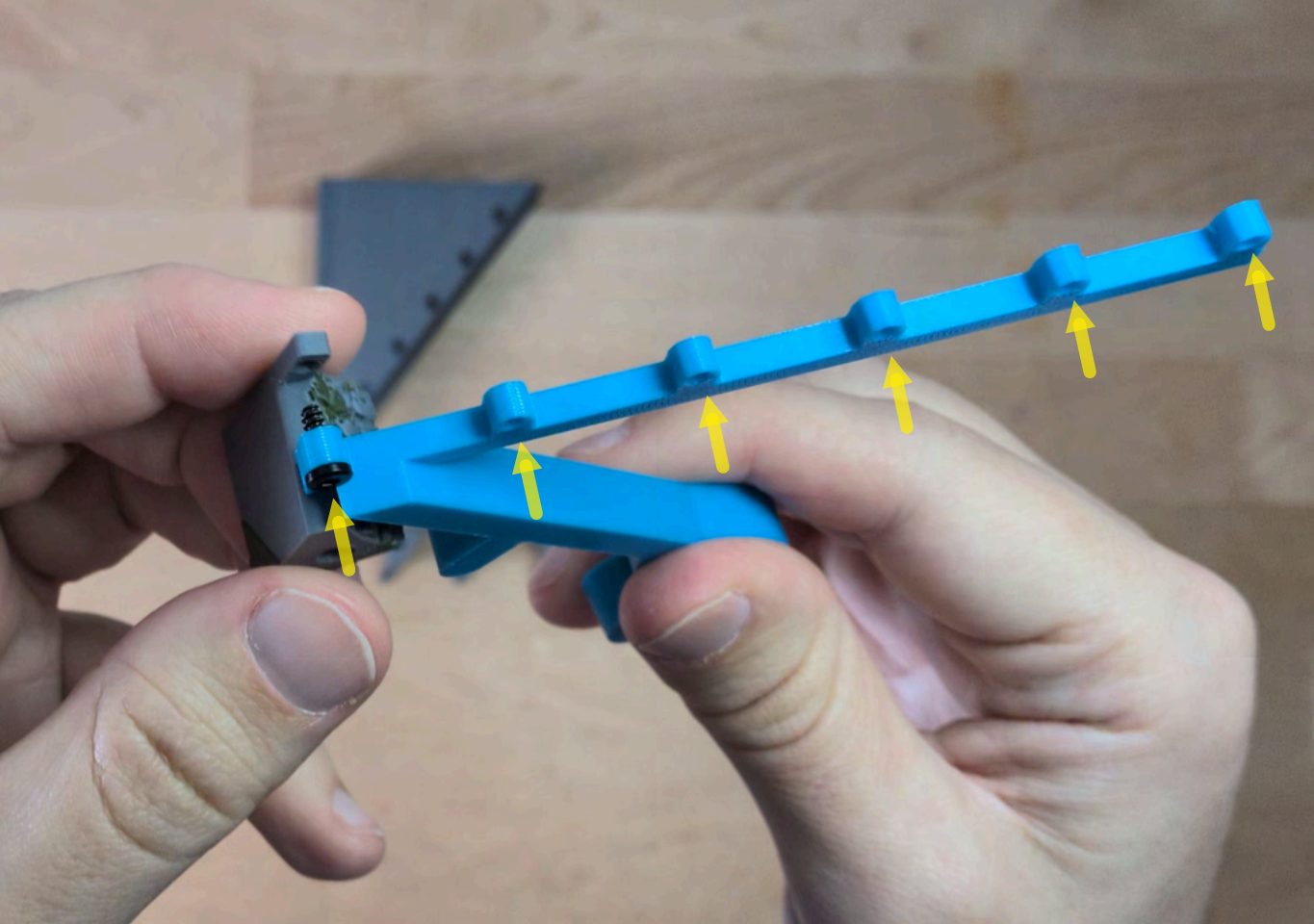
2

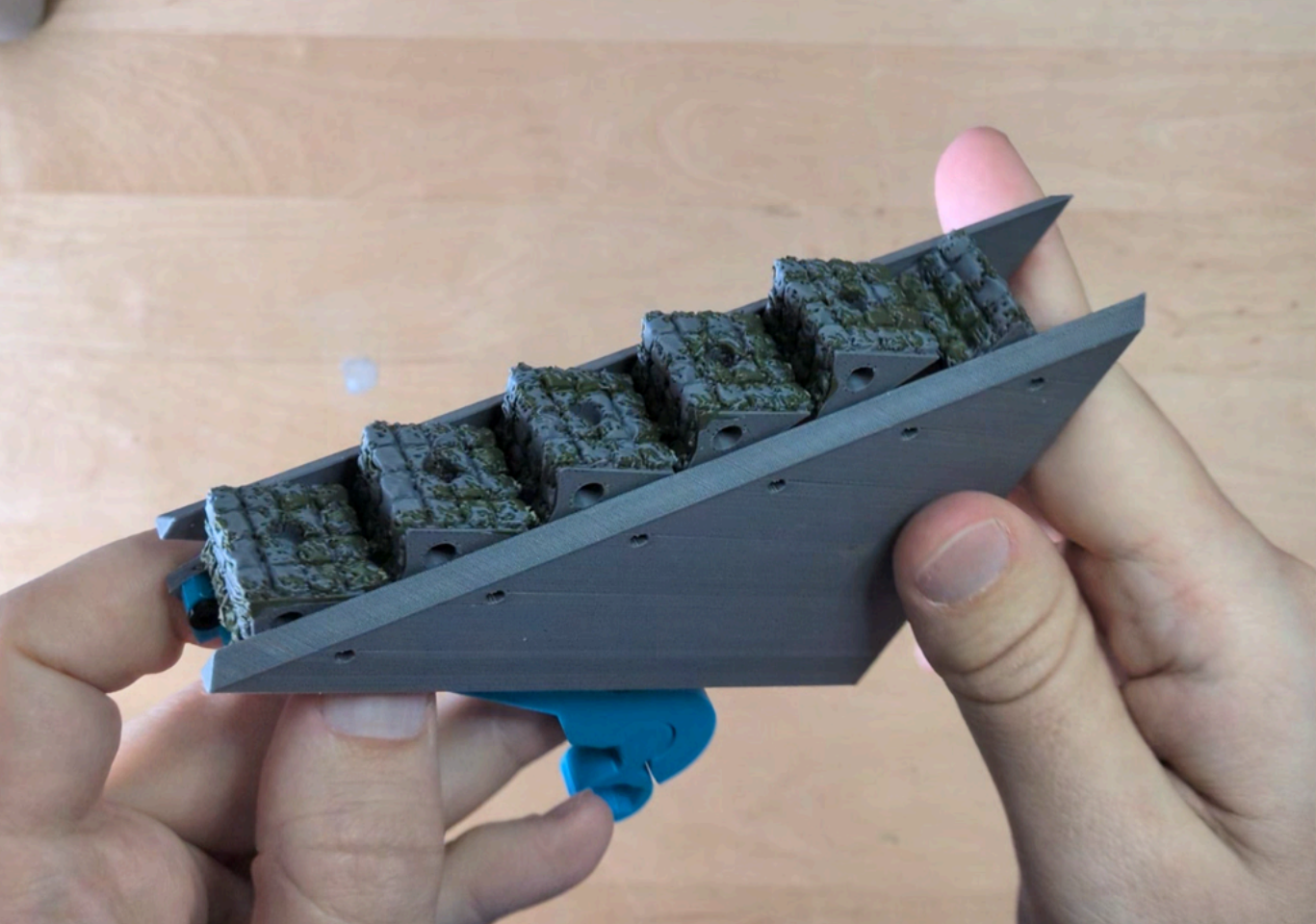
Lay the stairs so that their small attachment peg is flat on the table. Note the orientation in the image.

Place the slide rail onto the stairs with the flat part of the slide rail facing down towards the table.

Attach the rail to each stair using (6) 2.6x8 Self Tapping Screws.

Do not over-tighten - these should be loose so that they can easily rotate.





3

Place the combined stairs and rail into the frame with the lower portion of the rail extending below the frame as shown.

Ensure that the stairs are correctly oriented so that their pip slots are facing 'up'.

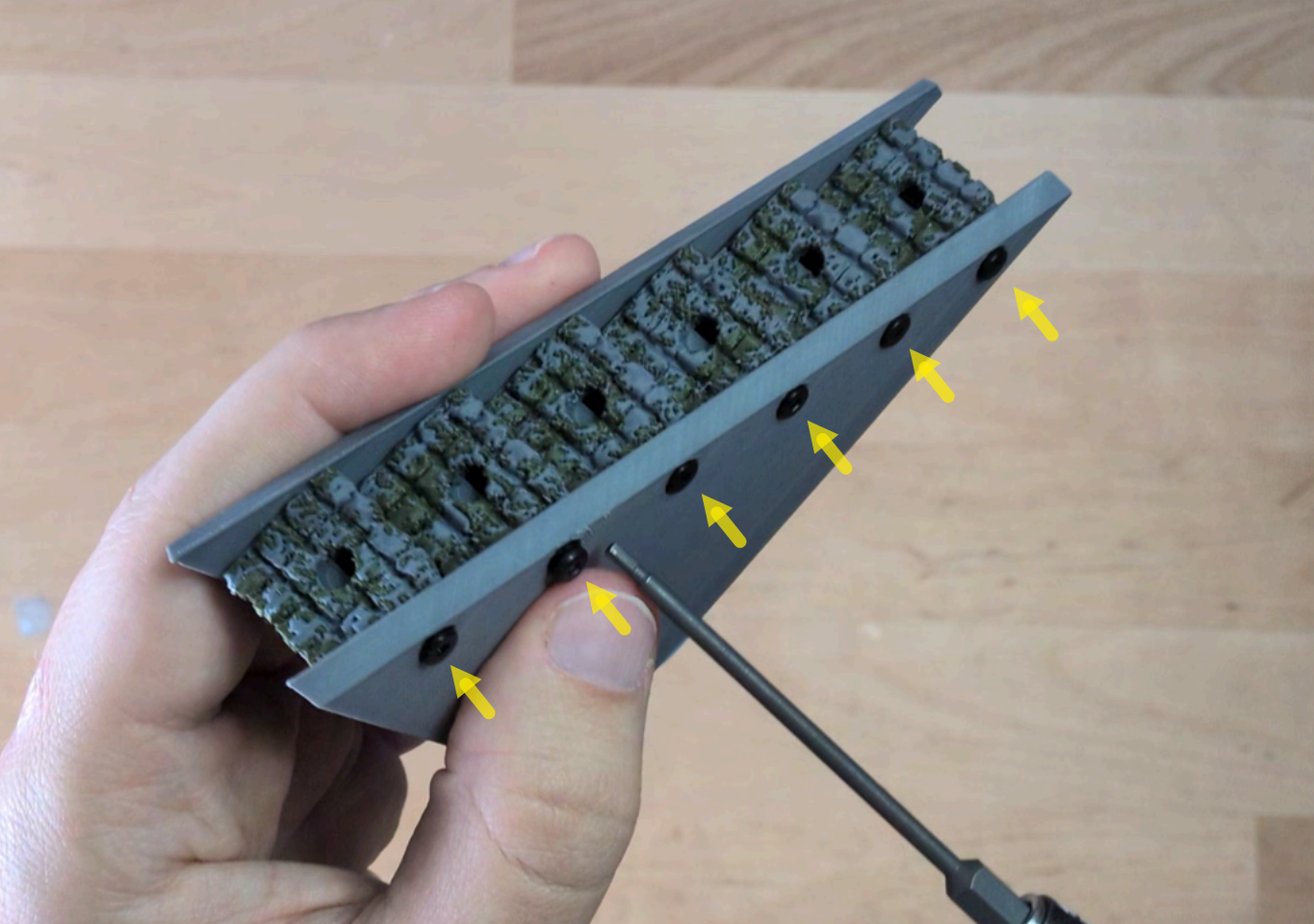
4

Run(6) BT3x30 Self Tapping Screws through the side of the frame, through the stairs and into the other side of the frame.

The screws should be oriented so that their heads are flush (only one side is countersunk).

The screws won't need to be too tight and the heads can protrude.

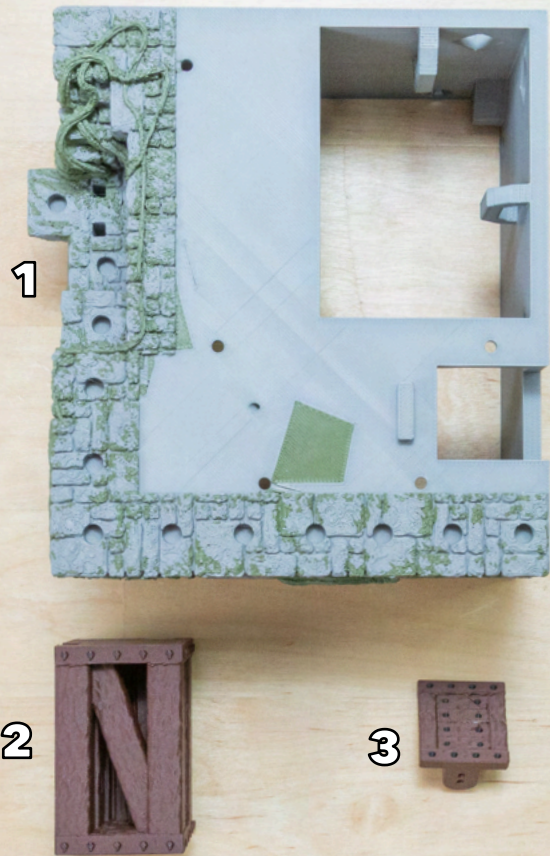
Test moving the stairs to confirm that they rotate easily. If needed, tighten or loosen the screws.



NW BASE

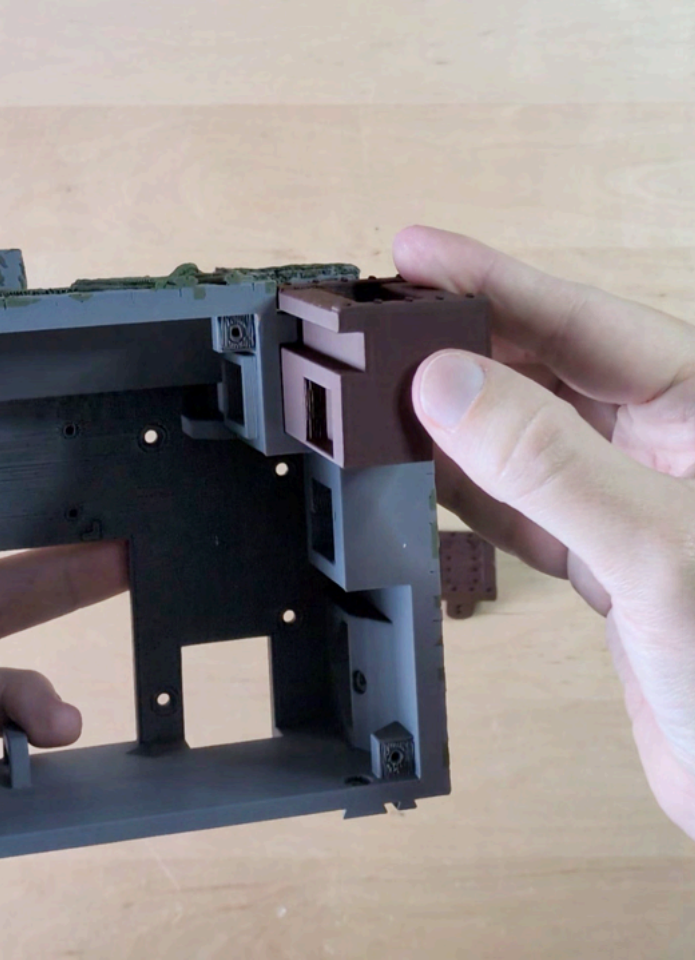
Hardware used for this section:

Part	Qty.
2.6x8 Self Tapping Screws - AA004	2
9g Servo Motor - PG001	1



1

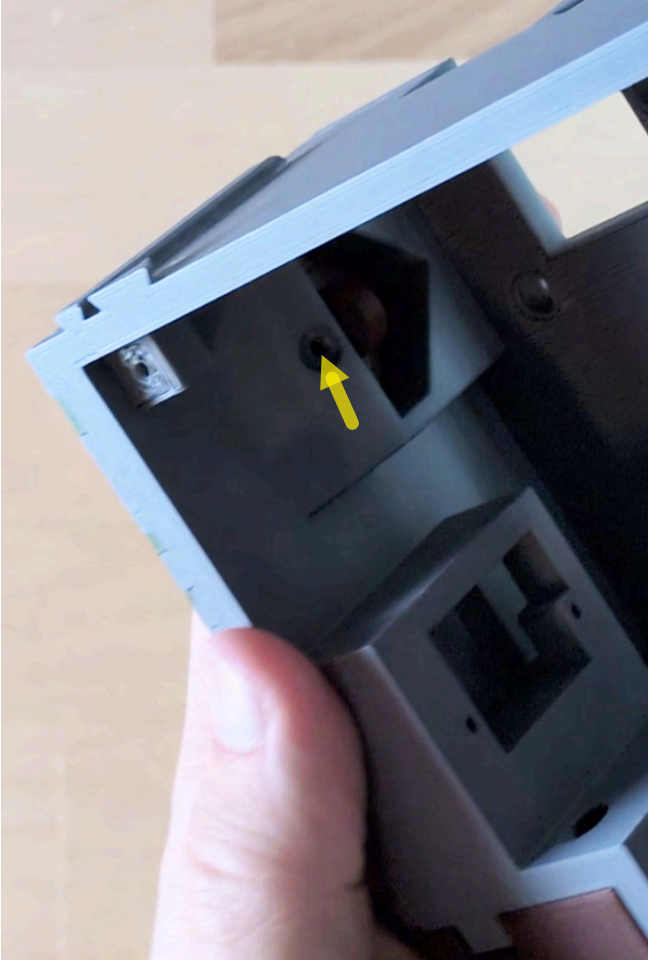
1. NW Base
2. Expansion Slot Cover
3. Side Support



2

Slide the NW expansion slot into place and attach with (1) 2.6x8 Self Tapping Screw at a 45° angle.

This part is easy to get upside down so check to ensure that the screw is aligned to the bottom before attaching it.



3

Slide the NW Side Support piece into place and attach with (1) 2.6x8 Self Tapping Screw.

The screw will be driven from inside the base part at about a 45° angle. This piece is decorative so it's ok if it's not firmly attached.

4

WIRED VERSION ONLY

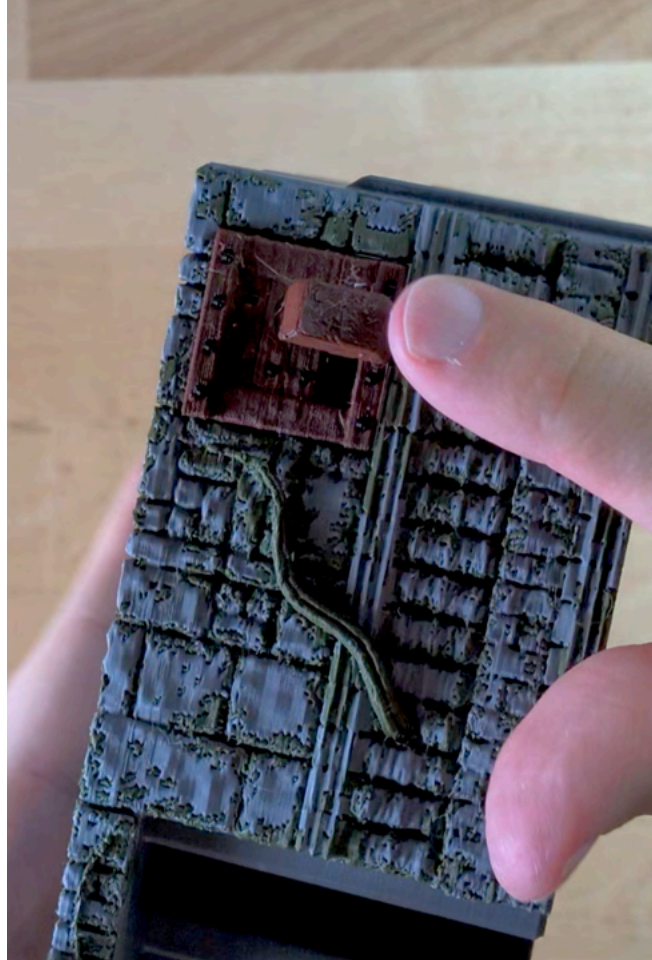
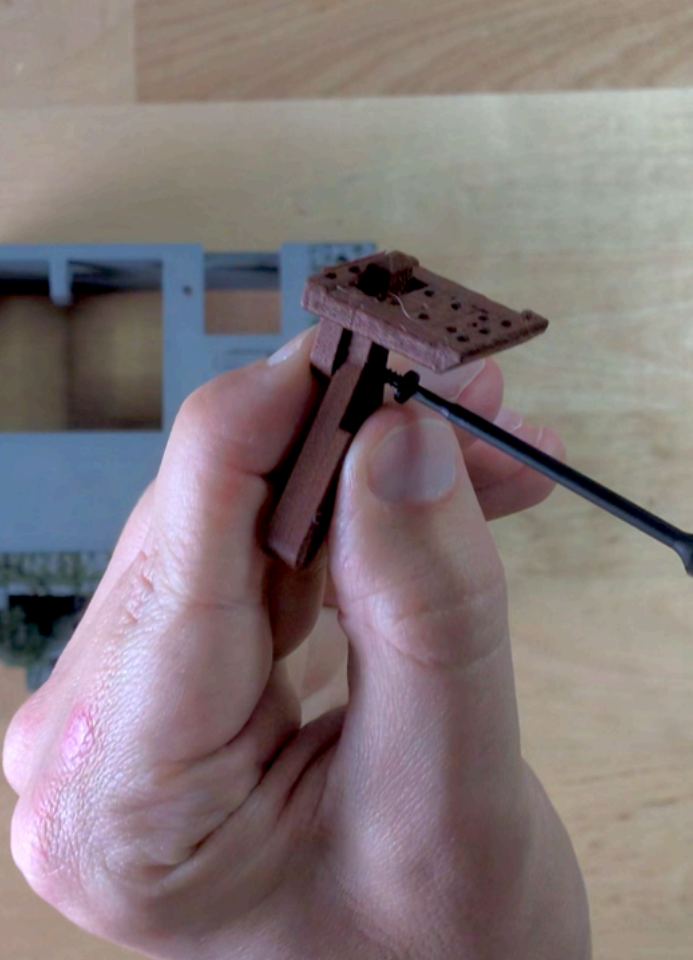
If building the wired version:

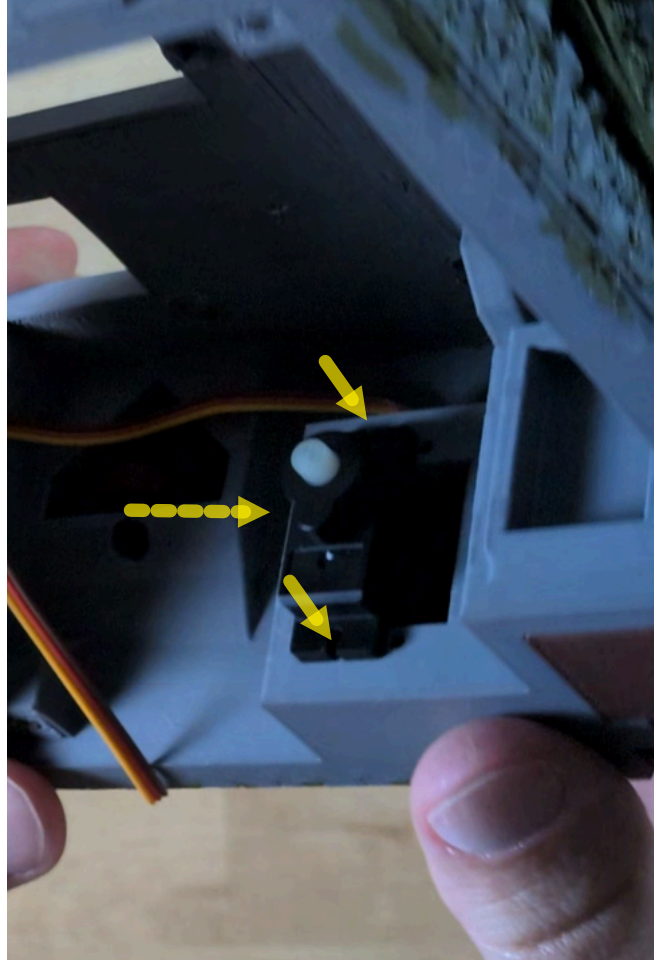
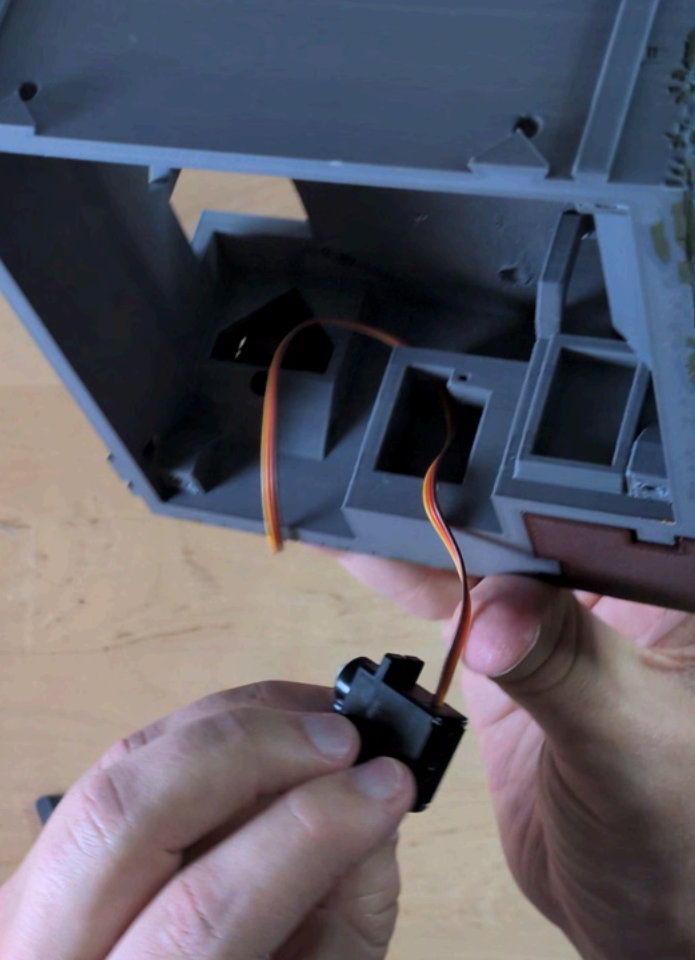
First attach the Manual Arm to the Manual version of the Side Support part with (1) 2.6x8 Self Tapping Screw.

Don't over-tighten as this should be able to freely rotate.

Attach the side support piece just as with the CyberBrick version on the previous page with (1) 2.6x8 Self Tapping Screw.

Press the cap onto the exterior.





5

Attach a 9g Servo Motor (be sure that it's a 180° type) where shown with the servo cable fed through the hole in the bottom.

There's a channel (to leave room for the wire) to the left of where the servo will screw in - you can insert the servo here and then slide it over.

Make sure the servo shaft is oriented to be towards the 'ceiling' of this piece.

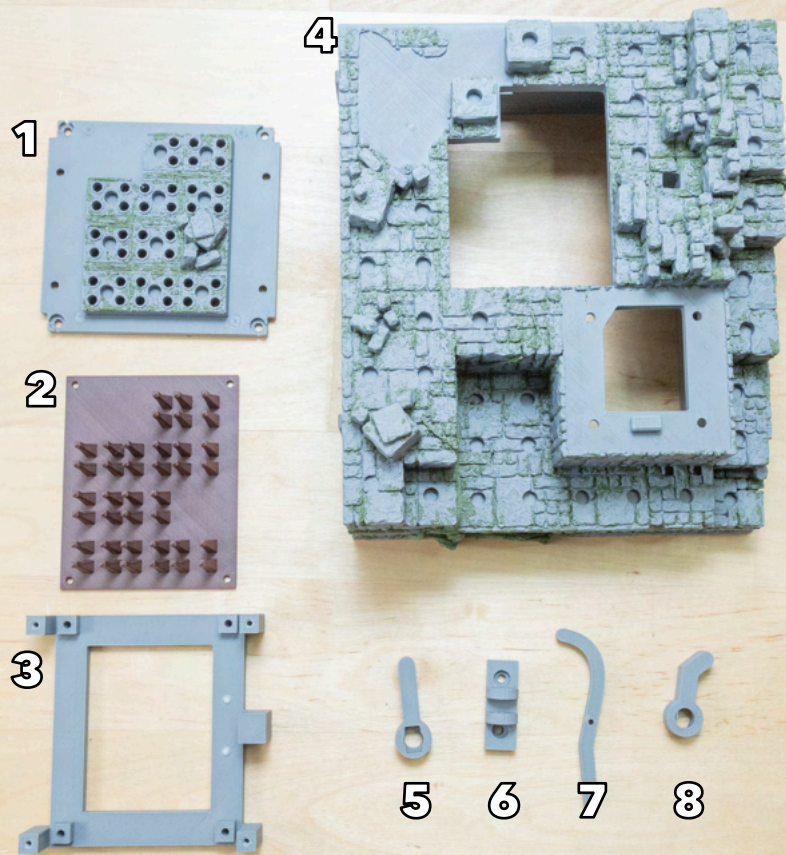
Use the 2 longer screws that came with the servo to attach it.

Because the configuration for this CyberBrick project relies on the precise rotation of this servo motor, it can be a good idea to plug the servo into the receiver board and test sending it a command with the remote. This will ensure that the servo resets to its default position.

SE BASE

Hardware used for this section:

Part	Qty.
2*22 Brass Dowel - DA005	4
2.6x8 Self Tapping Screws - AA004	10
2x10 Self Tapping Screws - AA192	1
9g Servo Motor - PG001	2



1

1. Spike Trap Ceiling
2. Spikes
3. Spike Trap Floor
4. SE Base
5. Spike Trap Gear Arm
6. Trigger Arm Fork
7. Trigger Arm
8. Bridge Trap Gear Arm

2

Attach (2) 9g Servo Motors (be sure that it's a 180° type) where shown with the servo cable fed through the hole and channel in the back.

Make sure the servo shaft is oriented to be towards the 'ceiling' of this piece.

There's a channel (to leave room for the wire) to the left of where the servo will screw in - you can insert the servo here and then slide it over.

Use the 2 longer screws that came with each servo to attach them.

Feed the servo wires through the loop on the interior of the base - this will help keep them out of the way of the spike trap

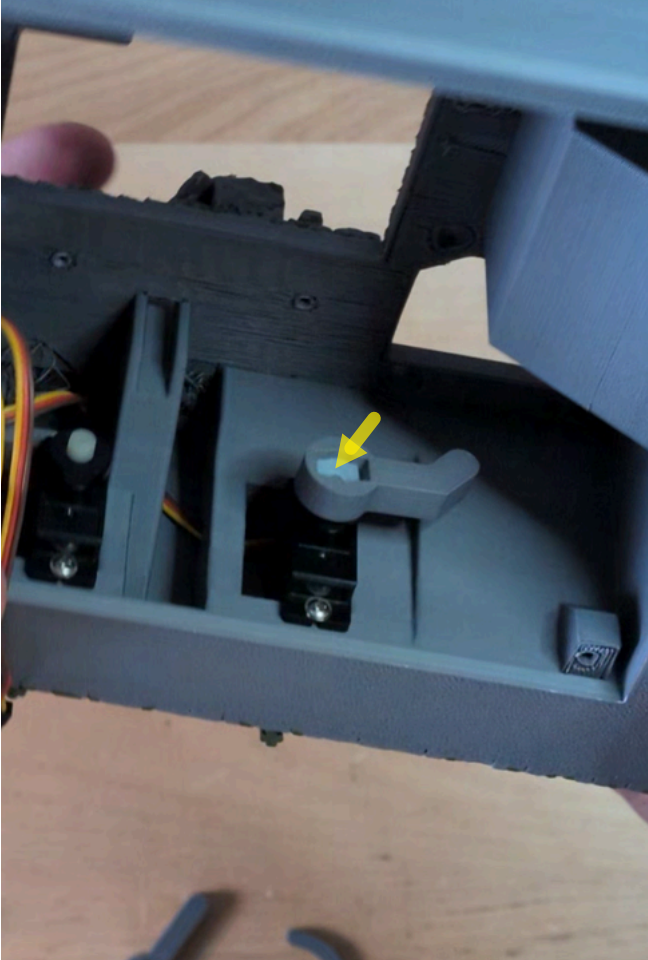
This is a small space to work in, you can use a small dowel or screwdriver to help guide the wires.



3

Because the configuration for this CyberBrick project relies on the precise rotation of this servo motor, it can be a good idea to plug the servos into the receiver board and test sending it a command with the remote. This will ensure that the servo resets to its default position before you complete your assembly.

Use side cutters trim off the arms of a 2 servo horns so that they are almost flush with the interior slot.

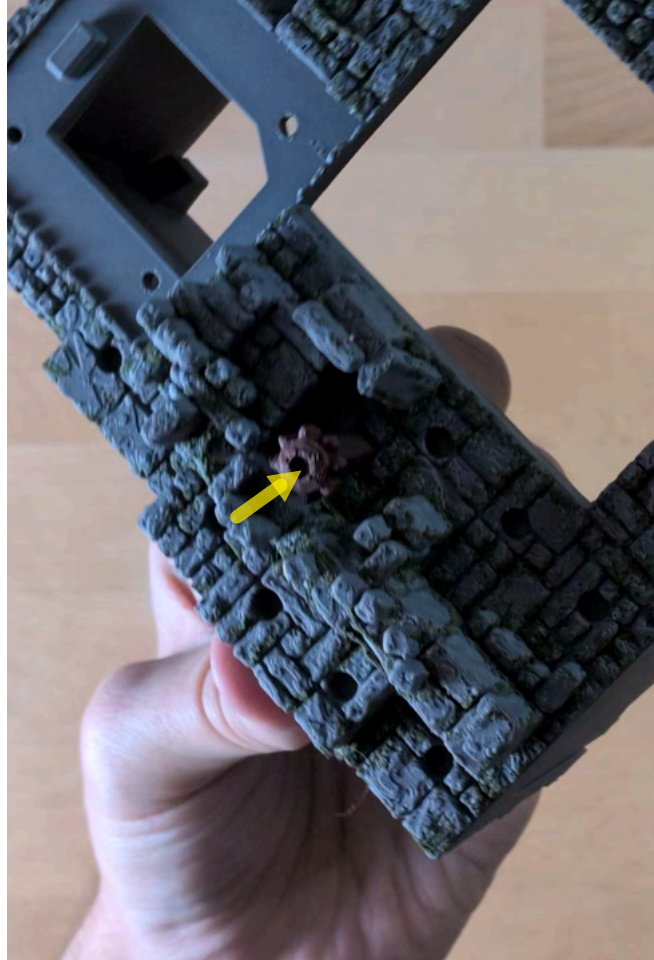
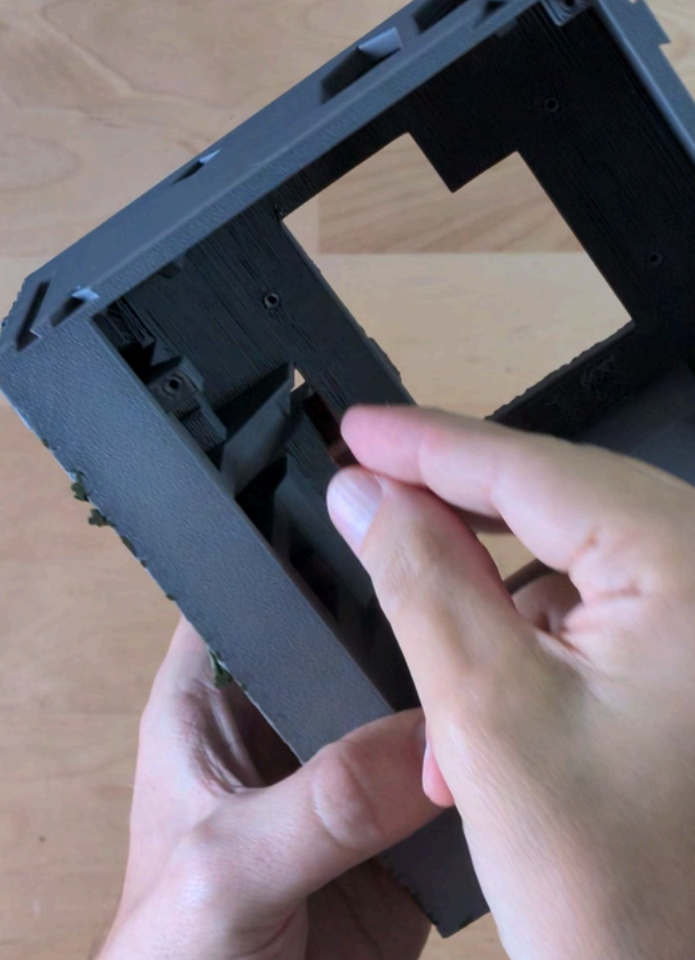


4

For the right servo, insert the horn into the Spike Trap Gear Arm with the arm nubs at the top and the slot facing down.

Press this down onto the servo so that the arm is parallel with the ground with the hook pointing up.

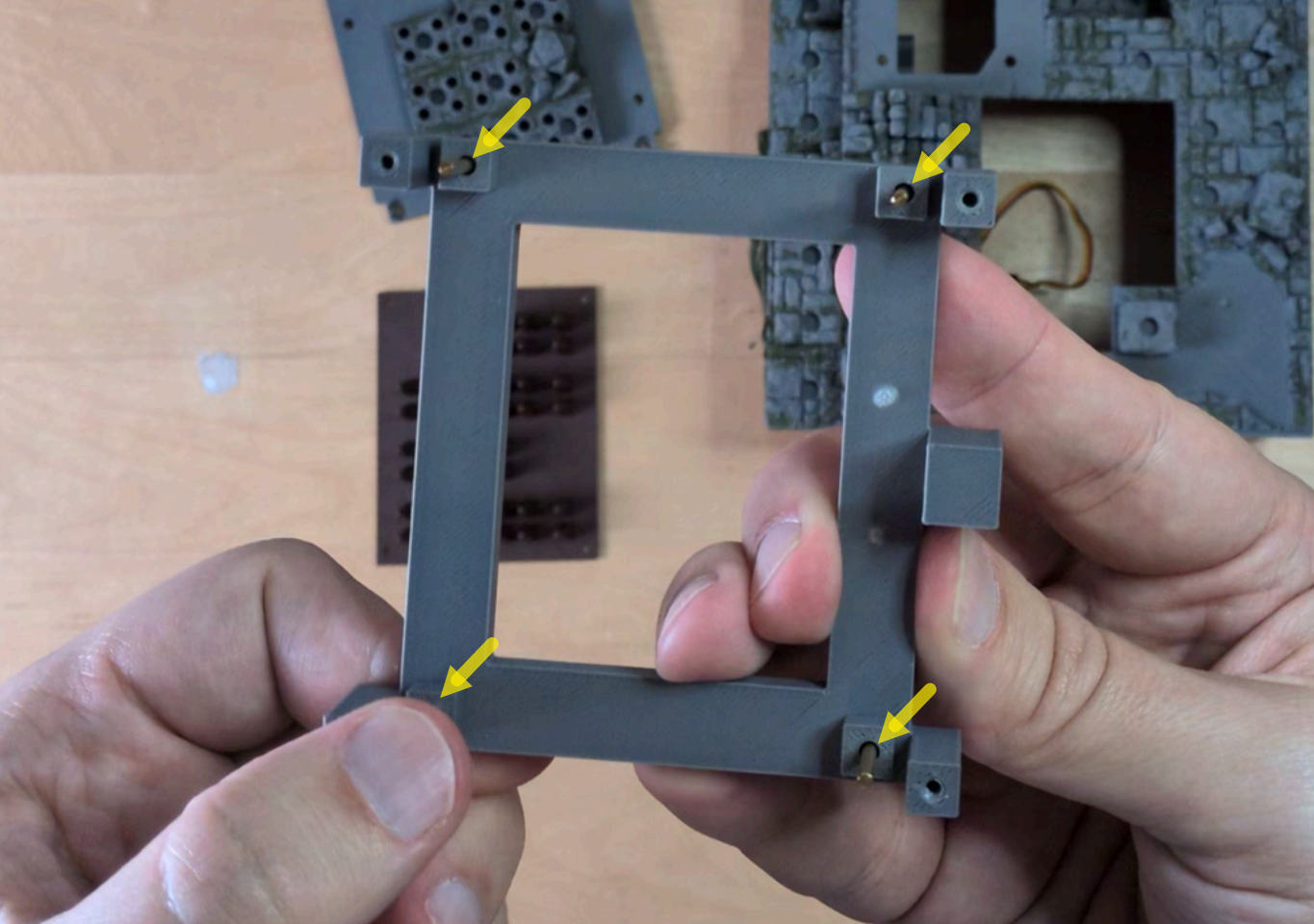
Use the small screw that came with the servo to attach it.



5

WIRED VERSION ONLY

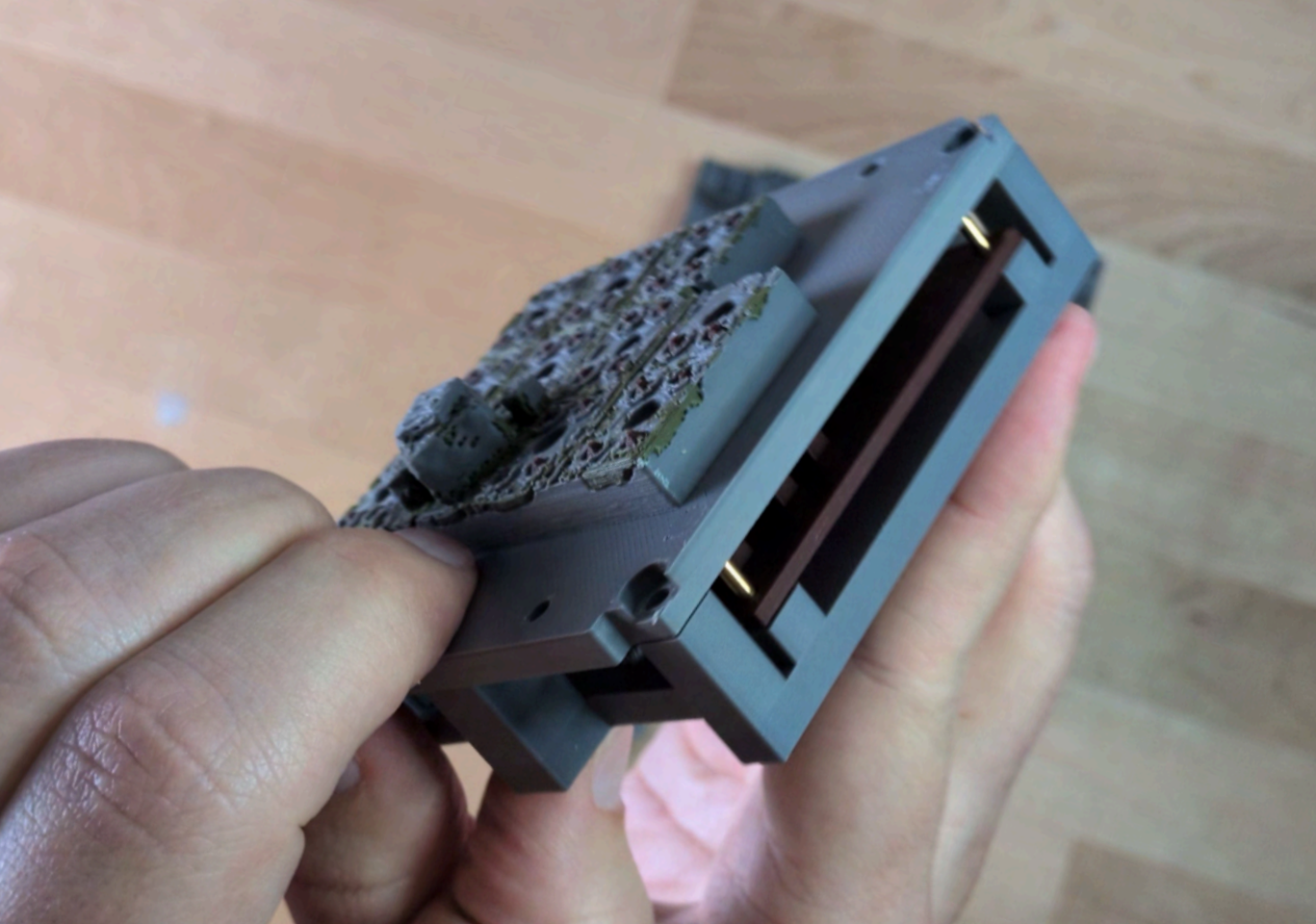
If building the Wired version: You will not need to install either servo but will need to feed the spike trap trigger arm up through the underside of the base - it should be oriented like an upside down T. Then, on the top of the base, attach the Manual Trigger Cap using (1) 2x10 Self Tapping Screw.



6

To assemble the spike trap, insert (4) 2*22 Brass Dowels into the Spike Trap Floor using pliers.

Apply gentle pressure so that the dowels become seated.



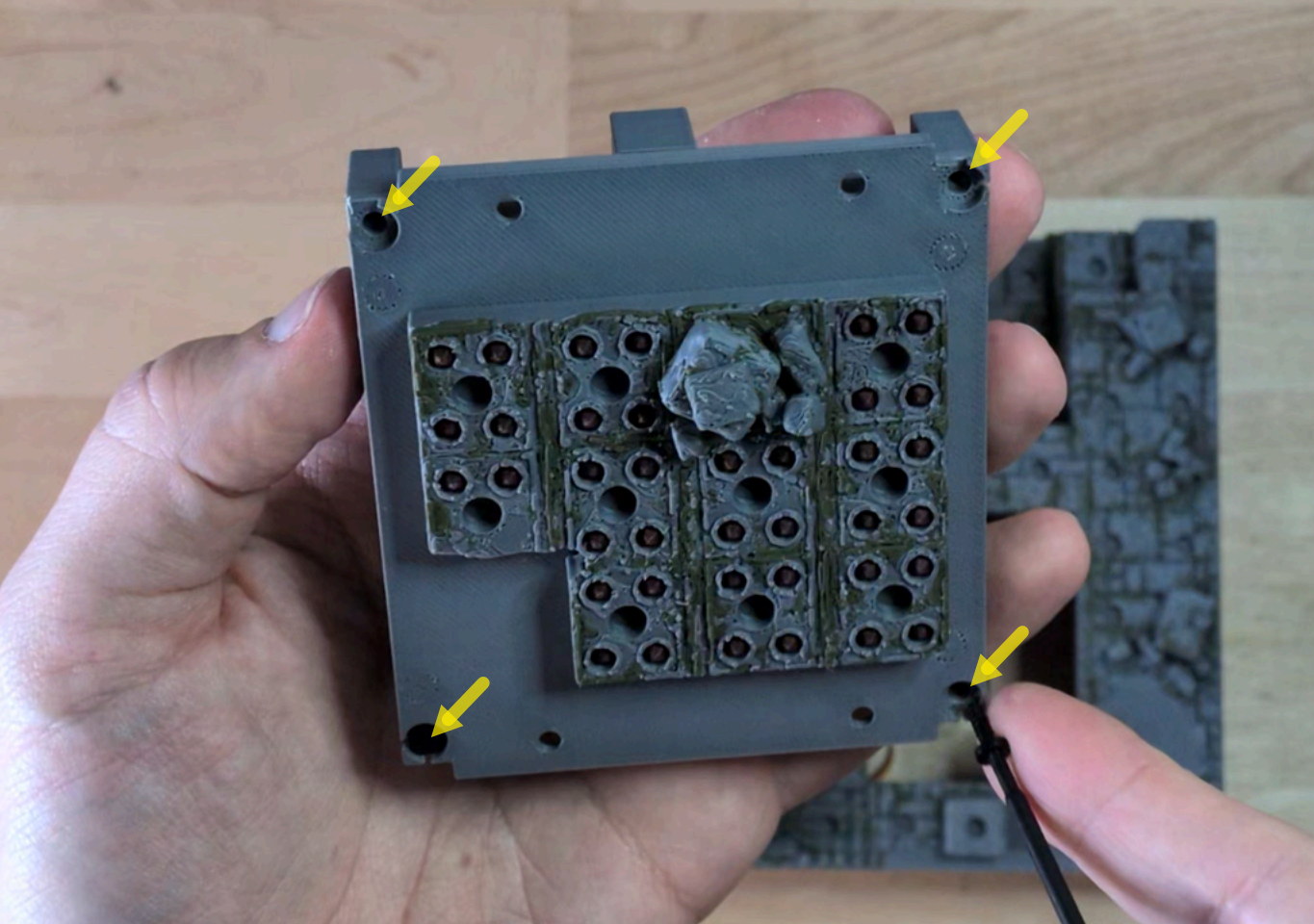
7

Matching the orientation shown (noting the configuration of spikes and the small arm on the Trap Floor), first slide the Spikes down over the dowels and then the Spike Trap Ceiling.

The rotation of these parts is critical or else they will not operate smoothly.

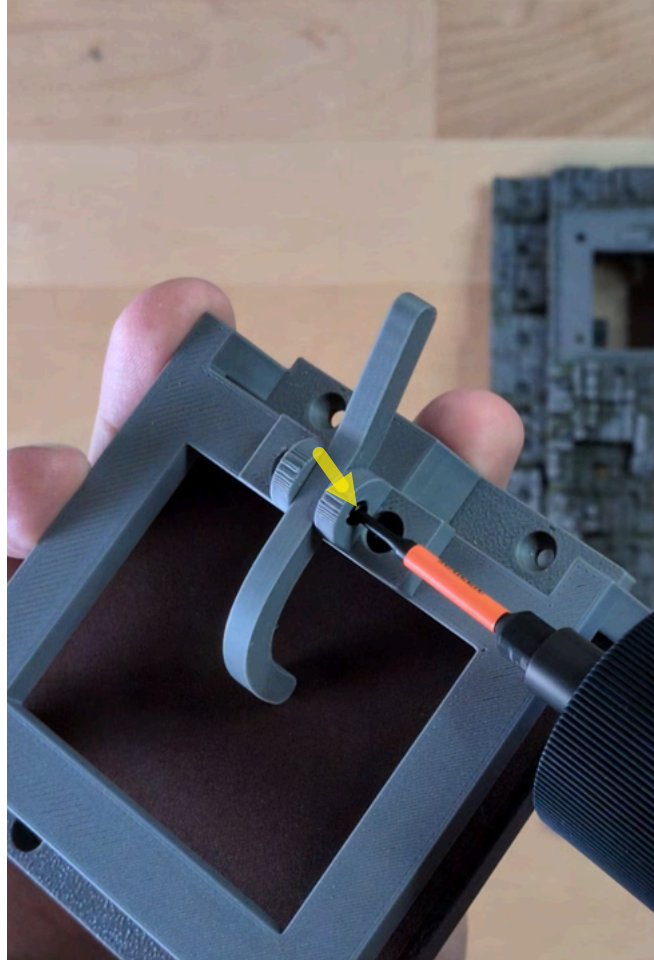
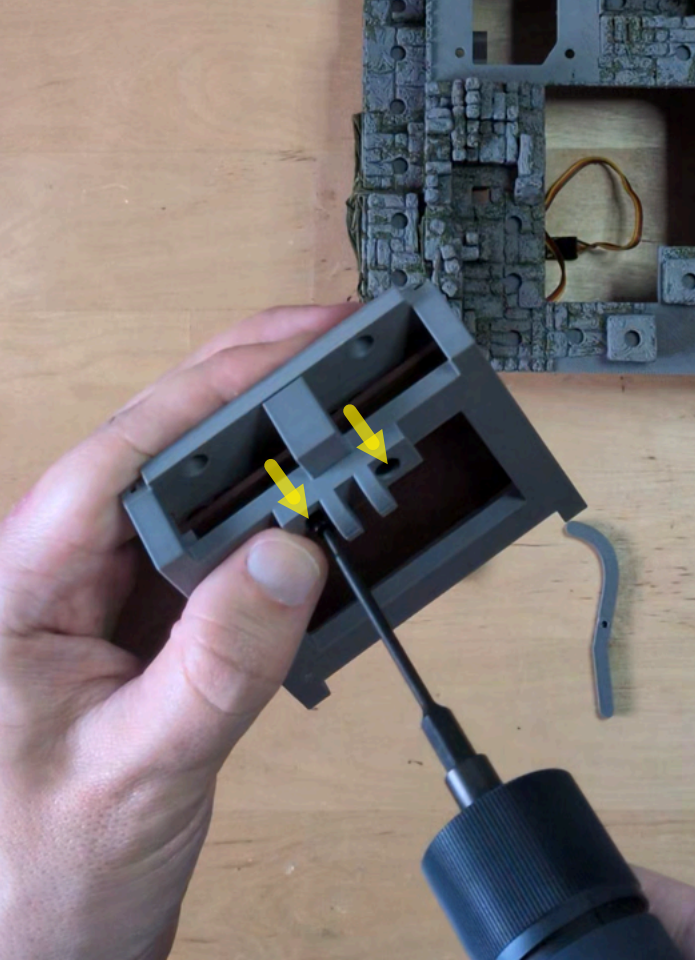
In the linked video, you can see that I first get the orientation wrong and then fix it.

Press the parts together by pushing down on a flat surface such as a table. This will seat the dowels in both the floor and ceiling pieces.



8

Attach the ceiling to the floor using
(4) 2.6x8 Self Tapping Screws.



9

Attach the Trigger Arm Fork with (2) 2.6x8 Self Tapping Screws.

Attach the Trigger Arm to the Fork using (1) 2x10 Self Tapping screw.

The alignment of this screw can be tricky - make sure the head is on the side that is countersunk and press it slightly through the opening. Then, while applying light pressure, move the arm back and forth until the screw finds the hole. Then, you can advance the screw the rest of the way.

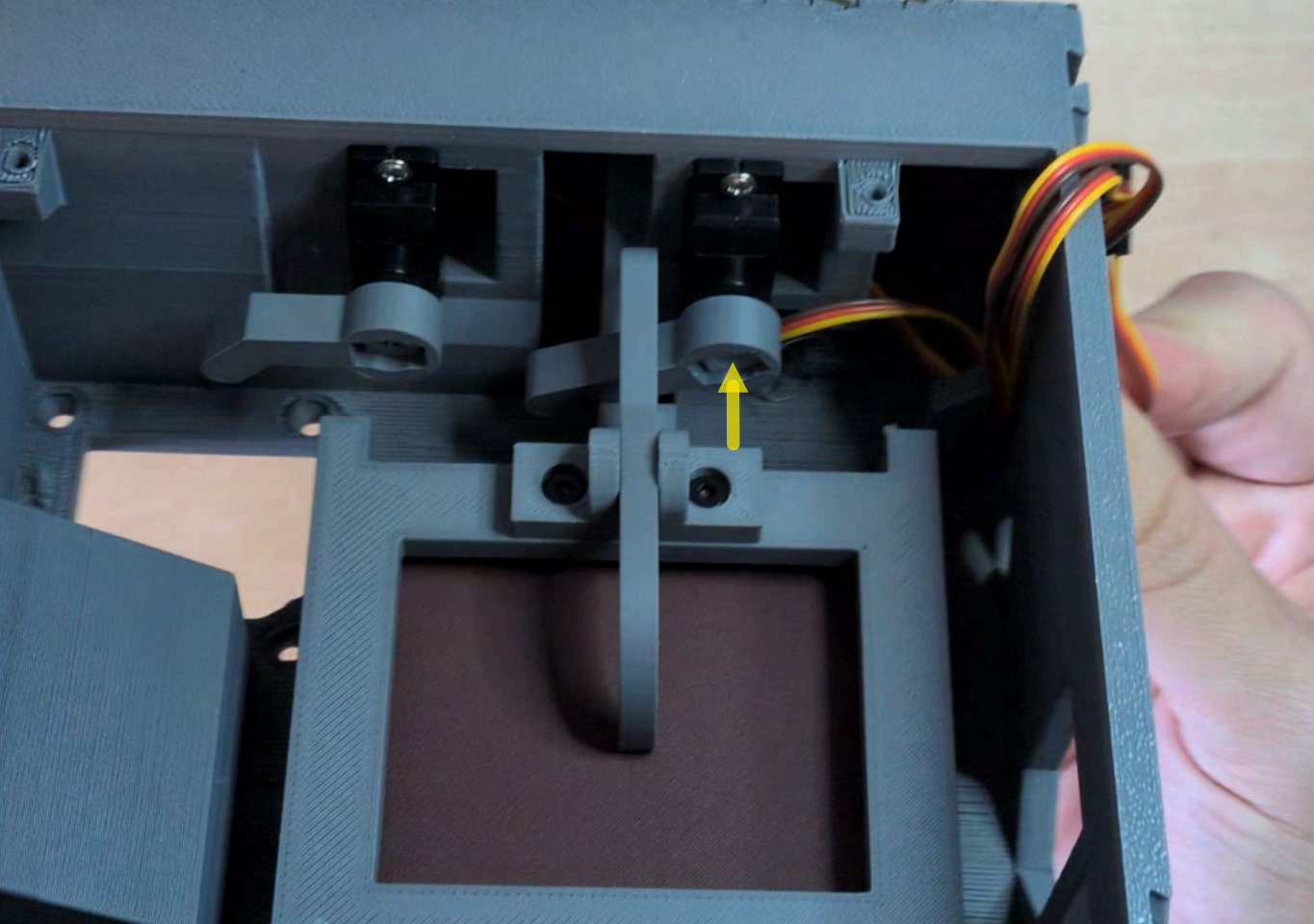
Do not over-tighten as the arm must move freely.

10

Attach the trap assembly to the base piece by inserting it up through the ceiling of the base and securing it with (4) 2.6x8 Self Tapping Screws.

Be extra gentle with this step if using an electric driver - over-tightening these screws can deform the surface of the base.

If this happens by accident, you can loosen the offending screw somewhat and push down the deformed area from the top surface. You can see an example of this in the linked video.



11

Place another of the trimmed servo horns into the Spike Trap Gear Arm with the arm nubs at the top and the slot facing down.

Use one hand to hold the base and ensure that the spikes are pressed down (hidden from the top). This will ensure that you are able to place the arm accurately and that the spikes will be hidden when the trap is 'off'.

While holding this position, press the Spike Trap Gear Arm down onto the servo so that the arm is just above (and touching) the Trigger Arm.

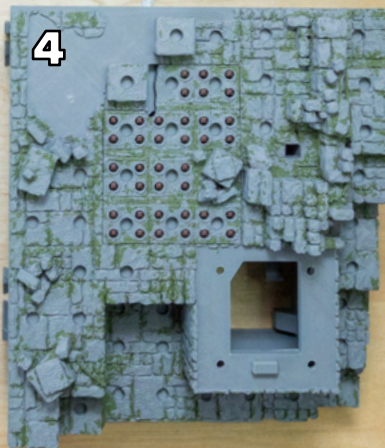
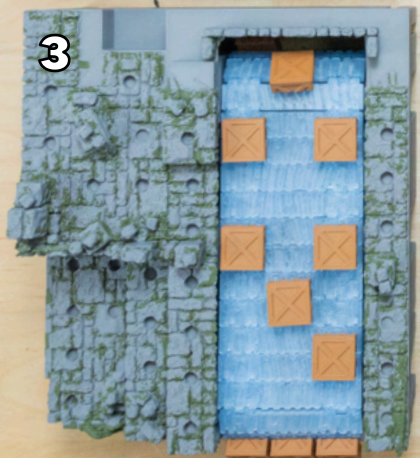
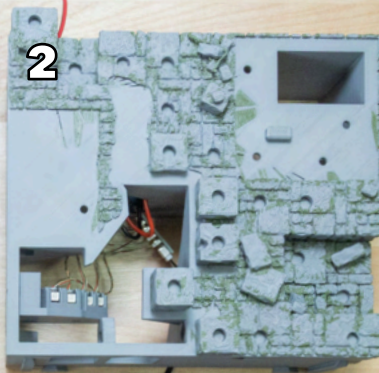
Use the small screw that came with the servo to attach the horn to the servo.

Test both servos before continuing. You can use the [wiring diagram](#) in the Final Assembly section to temporarily wire these servos up to the receiver.

FINAL ASSEMBLY

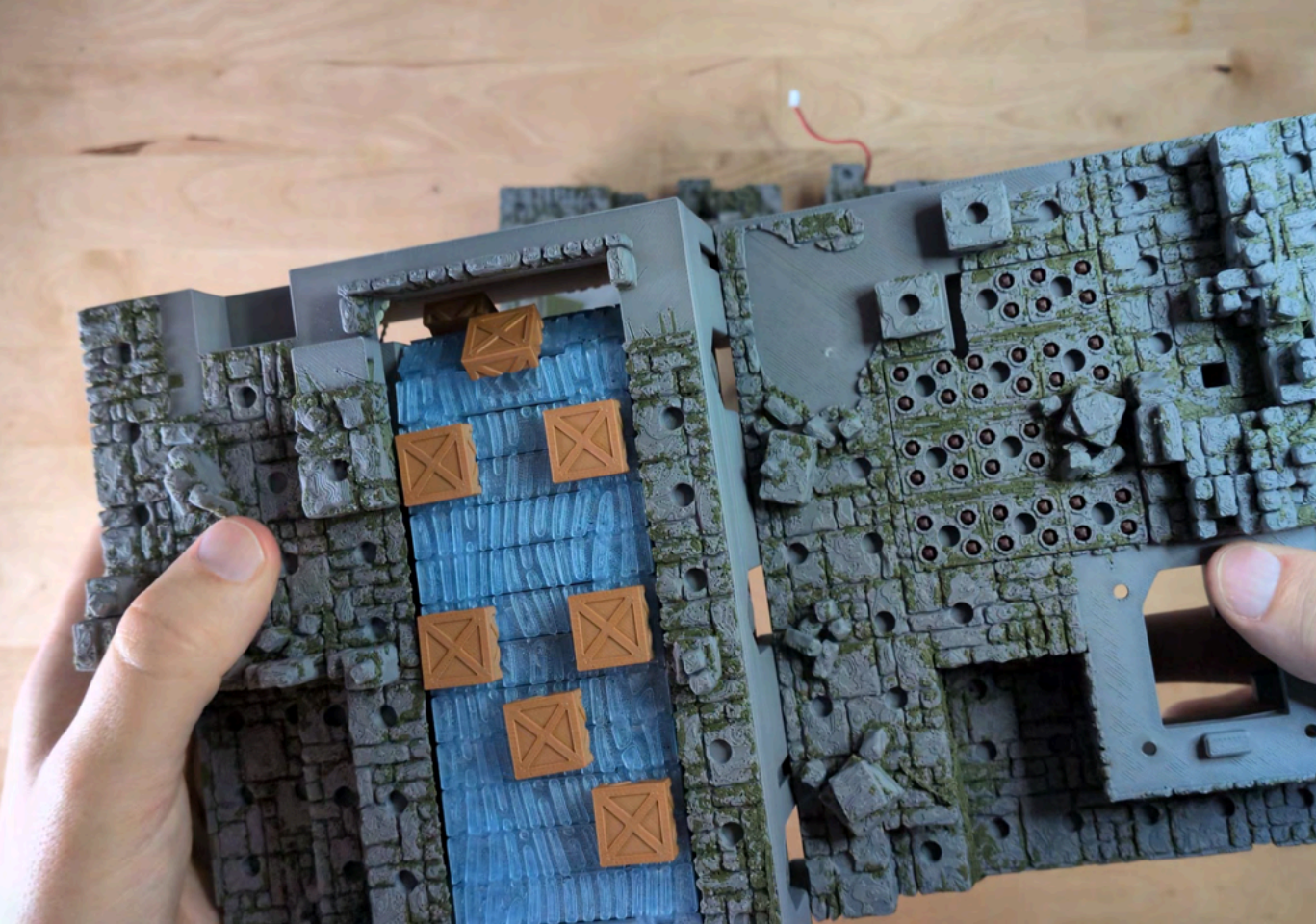
Hardware used for this section:

Part	Qty.
2.6x8 Self Tapping Screws - AA004	37
SH1.0 to Dual SH1.0 Adapter - ZH090	1
100mm Wire Pair with SH1.0 - IC004	1
Remote Control ReceiverShield - XA004	1
Multi-Function Core Board - XA003	1
200mm Servo Extension Cable 3Pin - XC011	2
M2.5 Button Head Cap Machine Screws - AA050	4



1

1. NW Base
2. NE Base
3. SW Base
4. SE Base



2

Attach the SW Base to the SE Base by sliding them together using the alignment channels.

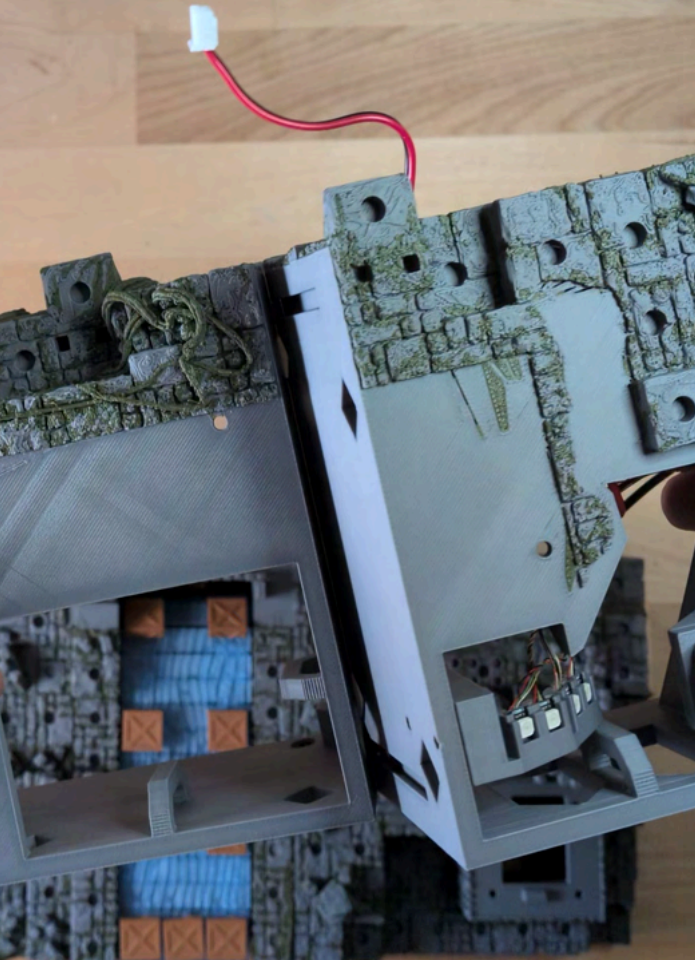
Move slowly and use even pressure - make sure that the parts remain level and that you don't press at an angle.



3

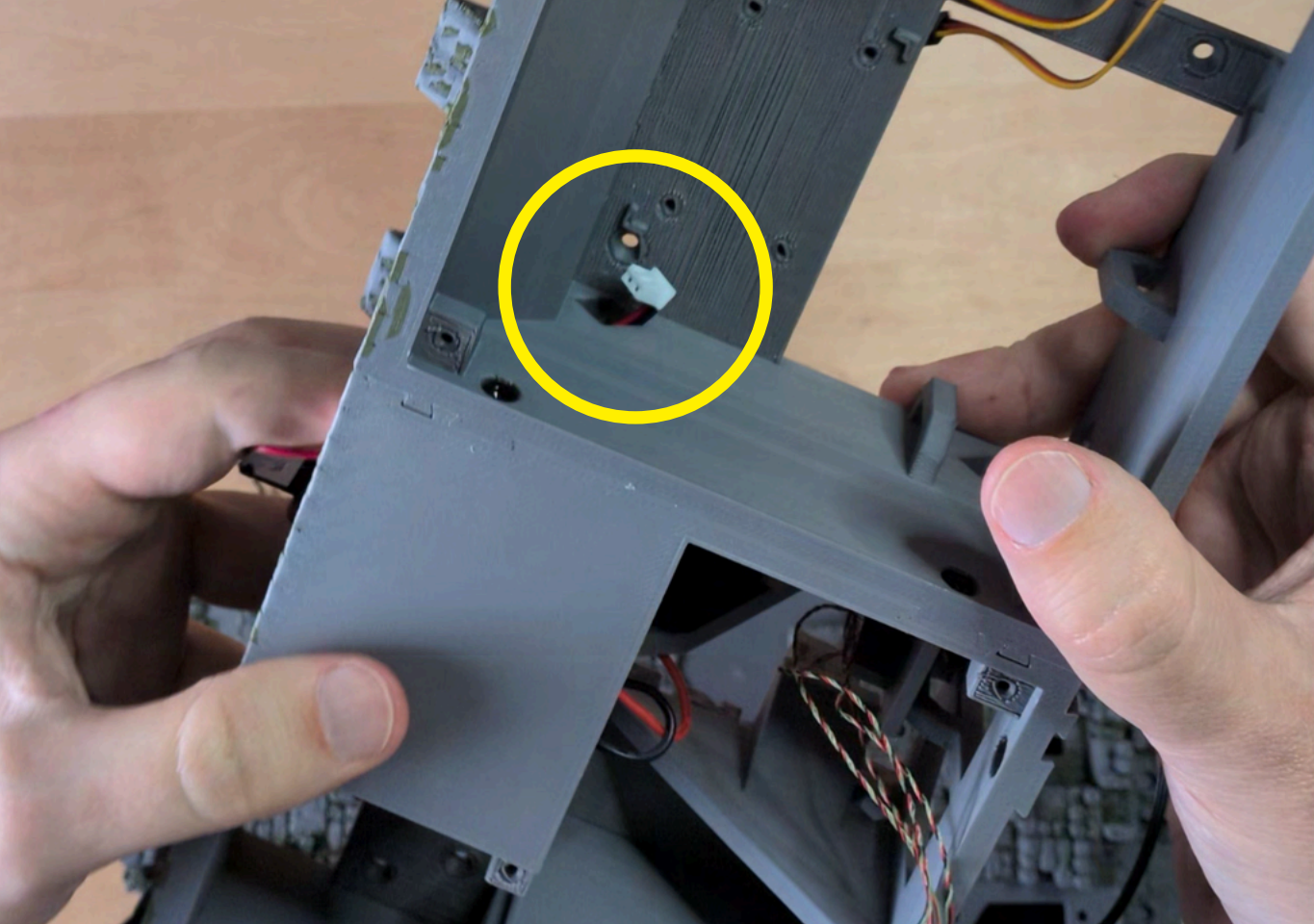
Secure with (2) 2.6x8 Self Tapping Screws at a 45° angle.

As always, don't over-tighten.



4

Follow the same process to attach the NW Base to the NE Base by sliding them together and securing them with (2) 2.6x8 Self Tapping Screws at a 45° angle.



5

Working within the NE base, feed the disconnected power cable back and to the right into the NW base

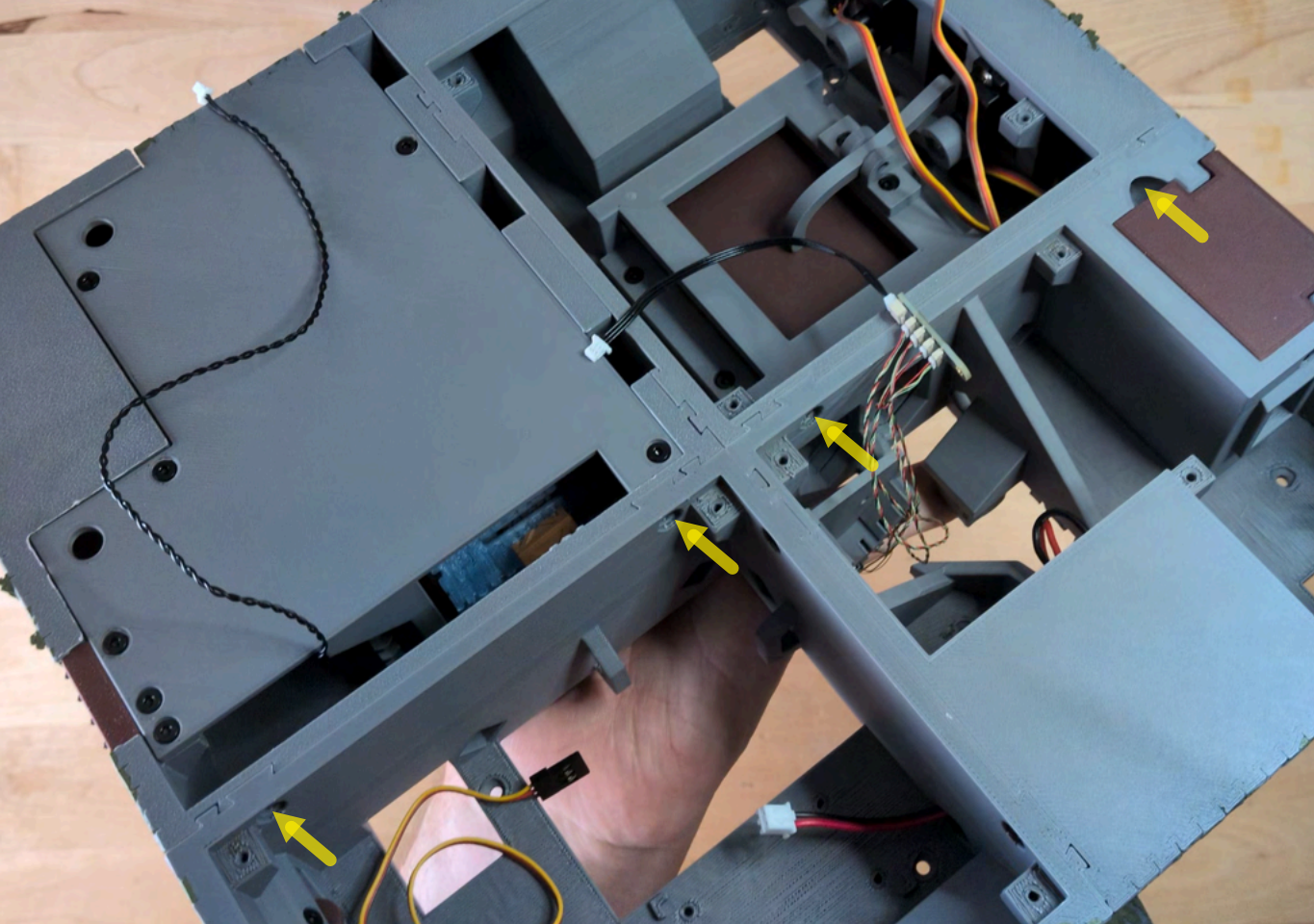
It can help to put a small bend in the wire near the plug so that you can make it through this tight corner.

If you are having trouble, it can help to detach the power switch first. Just reconnect it when you're done and feed the battery cable into the base and then slide the battery in behind it.

6

Lower the combined NW & NE Bases onto the combined SW and SE Bases by sliding them together.

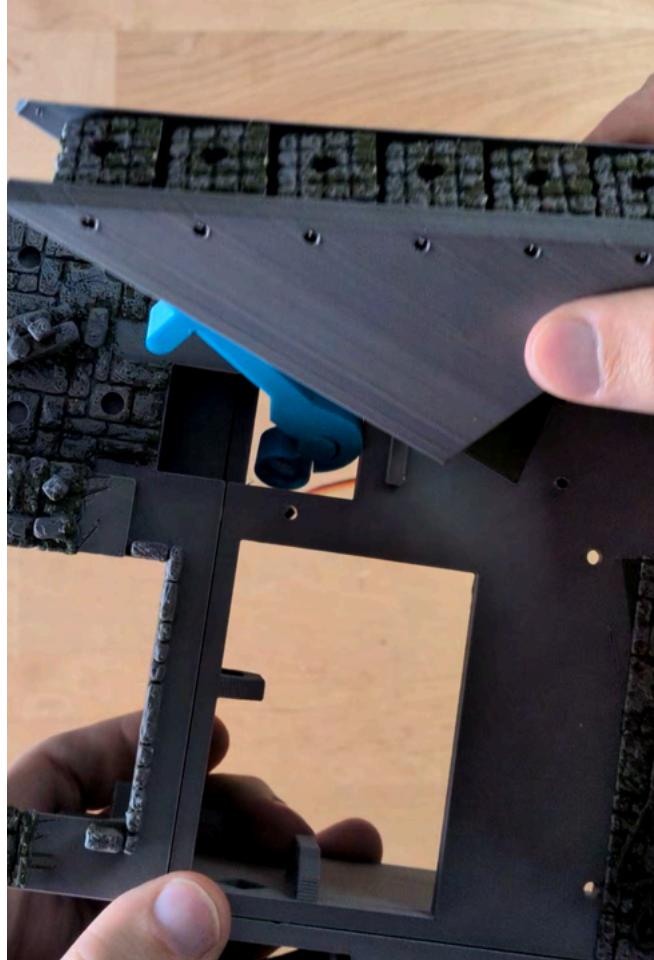
Be careful to ensure that the slots are aligned and that the surfaces are flush.



7

Secure the combined base pieces with (4) 2.6x8 Self Tapping Screws at a 45° angle.

One of the attachment points is slightly obscured by the NW expansion slot. If you are having issues with this screw, you can temporarily remove the expansion slot.

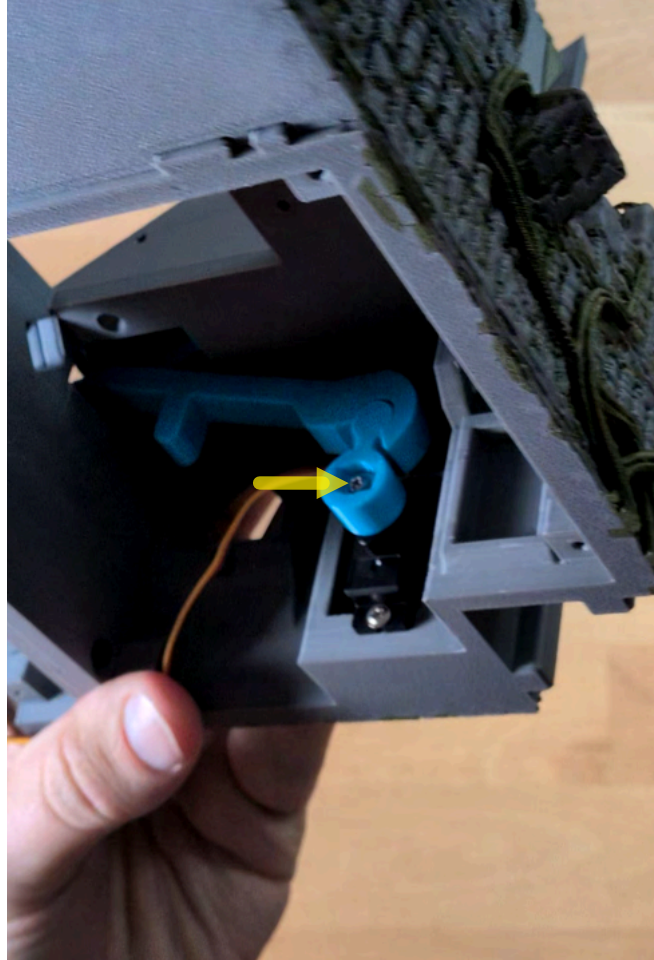


8

Use side cutters trim off the arms of a servo horn so that they are almost flush with the interior slot.

Press this trimmed horn down into the slide rail with the arm nubs are at the top and the slot is facing down.

Place the assembled stairs by feeding their rail through the hole in the NW base.



9

There's a small peg on the top of the base to help with alignment. Secure with (1) 2.6x8 Self Tapping Screw driven from the top and at a 45° angle. You may need to look through the hole to confirm alignment before you begin.

Make sure that the stairs are 'level' (not angled) and press this down onto the servo and use the small screw that came with the servo to attach it.

10

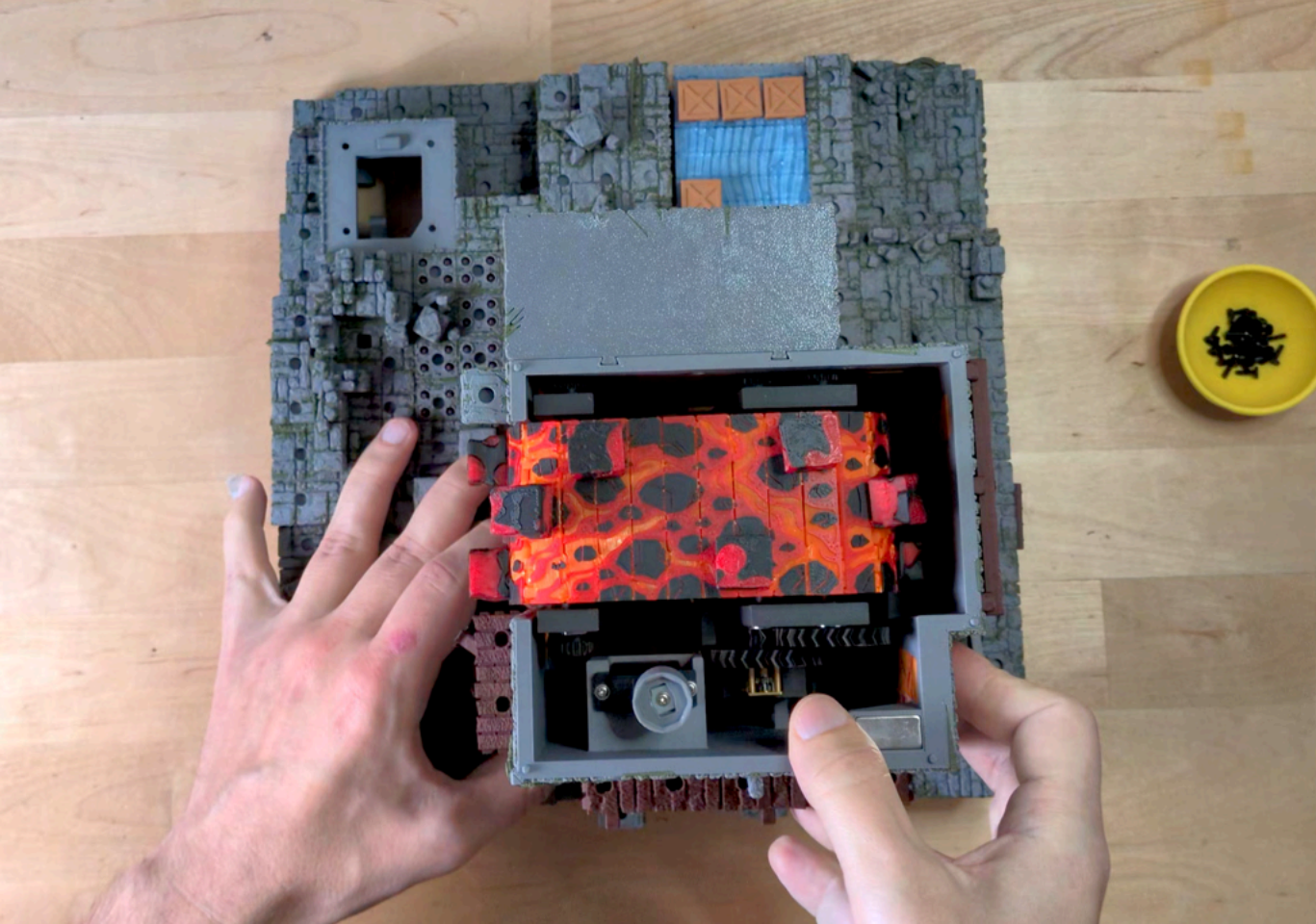
Place the lava flow onto the base - this is a press-fit part and does not require screws.

11

Place the Lava Tower onto the base in the orientation shown.

The tower should align to the smooth areas of the base and have a snug fit without rocking.

Ensure that no cables are pinched.

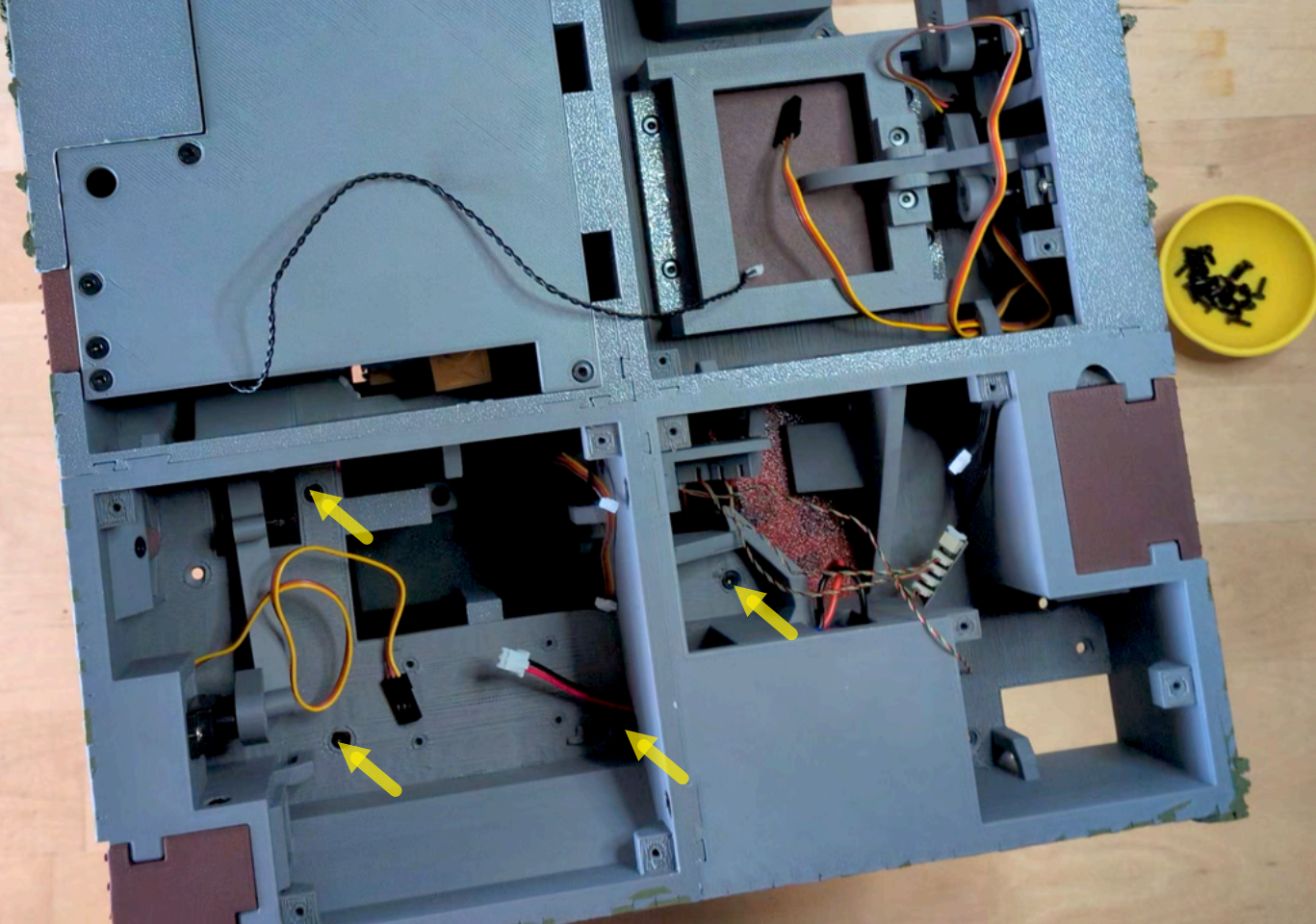


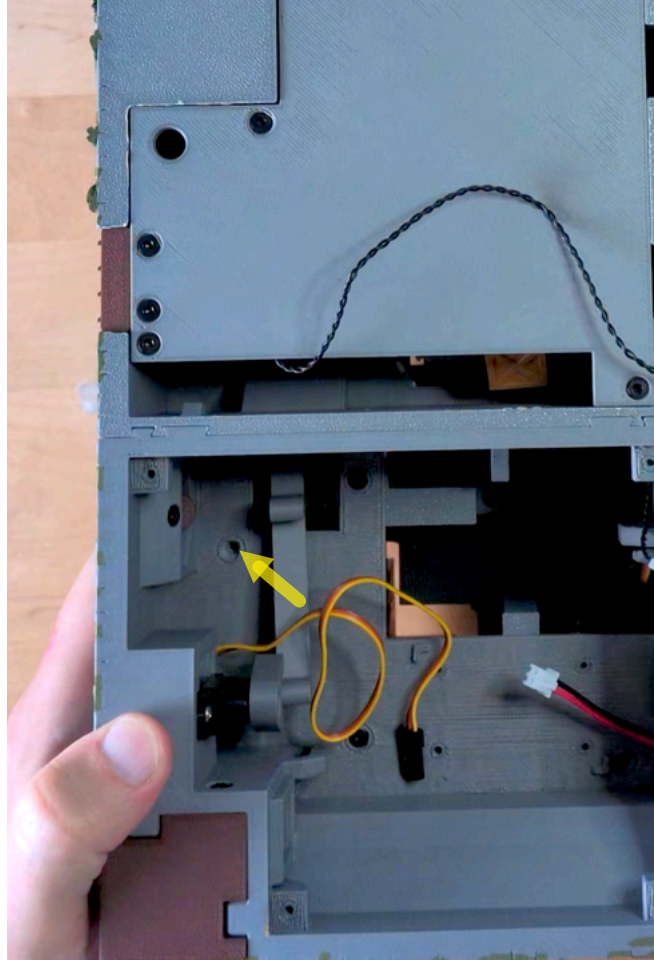
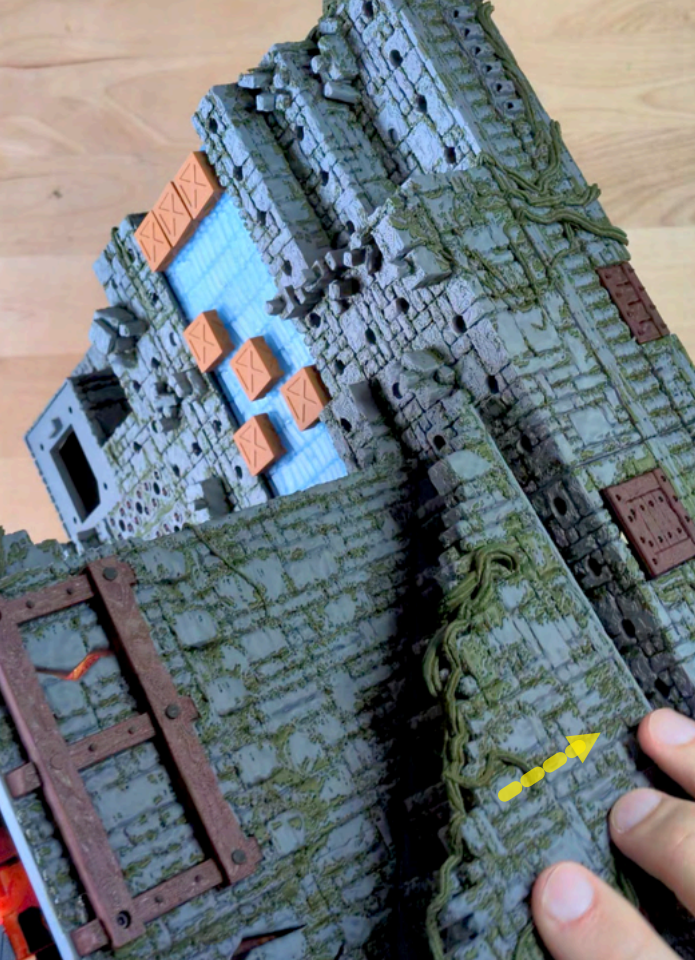
12

Attach the Lava Tower to the combined base (4) 2.6x8 Self Tapping Screws

3 will go through the NW base and 1 goes through the NE base.

You may need to bend the lava flow (installed in the previous step) slightly so that this piece can fit.





13

Attach the Stair Sheath to the NW base with (1) 2.6x8 Self Tapping Screw (inserted from below).

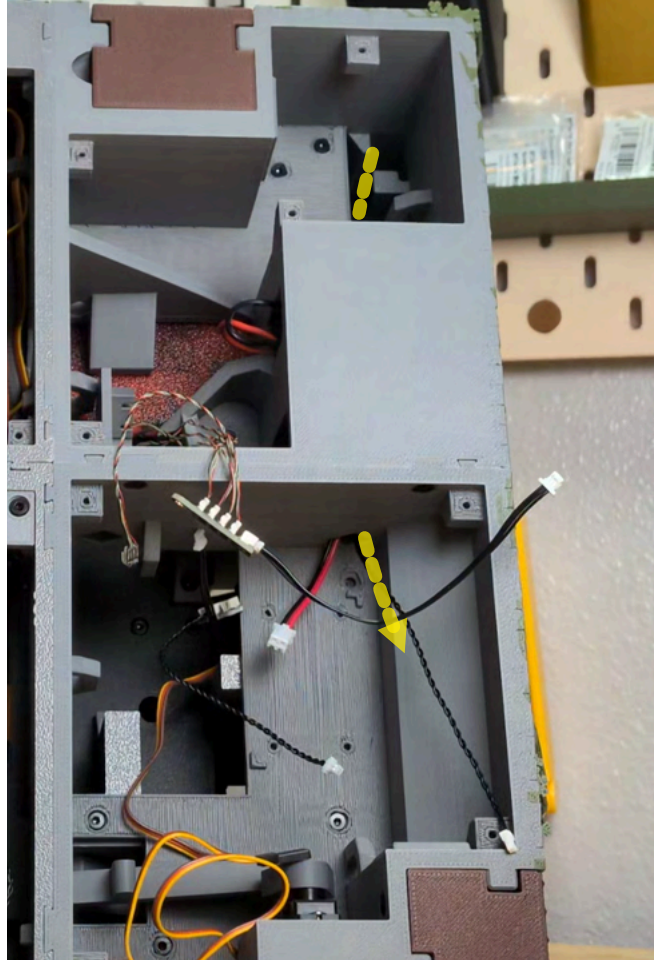
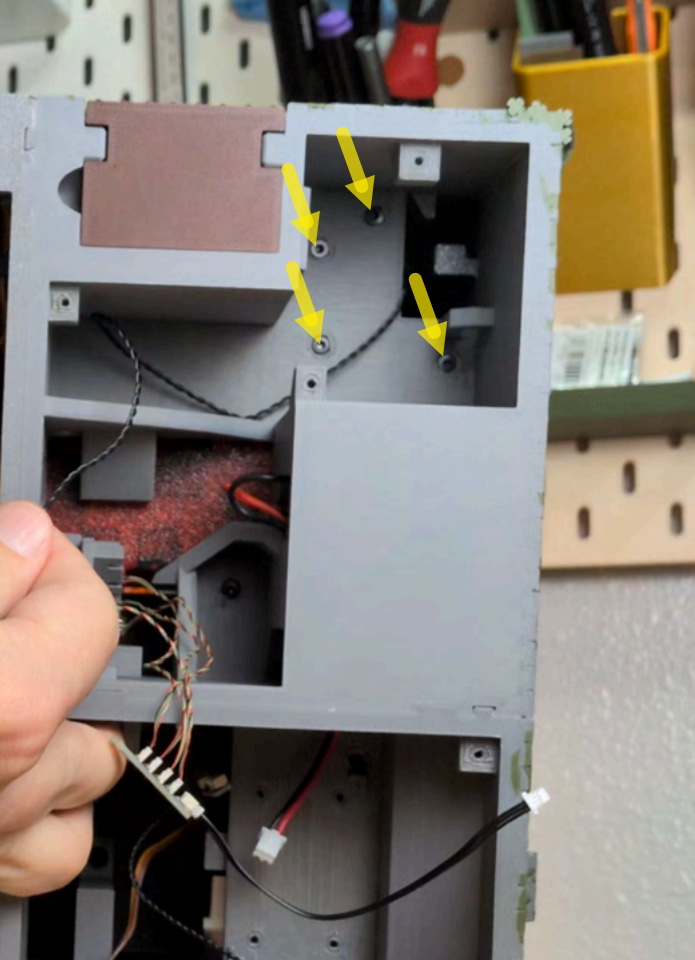
14

For the next few steps, it can help to gently place the model on its side. Be sure not to put too much strain on the lava tower or river - you should be able to balance the base on its edge.

Attach the Bridge Tower to the SE Base with (4) 2.6x8 Self Tapping Screws. These holes aren't all visible in the reference photo but one is at each corner of the opening for this tower.

When lowering the tower into place, make sure that the servo arm goes through the hole in the magnet rod.

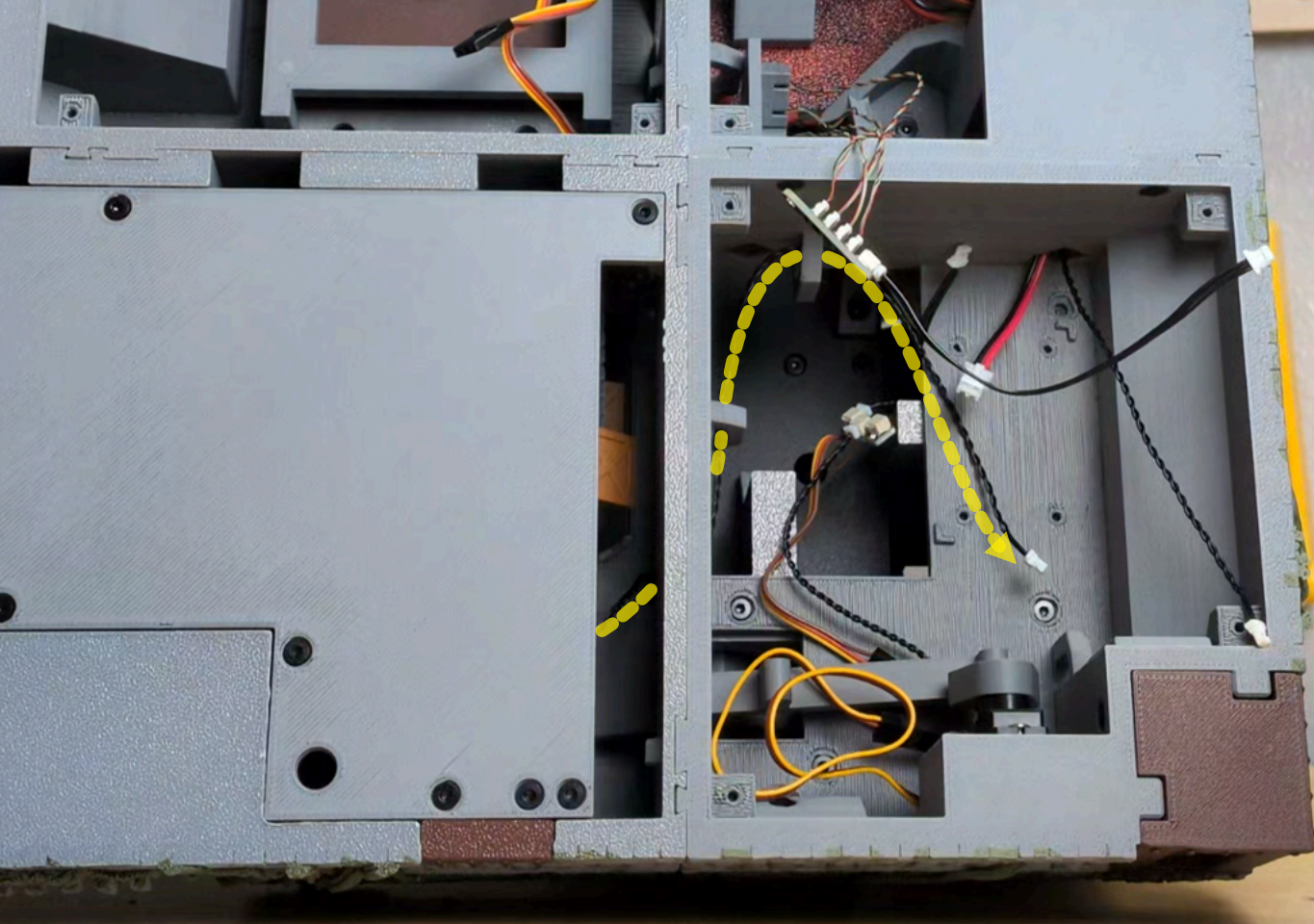
You will be orienting the tower so that the magnet arm is facing towards the far side of the game board where the timer tower will be mounted.



15

Attach the timer tower to the base using (4) 2.6x8 Self Tapping Screws.

Feed the SH1.0 wire from the Timer Tower through the channel and into the NW Base.



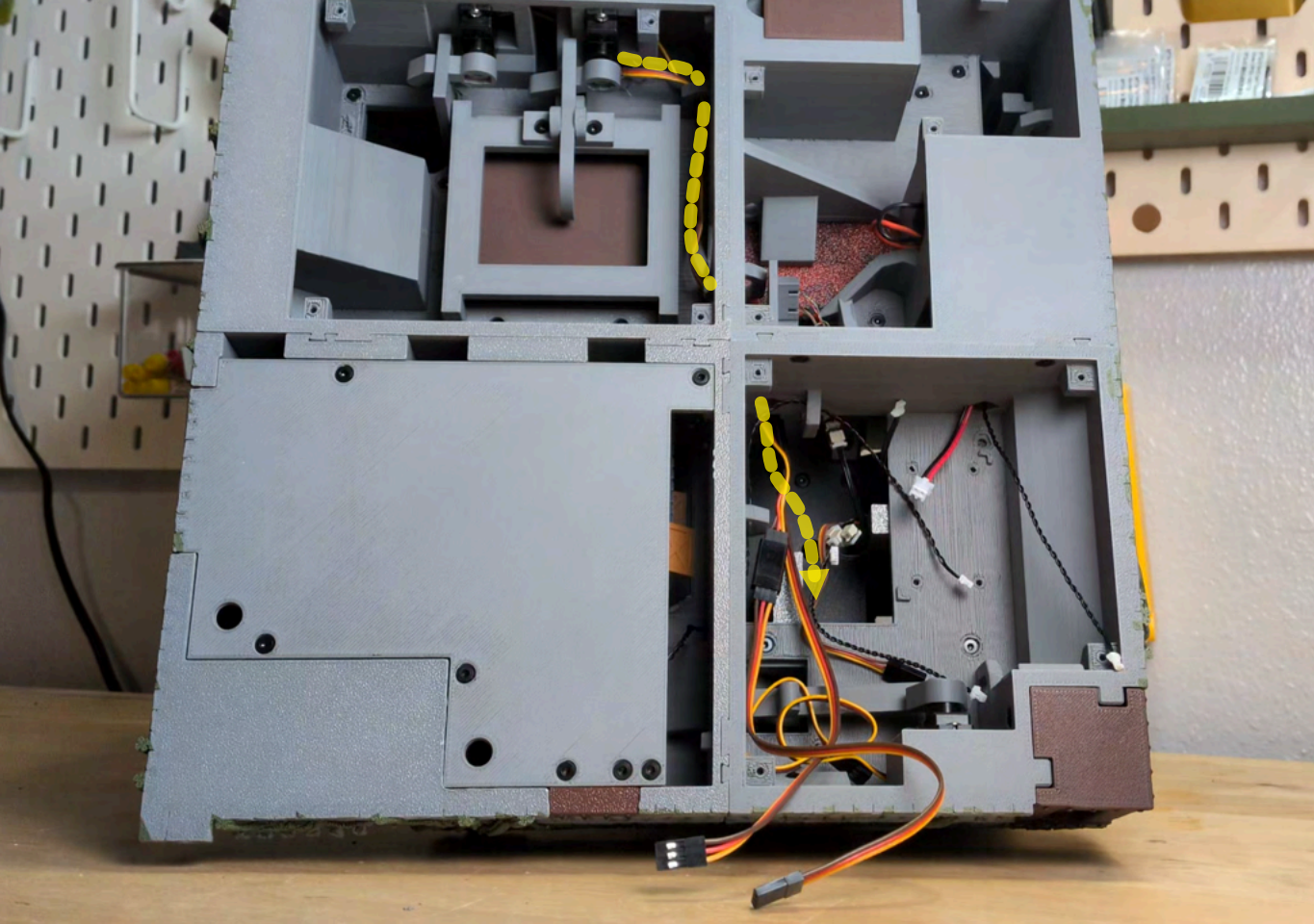
16

Feed the SH wire from the river through the pass-through channel from the SW Base to the NW base.

Use the loops in the base walls to route the wire.

17

Add (2) 200mm Servo Extension Cables to the wires for the 2 servos in the SE base (the bridge and spike traps) and then feed those cables through the channel into the NE base and then into the NW base

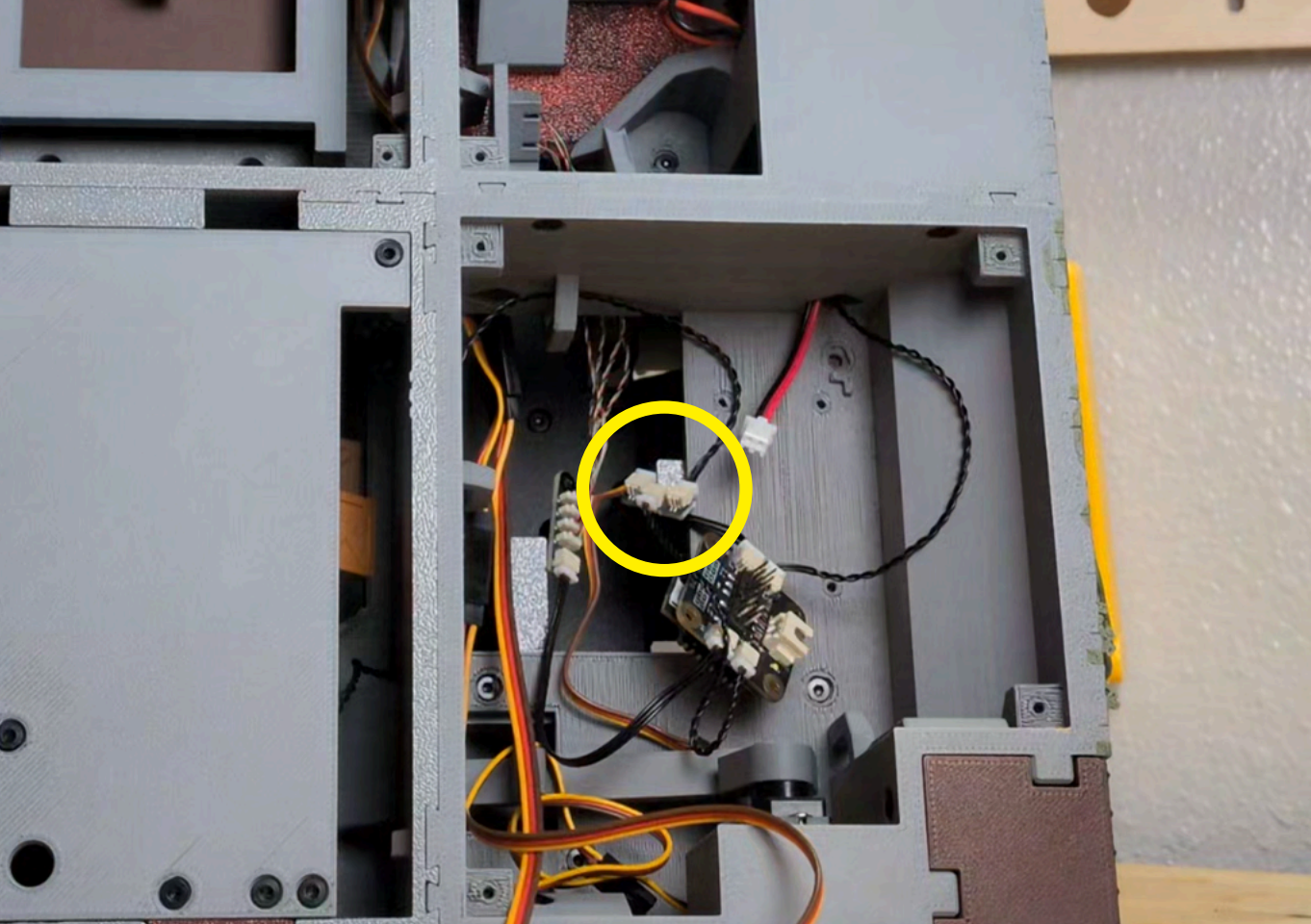


18

Feed the SH1.0 wire from the Lava Tower through the channel and into the NW Base.

Attach both the lava flow and river SH wires to the (1) SH1.0 to Dual SH1.0 Adapter and attach the adapter to the

Receiver as shown in the [wiring diagram](#) using (1) 100mm Wire Pair with SH1.0.



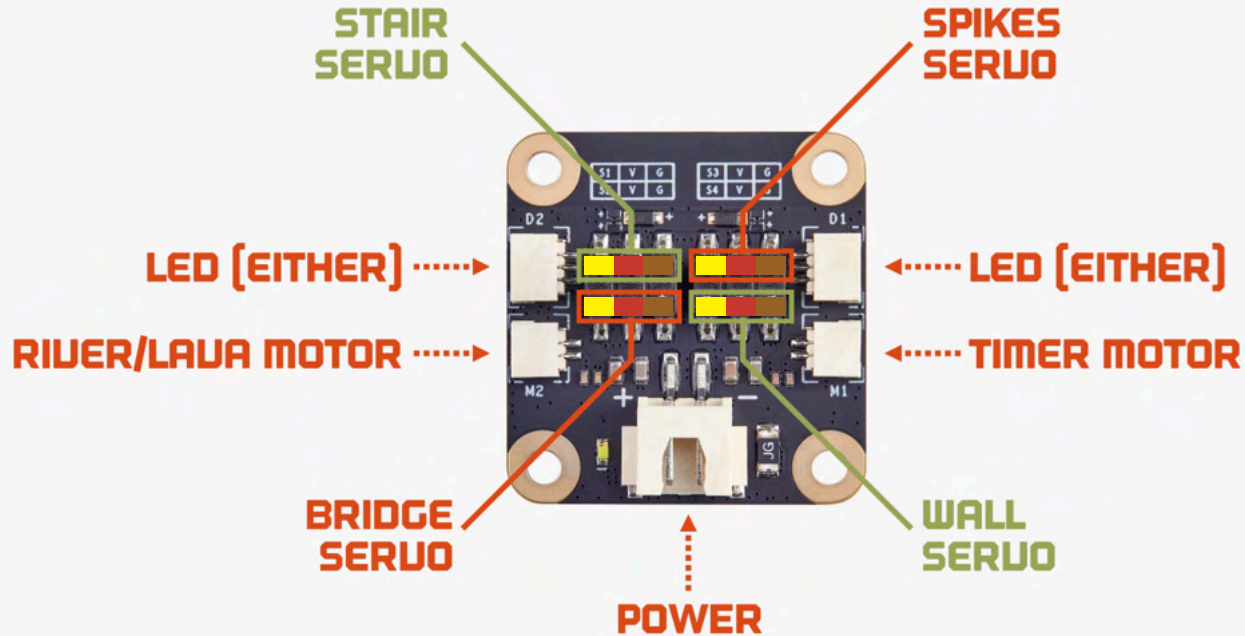
19

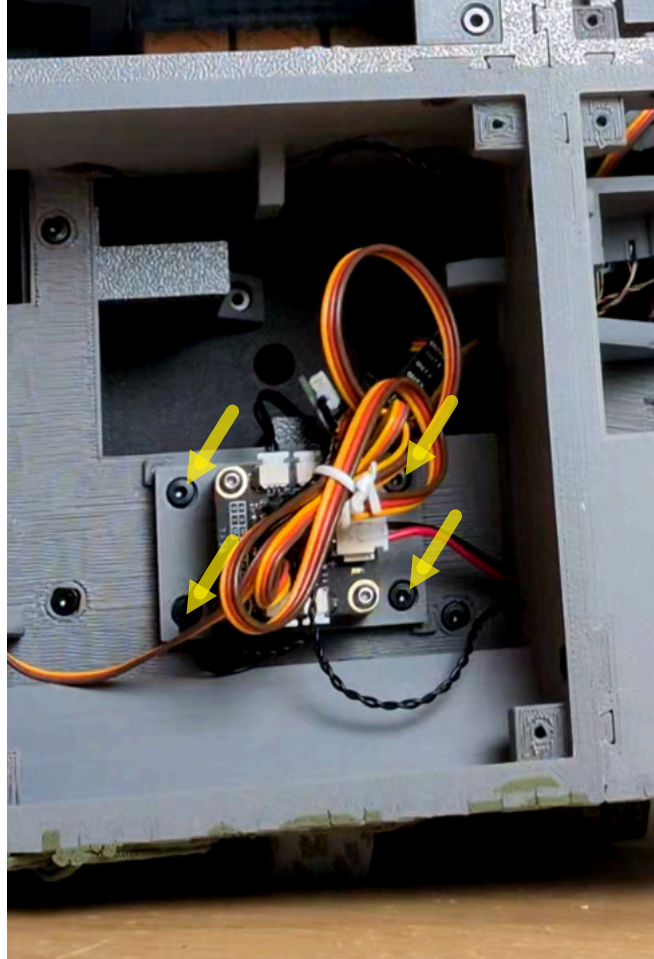
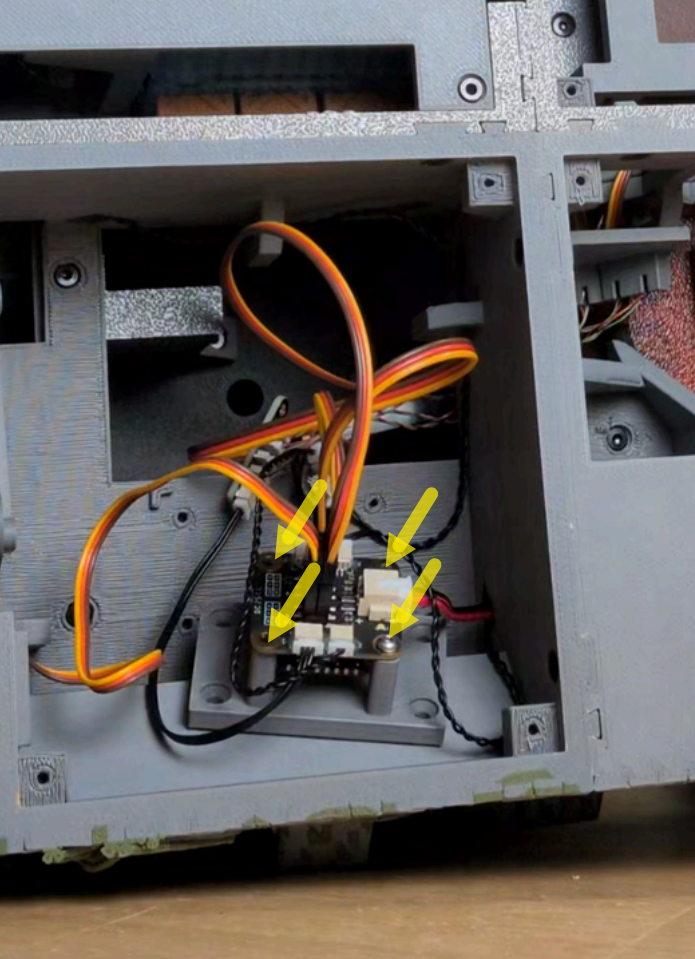
Receiver Wiring Diagram

Attach all wires to the CyberBrick receiver as shown in the diagram.

The orientation of the servo wires is important. Reference the color coding in the diagram to ensure they are plugged in with the correct orientation.

Quickly right the game board and test all of the motorized elements to ensure that all servos and motors are wired correctly.





20

Attach the CyberBrick Receiver to the Mounting plate using (4) M2.5 Button Head Cap Machine Screws.

Attach the mounting plate to the ceiling of the NW base using (4) 2.6x8 Self Tapping Screws.

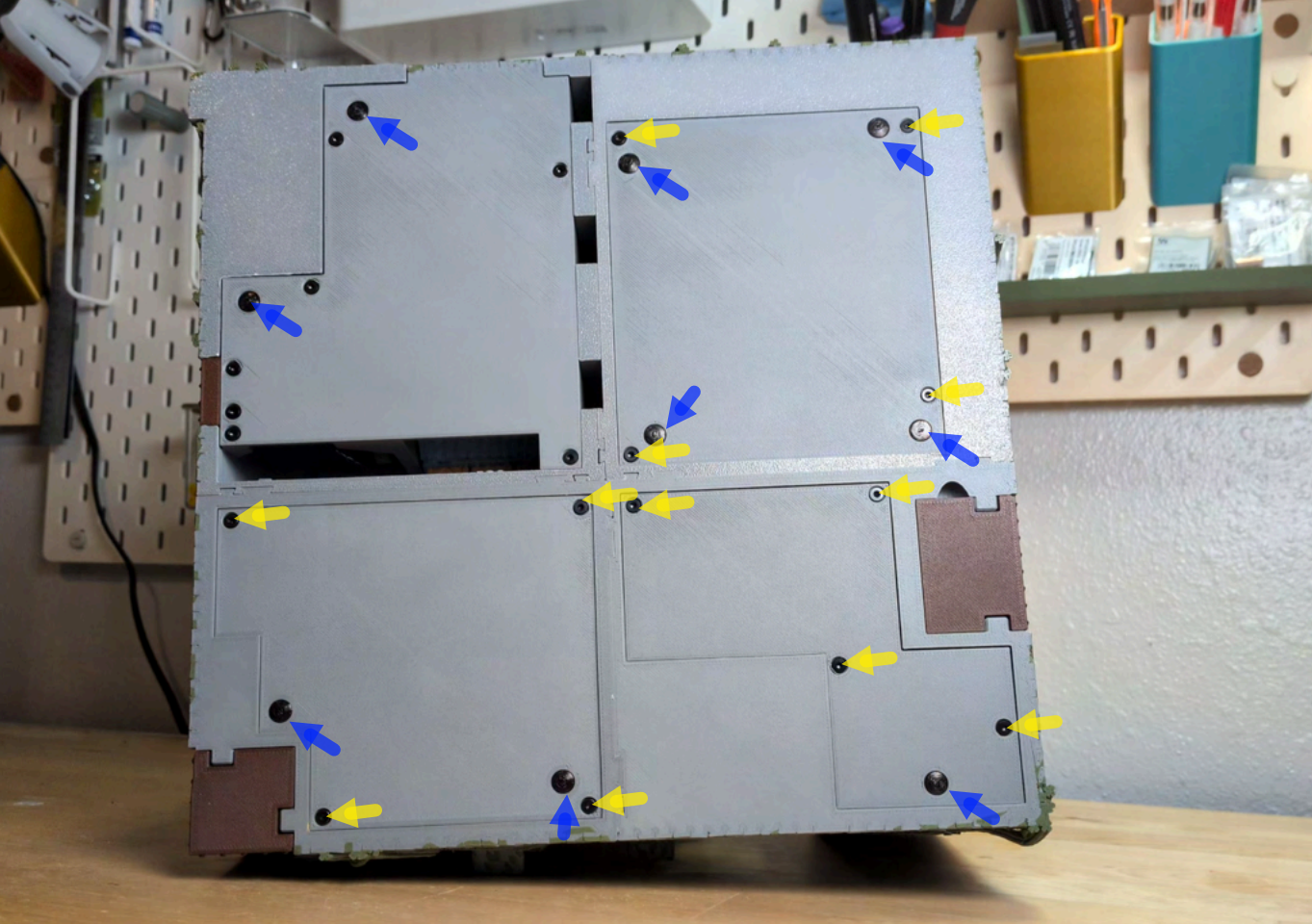
Use the twist ties that came with your servos to wind and consolidate the cables so that they will not get caught in the servo arm in this base section.

21

Press the optional TPU feet (indicated by the blue arrows) into the bottom plates - these are small parts so just use any color you have - I used blue TPU and then just colored it black with a permanent marker.

Attach them to the NW, NE & SE bases using (12) 2.6x8 Self Tapping Screws.

Attach the remaining TPU feet to the bottom of the SW base which is already in place.

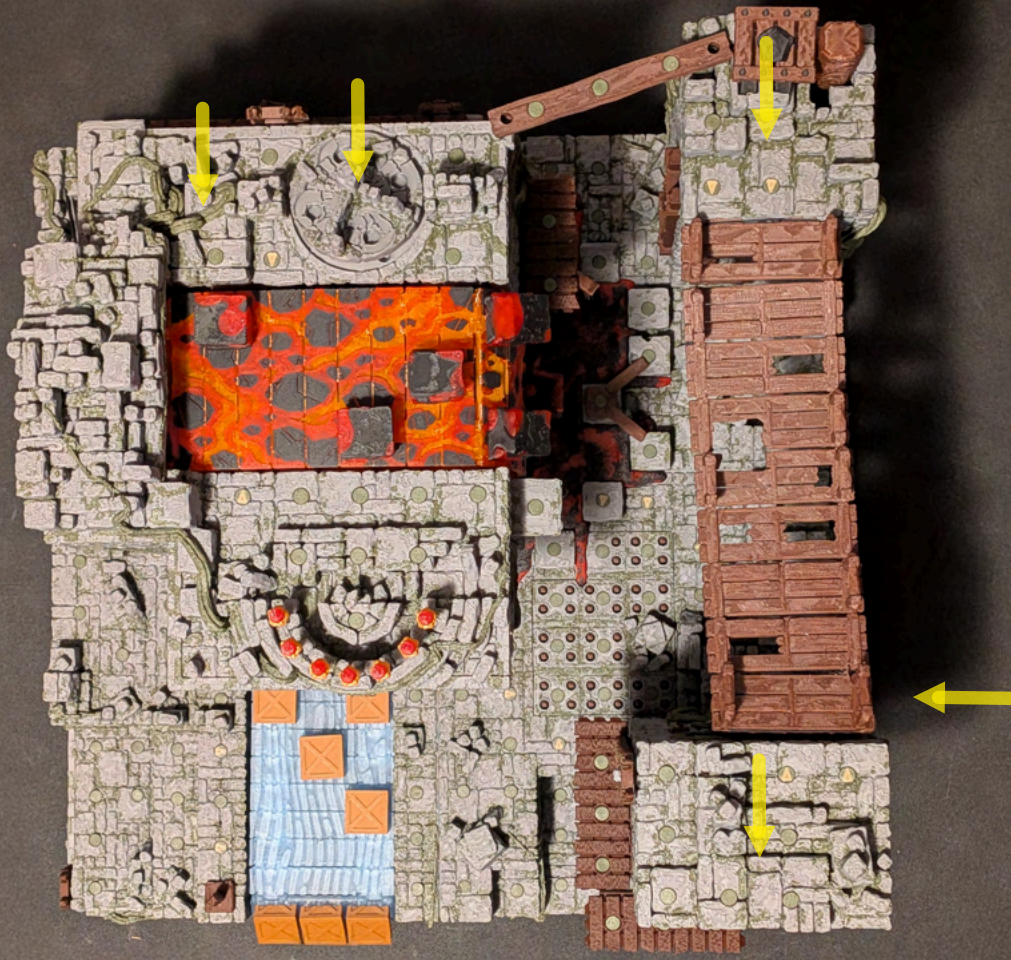


22

Attach the lids for the timer tower, bridge tower and lava tower (along with the small round piece from the rotating wall trap).

These magnets are fairly strong so I would recommend attaching them at an angle - first seating the alignment pegs on the side closest to the magnet and then rotating the lid down.

Place the bridge by letting the magnet attach to the Bridge Tower.



Tip: if you are having trouble with the bridge not releasing, it can help to push it over a bit (to the right in this image). You can even use one of the leftover brass dowels in the slot on the Bridge Tower to aid with this



23

Glue the relics together by pressing the bases onto (7) 2*22 Brass Dowels, adding a drop of glue and then pressing on the gems.

You can store these or place them in the slots in the lid of the lava tower.

24

Attach the magnetic power switch cover





25

If you didn't press the rack gear through the top of the Timer Tower in a previous step, do so now.

Check the alignment as this part will only insert in one orientation.



26

Add the ladders to the board, gently bending them to fit over the hooks in the game board while being seated in the slots at the base.

You can use a small drop of glue if the fit isn't snug enough.

The ladders are similar so the best way to tell them apart is by size.

27

Continue installing ladders as shown.

You will be pressing the feet of the ladder into the base and then pressing the ladder over the hooks in the game board.

Be gentle but you may need to very slightly bend the ladders to get over the hooks.



Lava Tower Back
Top - 87mm
(short feet)

Lava Tower Back
Bottom - 98mm

NW - 144mm

28

Install the ladder of on the side of the lava tower - this one sits at about a 45° angle



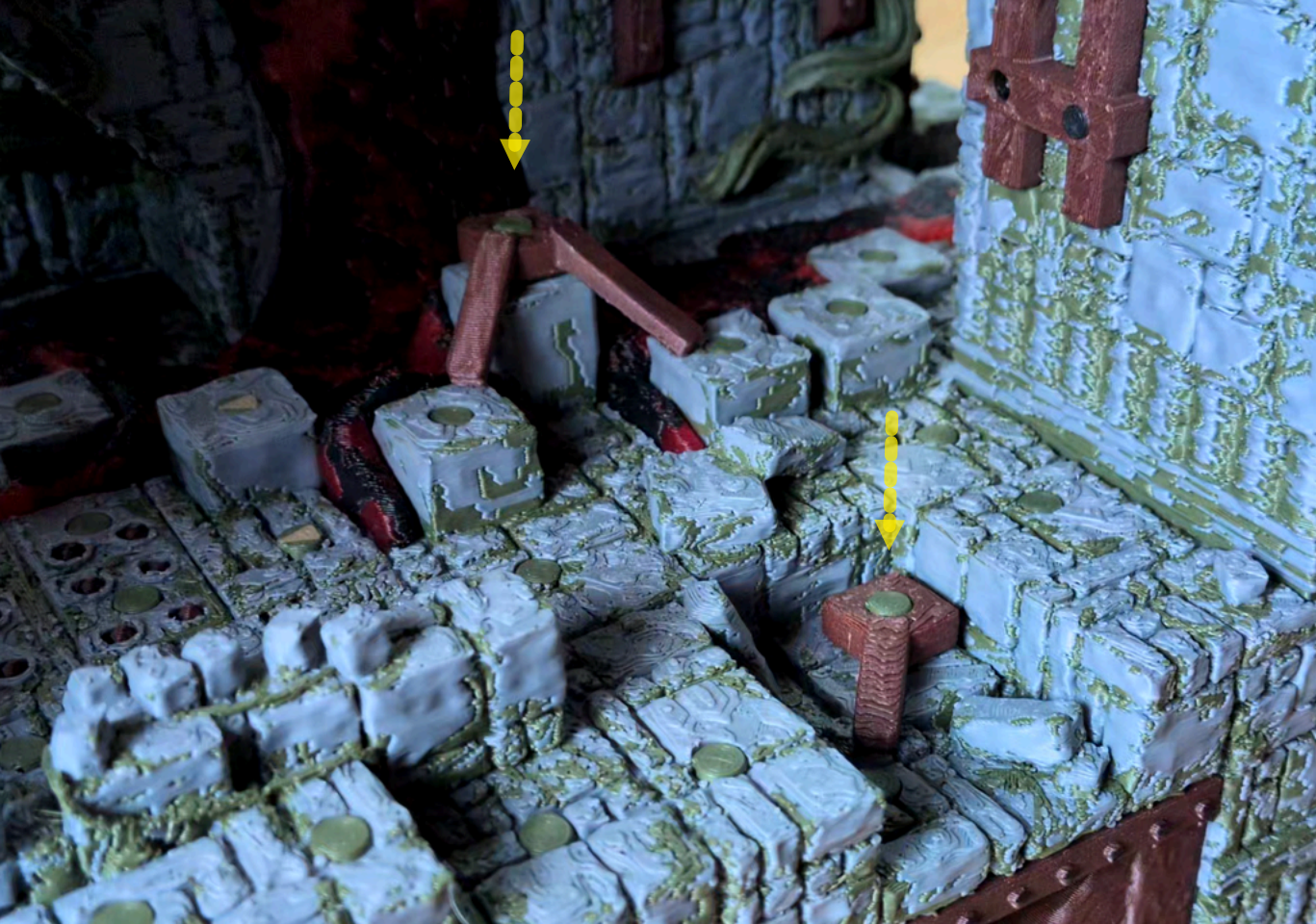
**Lava Tower Side - 87mm
(long feet)**

29

Install the final two ladders as shown.

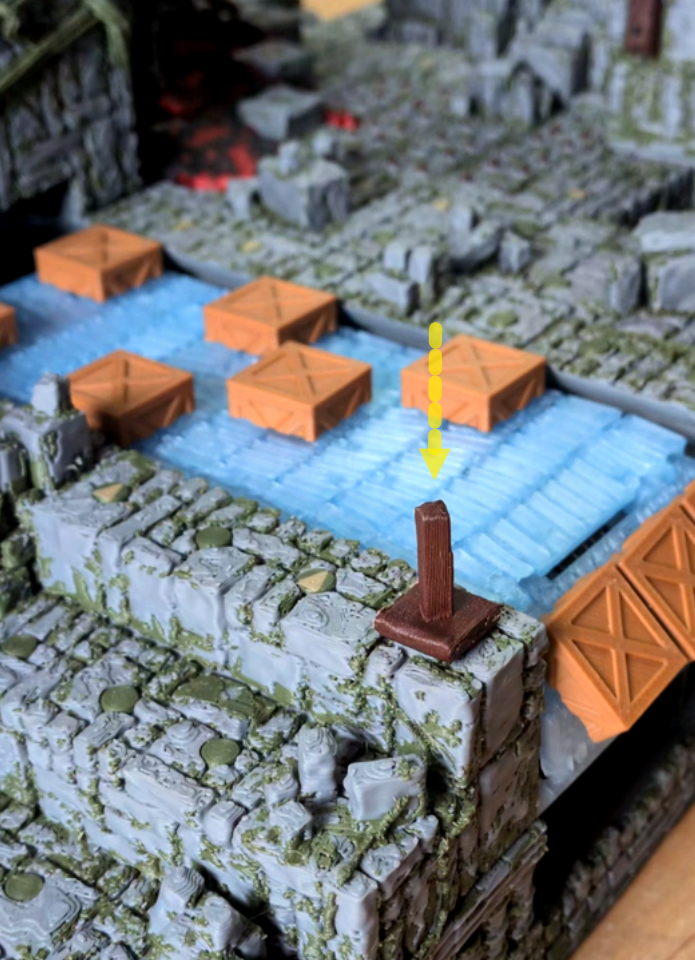
Bridge Tower 2 - 93mm →

Bridge Tower 1 - 122mm →



30

Press the diagonal walkways into place where shown.



31

Press the life preserver base into place where shown.

You can drop the life preservers down onto this pole.

32

Press the pips into the slots on the board.

There are a few special pips - check the next page for their locations

These are press-fit and should not require glue.

If you have any issues fitting a pip, you can try clipping them to make them shallower or adding a channel to the side using side cutters.



Tip: users who received early access to the files may find a few slots that aren't quite deep enough (these have now been fixed) and you may need to trim the pips so that they fit.



33

There are a few special pips with arrows on them. When players end their turn on these spaces, they move one space in the direction of the arrow.

The diagram on the left shows the placement. The arrows should point 'in' towards the traps.

THE END

With this, assembly is
complete - congratulations!

