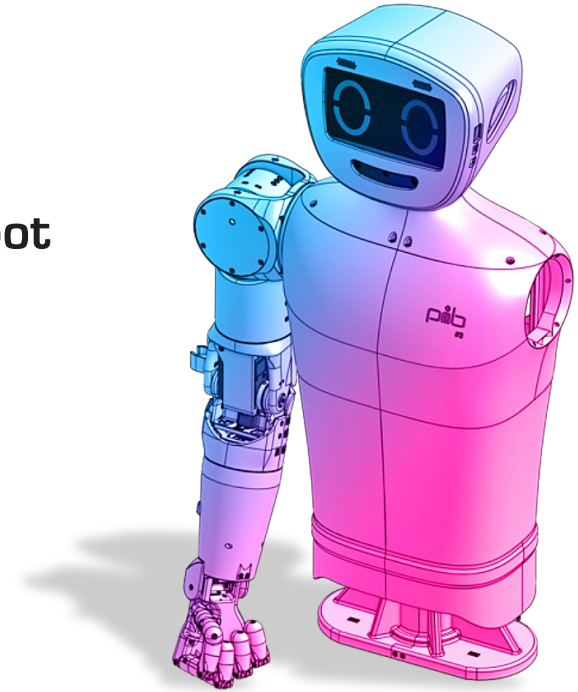
How to build your robot

www.pib.rocks/build

instructions for:

ASSEMBLY

v2024



PRINT
BUILD
DEVELOP
YOUR OWN ROBOT

Non-printable parts

You will need the following non-printable parts from our pib.Box Master/School.
If you do not have it yet, you can buy it in our shop https//shop.pib.rocks.

Non-printable parts - Electronics
1 x **E13-**SPL-82
1 x **E14**-Power_Supply-cable
USB C extension cable

Non-printable parts
2 x **S10** M3 25 mm screws
Servo extension cables
E23 – Cable_sheath
E20 power jack

Build it better: our suggestion for assembling pib

We recommend **tools** for each step. These are a suggestion, you can of course also use other tools.

1-5

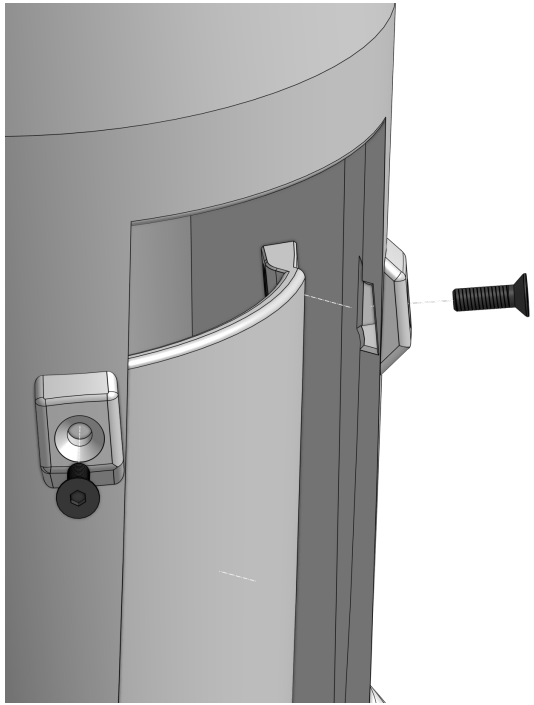
We have categorized each step according to its **difficulty** - from **1-5** (1 being the easiest, 5 the hardest)

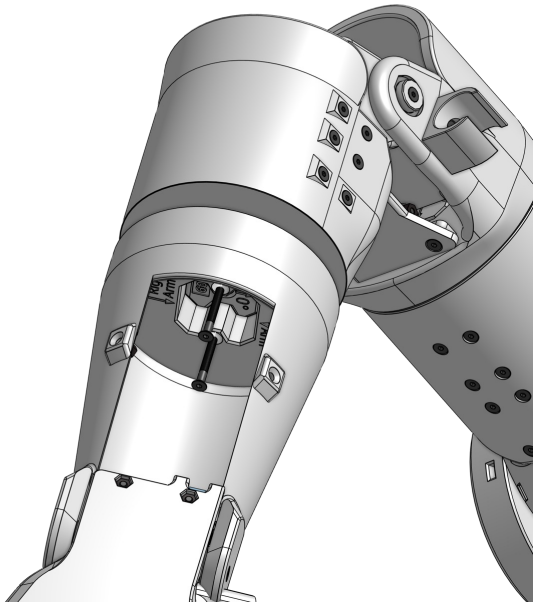
We also show you which **non-printable parts** you need for each step

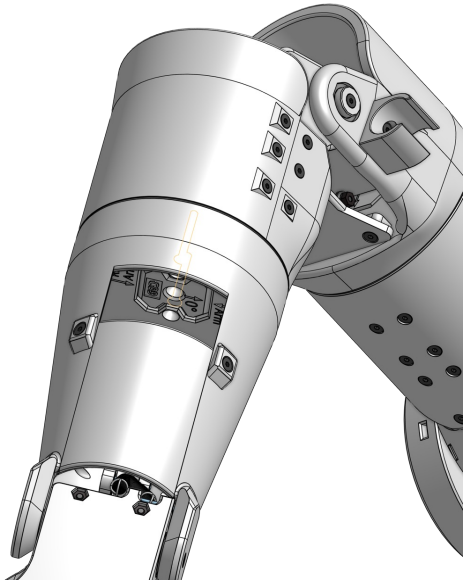
Step 1

1 2x

Disassemble **C20** to easily reach the top screws. Assemble forearm to elbow using **2 x M3 25mm** screws and then reassemble **C20**.

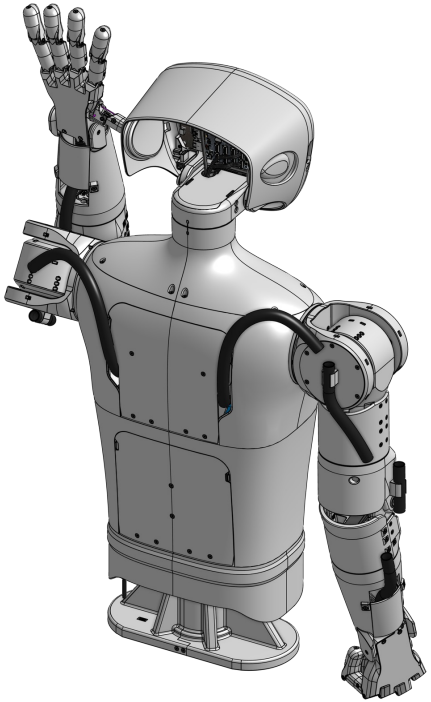


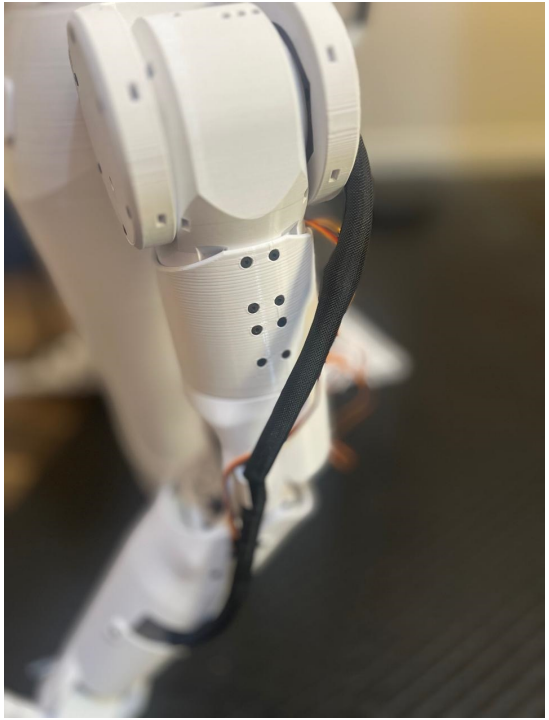




Step 2

Guide all the wires through the black **E23-Cable_sheath** and place it in the **2 C74** in elbow and shoulder. Make sure to extend servo cables that are short with **servo extension cables**.





Step 3

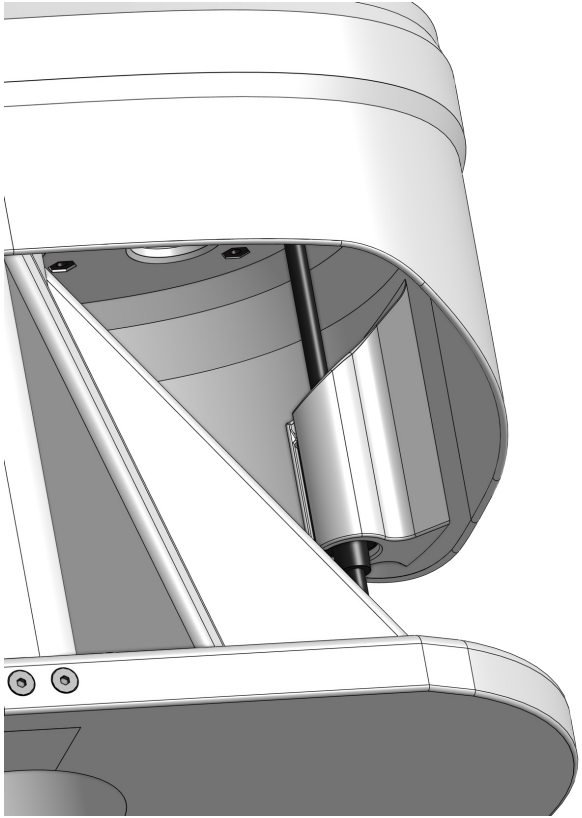
2

Connect output jack of **E14 power supply** into **E20 power jack**, strip both ends and insert **2 wires** on the other side of the jack (the wires should be ~ 10cm)

Step 4a

2

Place **E14's output wire** in the shown orientation and spot in **B43-L**.

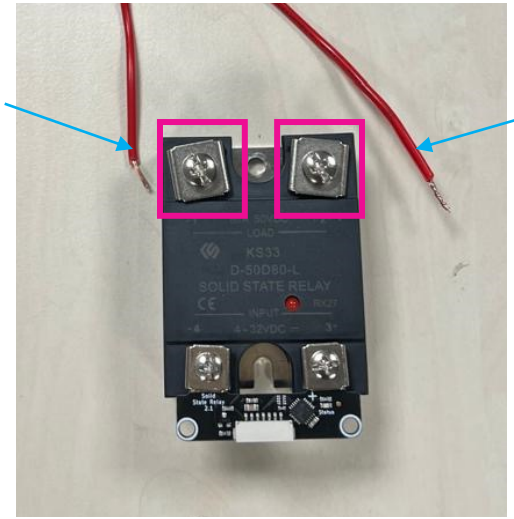


Step 4b

2

Connect the **red wire** coming out of the **power supply** to the + side of the **relay** and cut a small piece of the **red cables** you have and connect it to the other side. Unscrew terminals, insert **wires** and then screw them back.

New cut wire

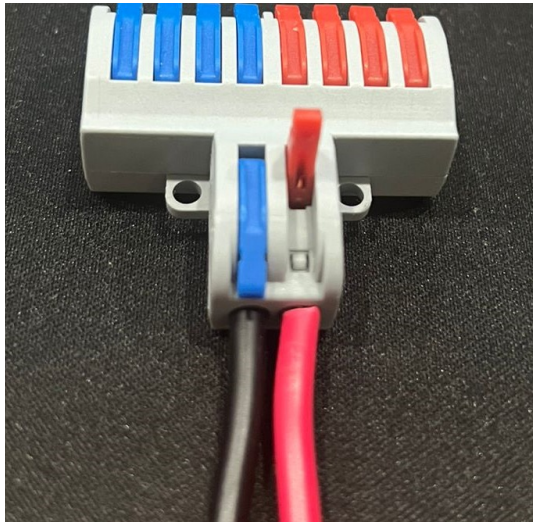


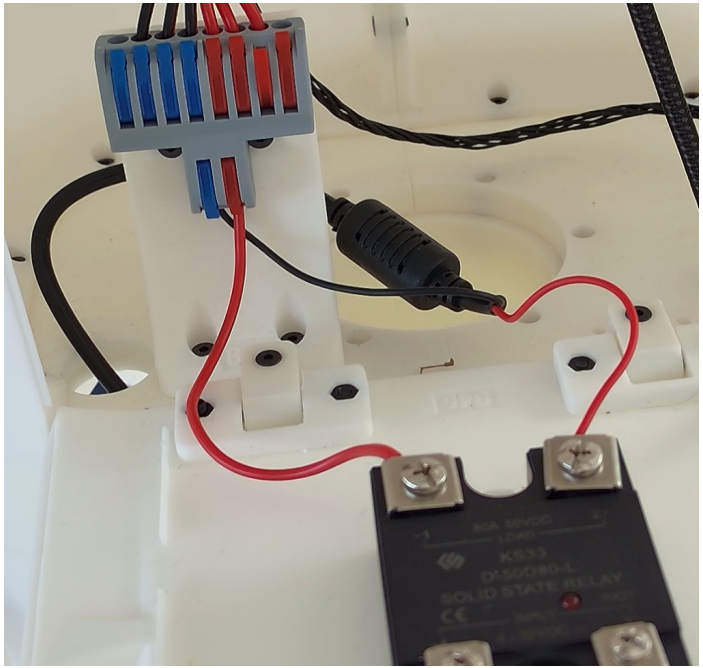
Wire from power supply

Step 4c

1

Pull the red and blue switches in **E13**, insert the **red wire** coming out of the relay and the **black wire** coming out of the power supply.





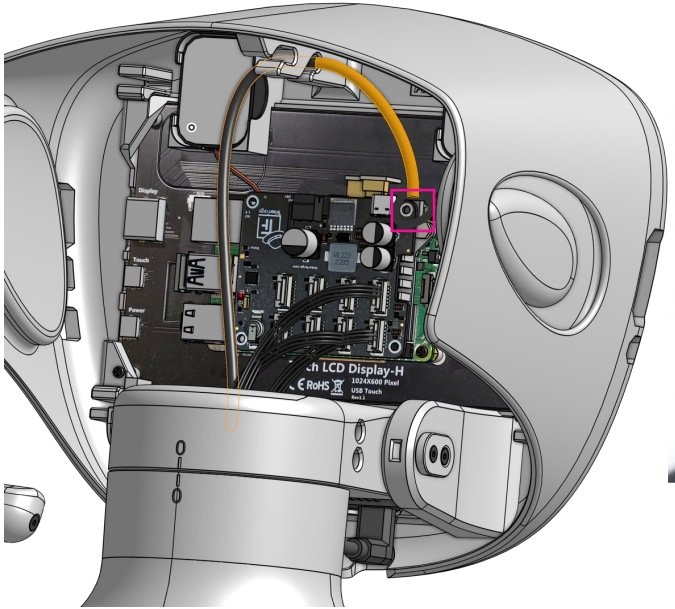
Make sure to place the wires in the correct switches:

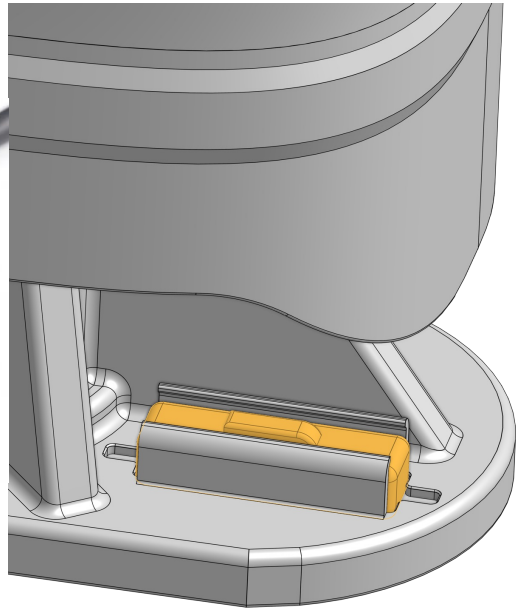
- ✓ **Red** wire to **red** switch
- ✓ **Black** wire to **blue** switch

Step 4d

2

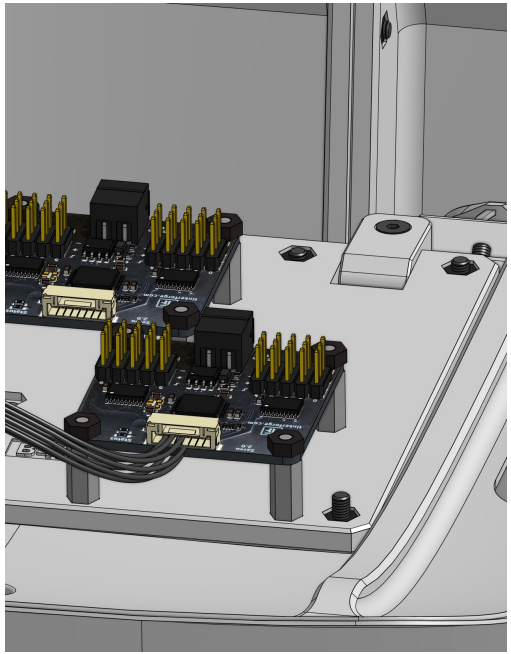
Use **Type-C extension cable** to connect **E16 RPi power supply** to **Raspberry Pi**.

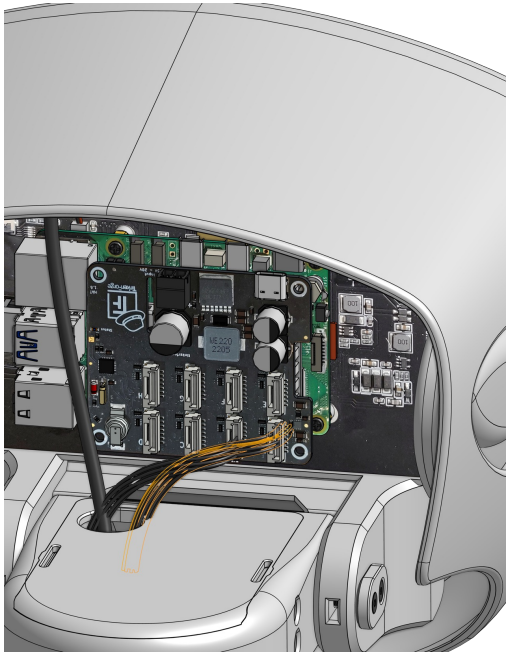




Step 4e

Connect all **E19 bricklet cables** coming out of electronics (servo bricklets and relay) to **E02 brick hat.** Correct ports are mentioned in next slide

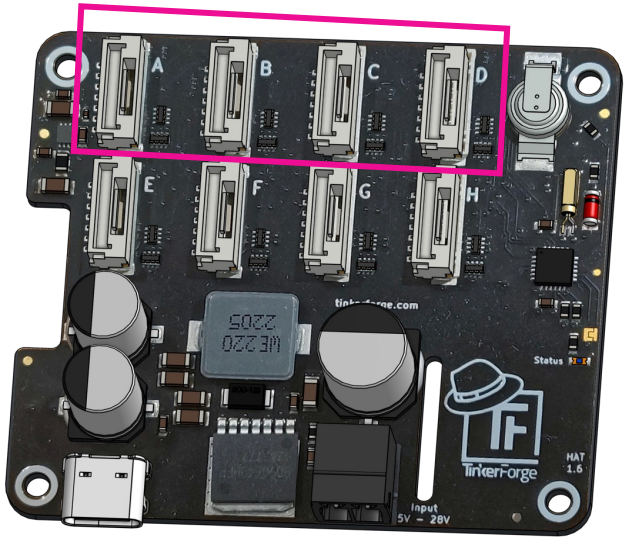




Note

Electronics should be connected according to this table

	Port in brick hat (inscribed on the hat)
Relay	A
Servo bricklet 1 (connected to right arm)	B
Servo bricklet 2 (to be connected to neck and shoulders)	C
Servo bricklet 3 (to be connected left arm)	D



Step 5

3

Connect the **motors** in fingers, arm and head to both **E03 servo bricklets** in the upper body according to the table in the next slide.

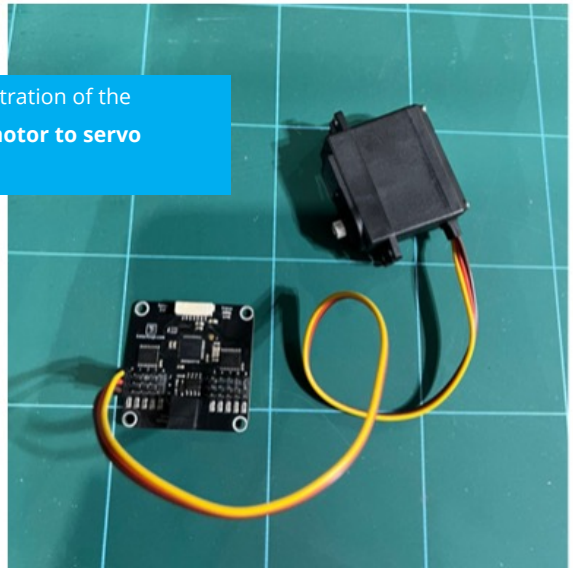
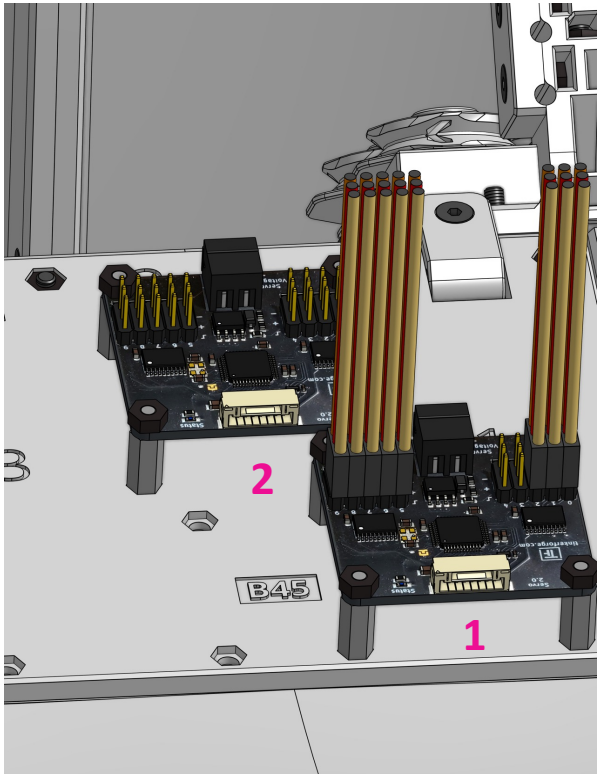


Image for illustration of the connection „**motor to servo bricklets**“



Step 5 – Table (1)

Ignore any joint name with "left“ in it or „connected to bricklet 3“ if you are assembling pib with just one arm (right arm).

Motor name (joint connected to motor like thumb rotator)	Bricklet number (when assembled, bricklet 1 will be the right and 2 is the middle. Bricklet 3 is the extra one for 2 arms pib)	Bricklet pin (pin on bricklet that servo will be connected to, 0 to 9)
thumb_right_opposition	1	0
thumb_right_stretch	1	1
index_right_stretch	1	2
middle_right_stretch	1	3
ring_right_stretch	1	4
pinky_right_stretch	1	5
wrist_right	1	6
lower_arm_right_rotation	1	7
elbow_right	1	8
upper_arm_right_rotation	1	9
shoulder_horizontal_right	2	0
shoulder_vertical_right	2	1
Free replacement for burned pins	2	2
Free replacement for burned pins	2	3
turn_head_motor	2	4
tilt_forward_motor	2	5

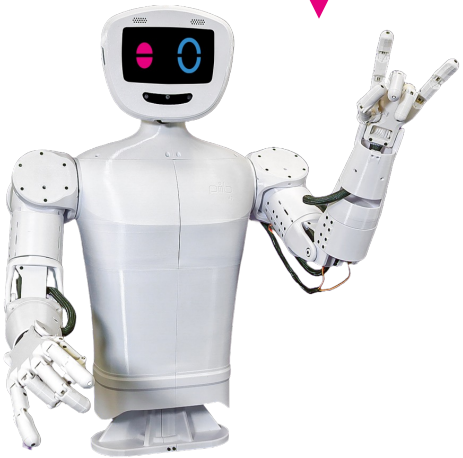
Step 5 – Table (2)

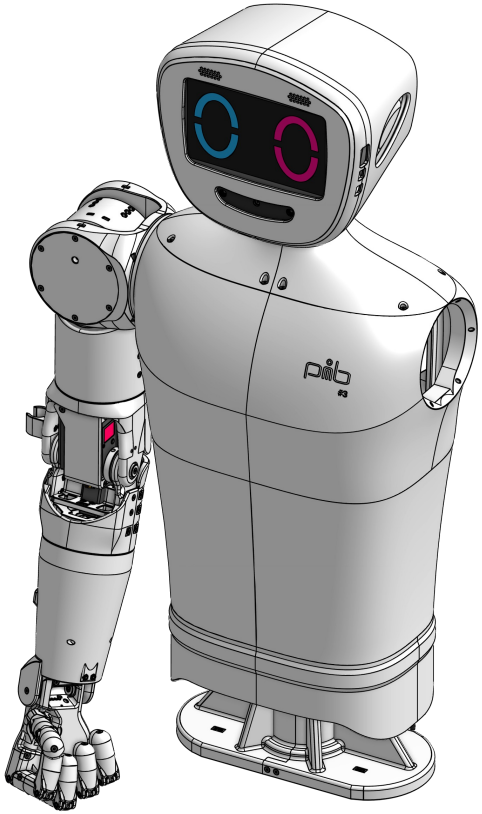
Ignore any joint name with "left“ in it or „connected to bricklet 3“ if you are assembling pib with just one arm (right arm).

Motor name (joint connected to motor like thumb rotator)	Bricklet number(When assembled bricklet 1 will be the right and 2 is the middle, bricklet 3 is the extra one for 2 arms pib)	Bricklet pin (pin on bricklet that servo will be connected to, 0 to 9)
Free replacement for burned pins	2	6
Free replacement for burned pins	2	7
shoulder_horizontal_left	2	8
shoulder_vertical_left	2	9
thumb_left_opposition	3	0
thumb_left_stretch	3	1
index_left_stretch	3	2
middle_left_stretch	3	3
ring_left_stretch	3	4
pinky_left_stretch	3	5
wrist_left	3	6
lower_arm_left_rotation	3	7
elbow_left	3	8
upper_arm_left_rotation	3	9

Congratulations

You did a great job, pib is assembled!





Do you need support?

Or do you need our pib.Box with all non-printable parts?

Or maybe you have some new ideas and improvements?

Please contact us.

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