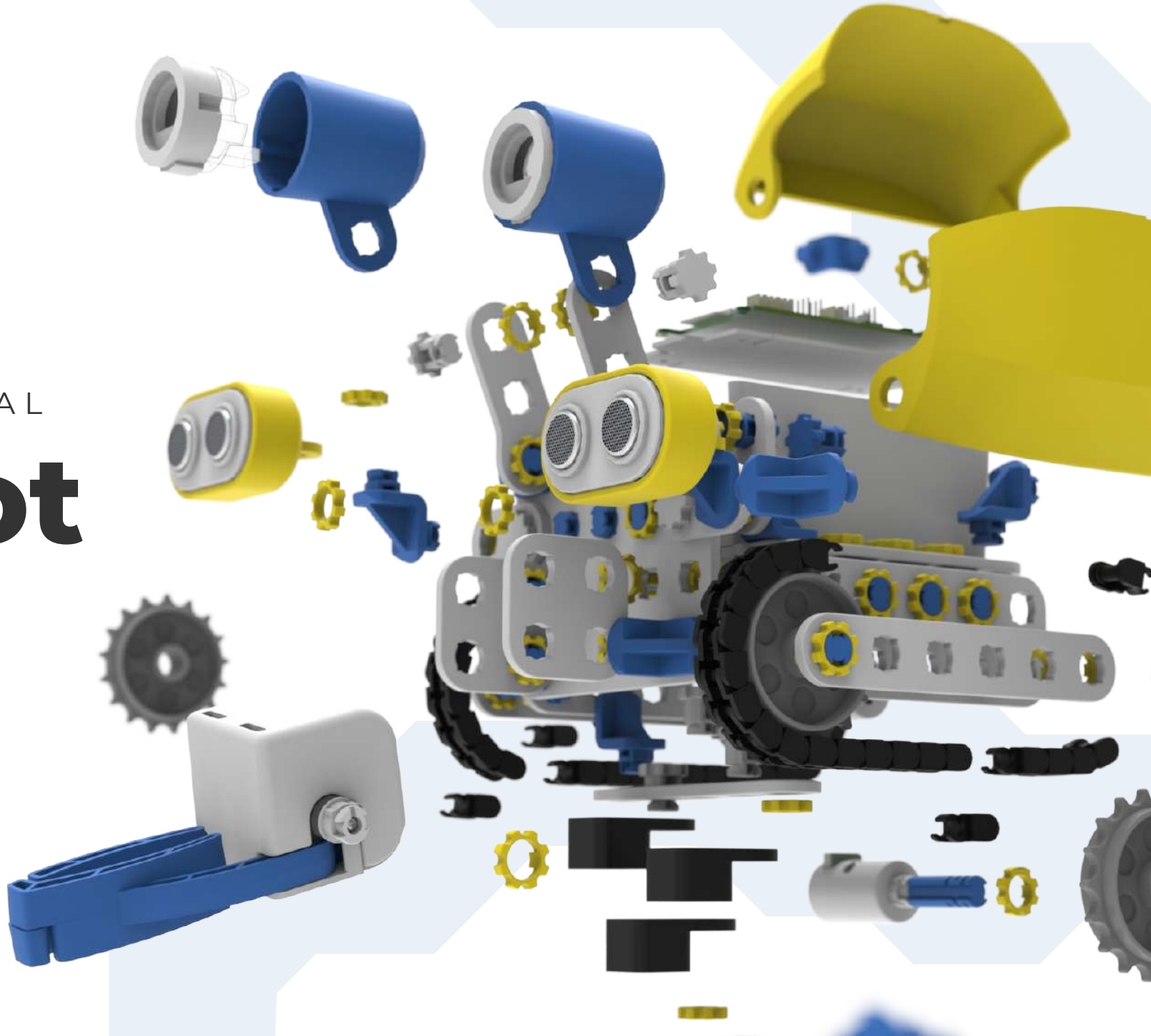
ASSEMBLY MANUAL

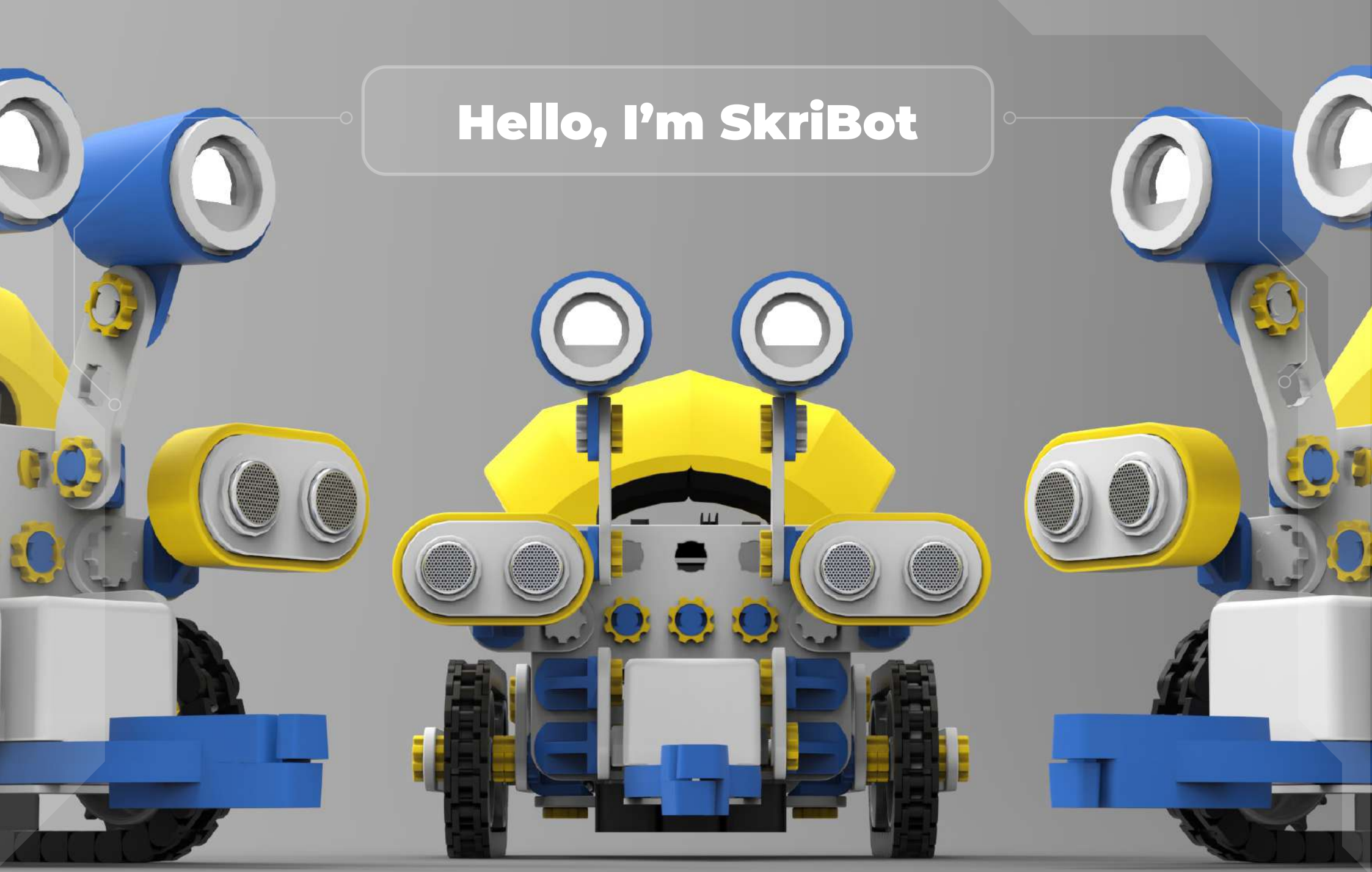
# SkriBot

MODEL: **ENIF**

SKRIWARE

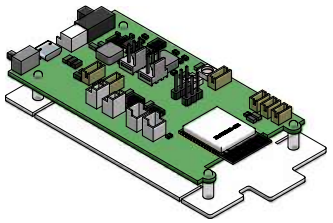


# Hello, I’m SkriBot

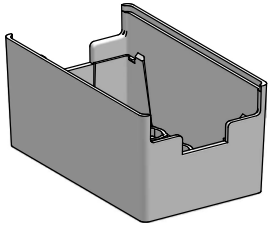


# Parts list

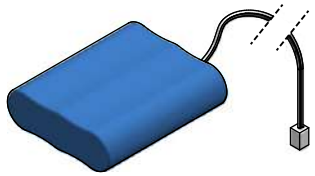
Before assembling your SkriBot,
make sure you have all of the parts ready



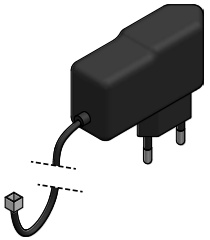
1x SkriBrain (Microcontroller)



1x Battery pack

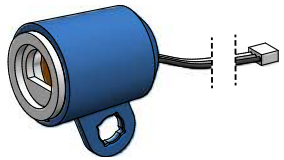


1x Battery

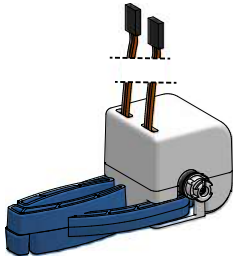


1x Charger

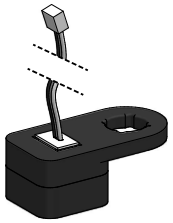
2x Range sensor



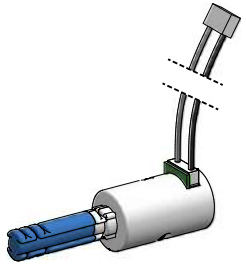
2x LED eye



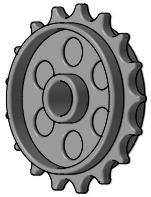
1x Gripper



3x Reflectance sensor

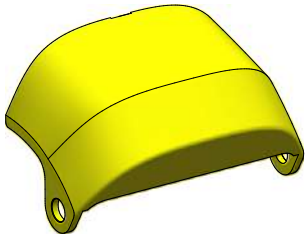


2x Motor

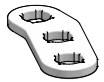


2x Passive wheel

2x Drive wheel



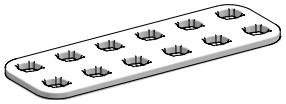
2x Shell



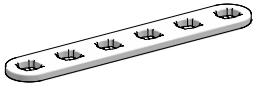
2x 1x3 Curved Plate

1x 5x5 Plate

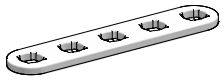
1x 4x5 Plate



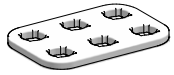
2x 2x6 Plate



2x 1x6 Plate



1x 1x5 Plate



1x 2x3 Plate

2x 2x2 Plate

6x 1x2 Plate

2x Multi-position Bolt

12x Rigid Bolt

4x Rotating Bolt

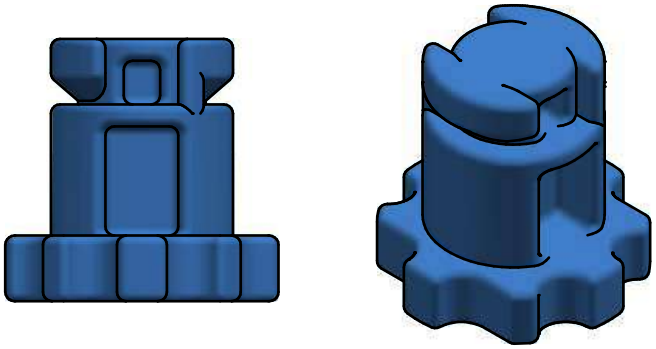
23x Bracket

79x Nut

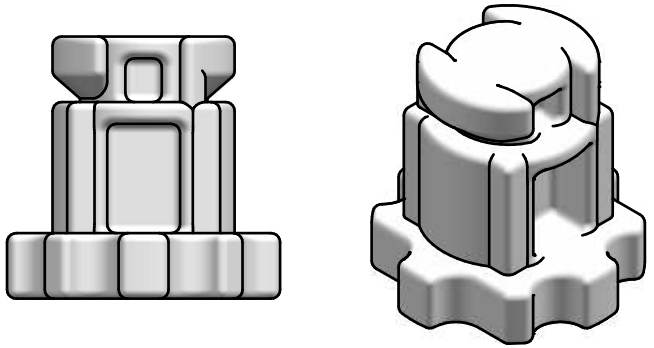
72x Track Link

1x Flat Wrench

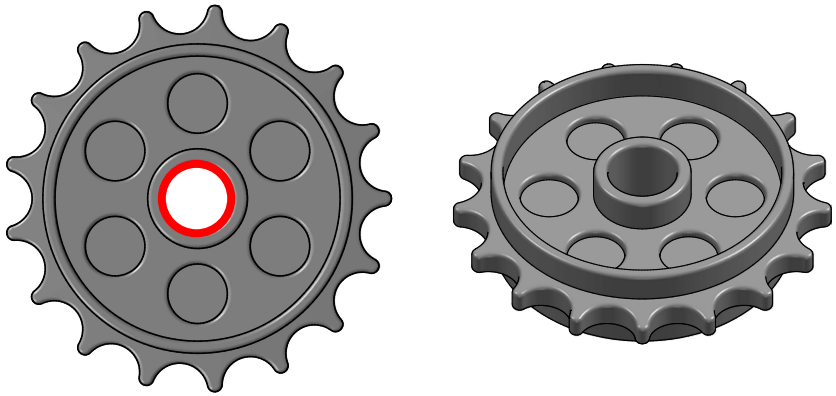
1x Socket wrench



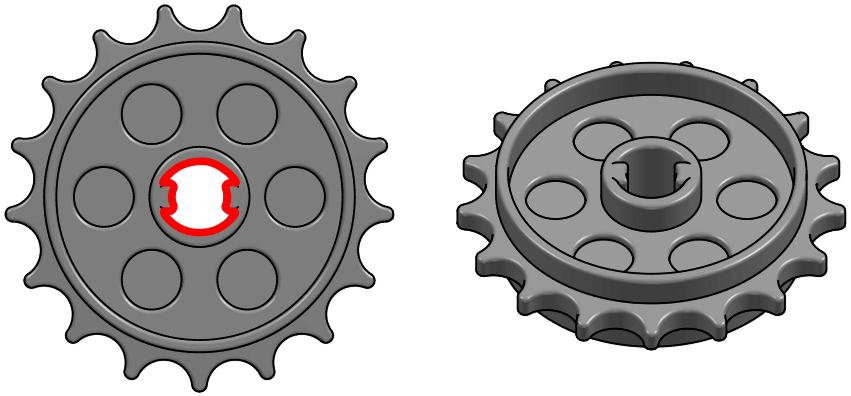
4x Rotating Bolt



12x Rigid Bolt



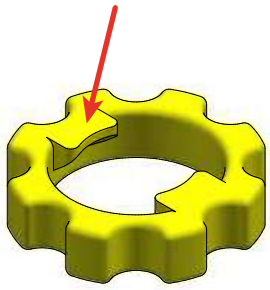
2x Passive wheel



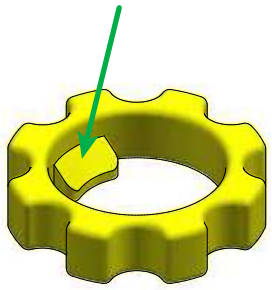
2x Drive wheel

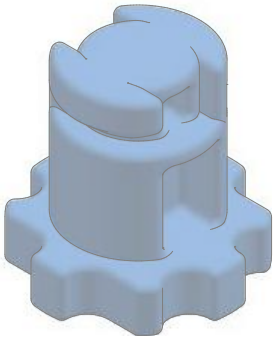
Make sure the nuts are oriented the correct way

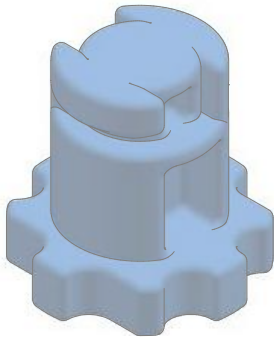
Wrong



Correct

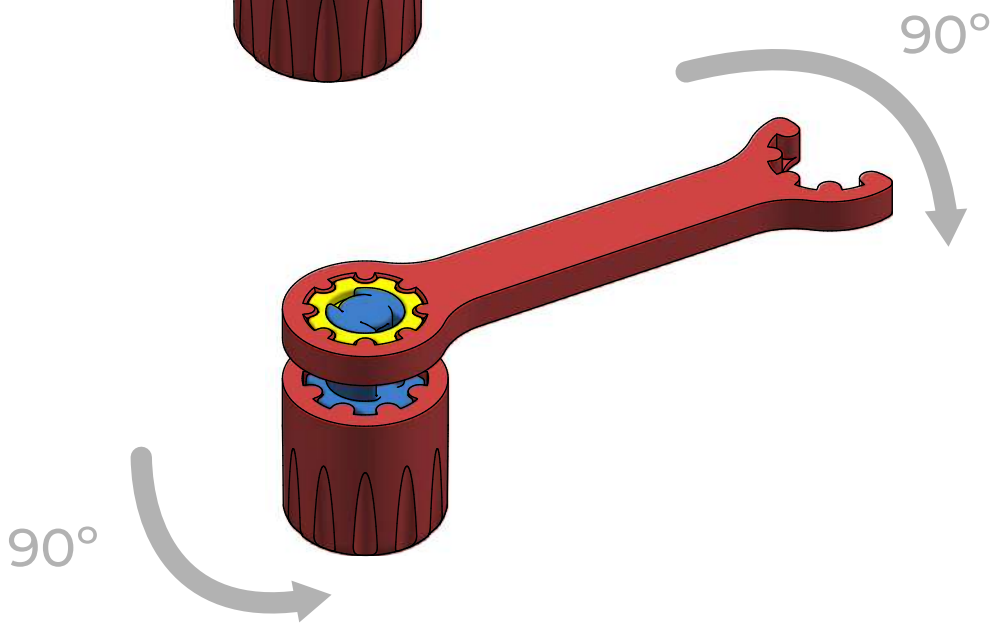






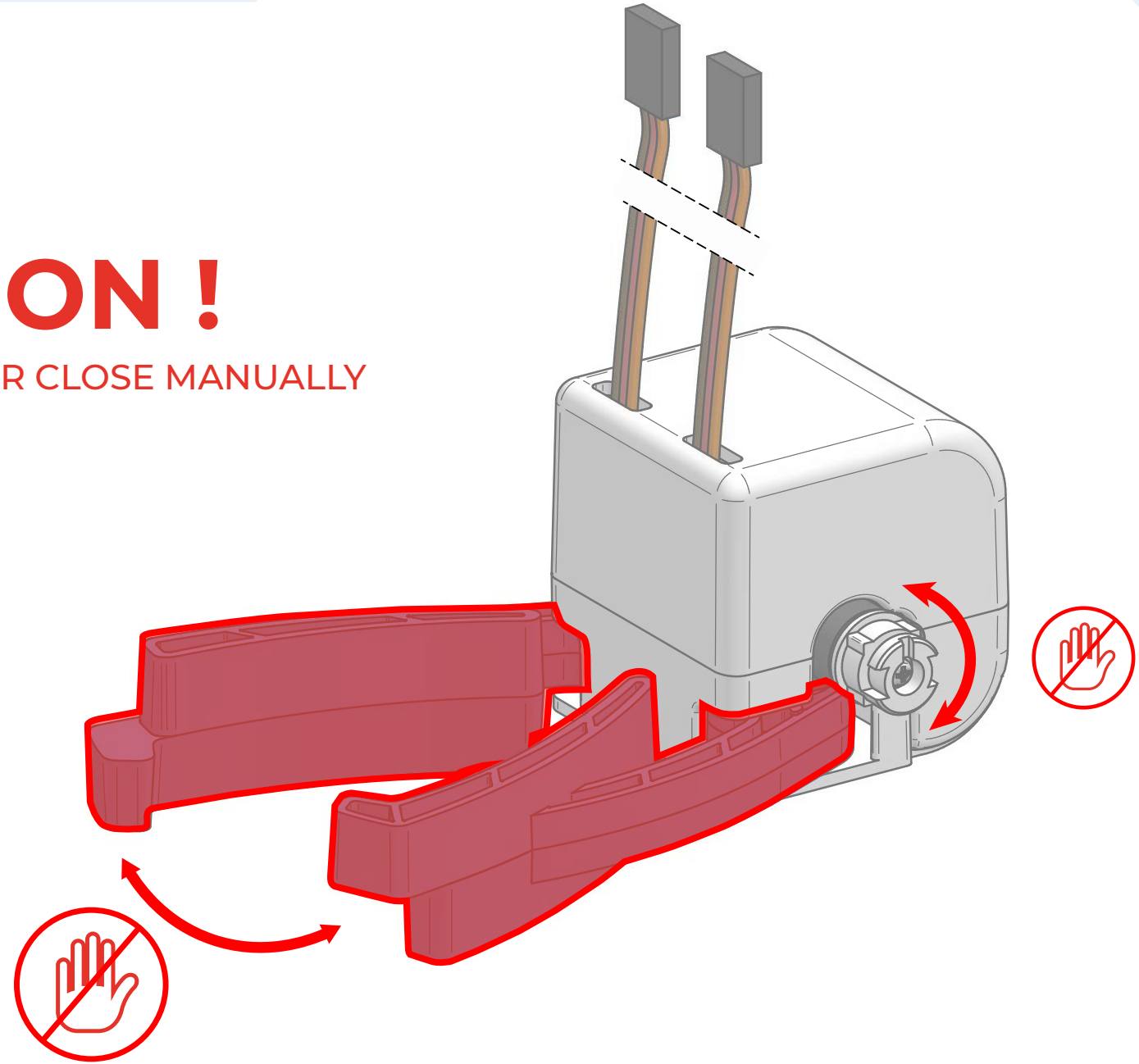
How to use tools

Tighten the nut only until you feel resistance **(about 90°)** or you risk breaking it



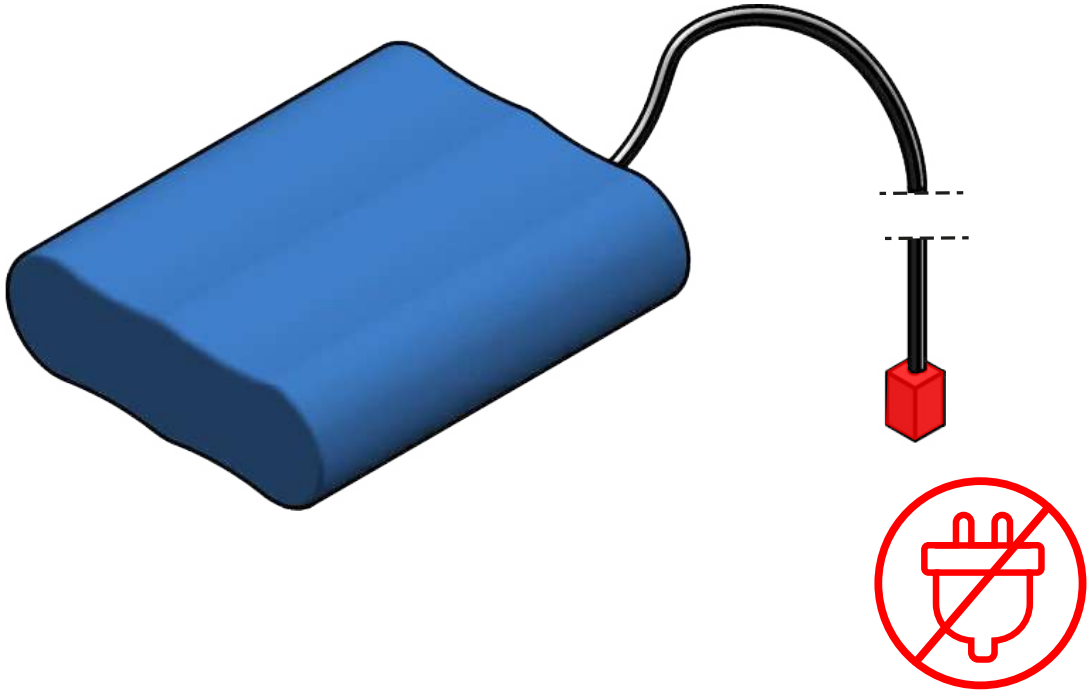
# CAUTION !

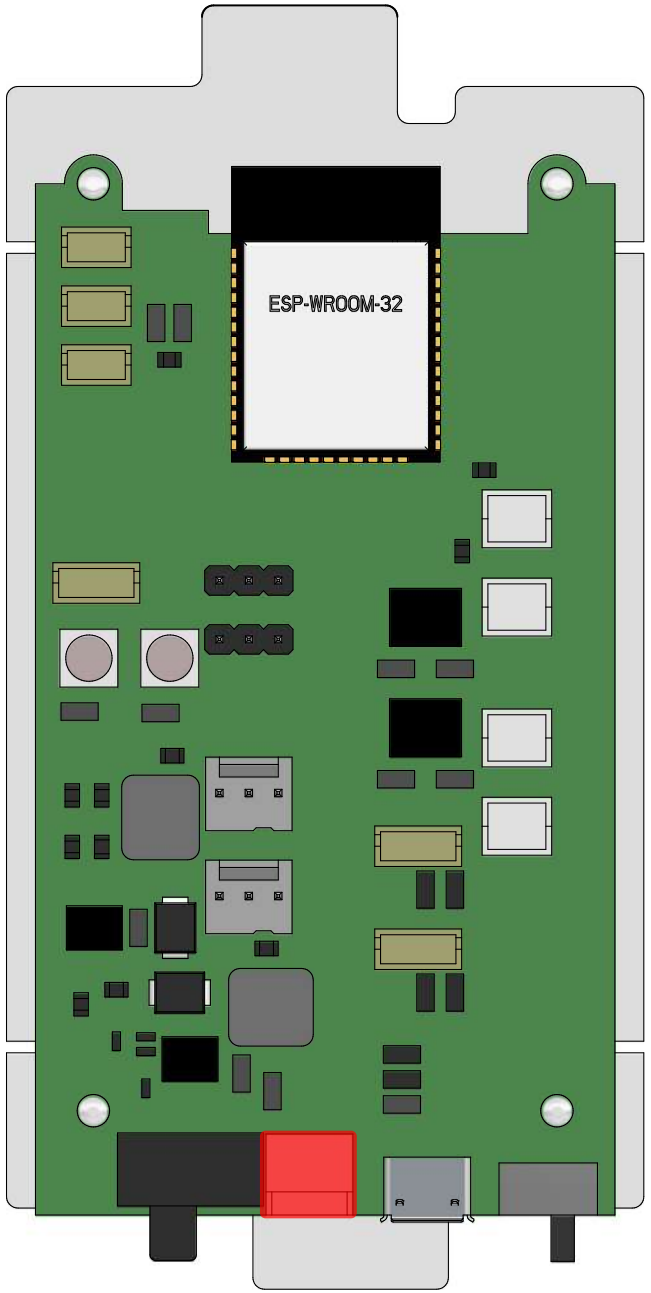
DO NOT OPEN OR CLOSE MANUALLY



# CAUTION !

DO NOT CONNECT THE BATTERY TO SKRIBRAIN BEFORE FULLY ASSEMBLING SKRIBOT

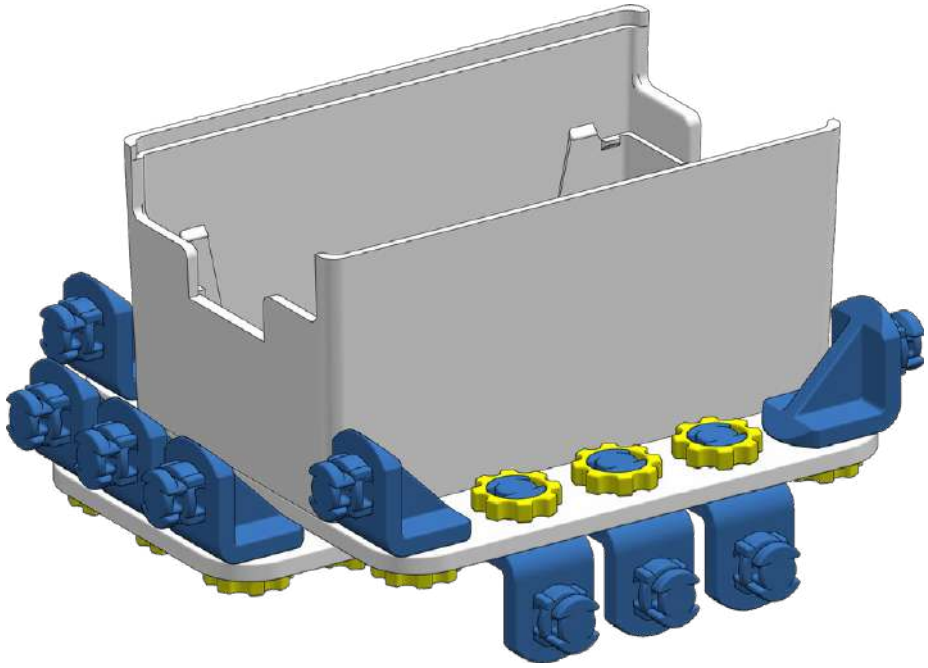


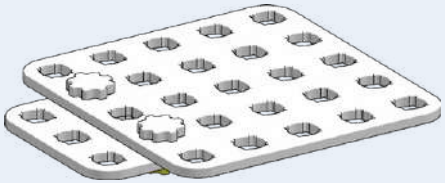


## CHAPTER 1.

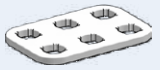
# Robot body construction.

We start building SkriBot by constructing its body. What is its body? In case of a human it's a part where arms, head and legs are attached. In case of the SkriBot it is the main part to which we attach other elements such as tracks, sensors and gripper.

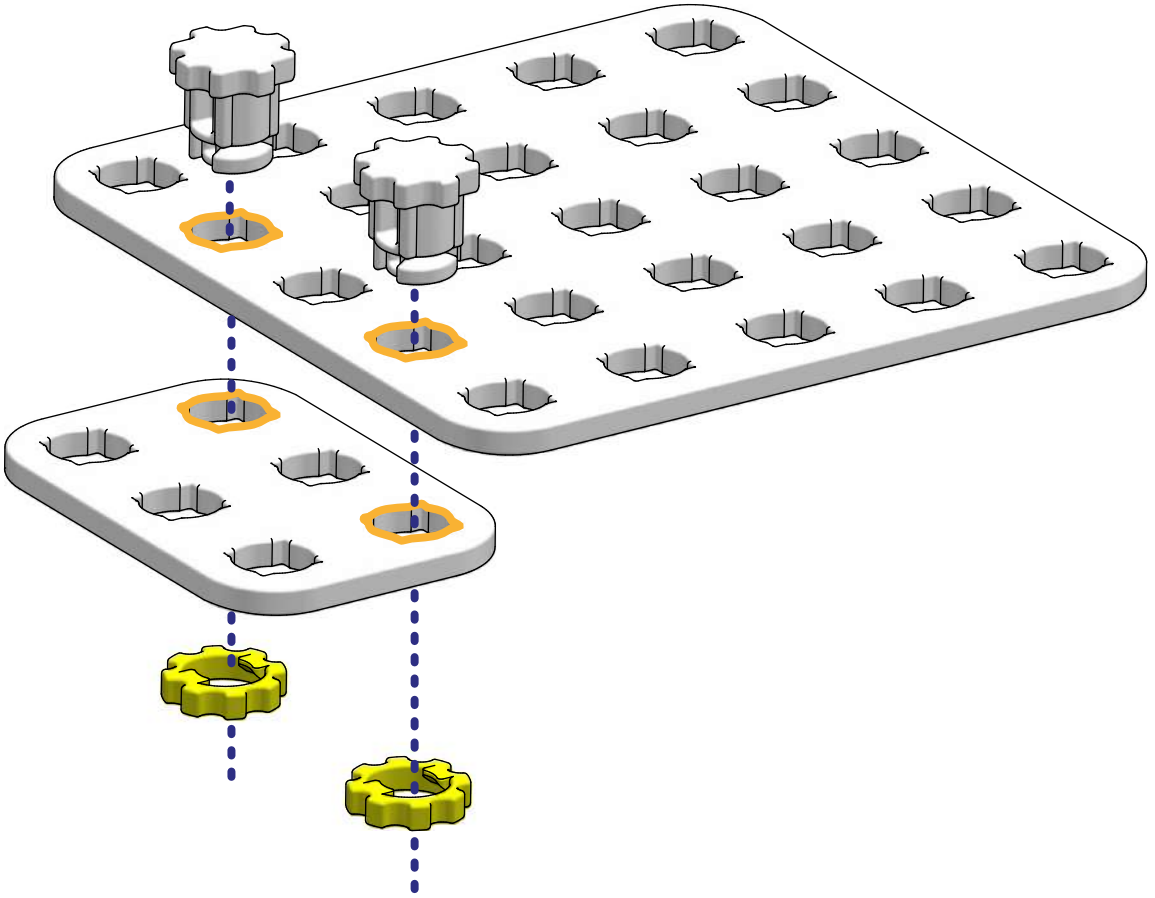


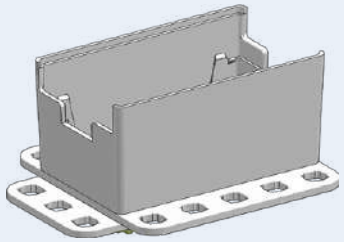


## Step 1

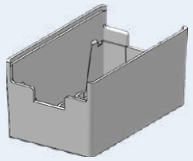



1x + 1x + 2x + 2x

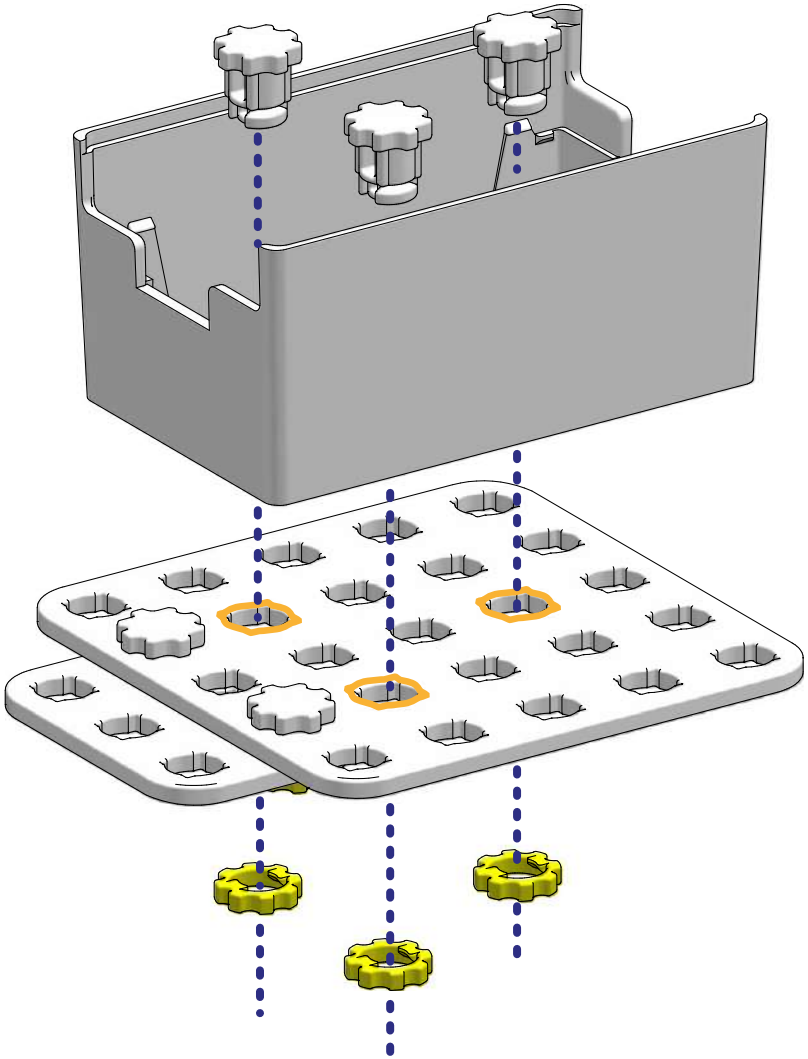


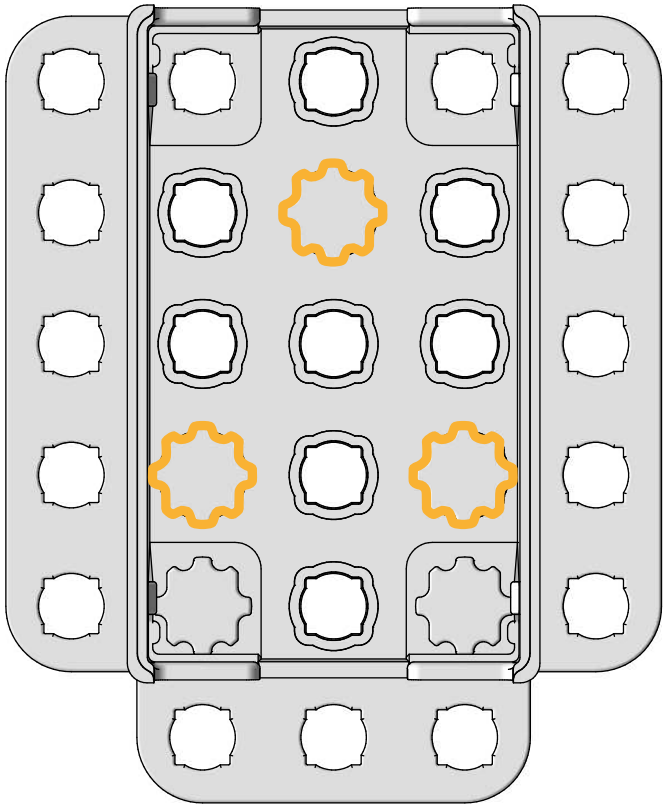


## Step 2

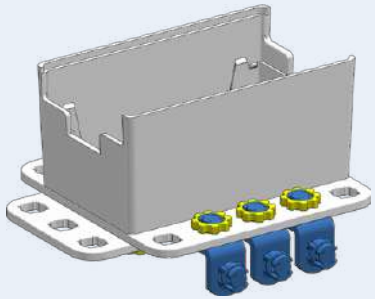



Step 1 + 1x + 3x + 3x

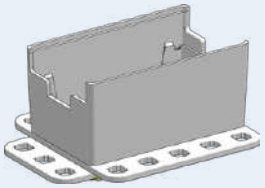




Top view

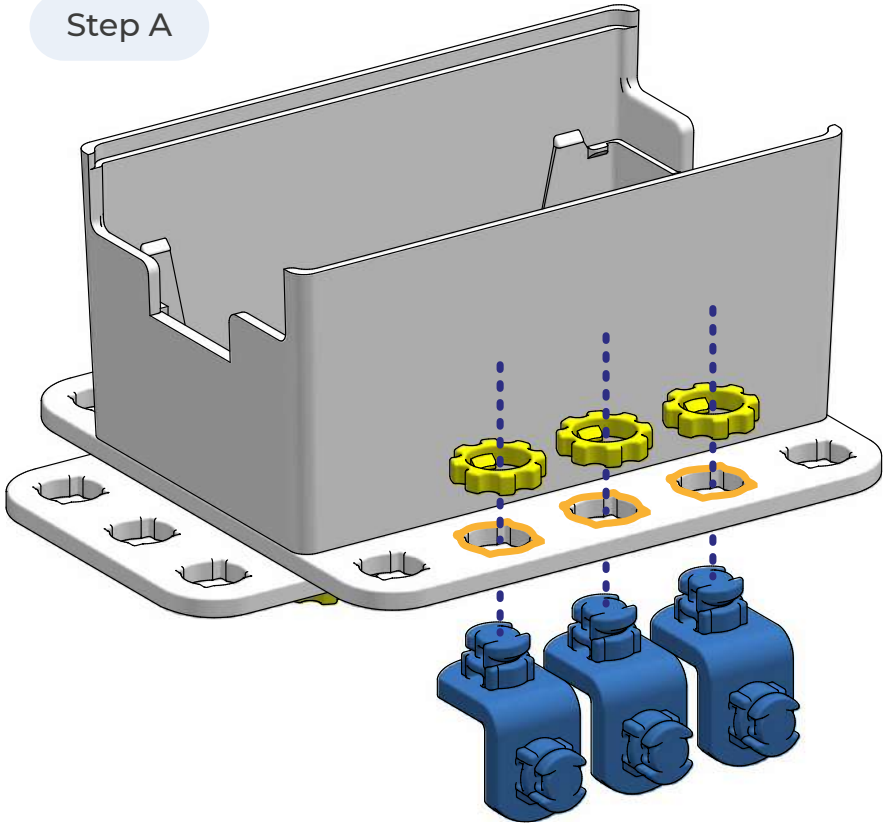


## Step 3

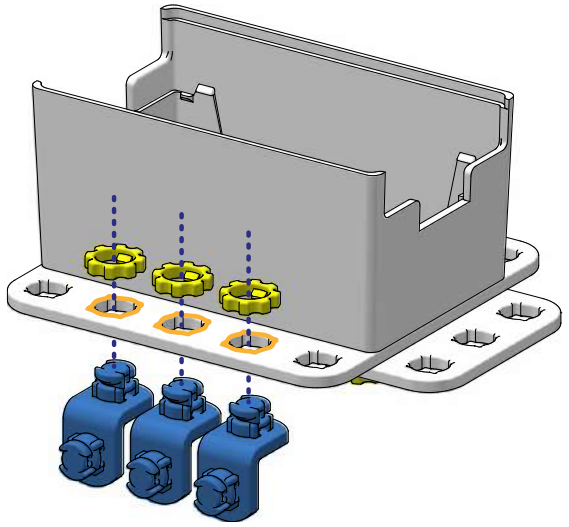


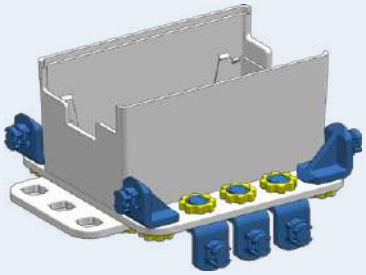
Step 2 + 6x + 6x

Step A

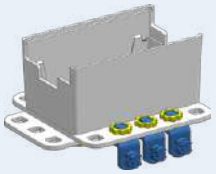



Step B



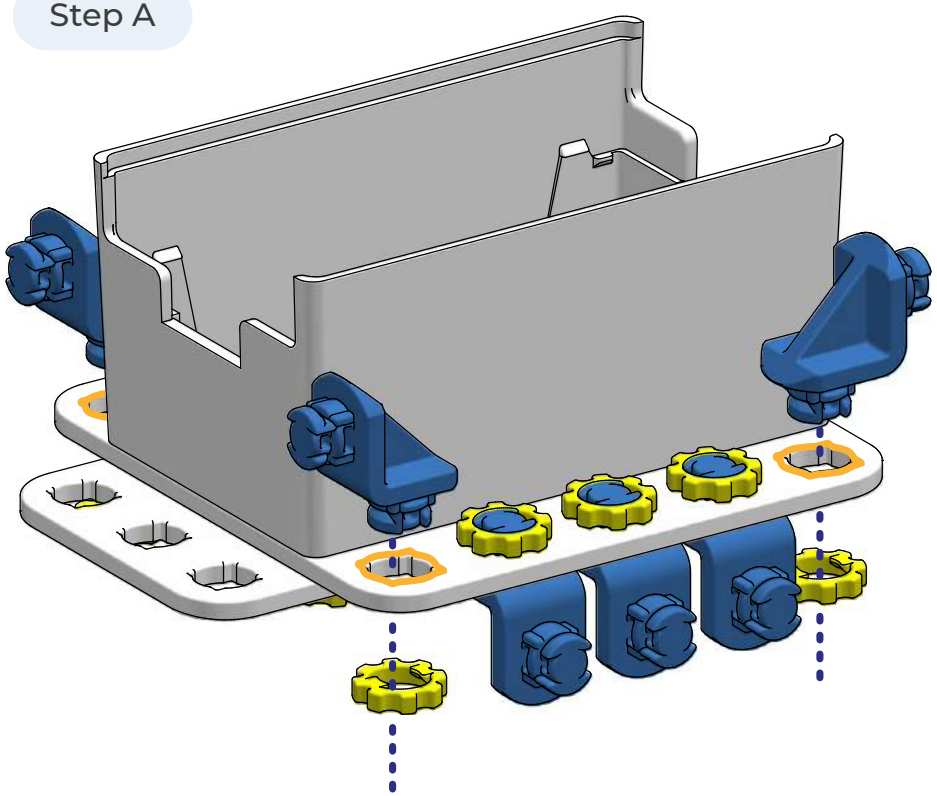


## Step 4

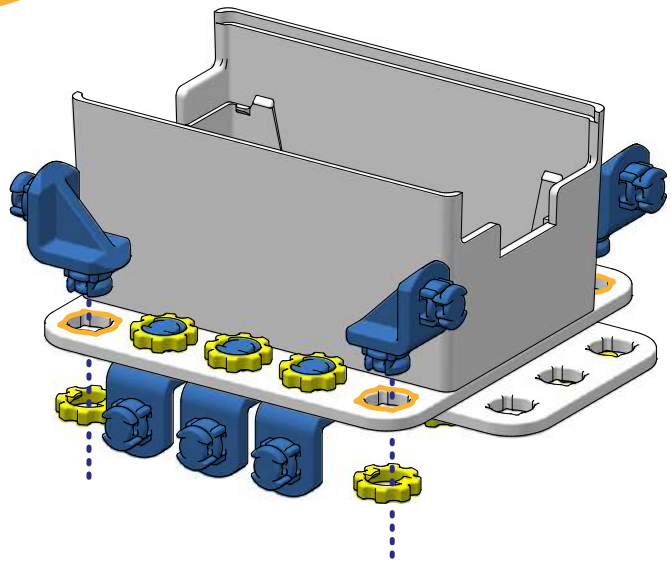


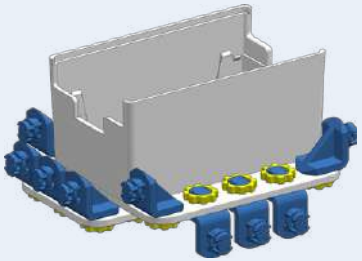
Step 3 +  4x +  4x

Step A

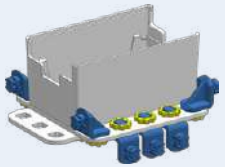



Step B

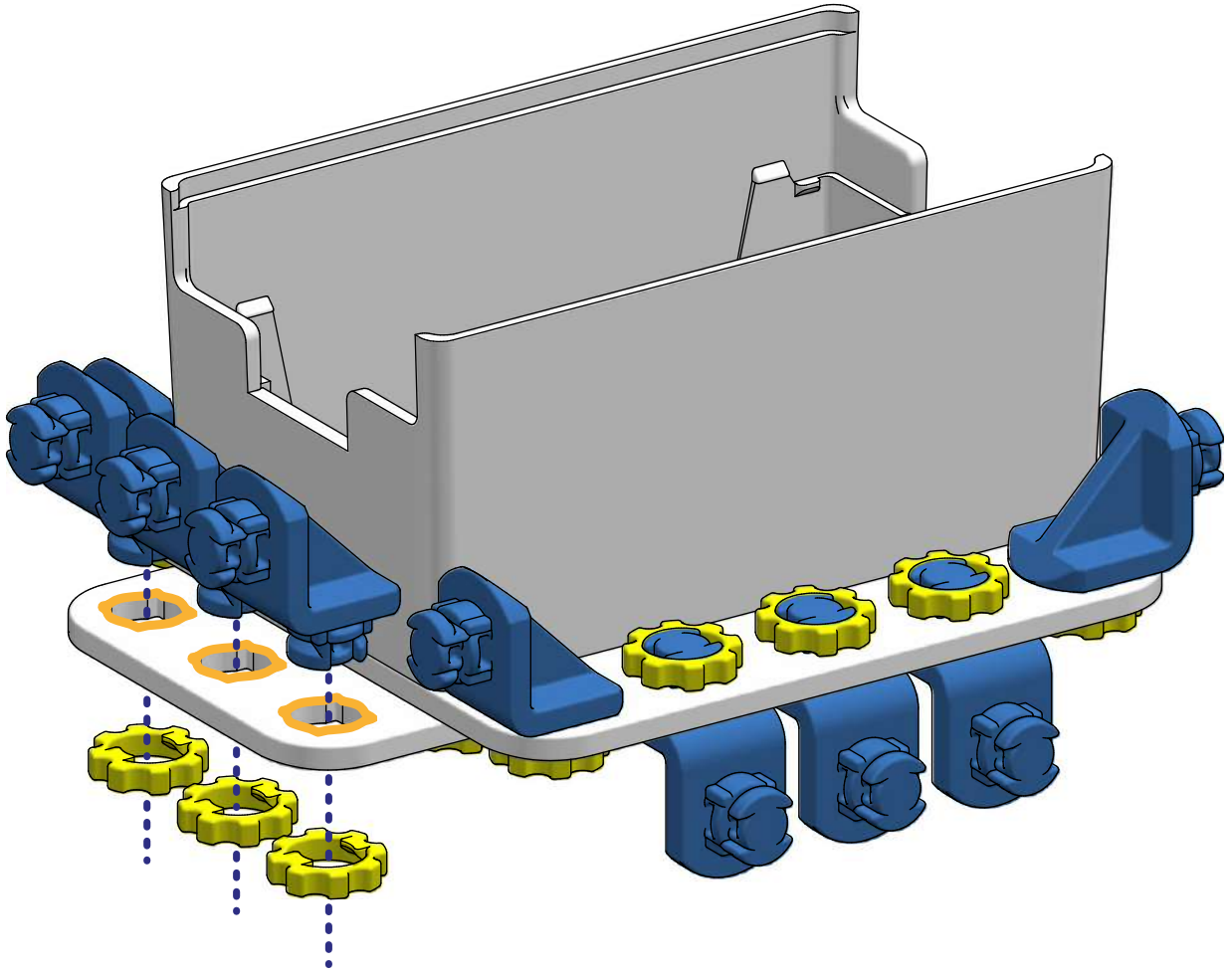




## Step 5

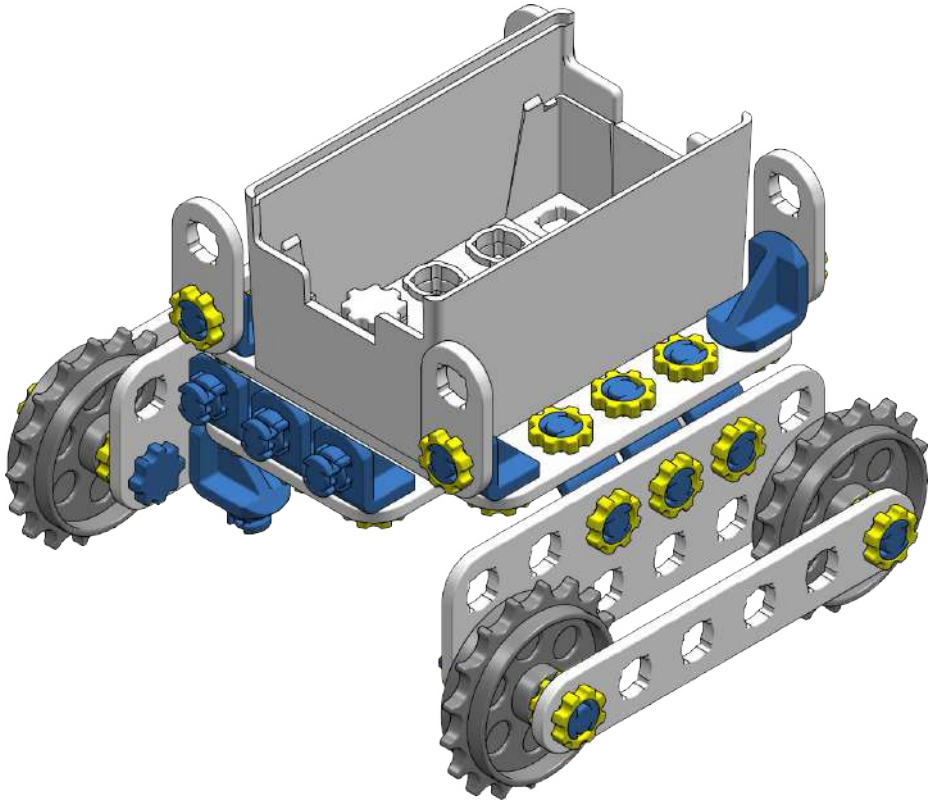


Step 4 + 3x + 3x

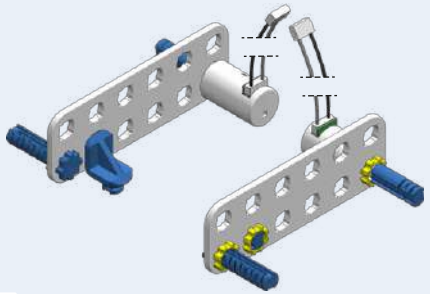


## CHAPTER 2.

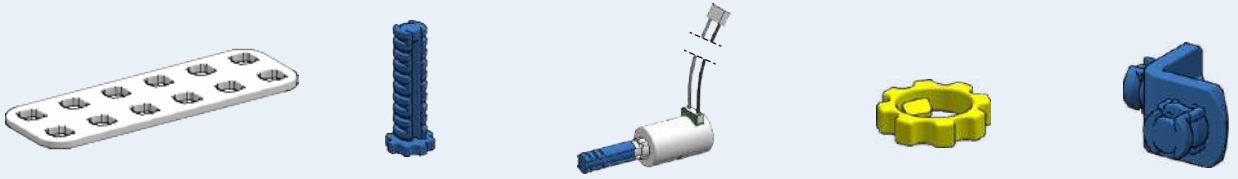
# How to make the robot ride?



Many vehicles use wheels and the SkriBot is no different. First we start by building a base of blocks, to which we will later attach the wheels. What else is needed? We need two motors to set the wheels in motion. Thanks to them our robot will move forward, backwards and turn left and right.

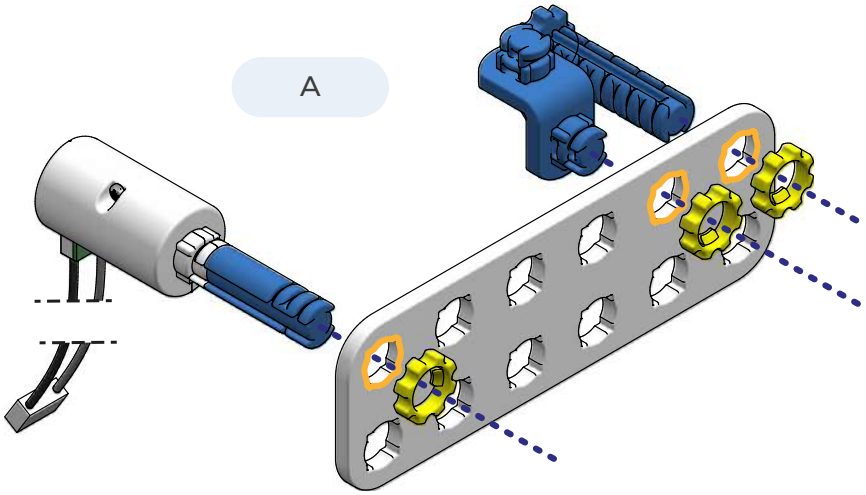


## Step 6

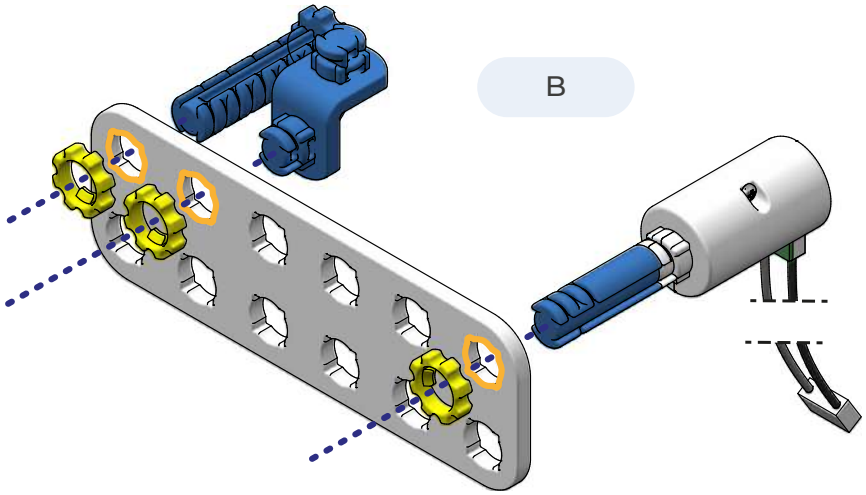


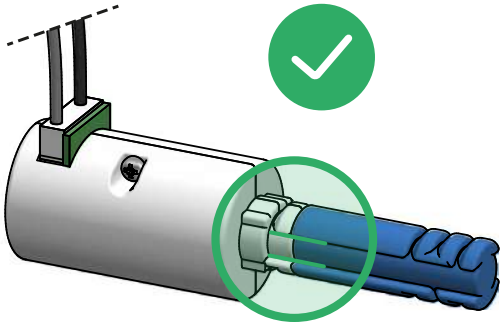
2x + 2x + 2x + 6x + 2x

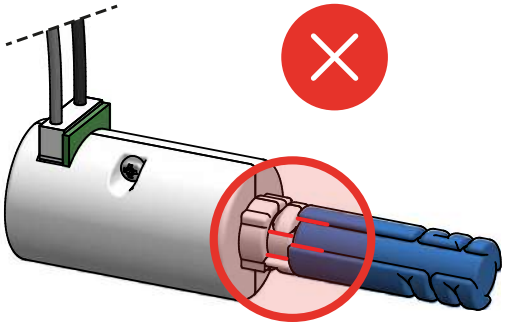
A

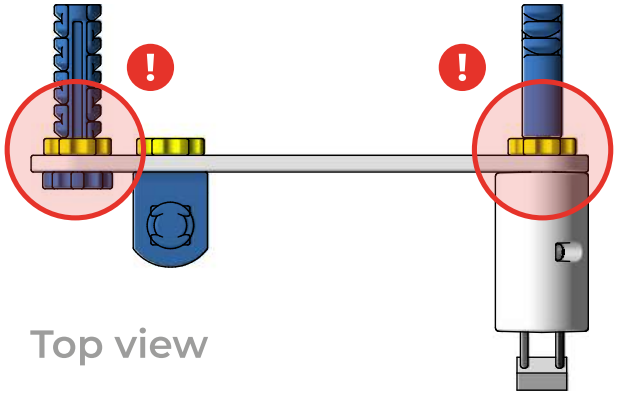


B

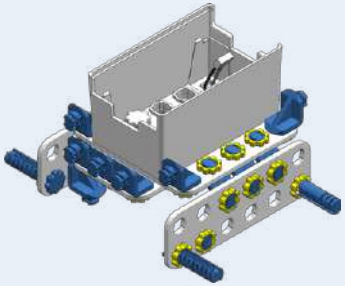




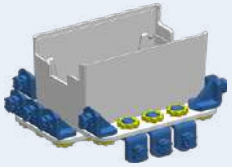
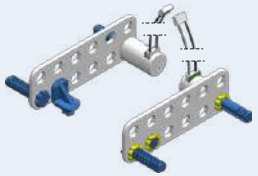




Top view

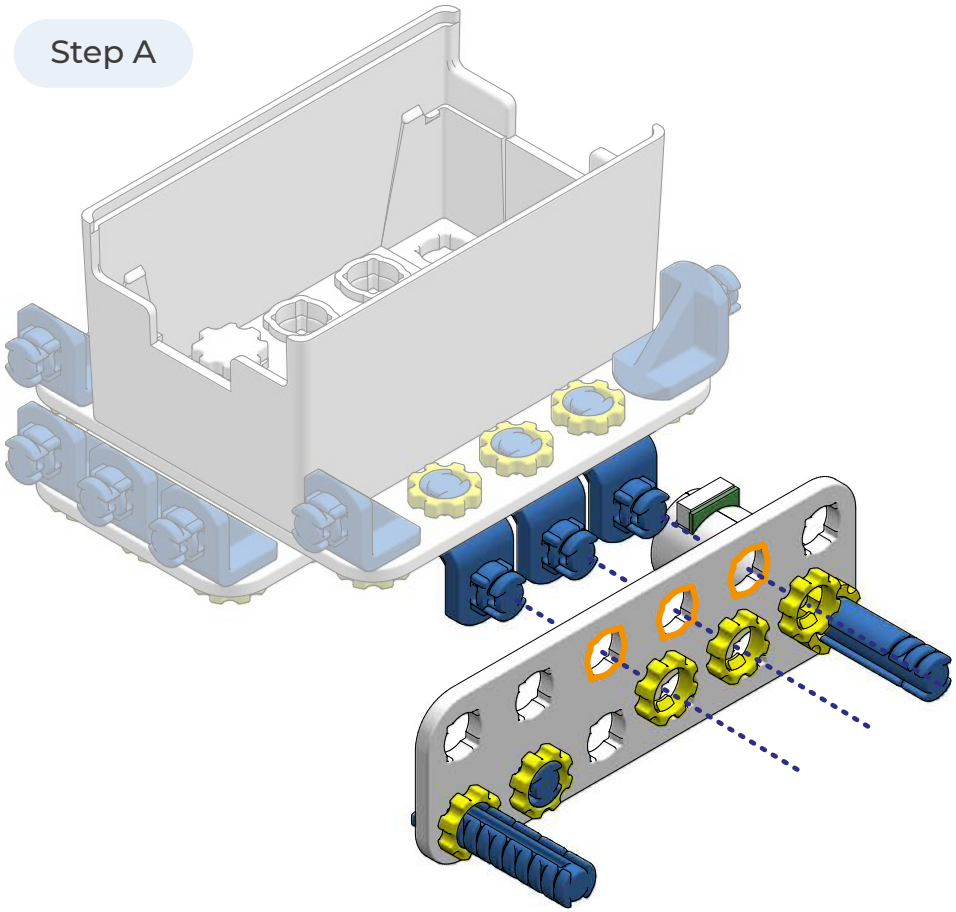


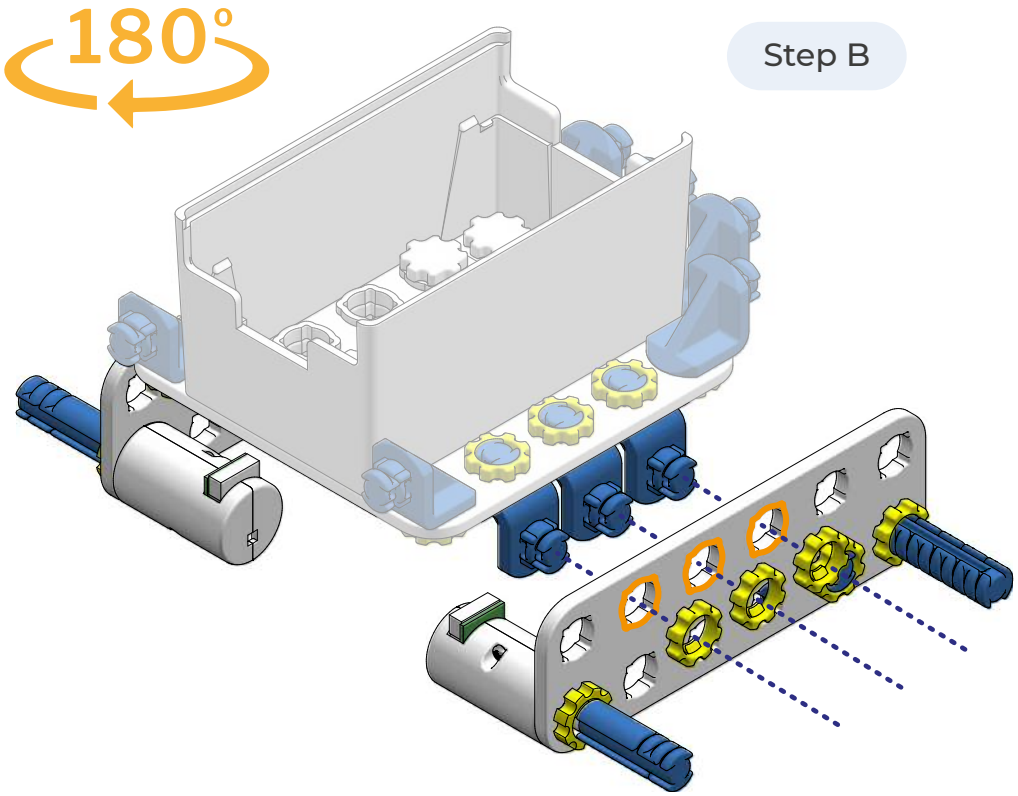
## Step 7

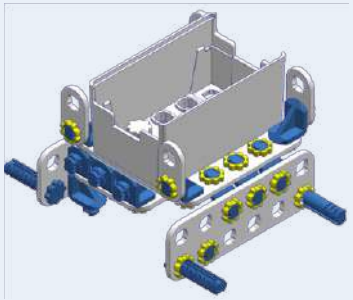

Step 5 + Step 6 + 6x

Step A

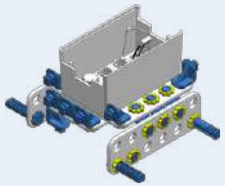
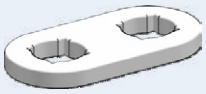




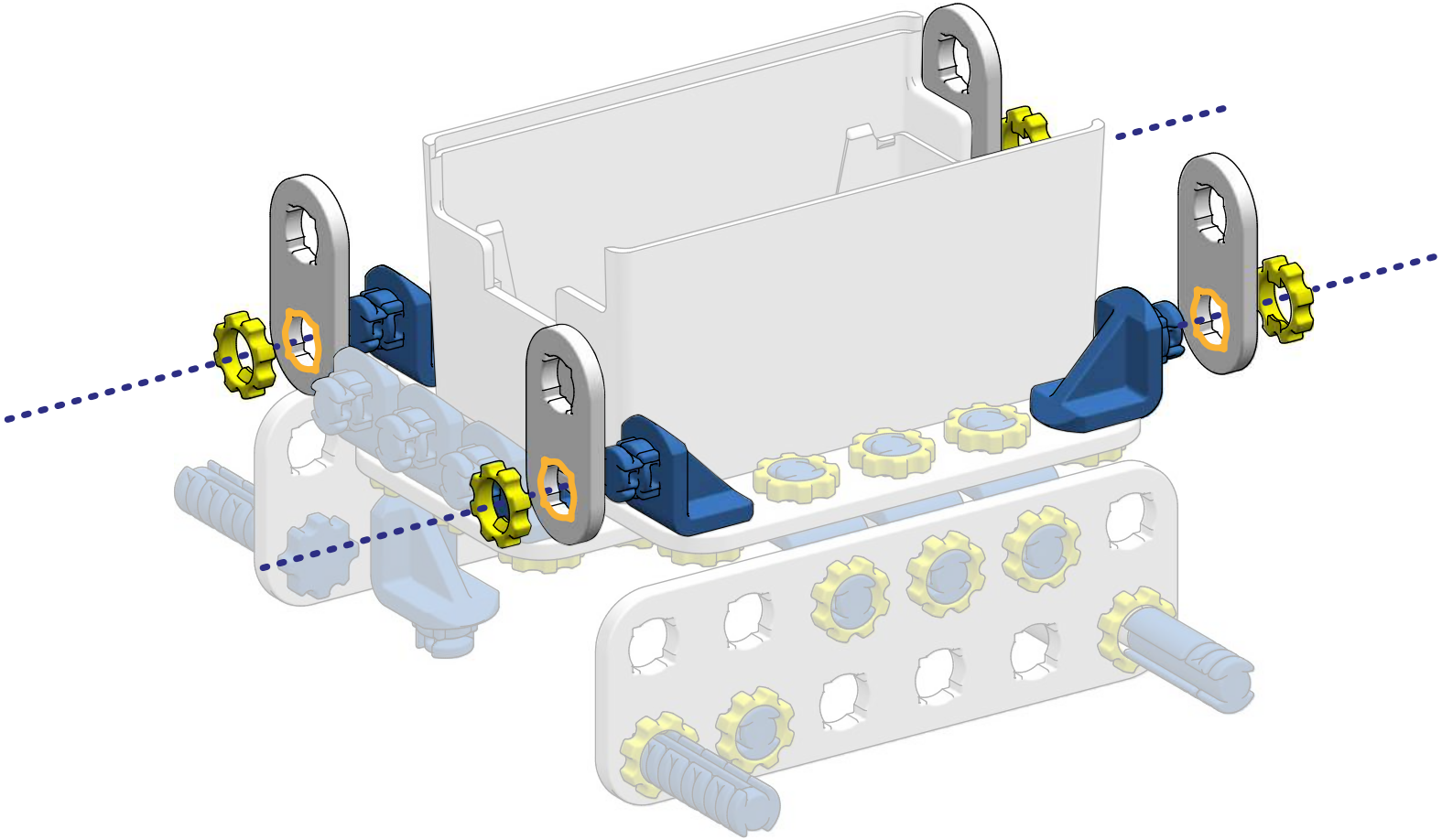

Step B

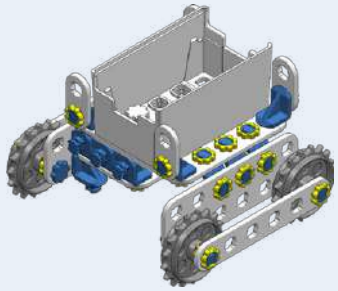


## Step 8

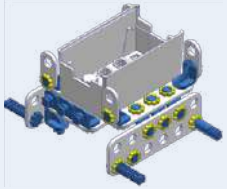



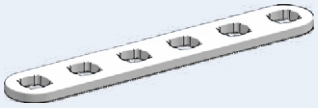

Step 7 + 4x + 4x





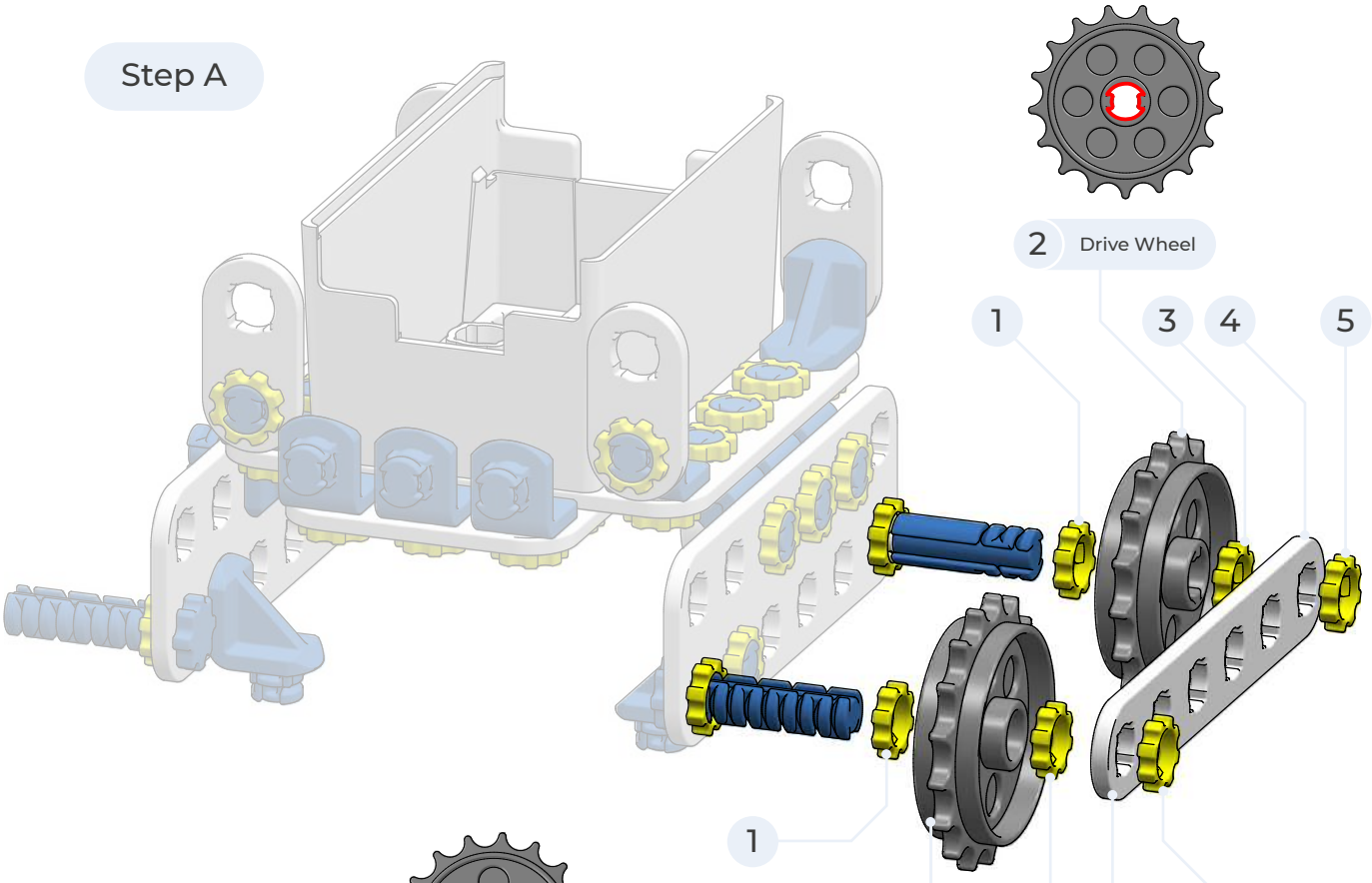
## Step 9

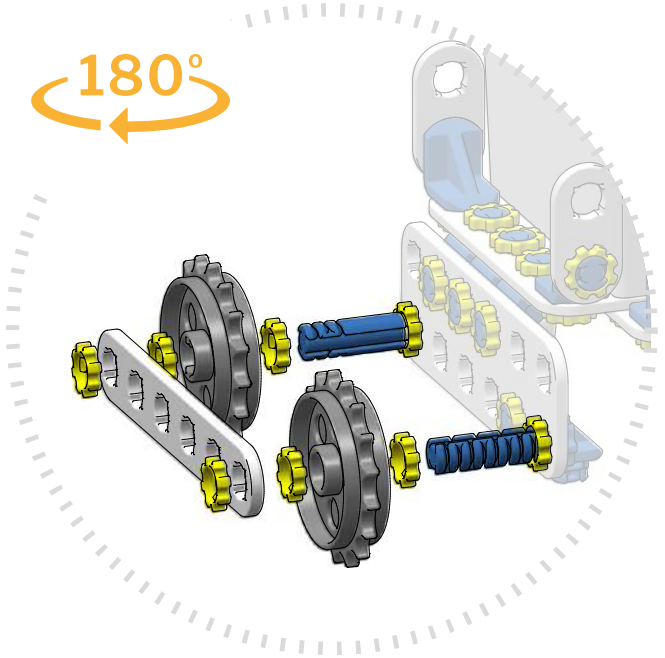



Step 8 + 2x + 2x + 2x + 12x

Step A



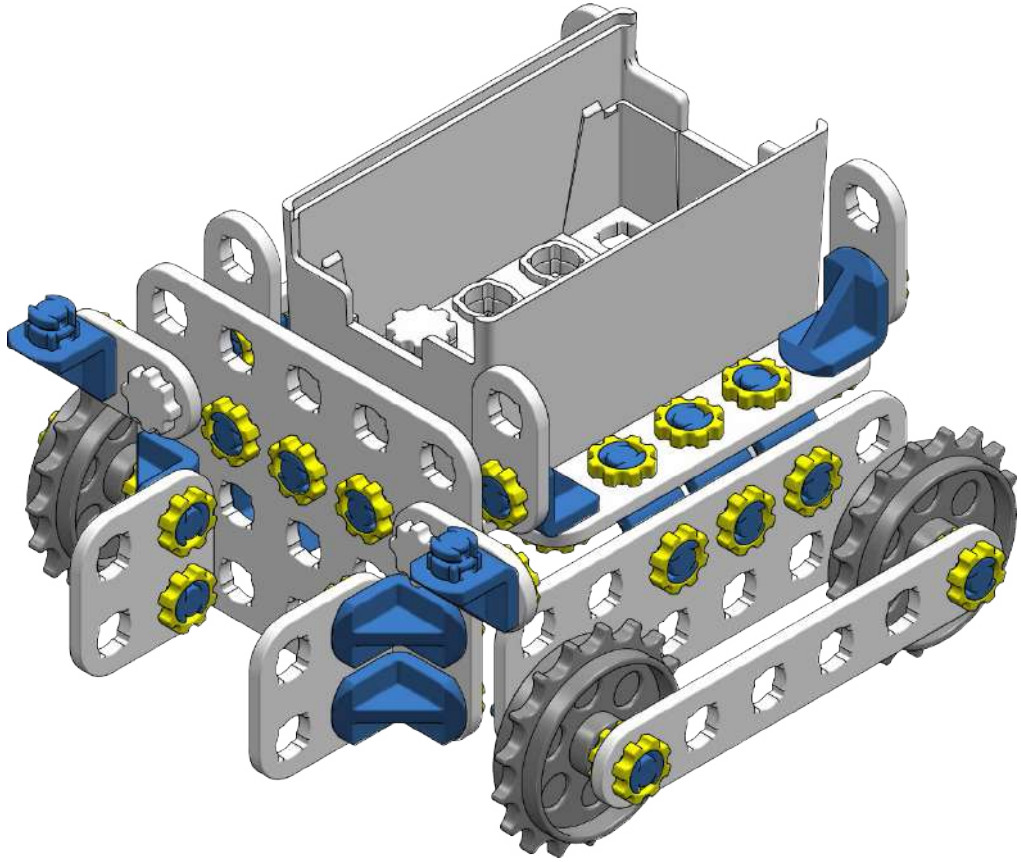



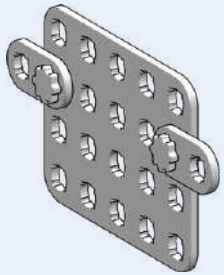

Step B

CHAPTER 3.

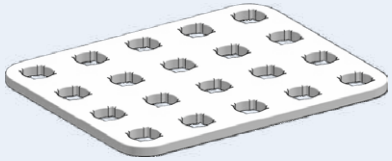
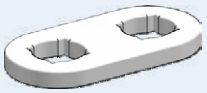
# Building the front section of the SkriBot.

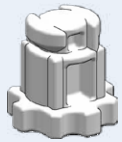
After the base, we need to build the robot's head. It will allow us to attach sensors thanks to which SkriBot will perform various operations.



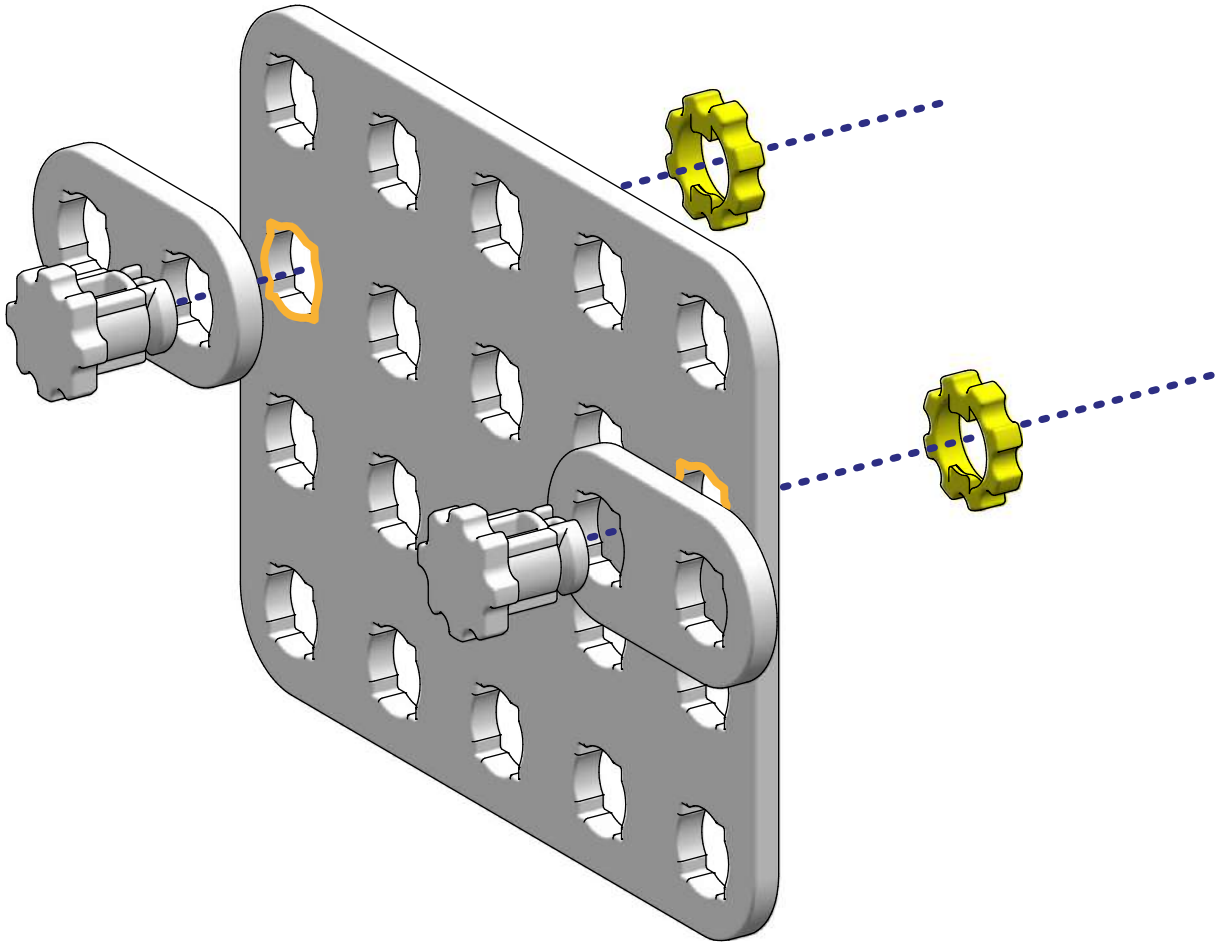


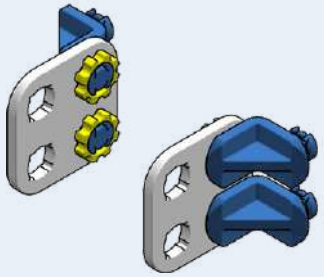
## Step 10

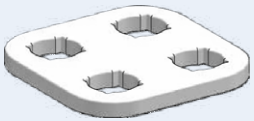


1x + 2x + 2x + 2x



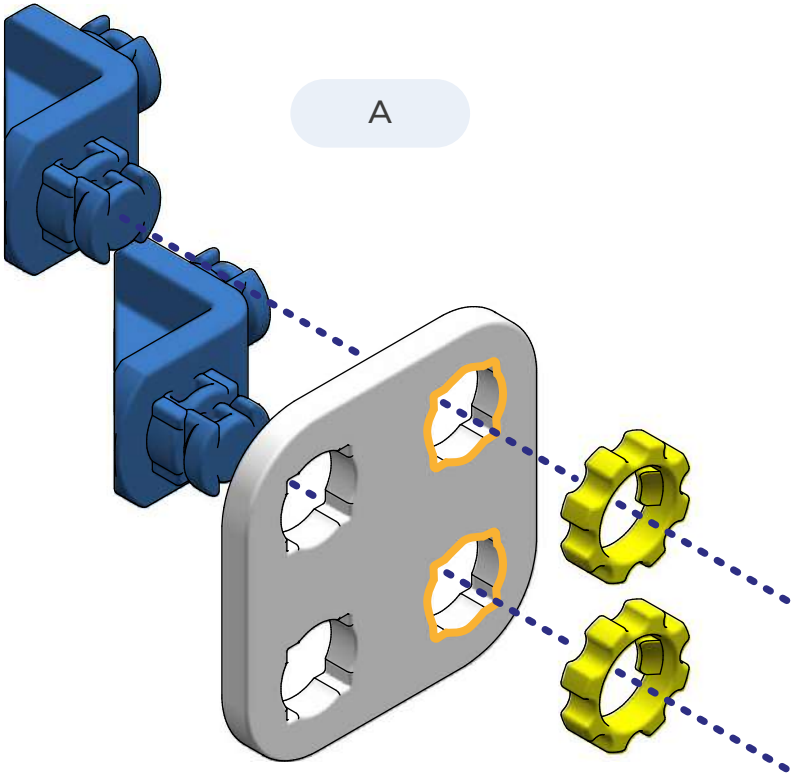


## Step 11

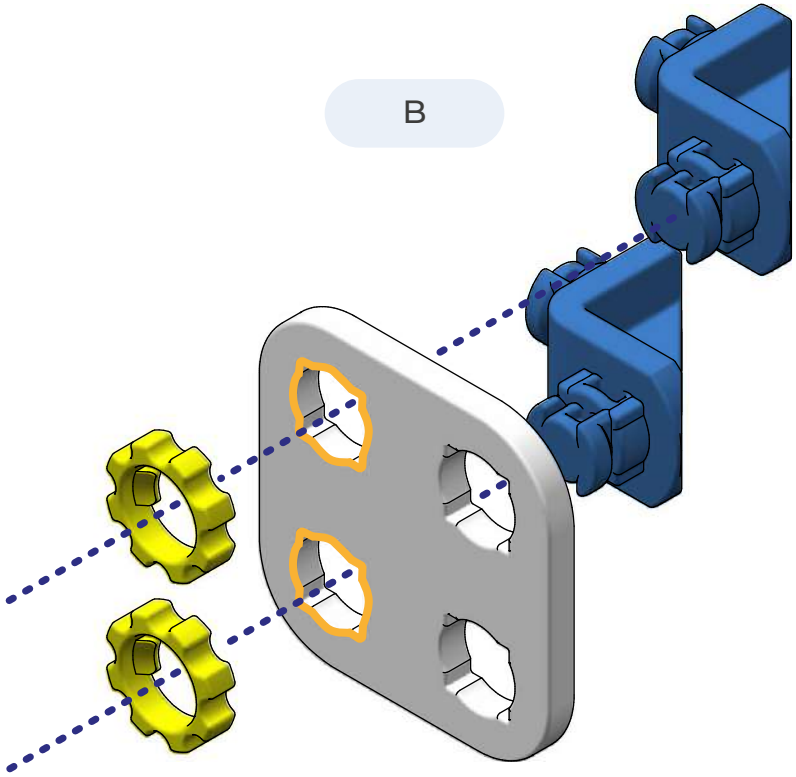


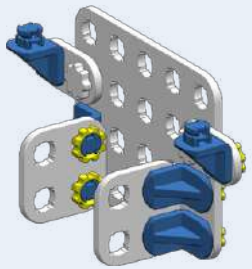
2x + 4x + 4x

A

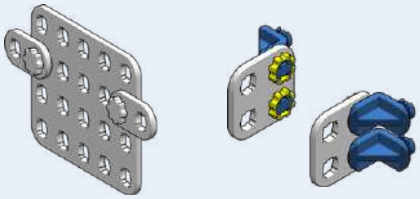


B

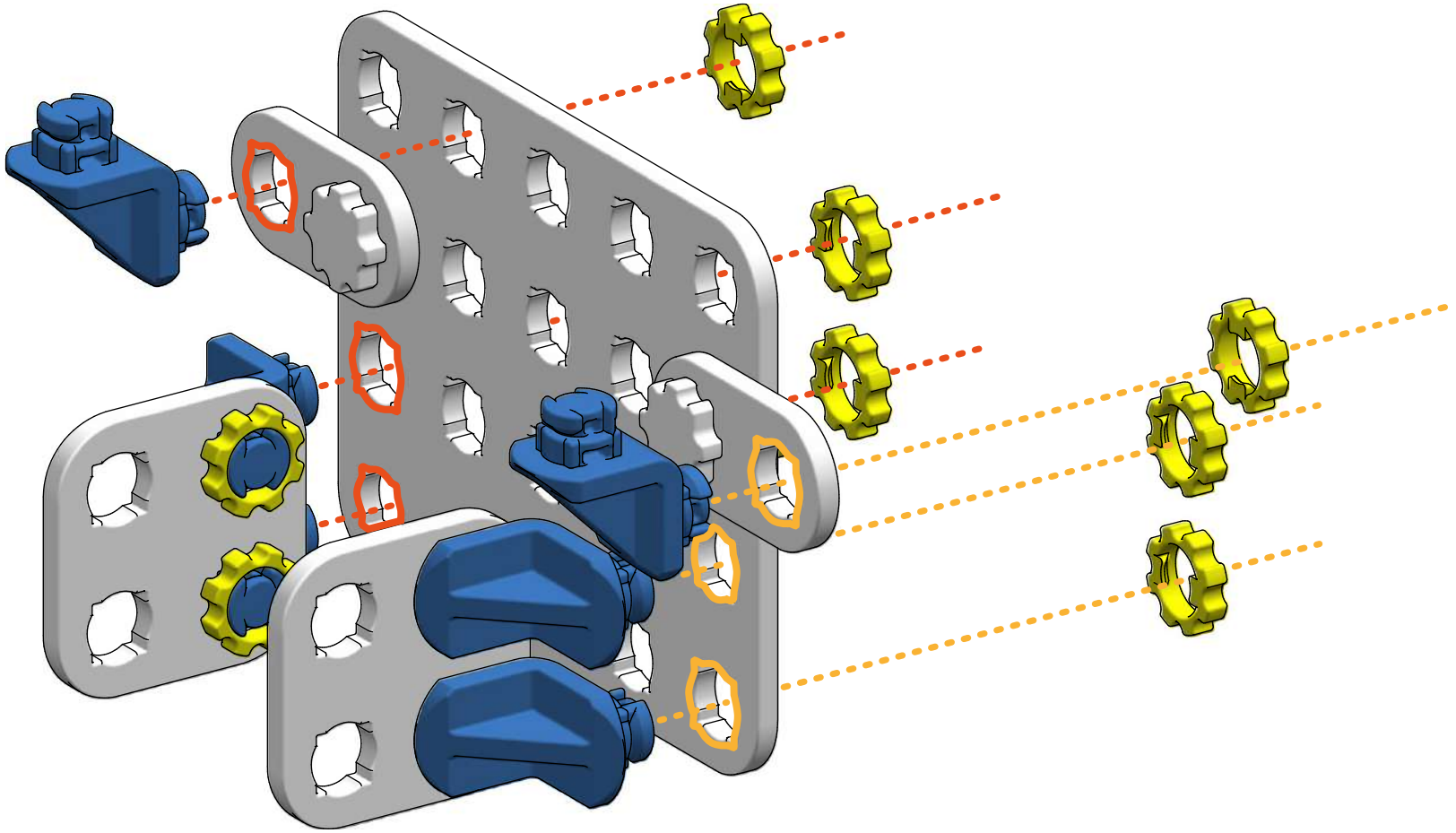


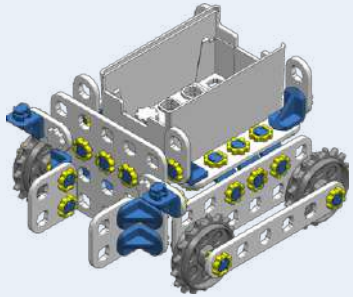


## Step 12

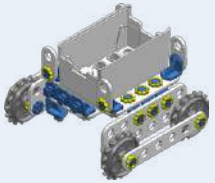


Step 10 + Step 11 + 6x + 2x

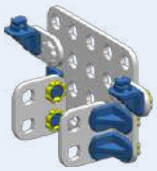




## Step 13

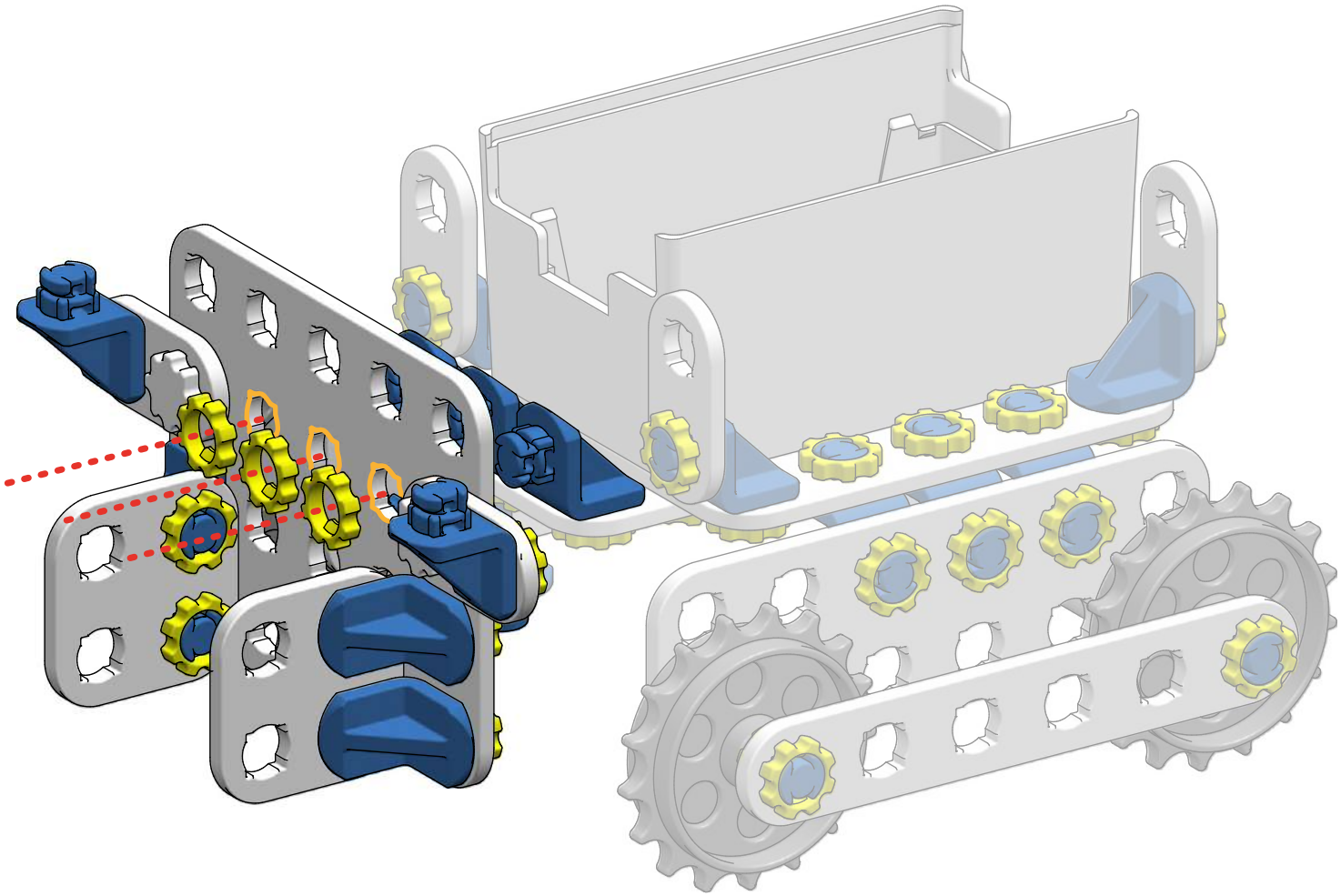


Step 9 + 



Step 12 + 

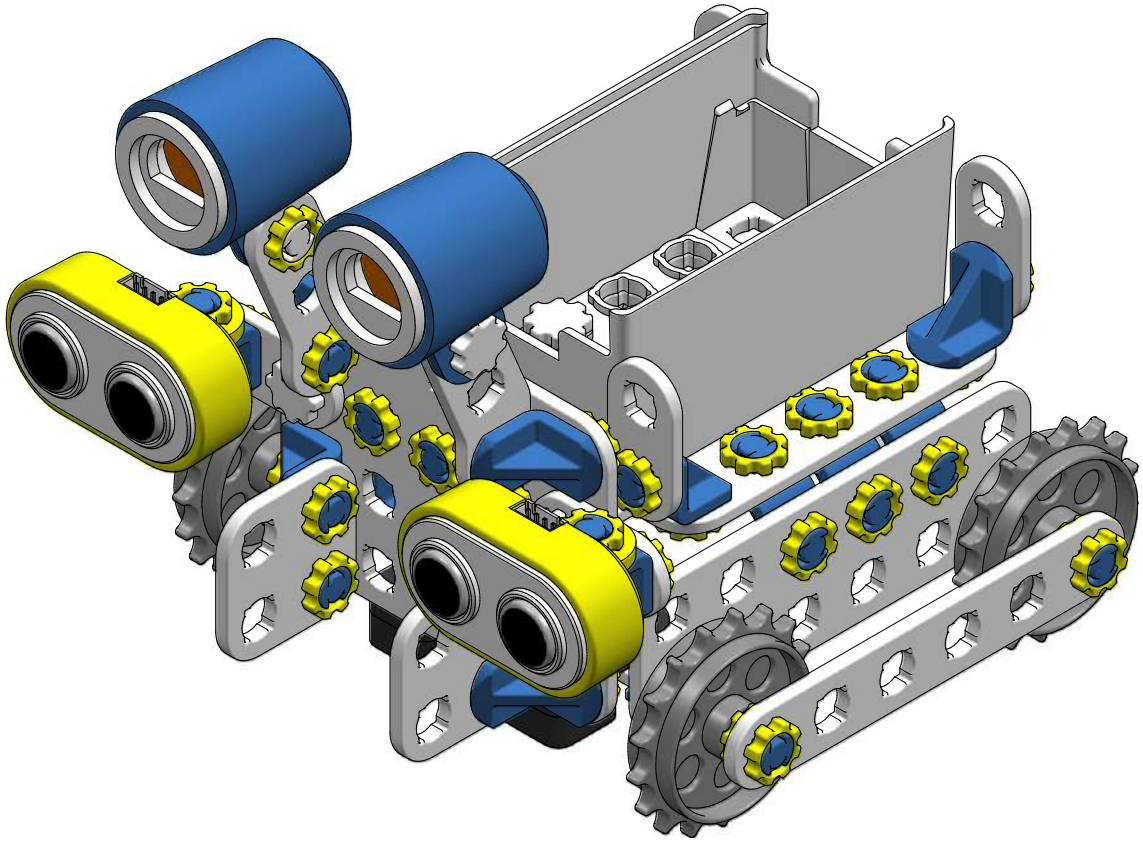
3x

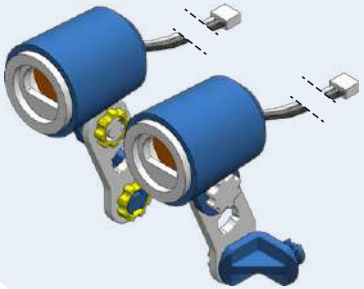


## CHAPTER 4.

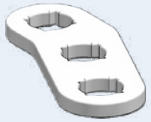
# Connecting the sensors.

When the robot's head is ready we can finally attach lights and sensors! In SkriBot, we use **LEDs**, small lights that will make its eyes flash in any color. Thanks to the **range sensor** SkriBot will be able to detect objects on its way and assess their proximity.





## Step 14

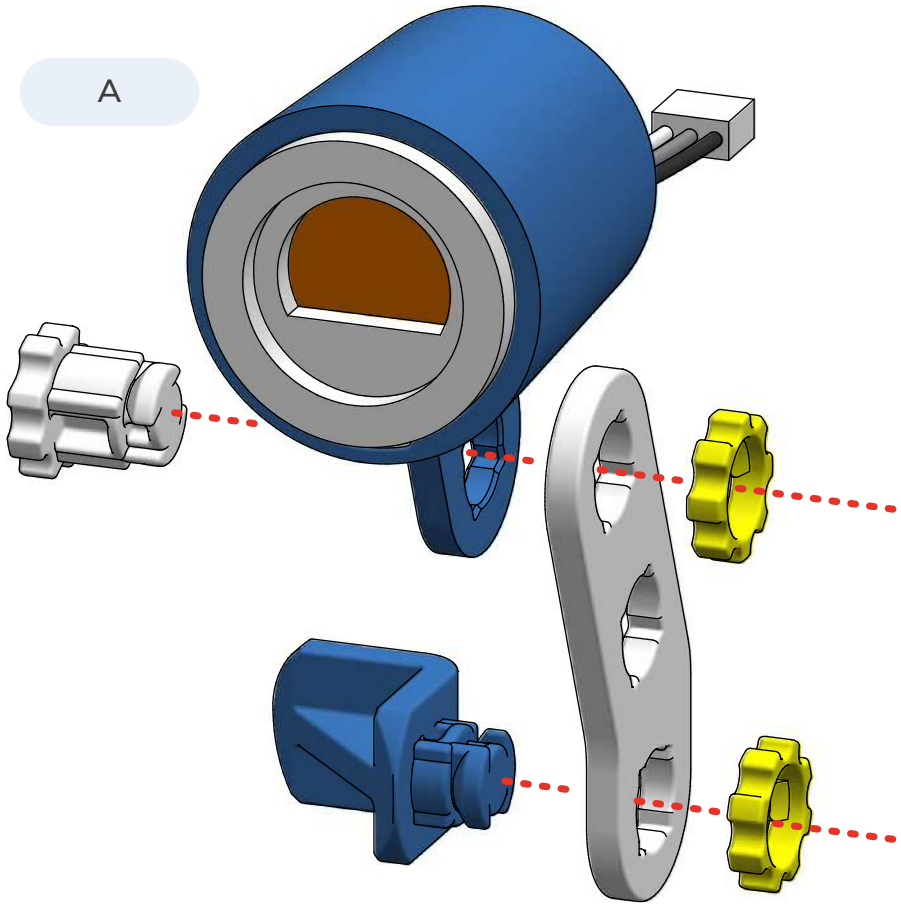

2x +

2x +

2x +

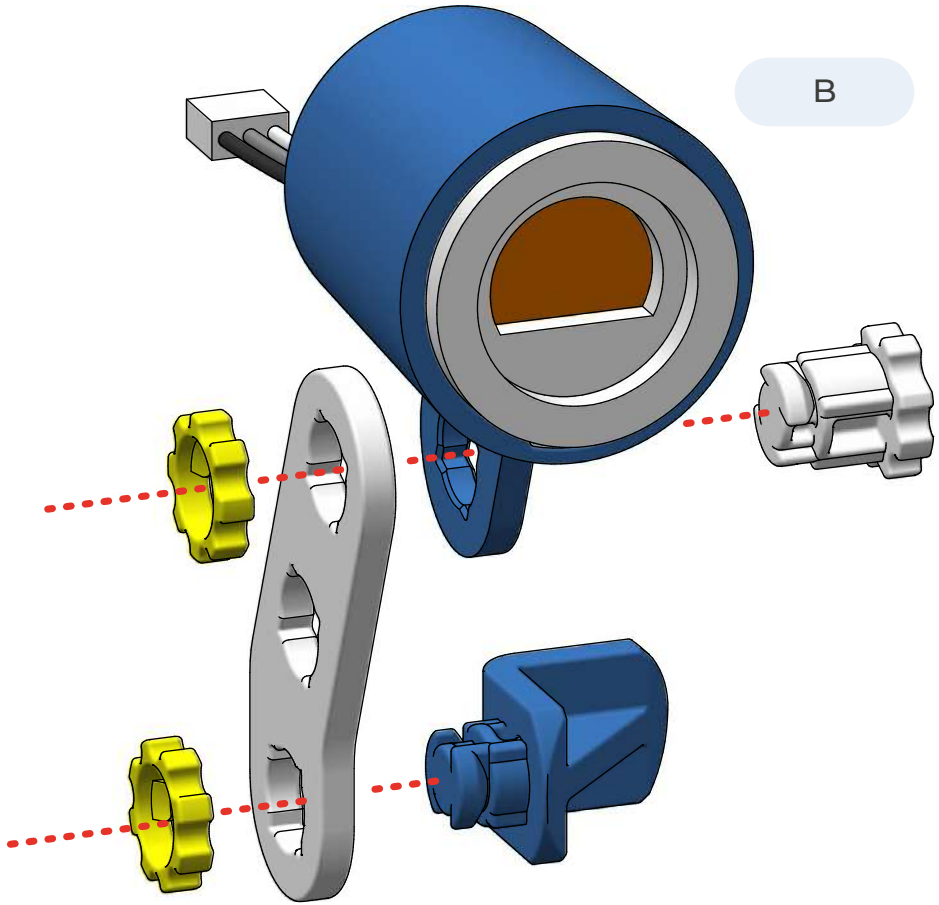
2x +

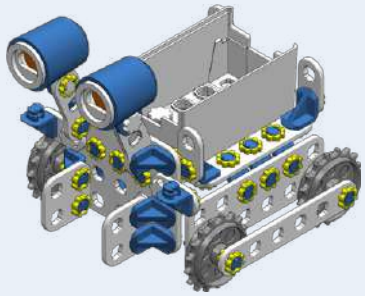
4x

A

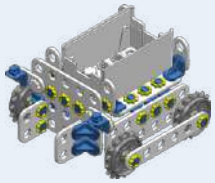


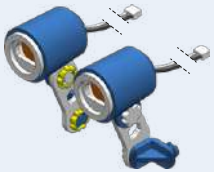
B



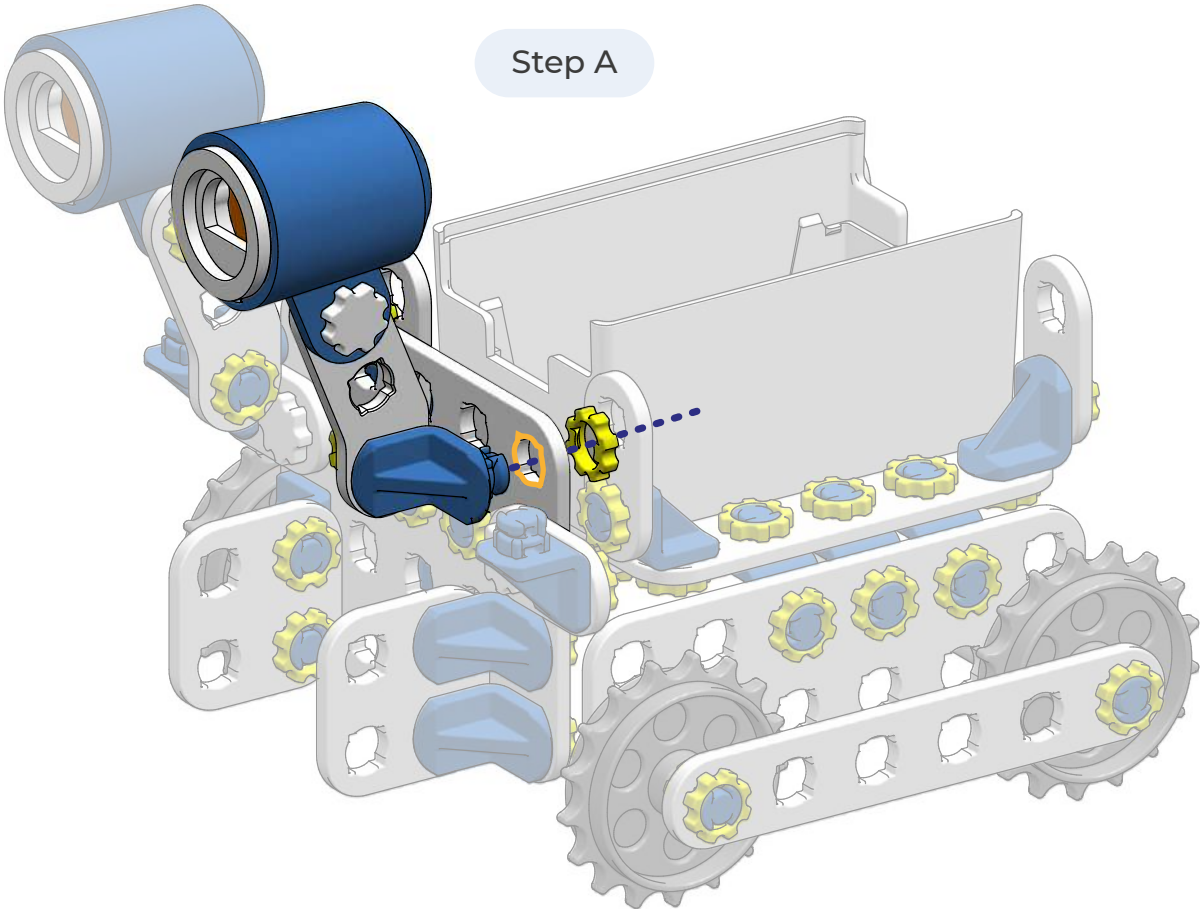


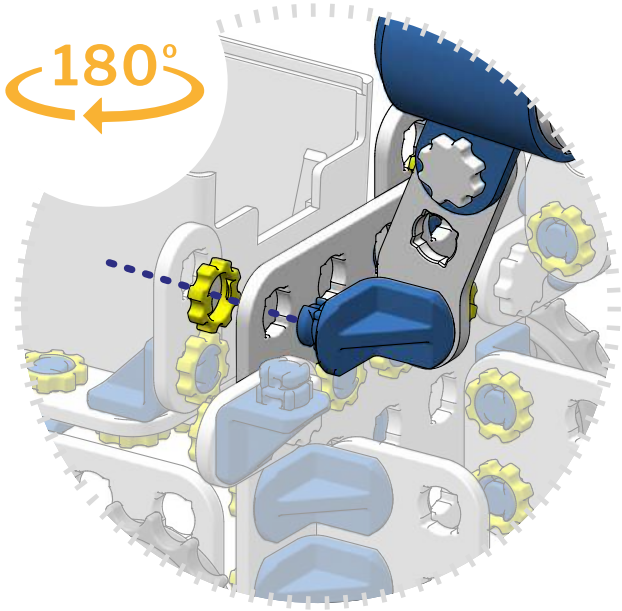
## Step 15



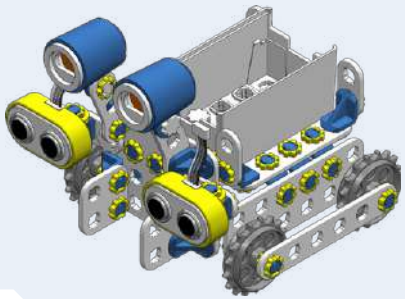
Step 13 +  Step 14 +  2x

Step A

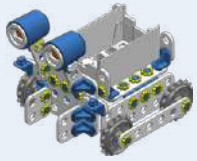
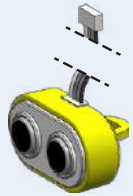




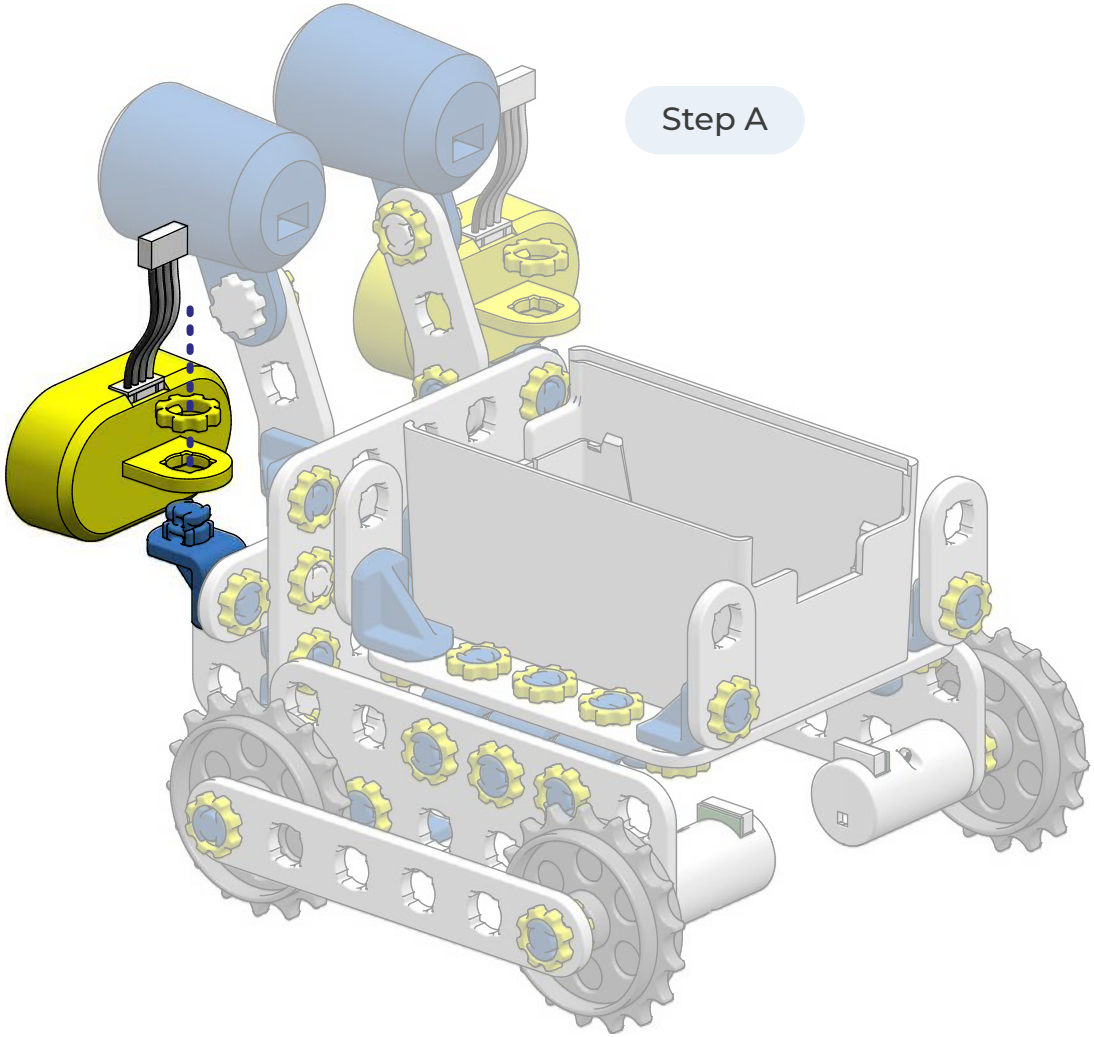

Step B



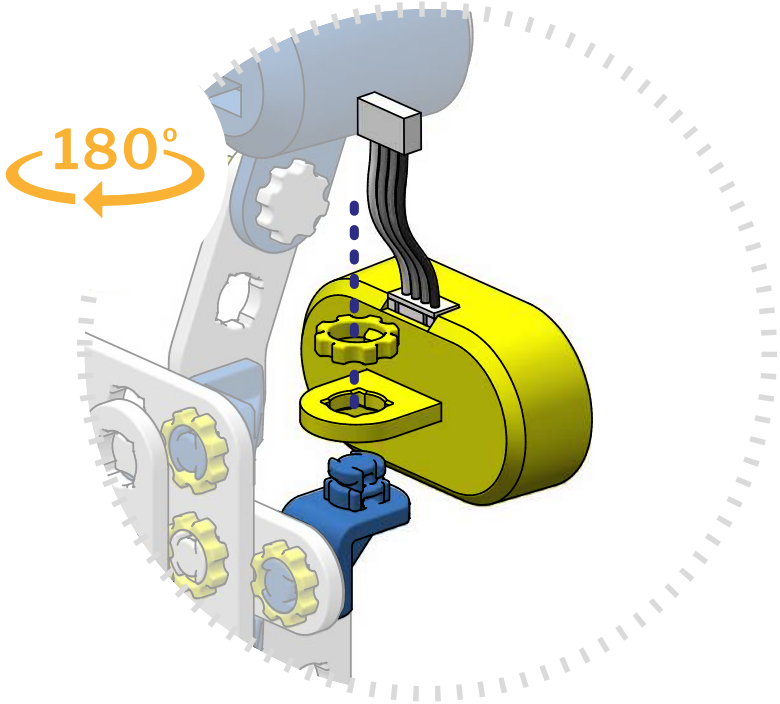
## Step 16


Step 15 + 2x + 2x



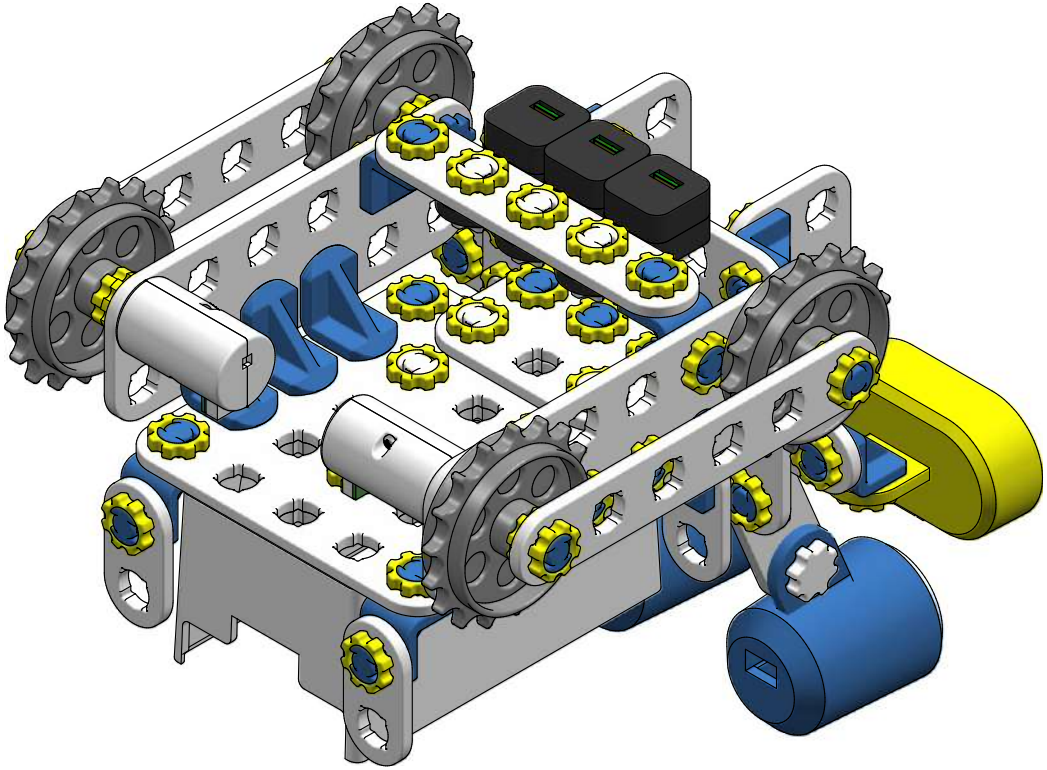
Step A



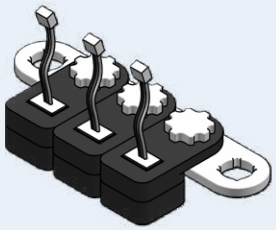

Step B

## CHAPTER 5.

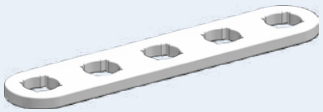
# And what will we find under the SkriBot?



And what can we find under the SkriBot? Just like a car, our robot needs a chassis. Why? It will form the basis for the robot's last sensor, the reflectance sensor, allowing SkriBot to move along the route we program for it.

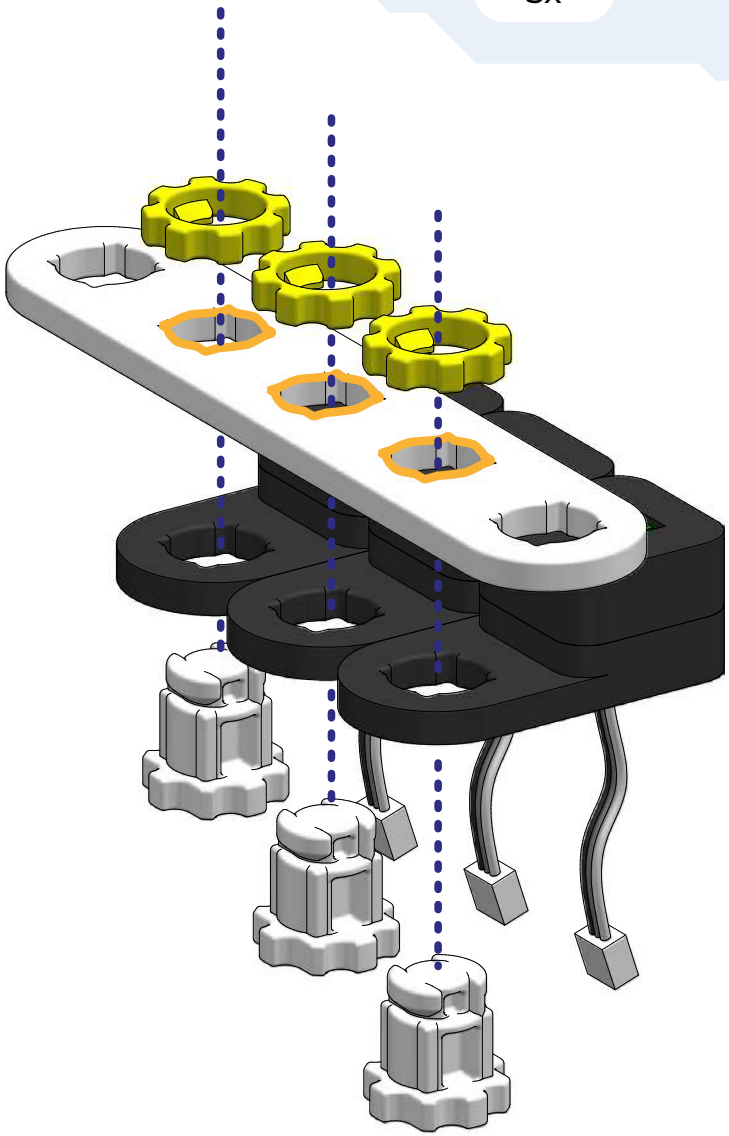


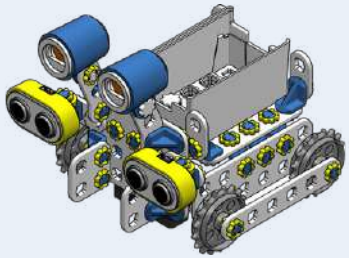
## Step 17


3x +

1x +

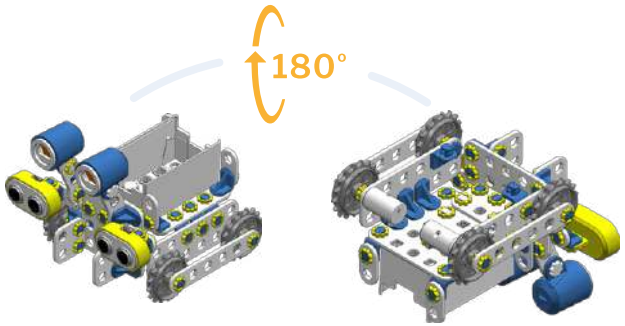
3x +

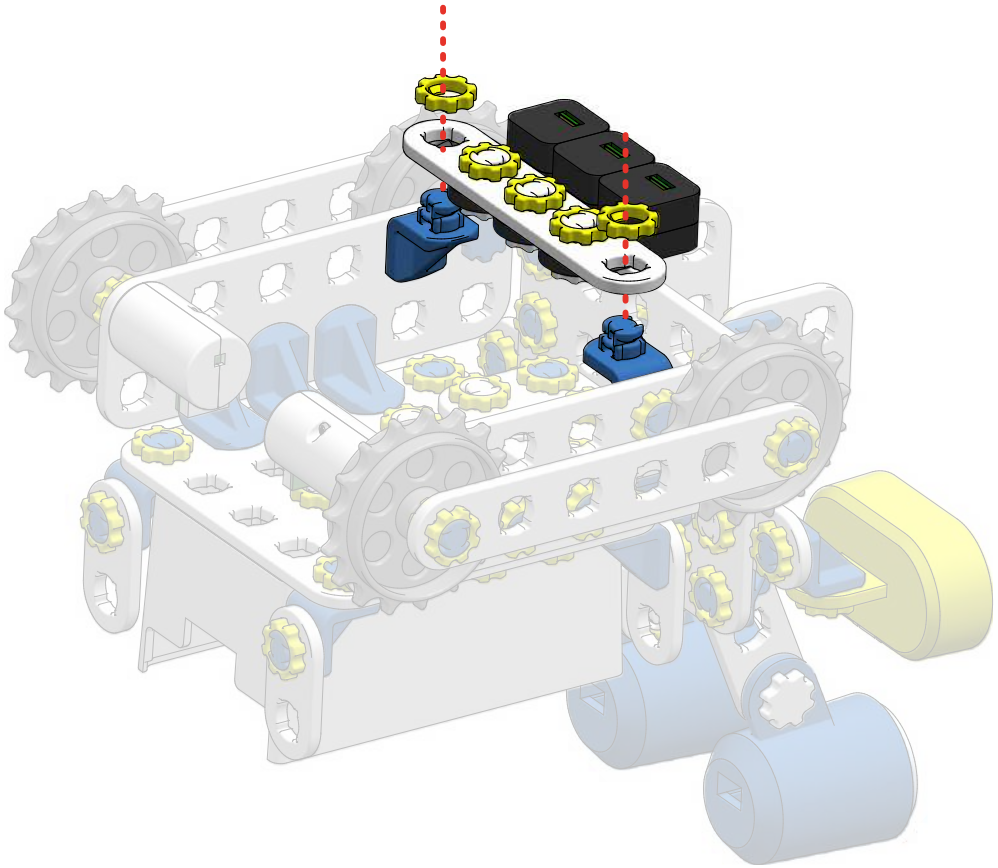
3x

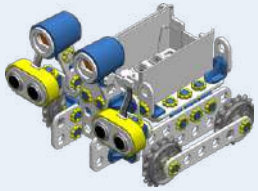




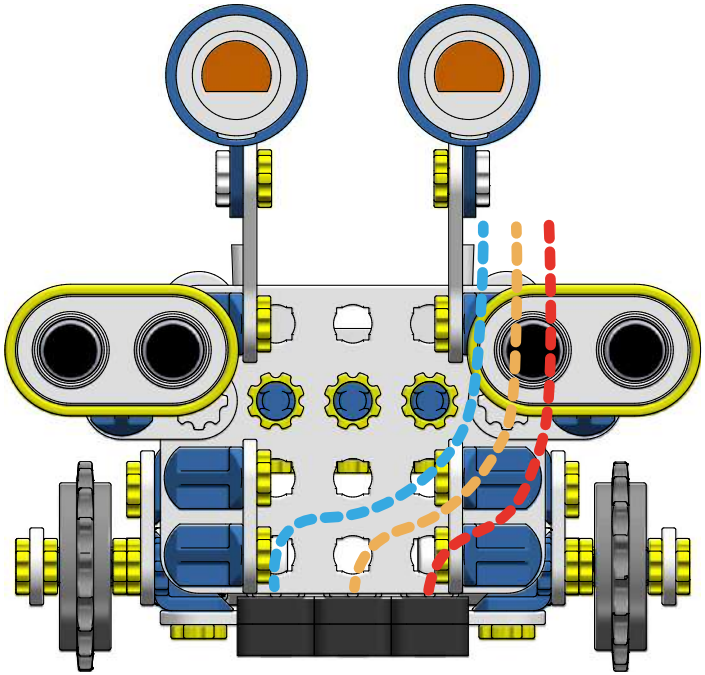
## Step 18





Step 16 + Step 17 + 2x

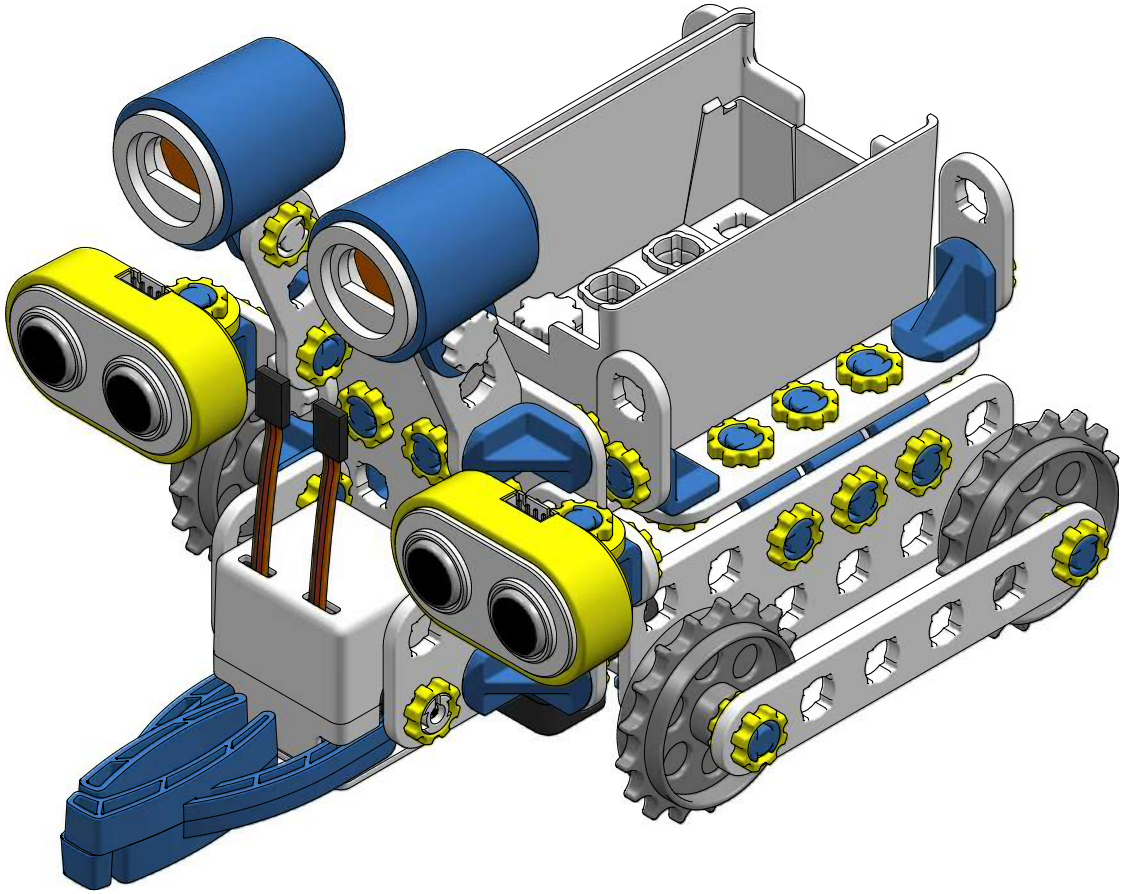


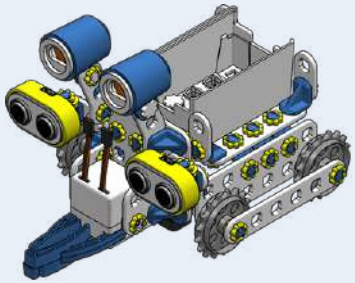
i Remember to route the wires from the sensors to the top - it will make it easier for you to connect them later.

## CHAPTER 6.

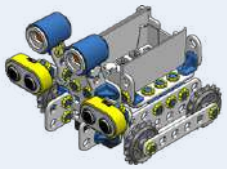
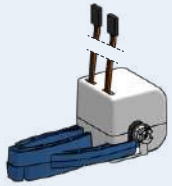
# Gripper installation.

The robot's gripper has a function similar to human hands. We can use it to grab an object, lift it up or lower it down. When you finish playing with SkriBot and put it back in the box, remember to keep the gripper folded and raised. It's a fragile part and if you use force on it, it will get damaged.



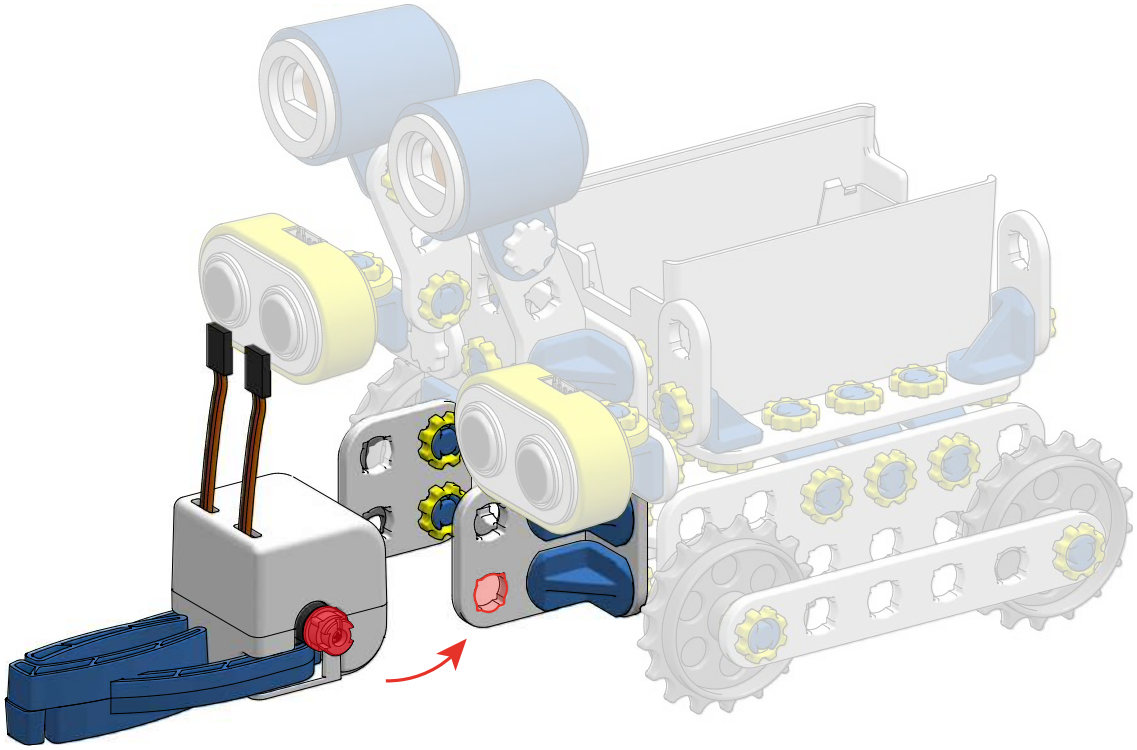


## Step 19


Step 18 + 1x + 1x

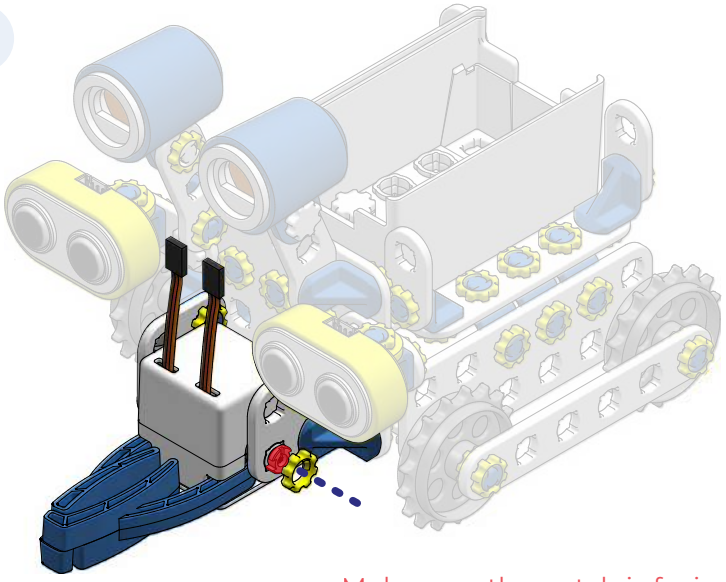
### Step A



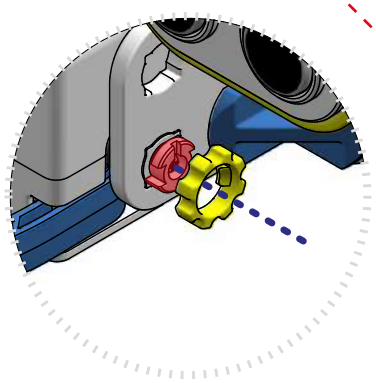
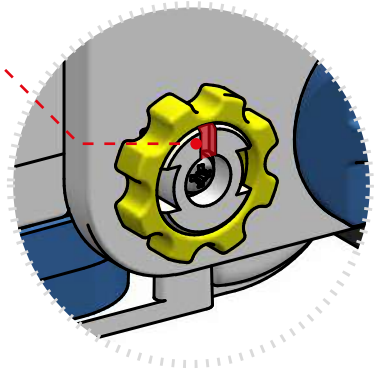
**Click**

Start from this side

### Step B



Make sure the notch is facing up

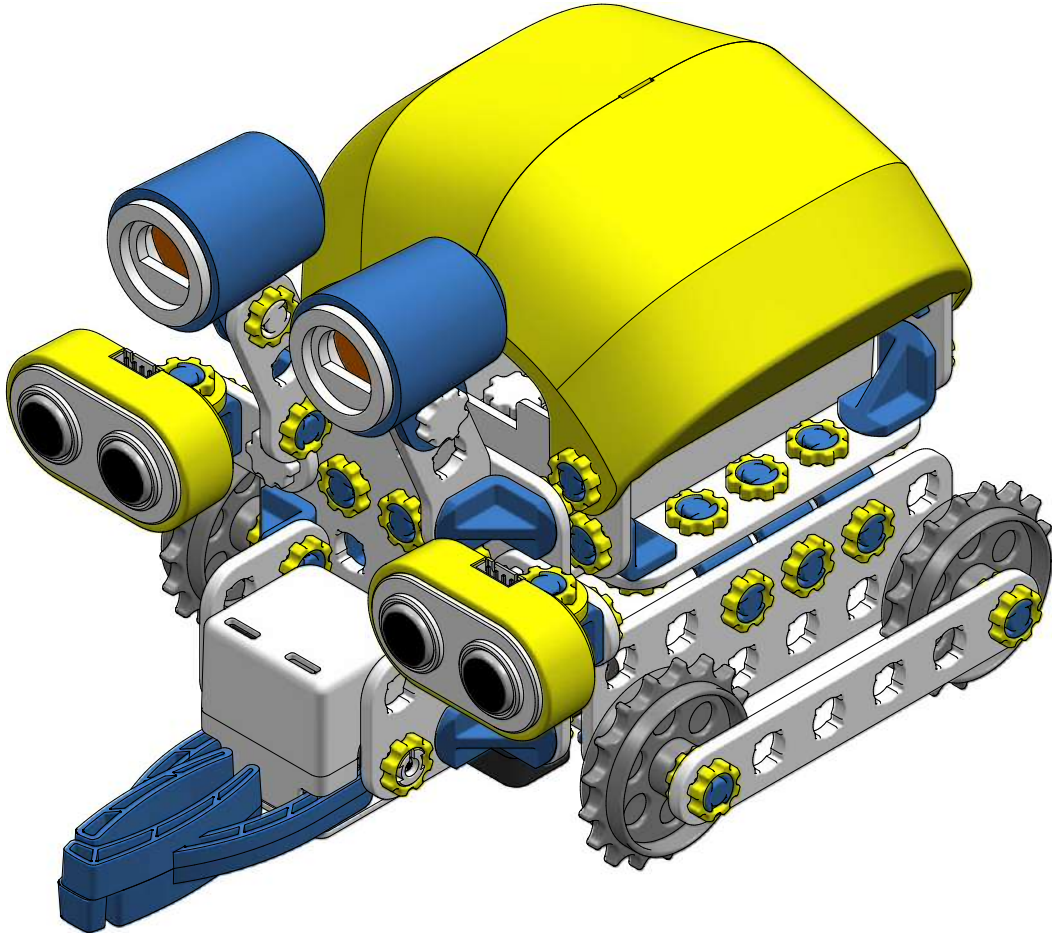



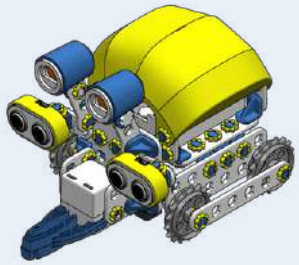
CHAPTER 7.

# Yellow shell installation.

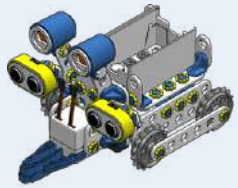
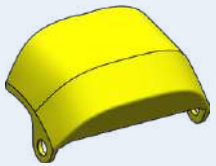
SkriBot is almost ready.
Time to attach its shell!

The shell of the robot - like the shells of insects or turtles, protects what is hidden inside. There are a lot of electronics inside the SkriBot, which should be kept safe. Always keep the shell closed, unless you have a good reason to look inside.



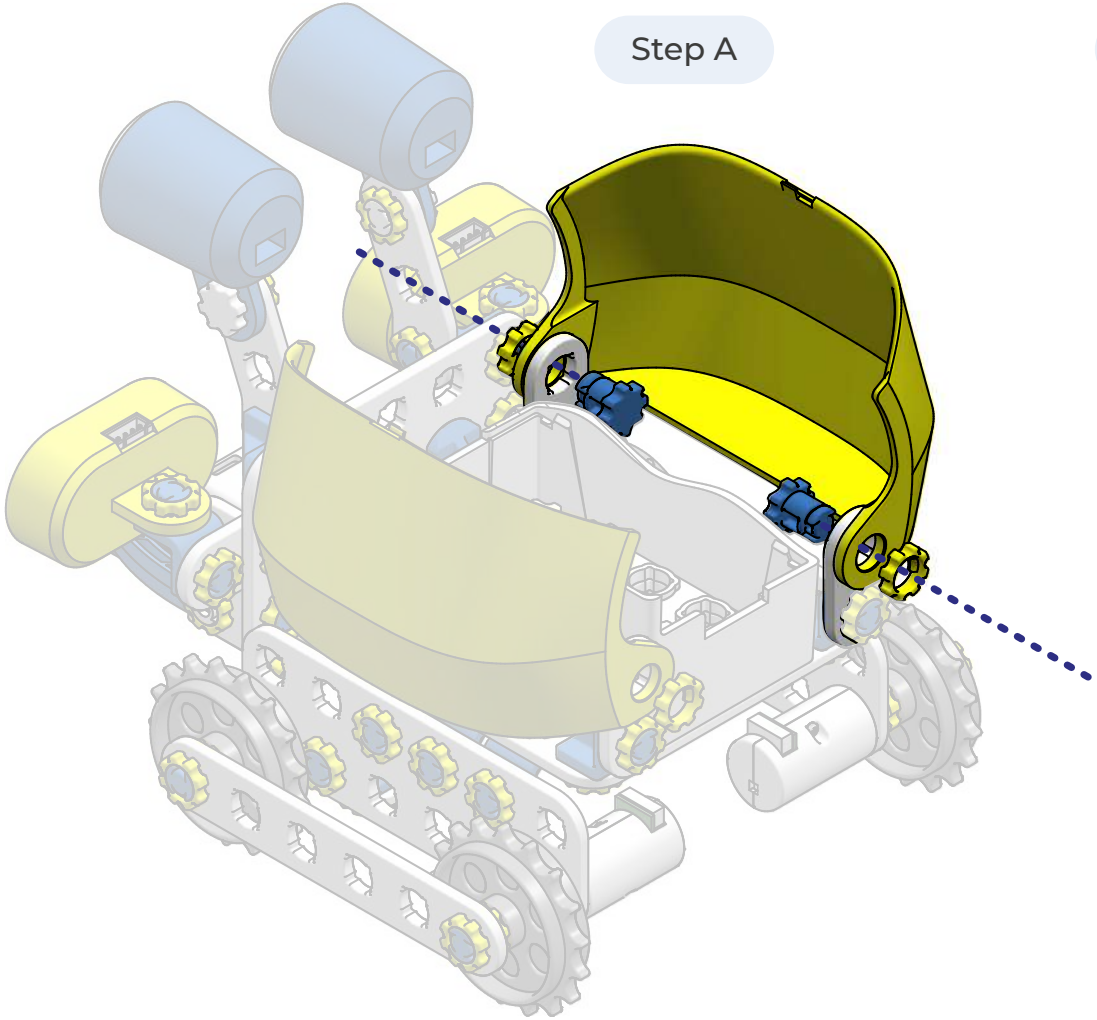


## Step 20

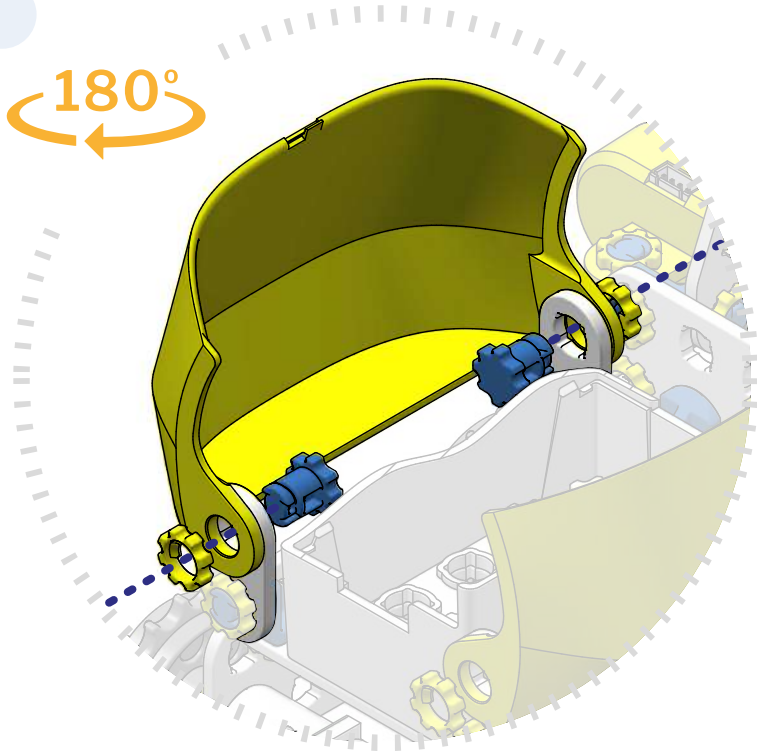



Step 19 + 2x + 4x + 4x

Step A

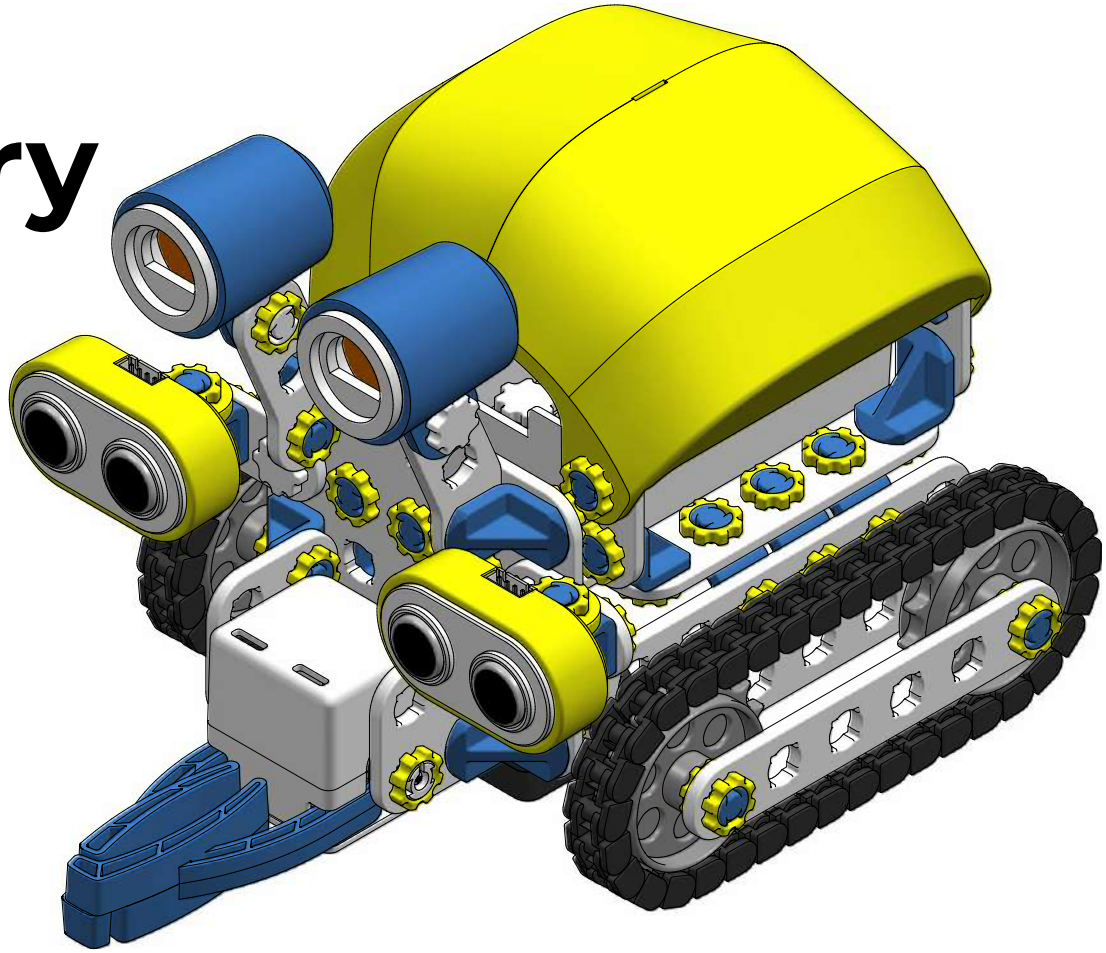


Step B

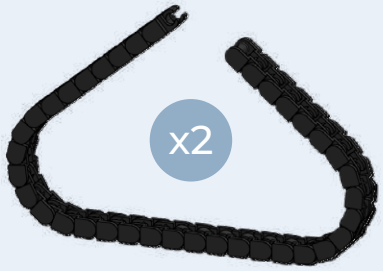


## CHAPTER 8.

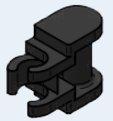
# Tracks & battery installation.



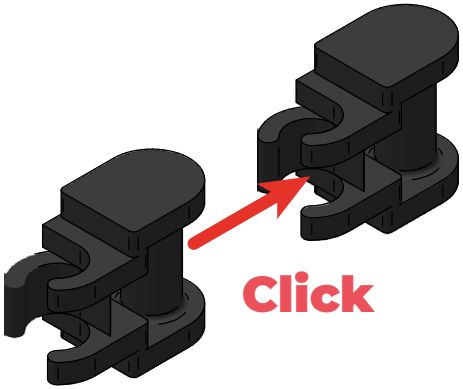
Time to assemble and mount the tracks. Perhaps they remind you of something? For example, look familiar to those used in tanks? They work the same way. They spread the weight of a vehicle over a large area and improve its grip on the ground. Thanks to the tracks, the robot adheres better to the surface. It can even move on uneven ground as the tracks will adapt to the terrain.




## Step 21

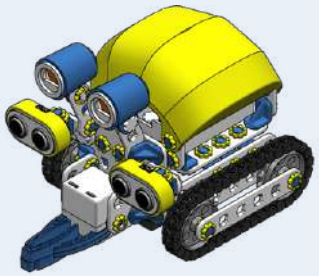


72x

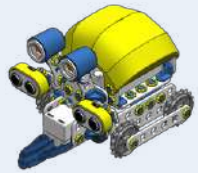




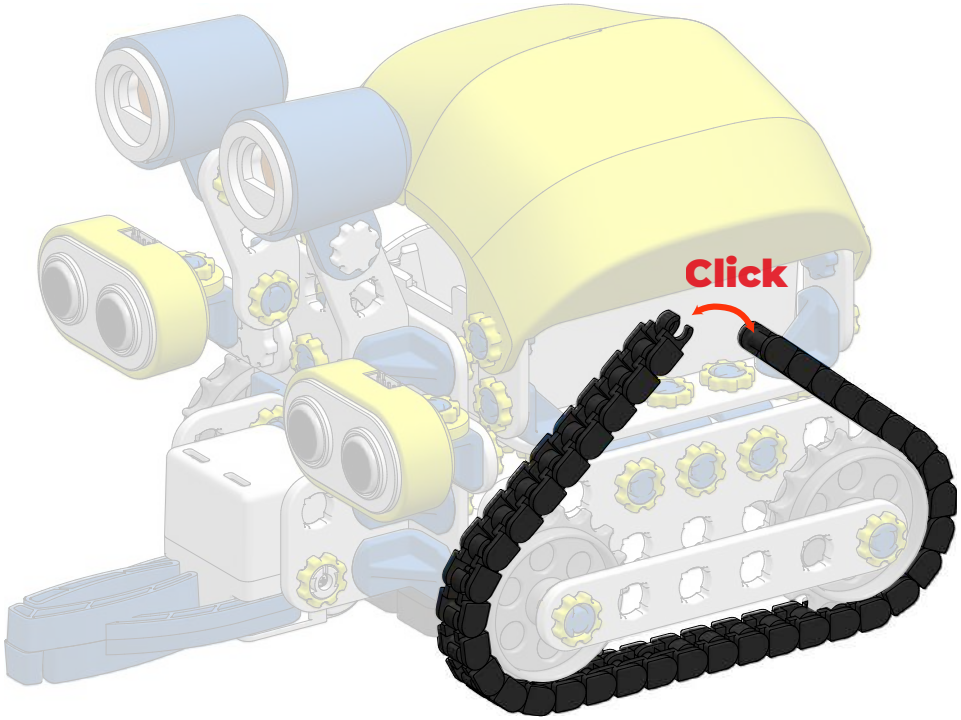
Each track consists of 36 track links



## Step 22

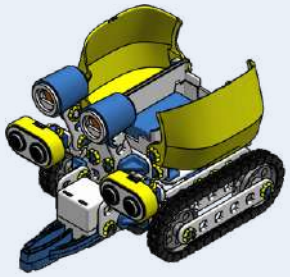



Step 20 + Step 21

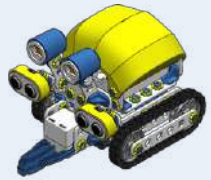



Step A

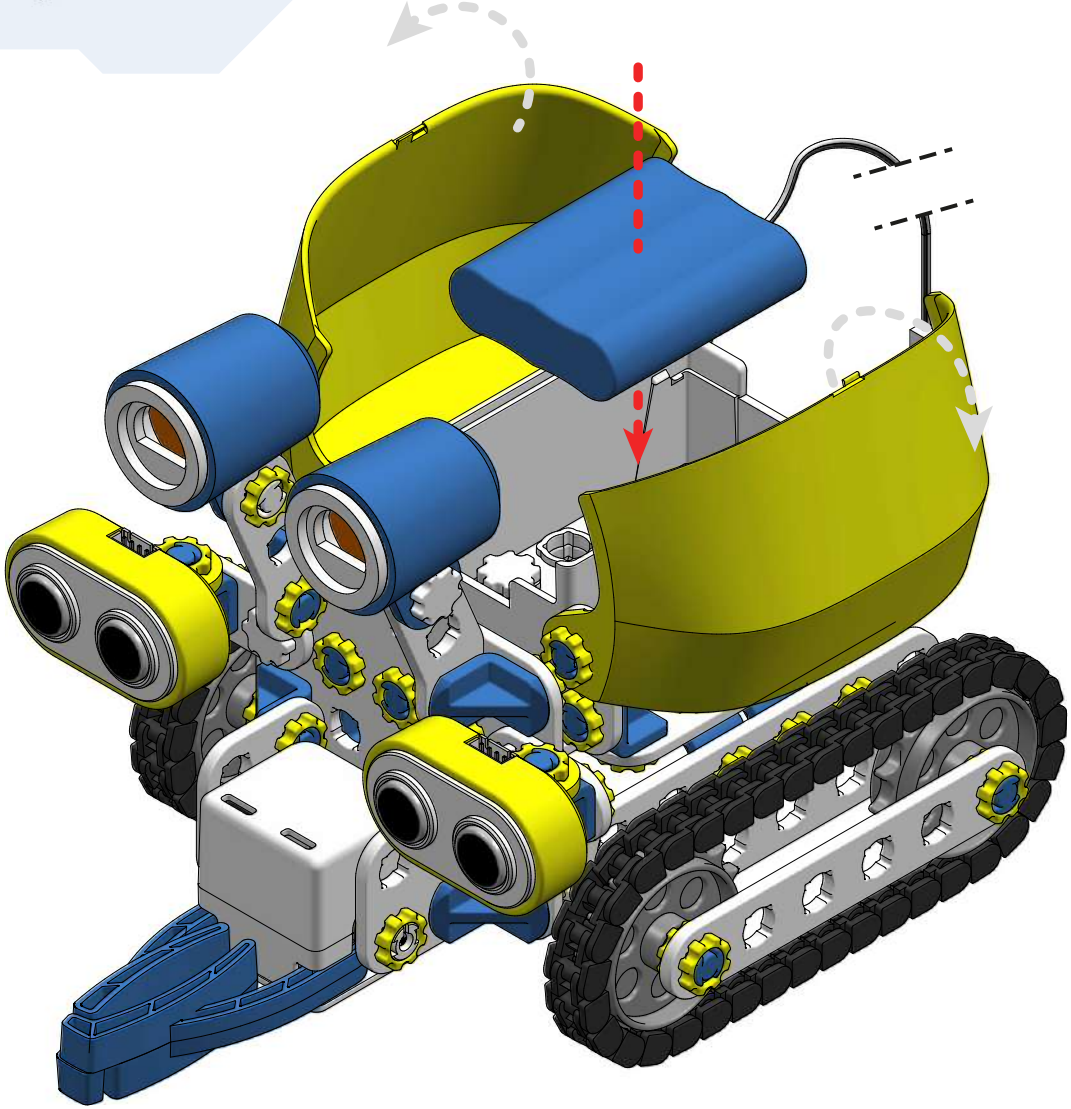

Step B

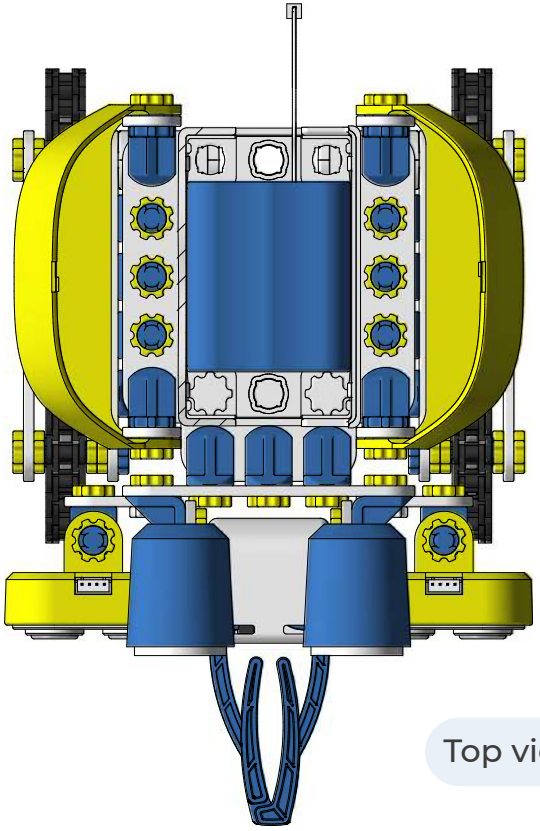


## Step 23



Step 22 + 1x

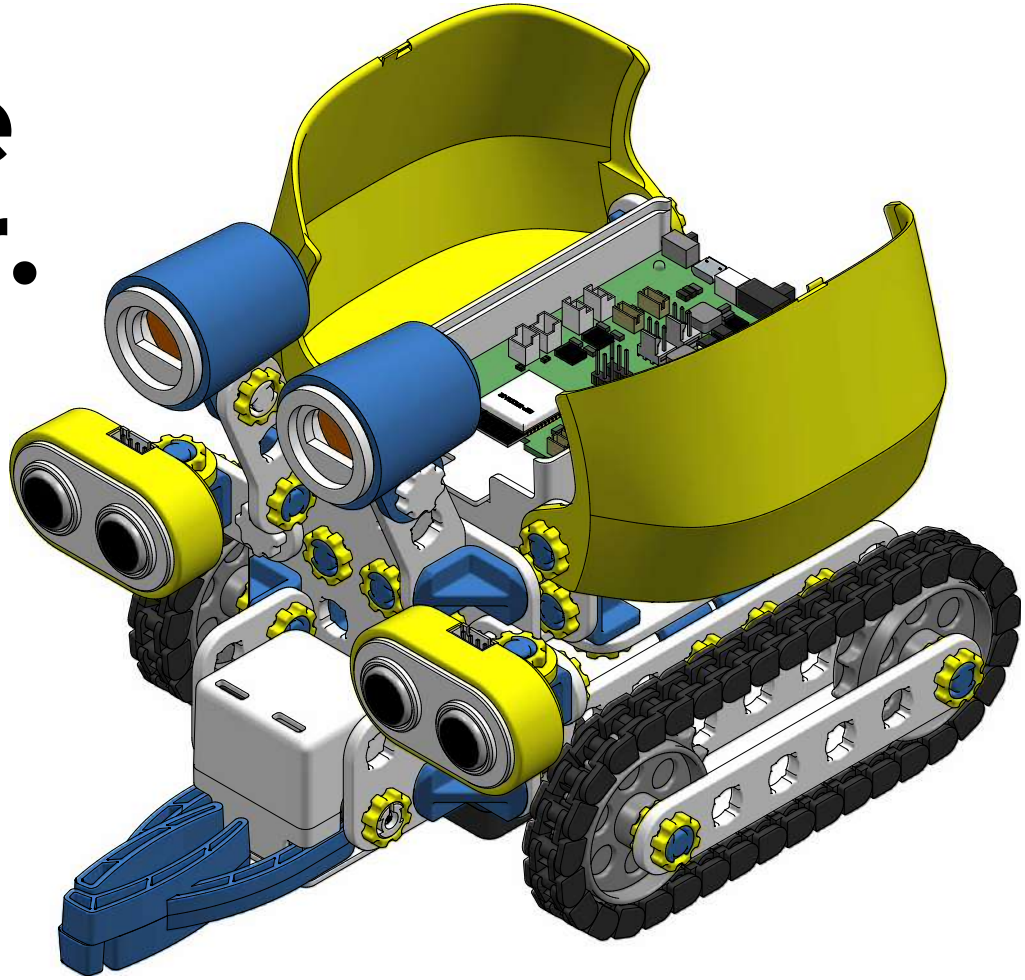




Top view

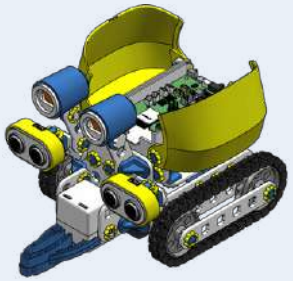
## CHAPTER 9.

# Connecting the microcontroller.

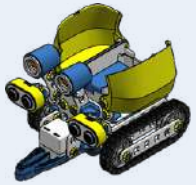


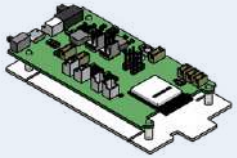
Finally, and most importantly, we connect the the brain of our robot!

This is, of course, the microcontroller, which therefore has a function very similar to the human brain. That is why we call it SkriBrain. This is where all the information is stored and all the signals and programs are processed

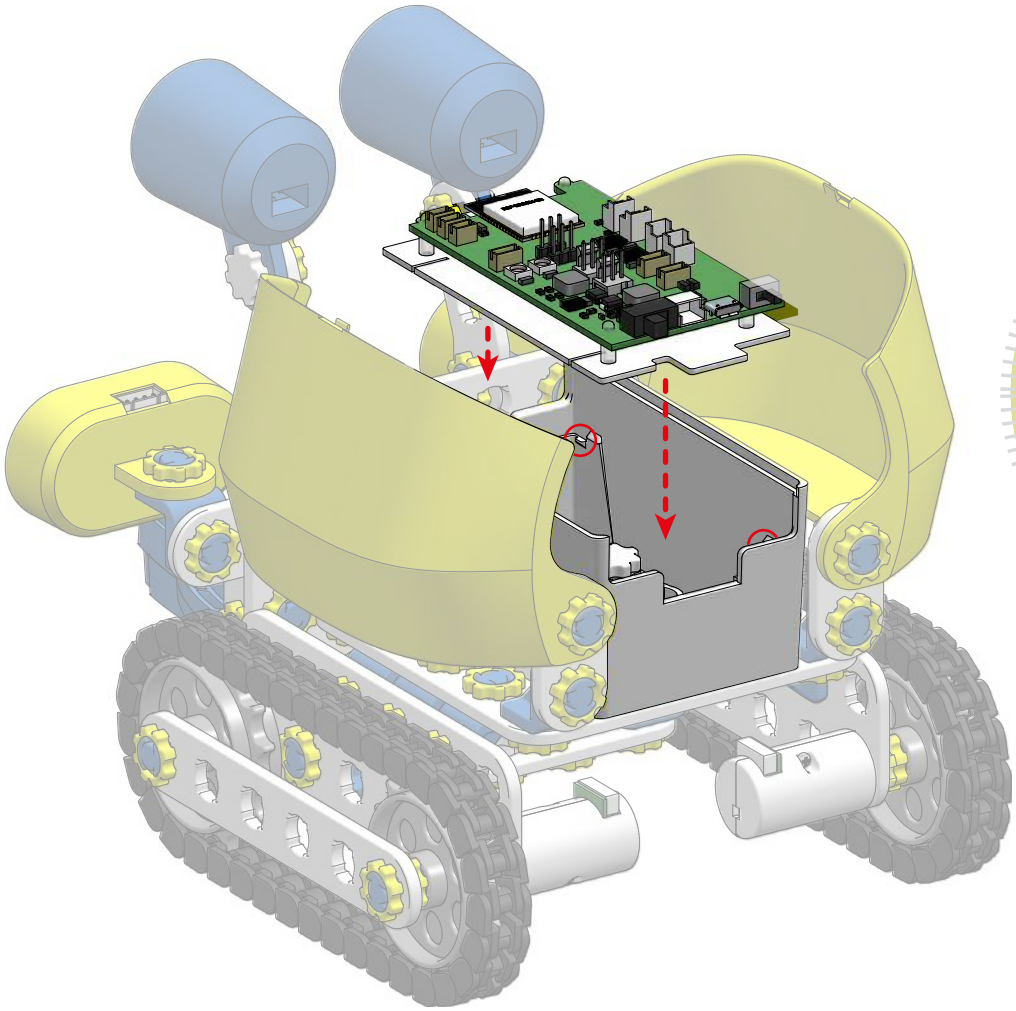


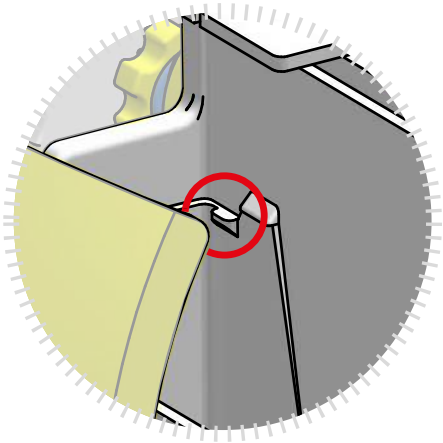
## Step 24





Step 23 + 1x





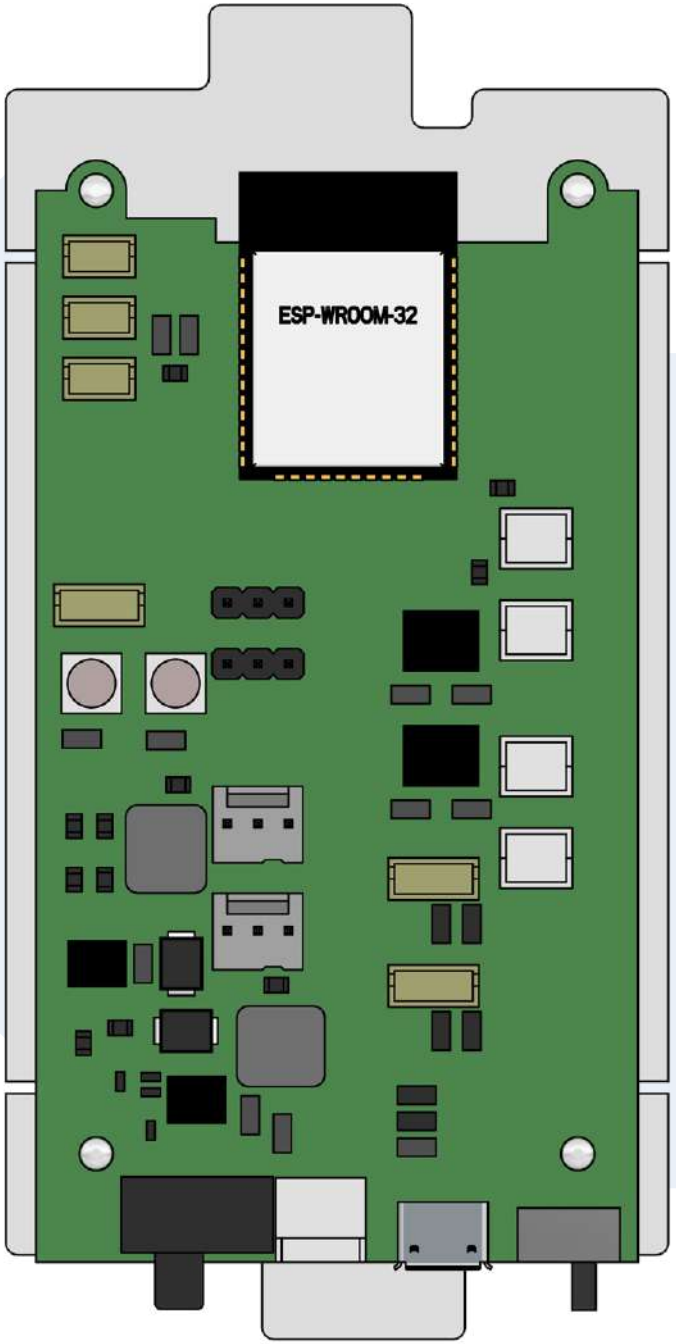
To attach the SkriBrain you need to press it from the top into the Battery pack's tabs (marked in the picture) in order to lock the position. Make sure that all four corners are latched.

CHAPTER 10.

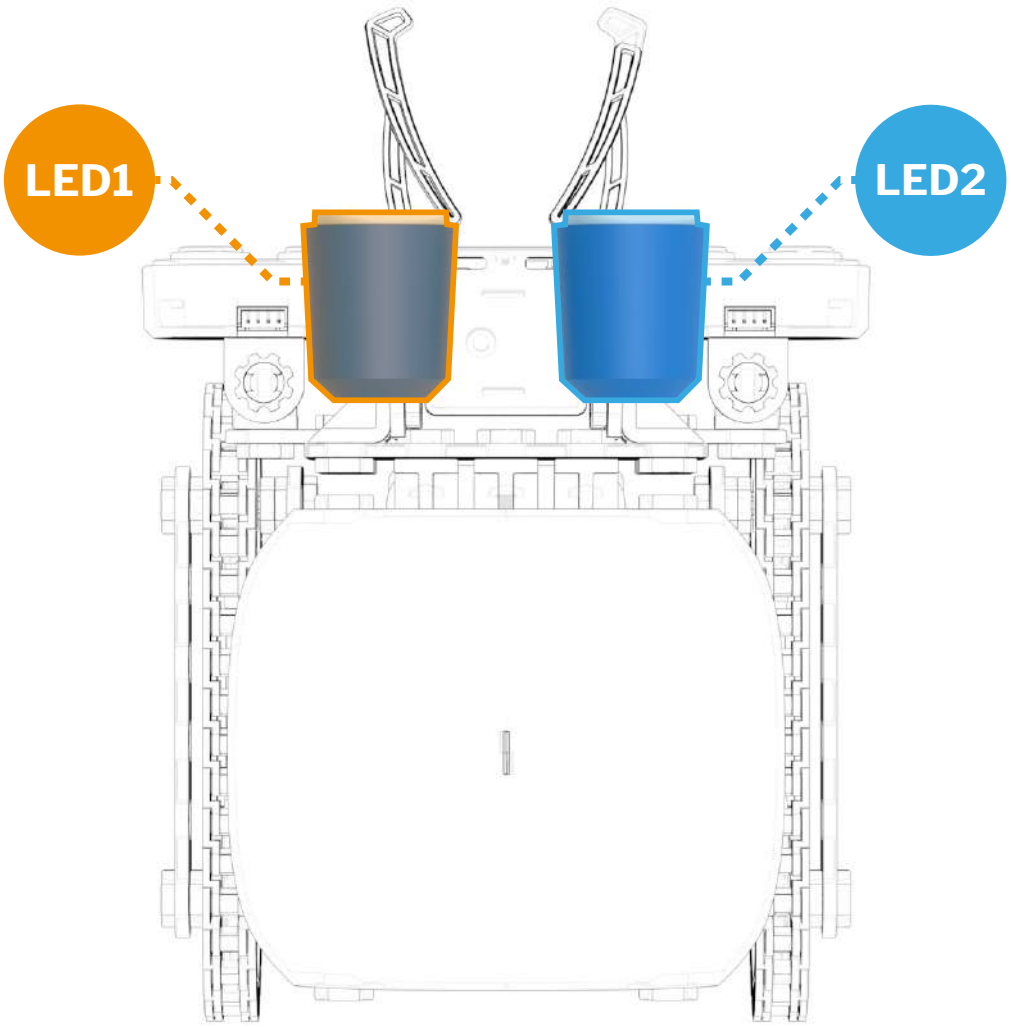
# Connecting sensors to the microcontroller.

Do not detach SkriBrain from its mounting plate.

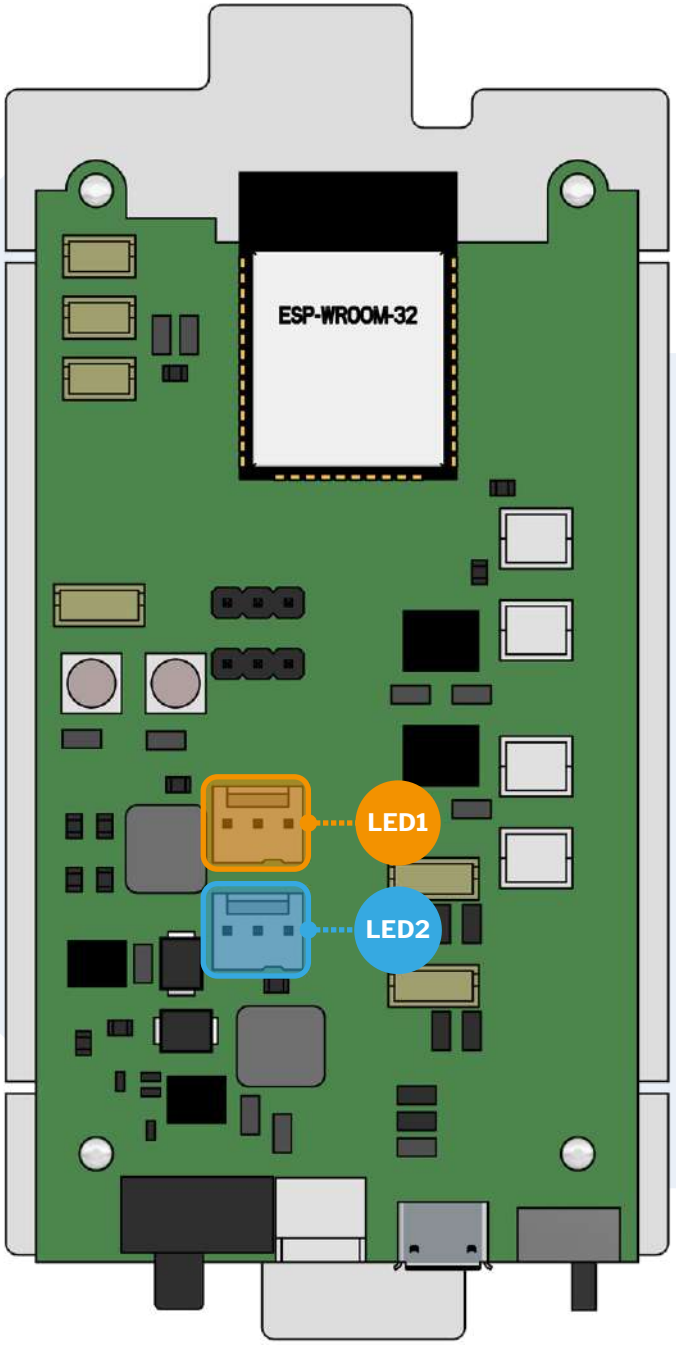
Turn the power off before removing and plugging any cables!



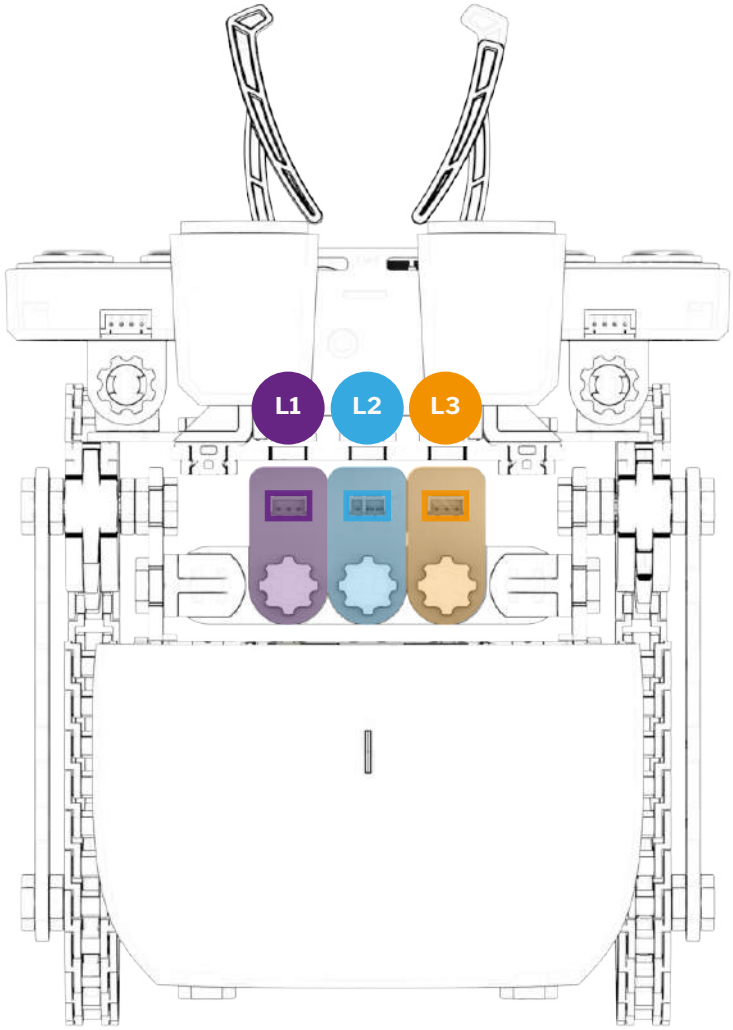
# Programmable LEDs



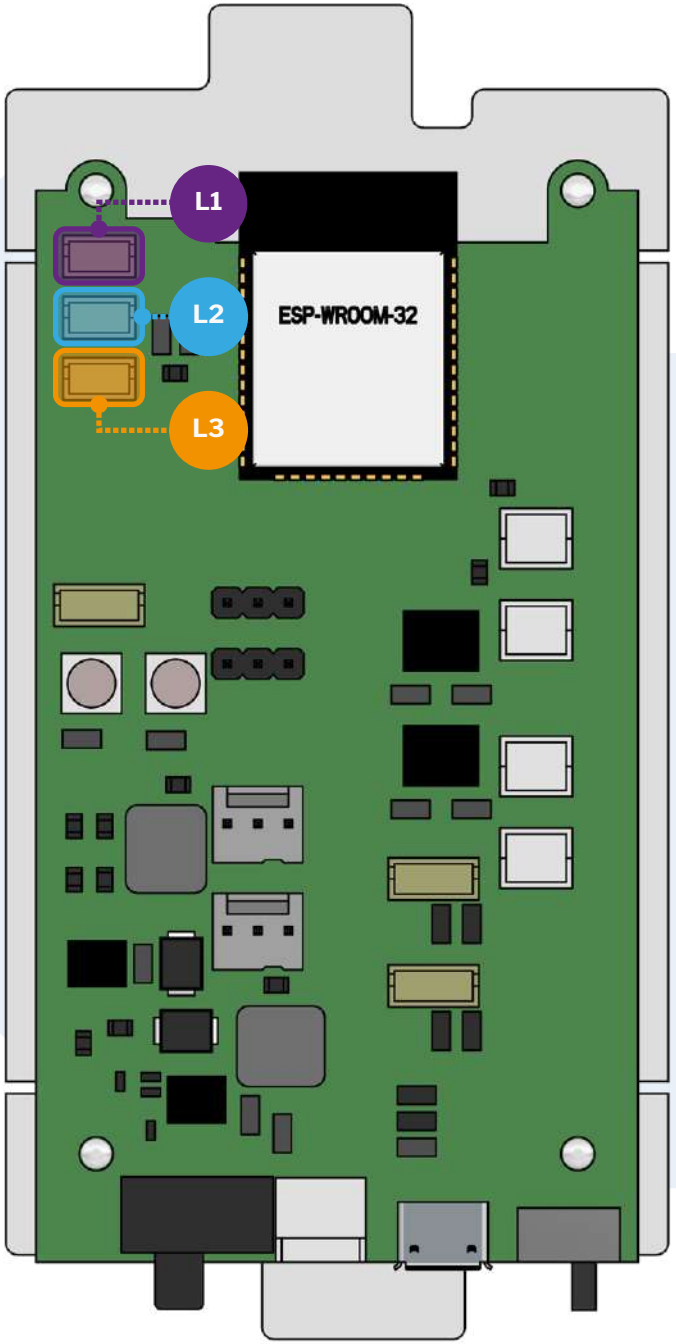

Top view



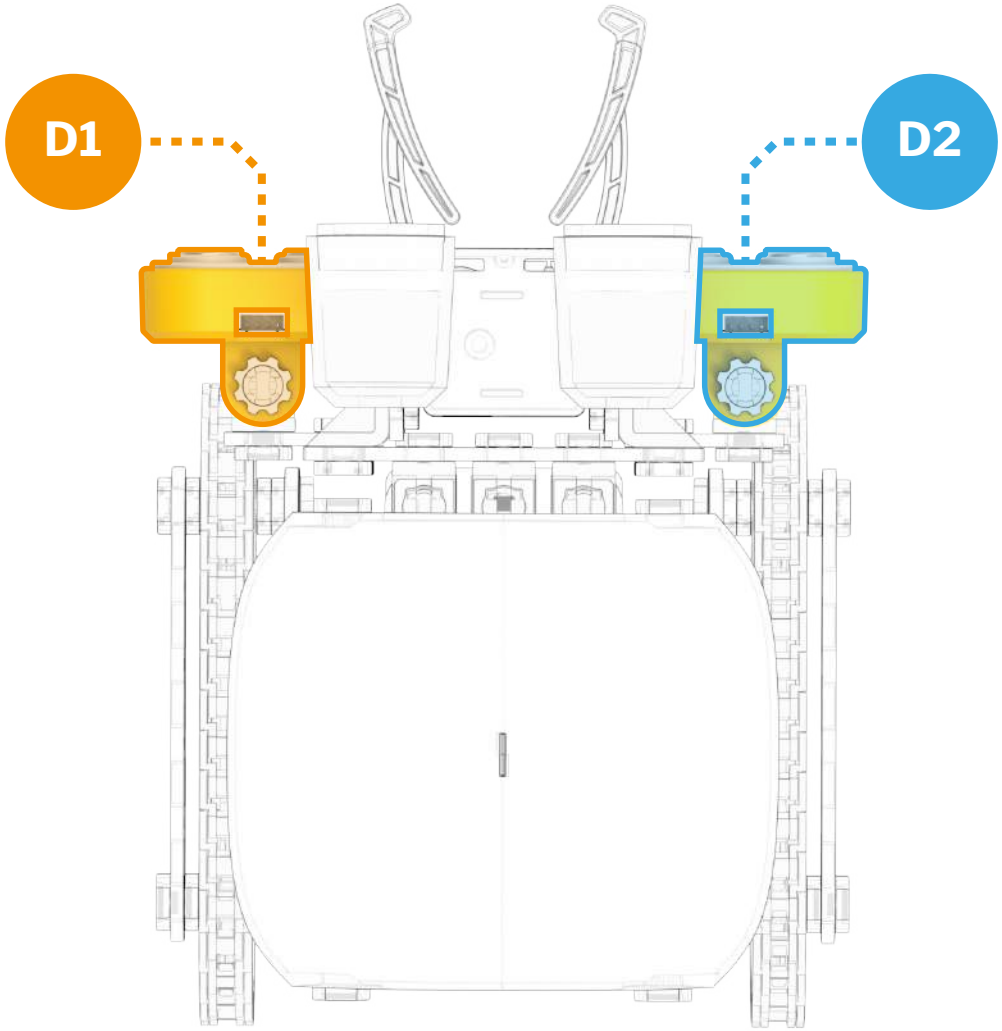
# Reflectance sensors



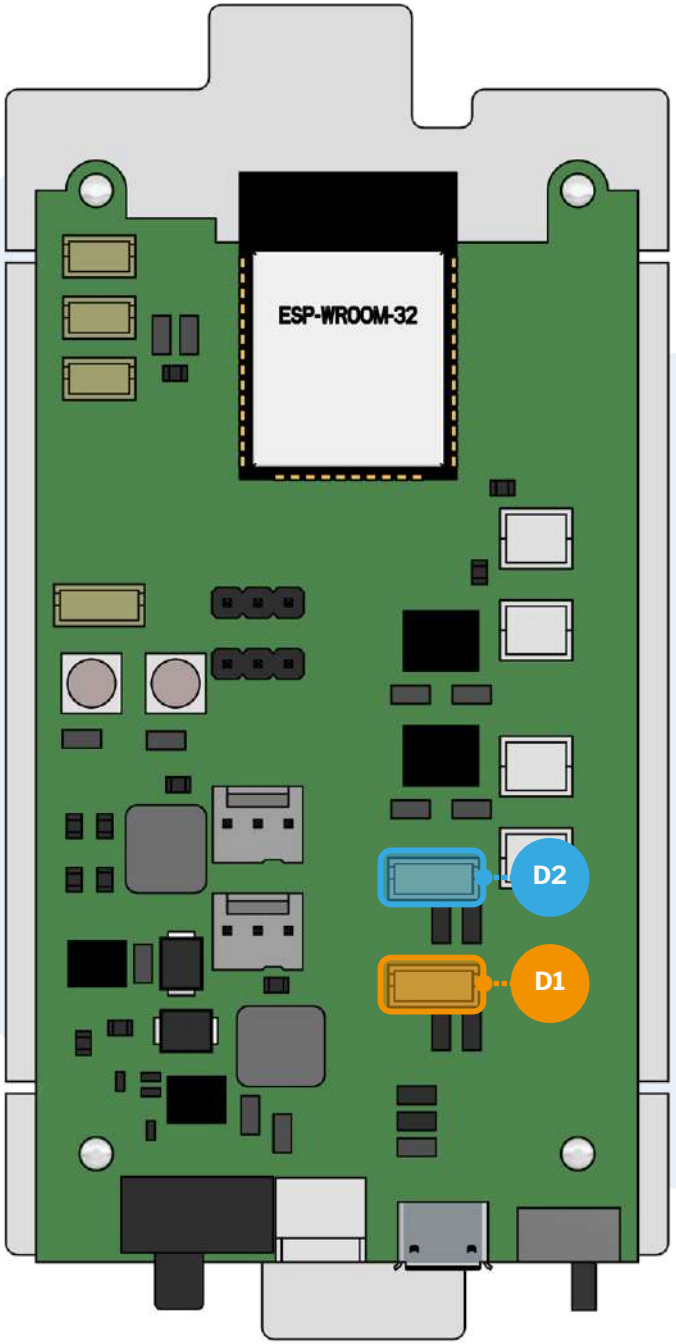

Top view



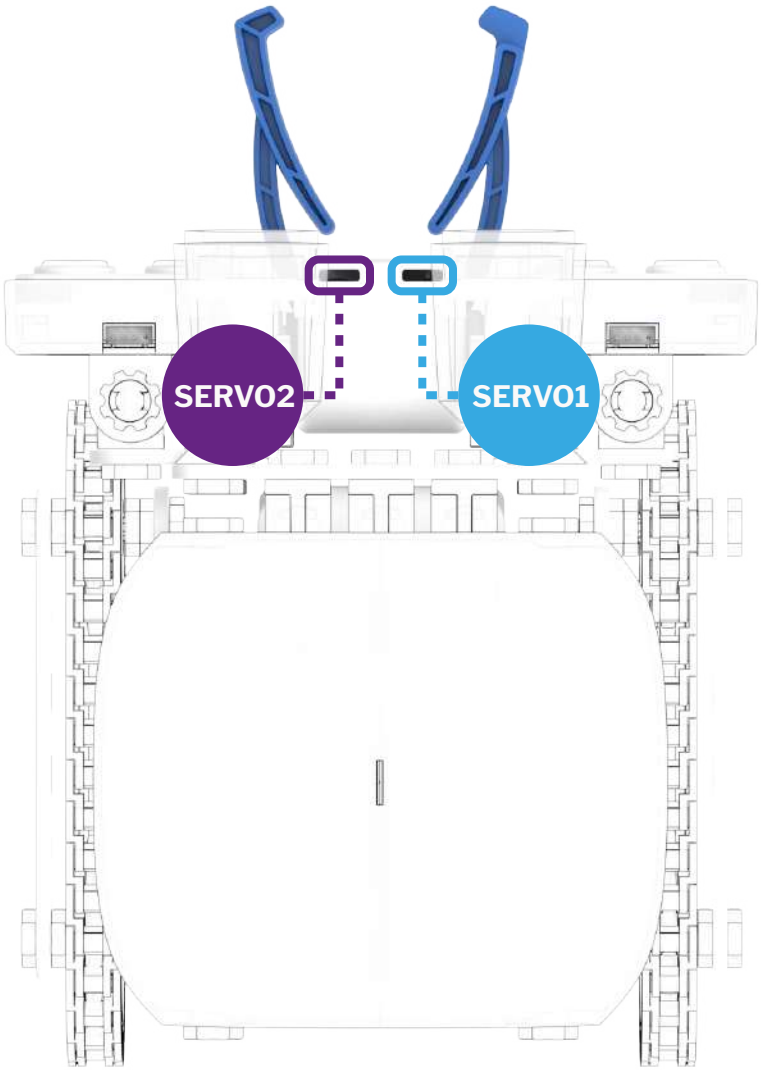
# Range sensors




Top view

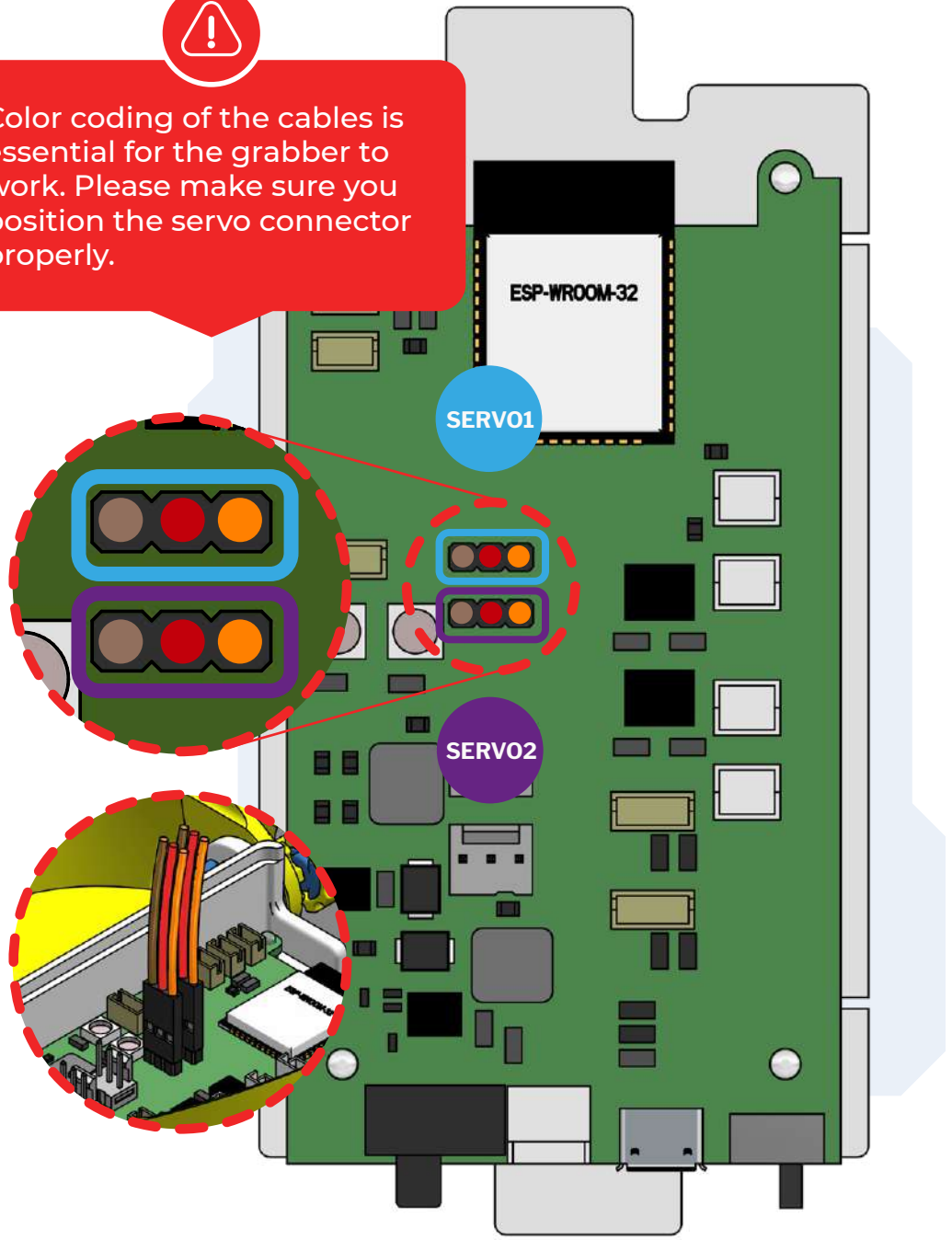


# Gripper

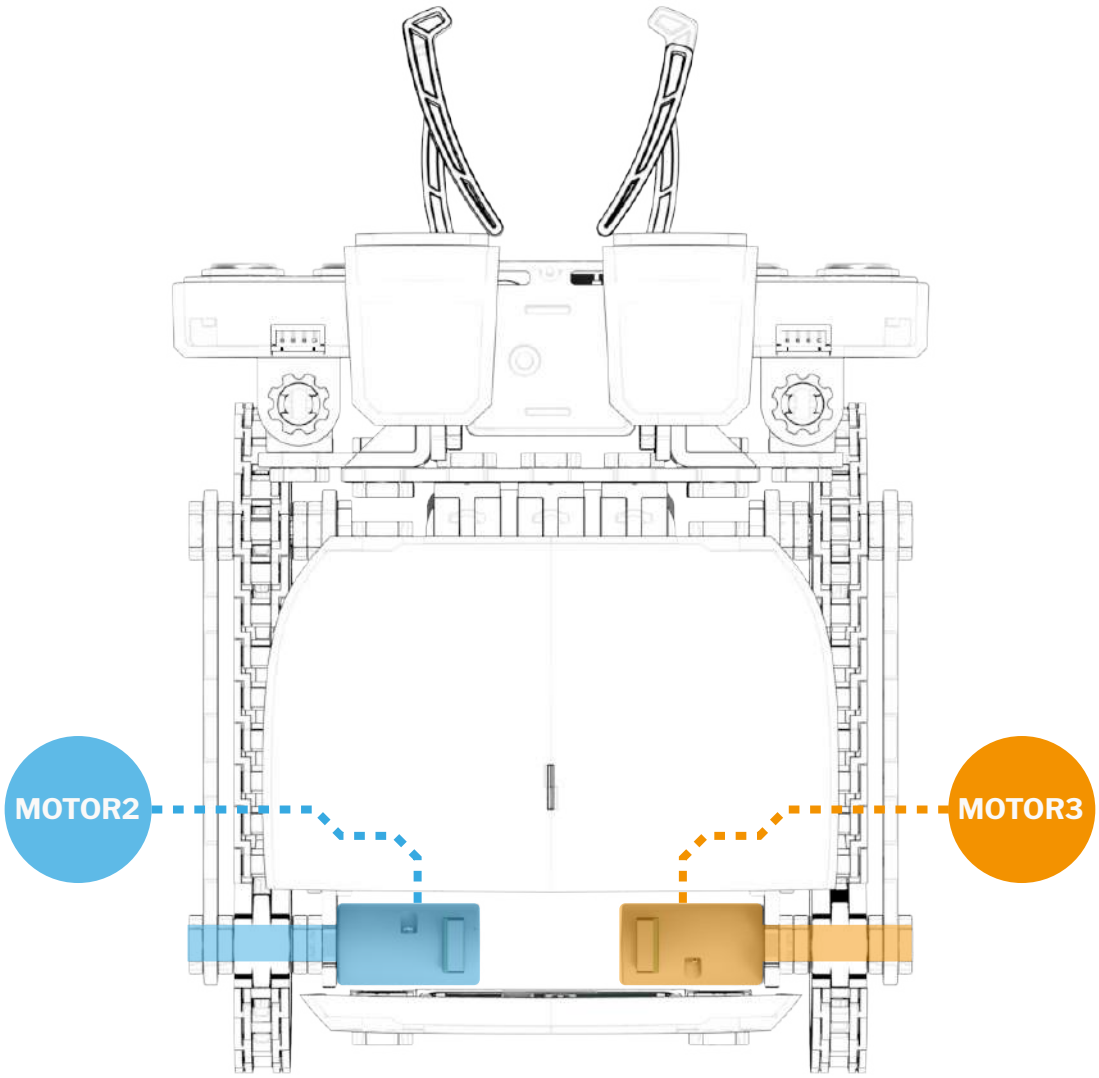



Top view

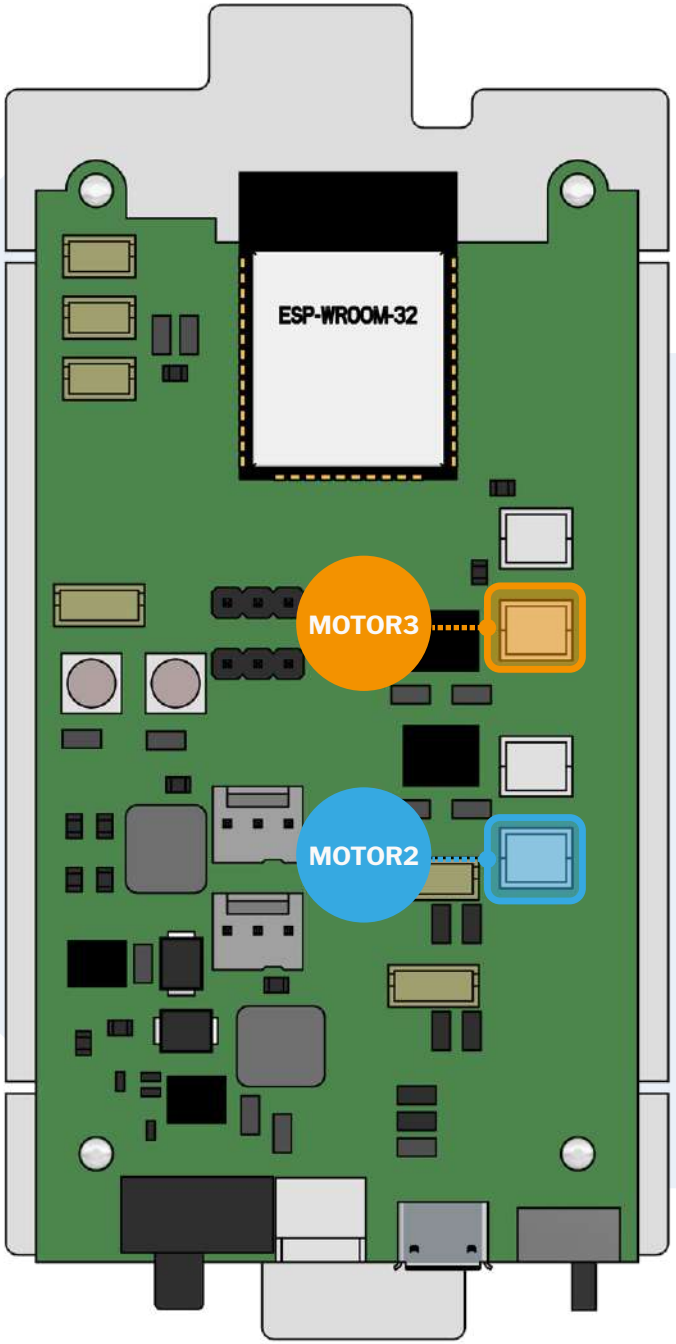
Color coding of the cables is essential for the grabber to work. Please make sure you position the servo connector properly.



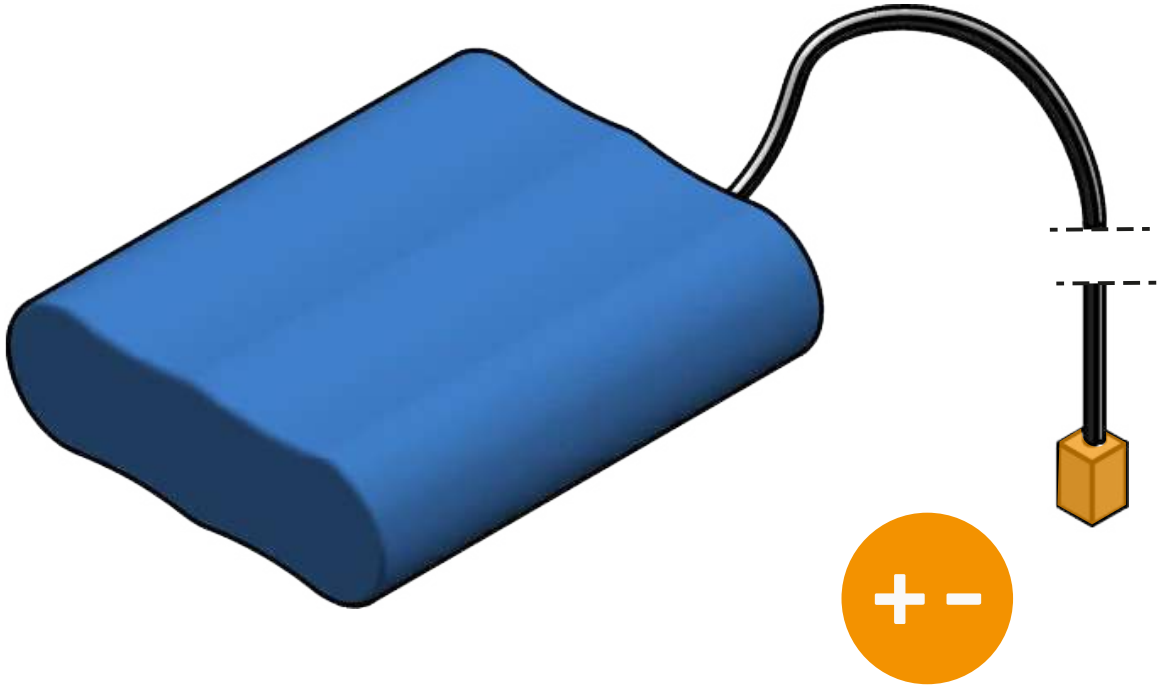
# Motors

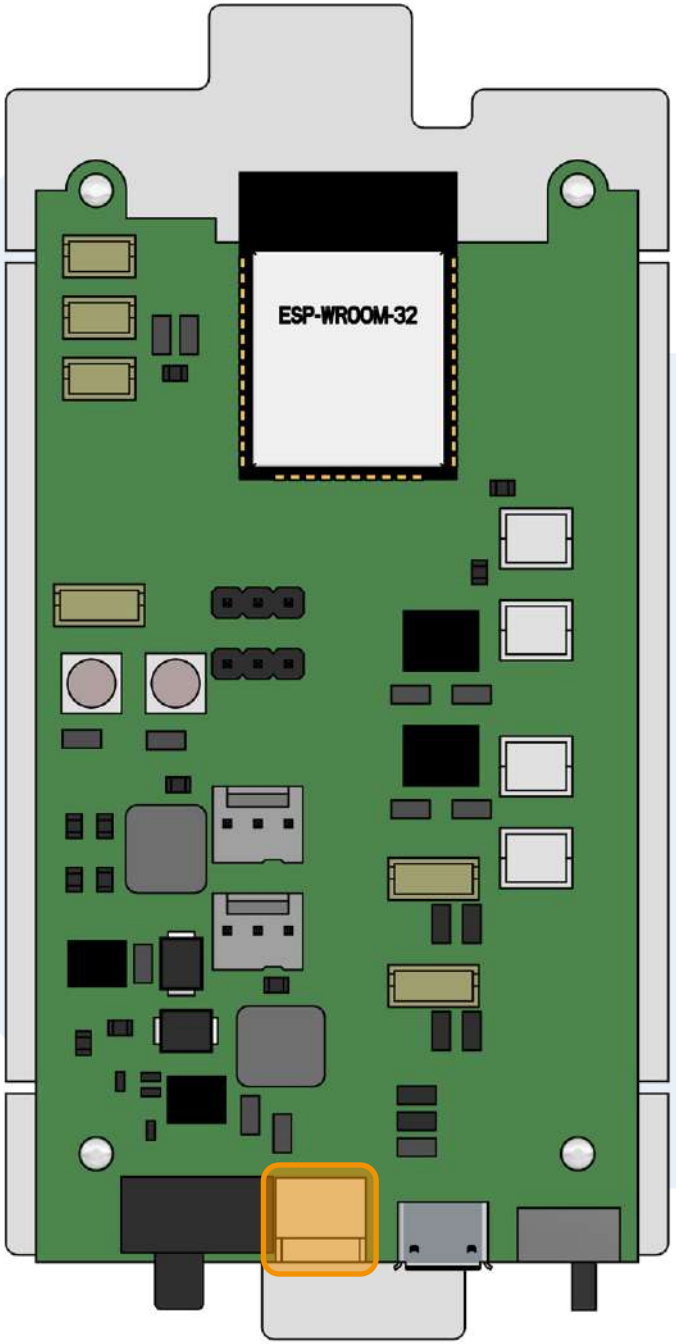



Top view



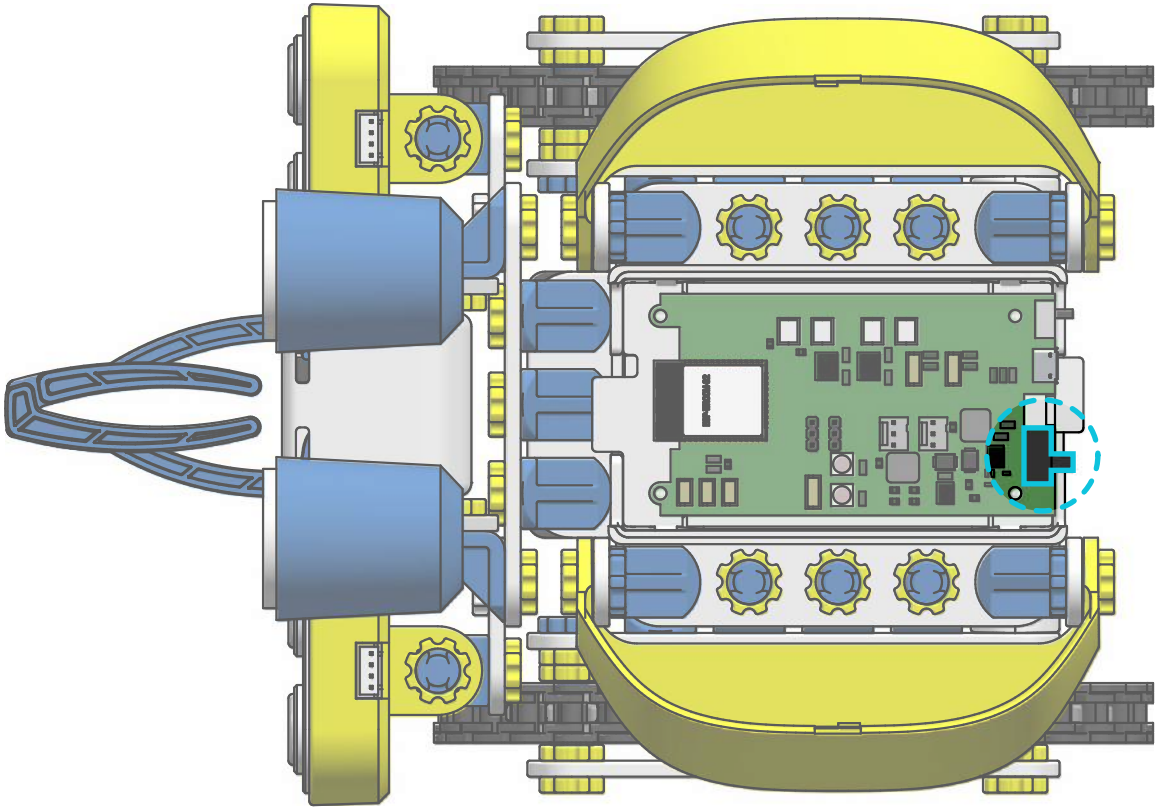
# Battery

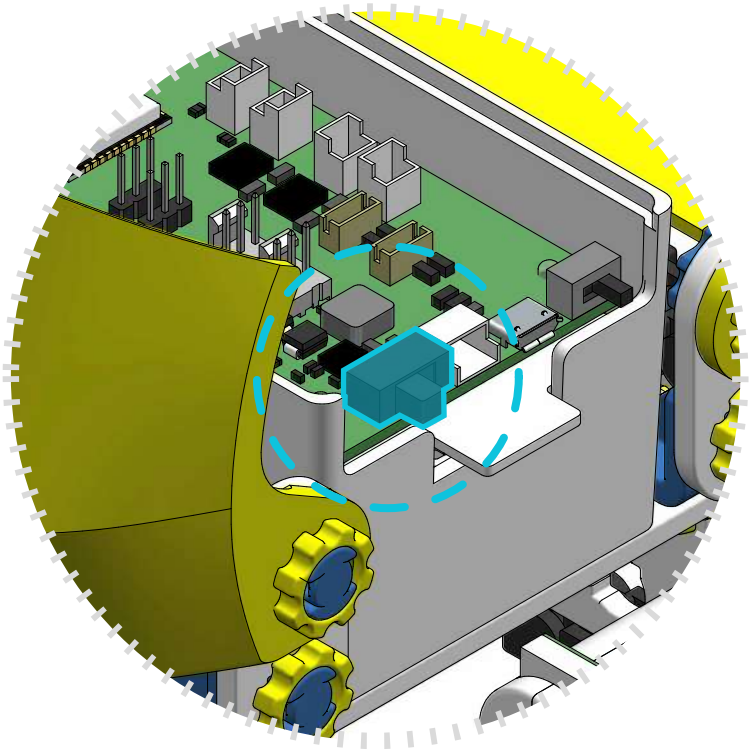


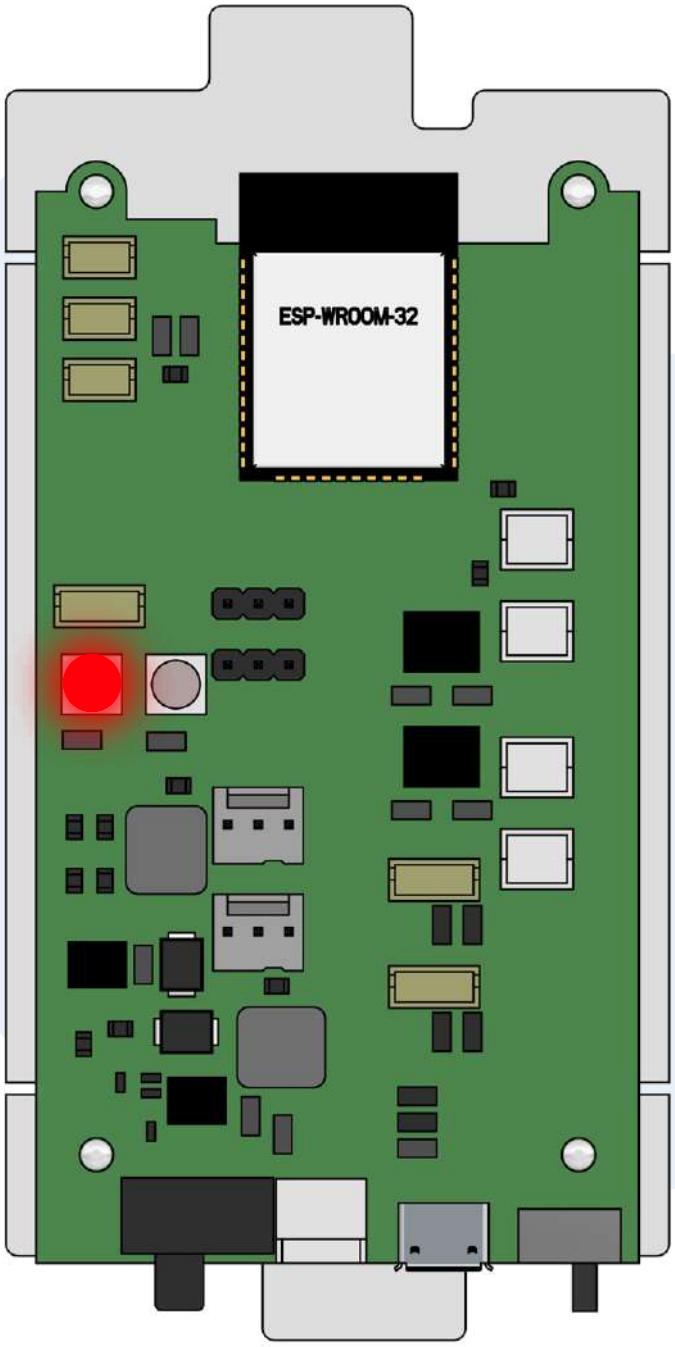

i The battery should be connected with the correct polarity.

# Turning the SkriBot on/off

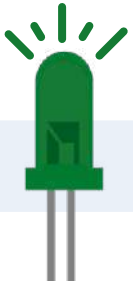




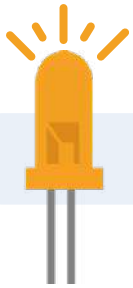
After making sure that everything is connected correctly, **turn on the SkriBot with the toggle marked in the picture.** Small diode next to the toggle will turn on, indicating that SkriBot has a power supply.




# Battery LED

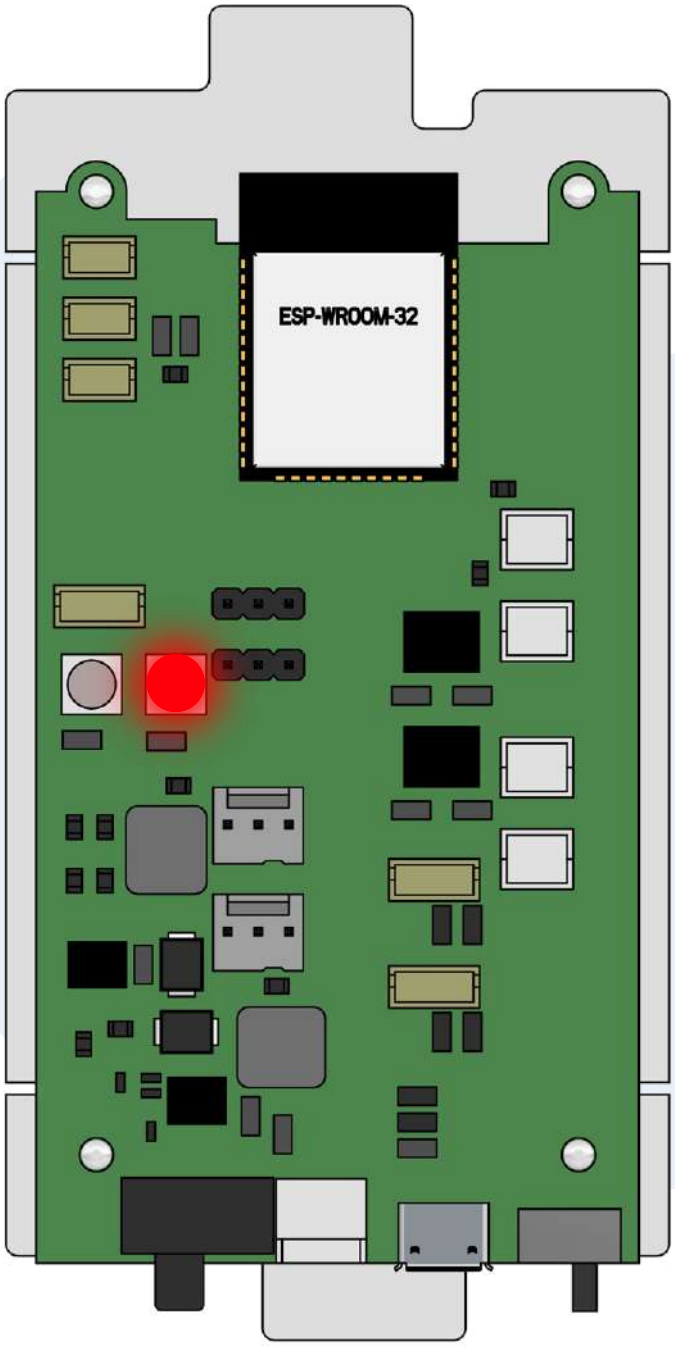


Battery charged



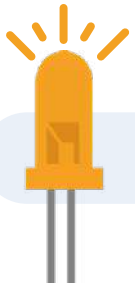
Charge the battery

Battery critical! Charge the battery immediately

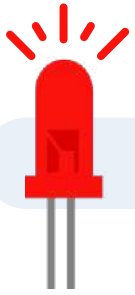



# Bluetooth LED

Skribot paired



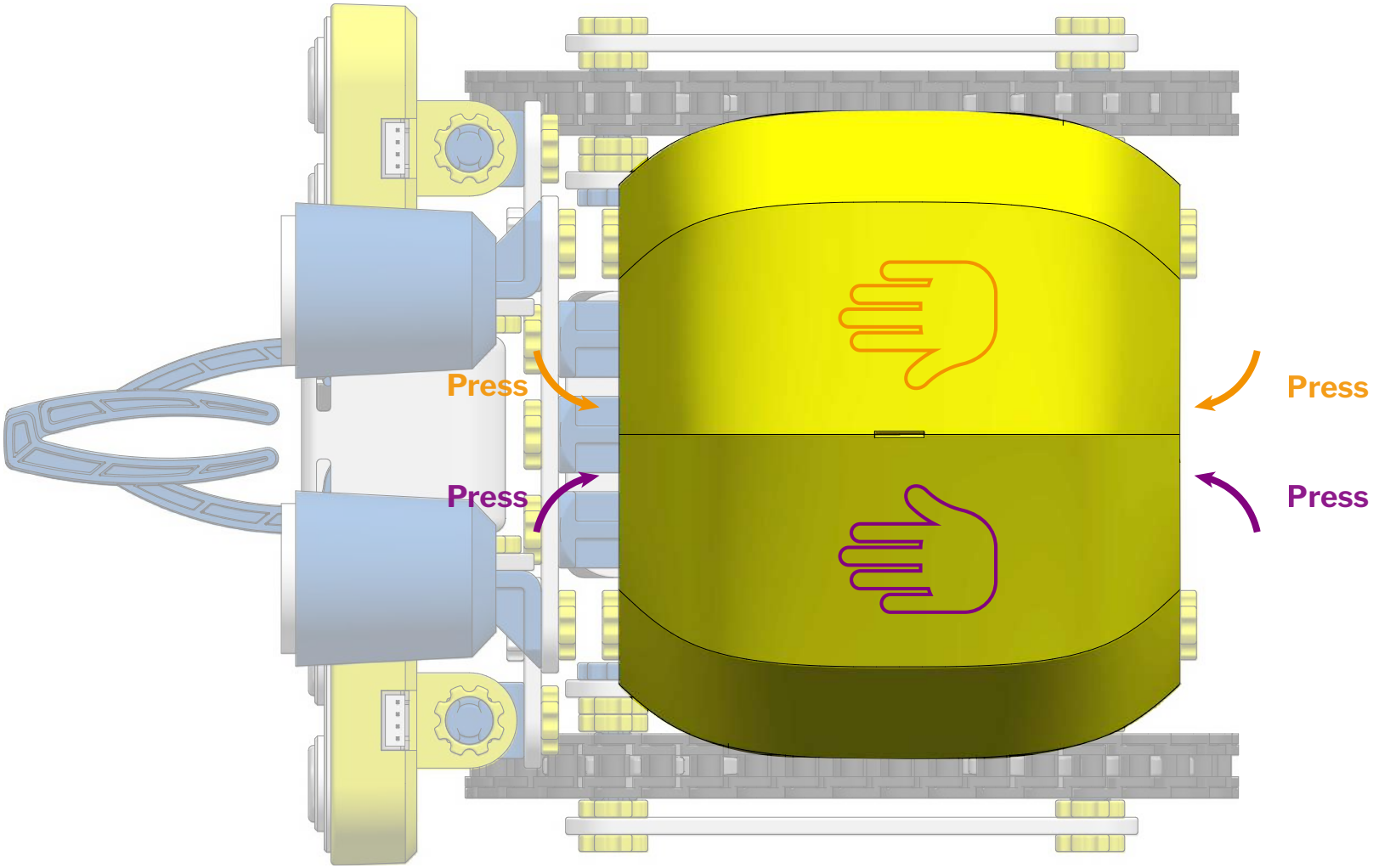
Skribot unpaired



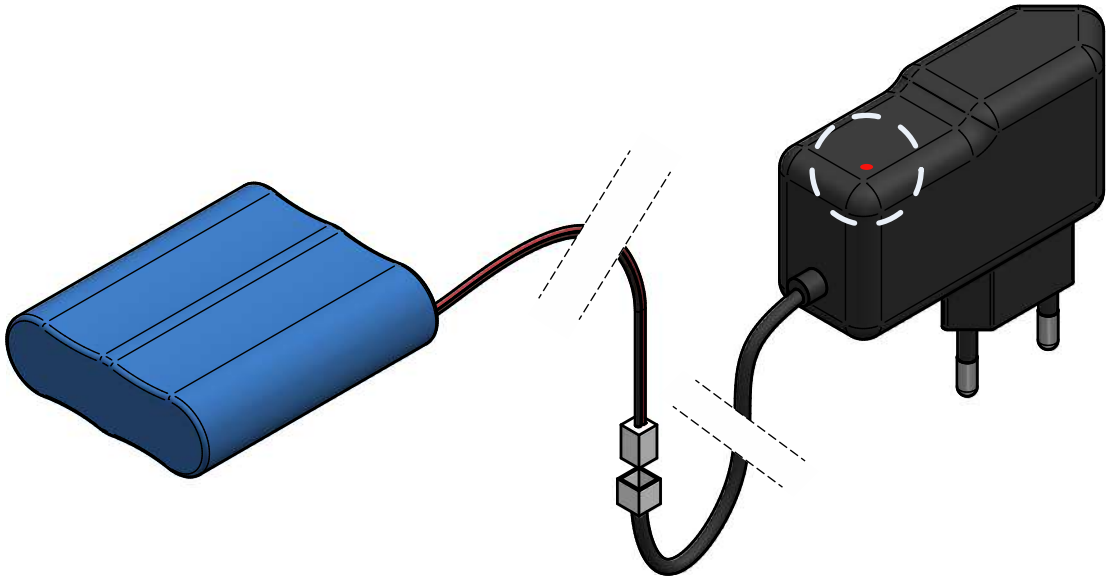
Communication error

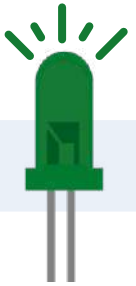
# Opening the shell

Be aware of the cables

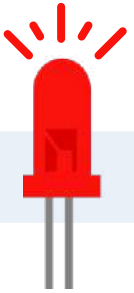


# Charger Indicator





Battery charged



Charging battery

## Charging

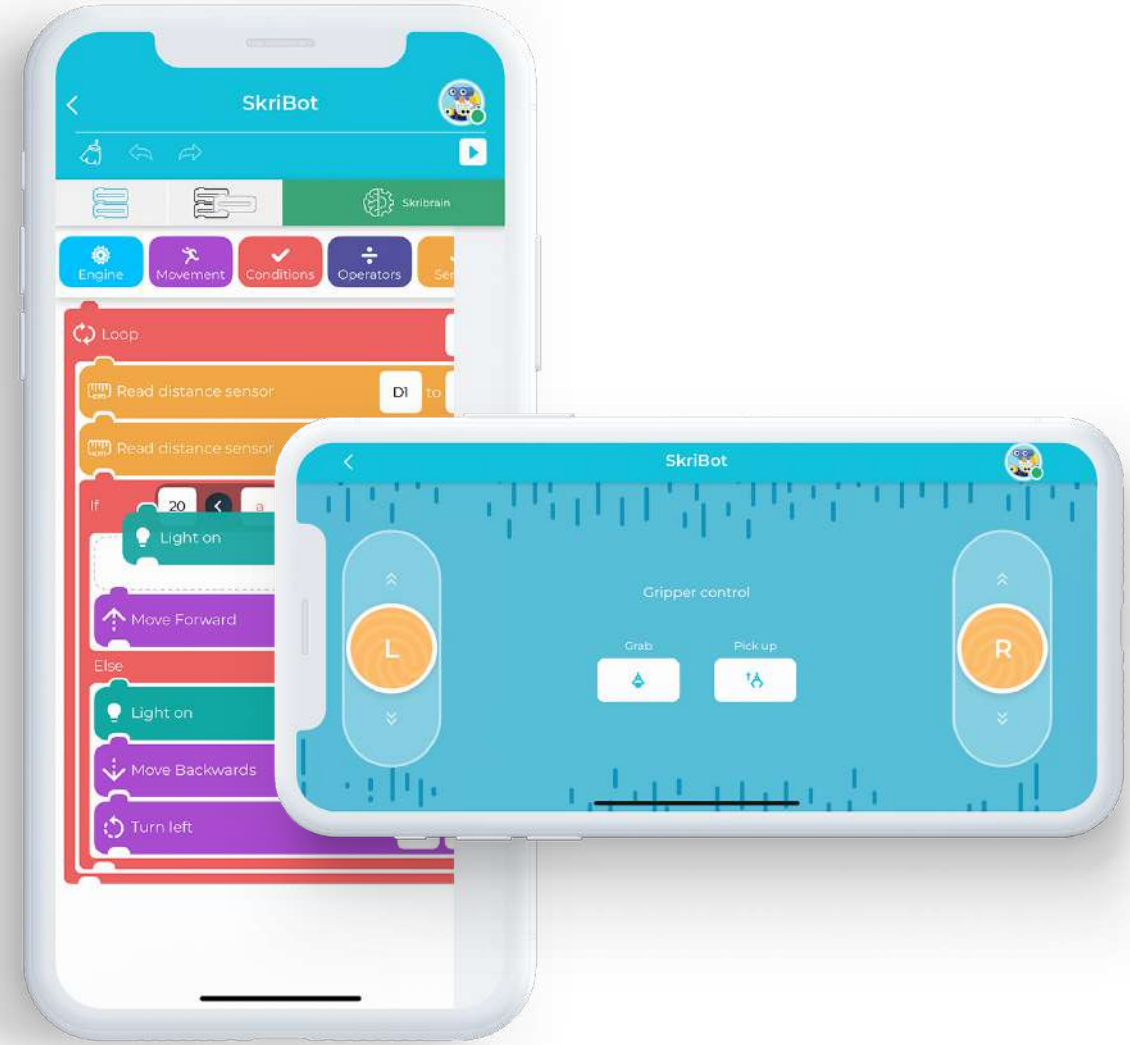
Only use the charger supplied with the robot to charge the battery. Check the battery charger regularly for damage to the power cable, plug, housing and other parts. If such damage occurs, the robot should not be used until repair or replacement. The battery should be charged under adult supervision. The battery should first be connected to the charger and then the charger should be connected to an electrical socket. Exhausted batteries should be removed from the toy. Do not short-circuit the power supply terminals. The robot must not be connected to more than one battery. If you do not plan to play with the robot for a long time, remove the battery.

# SkriApp

SkriApp works with tablets or smartphones with both iOS and Android operating systems. SkriApp allows you to control SkriBot remotely and program it via a user-friendly interface.

Download on the App Store

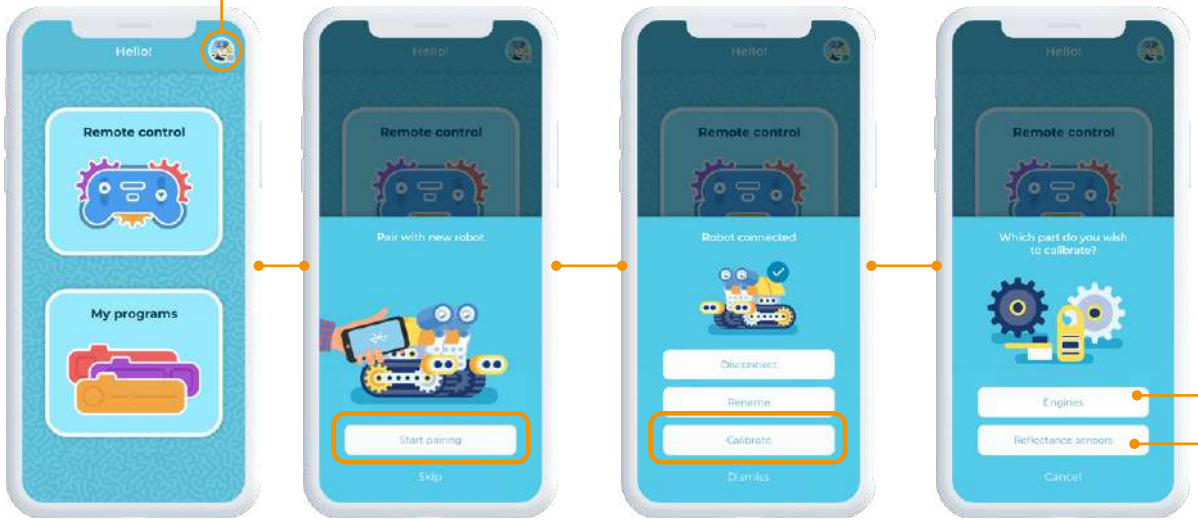
ANDROID APP ON Google Play



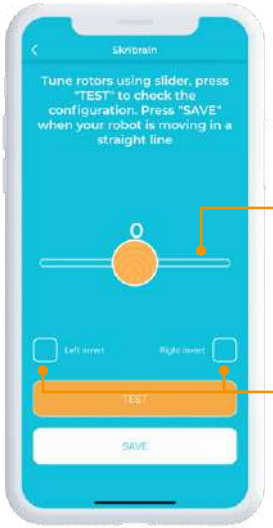
# SkriBot Calibration

After assembling your SkriBot, you should calibrate its motors and contrast sensors to work in your environment

Pair your SkriBot

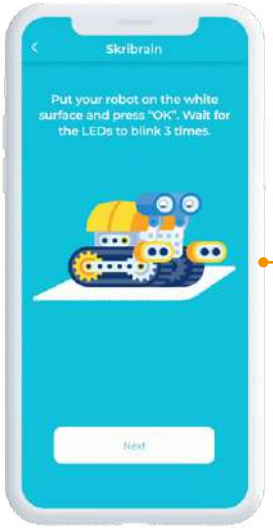



Go to calibration window.



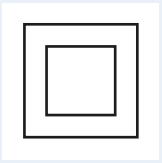

If your SkriBot drives off to the left, move the slider to the right

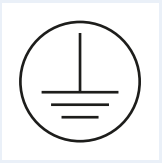
Change the spin direction of the wheels




## Warning:

- Adult supervision and assistance required.
- This product contains small parts and sharp pieces.
- Keep away from children under 3 years of age.
- Read and follow all instructions in the user manual before use.
- Keep the user manual for future reference.





**The robot may only be connected to Class I and Class II appliances** marked with the following symbols

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Please keep the leaflet and packaging as they contain important information.

## Caution!

- Do not insert cables into telecommunication or network sockets. As an additional precaution, check this product regularly for signs of wear or damage.
- Ensure that all cable connections are correct before switching the product on. Failure to do so may damage components and the product.
- Ensure that all wires are properly connected to the battery terminals and other connectors. If the circuit does not work, make sure that the plastic insulation of the cable does not interfere with the connector.
- When you have finished playing, switch off the device and disconnect the battery.
- Do not use any components or parts other than those supplied.
- To prevent overheating and damage, do not short-circuit the battery terminals and connectors. Do not block or cover the motor or other moving parts.

To protect the environment, do not dispose of this product with household waste. Please contact your local authority for recycling tips and plant addresses. There are penalties for non-compliance with waste disposal regulations.

SKRIWARE