

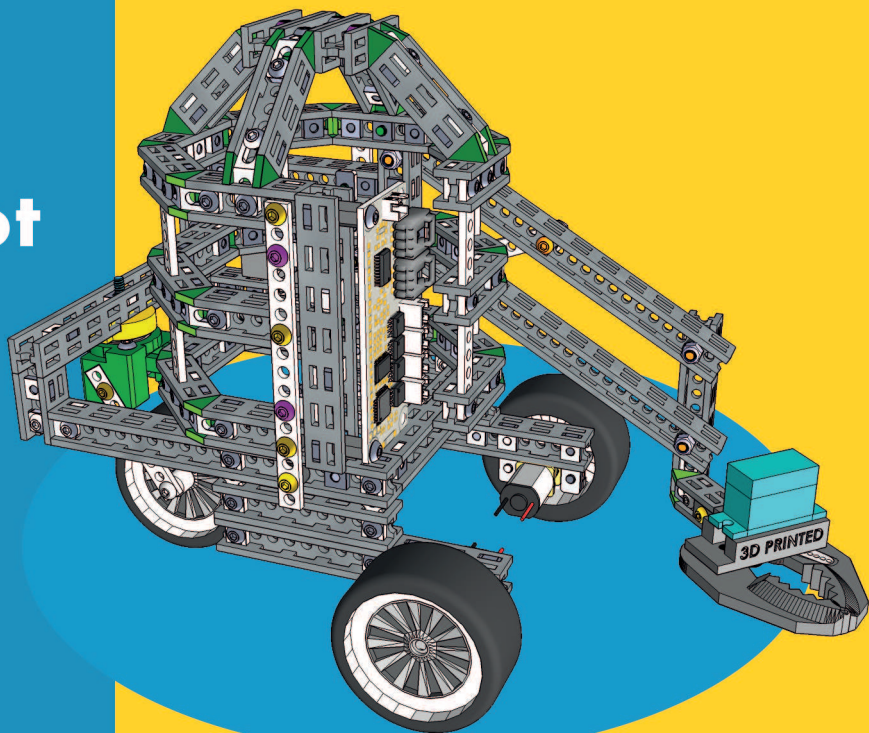


totem

Lucas the Robot

Assembly guide

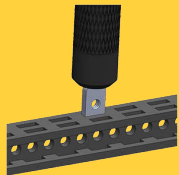
**DIY APP
CONTROLLED**



v.1.5

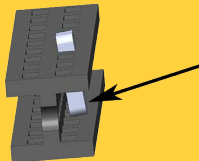
STARTING TIPS

Inserting nuts (1)



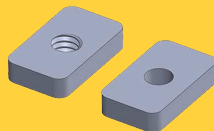
It is a good idea to start every step inserting nuts into beams (if the step requires). Use the back of the screwdriver to push in the nuts.

Inserting nuts (2)



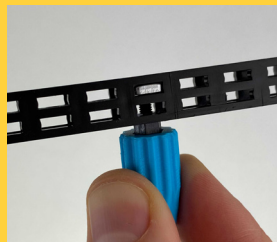
After entering the first slot, nuts tend to tilt. Use your thumb to push it back straight, and then again use the screwdriver to insert the nut all the way in.

Faulty threads



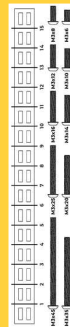
Some of the nuts are missing threads. This is a manufacturing issue and we are working on it. In the mean time, we add few extra nuts. We apologize for the inconvenience.

Tightening standoffs



Use the Totem Wrench Socket (Blue) to insert Nylon Standoffs used to assemble the electronics boards.

Ruler



Use Beam/Bolt ruler to determine the length of beams and bolts.

For more tips, please visit the link below:

<https://totemaker.net/blog/totem-mechanics-for-beginners/>

BEFORE YOU START BUILDING:



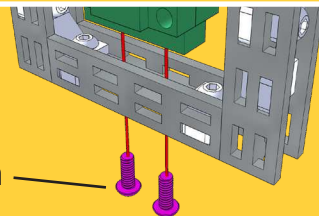
Standard Totem Bolts M3

Bolt colours codes:

We have put some colours on bolts to make instructions more clear.

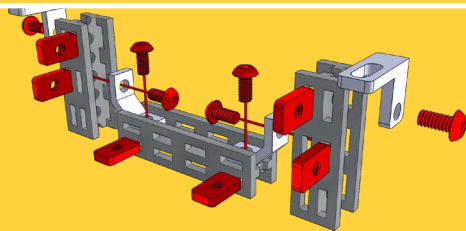


NOTE: 2x 8mm



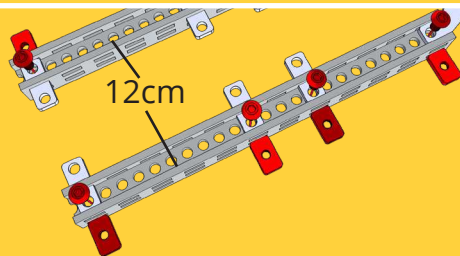
Notes for bolts other than 6mm:

When bolts that are not 6mm will be used, in addition to colours, extra notes are given in the instructions with lengths in mm.



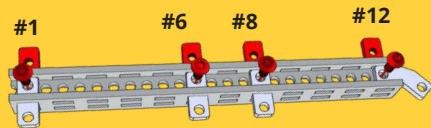
6mm bolts and 6x10mm nuts:

When starting on a building step, the 6mm bolts and 6x10 nuts are coloured **RED**. It makes it easier to see where the new bolts and nuts are placed.



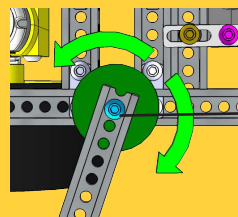
I-beams lengths.

When a new Totem beam is needed in a step, the length is indicated.



Positions for nuts with #-symbol.

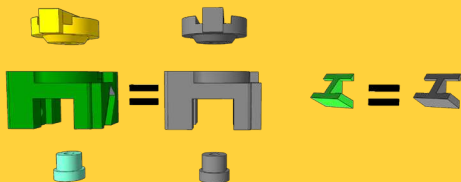
When it is helpful, the slot-number is indicated in the Totem beam. Starting from #1 and counting slots.



Don't tighten link too much.

Green Rotating Arrows = rotating action.

When a connection is a rotating hub, you must not tighten the bolt and nut too much. Test it for a smooth rotation, but not too wobbly either.



The colour of parts.

The colours of plastic part may vary. Colours are often changed on parts to make it easier to see them in the instructions pictures.

Totem Wrench Socket



Helpful little tool:

Included in the kit is a small hex-socket used for fastening Lock Nuts and Nylon Towers. The pointy end is for Lock Nuts.

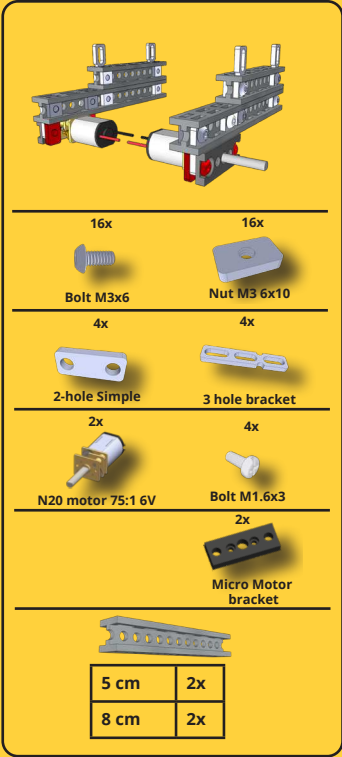


PARTS LIST:

110x  Bolt M3x6	5x  Bolt M3x8	10x  Bolt M3x10	5x  Bolt M3x16	5x  Bolt M3x20	133x  Nut M3 6x10	1x  Nut M3 5,5x5,5																		
7x  Lock Nut M3	7x  Metal washer M3 9x0.8mm	12x  2-hole Simple	5x  C-Bracket	1x  L-Twisted	1x  L-Twisted mirror	5x  3 hole bracket																		
1x  Swan90x45mirror	26x  2-hole 45 degrees	27x  Double side filler	13x  Spacer Nylon 4mm	1x  Mini Servo Motor	1x  Arm for Mini Servo Motor	1x  Bolt M2.5x8 For servo arm																		
2x  N20 motor 75:1 6V	2x  Micro Motor bracket V.3	4x  Bolt M1.6x3	1x  Mini Screwdriver	1x  Servo arm Index Disc set	 																			
1x  X3 Controller Board	1x  Li-Ion 3.7v Battery	1x  USB Battery Charger	2x  Nylon Standoff M3x8mm	3-5x  ZIP Tie	<table border="1"> <tbody> <tr> <td>4.0 cm/8H</td> <td>1x</td> </tr> <tr> <td>5.5 cm/11H</td> <td>2x</td> </tr> <tr> <td>6.5 cm/13H</td> <td>4x</td> </tr> <tr> <td>8.0cm/16H</td> <td>1x</td> </tr> <tr> <td>9.0cm/18H</td> <td>1x</td> </tr> </tbody> </table>		4.0 cm/8H	1x	5.5 cm/11H	2x	6.5 cm/13H	4x	8.0cm/16H	1x	9.0cm/18H	1x								
4.0 cm/8H	1x																							
5.5 cm/11H	2x																							
6.5 cm/13H	4x																							
8.0cm/16H	1x																							
9.0cm/18H	1x																							
1x  5.5mm Totem Wrench Totem Screw Driver	1x  Gripper	1x  Caster Wheel Kit	1x  43mm D-shaft Wheel	2x  43mm D-shaft Wheel	<table border="1"> <tbody> <tr> <td>2 cm</td> <td>3x</td> </tr> <tr> <td>3 cm</td> <td>28x</td> </tr> <tr> <td>5 cm</td> <td>3x</td> </tr> <tr> <td>6 cm</td> <td>3x</td> </tr> <tr> <td>7 cm</td> <td>2x</td> </tr> <tr> <td>8 cm</td> <td>3x</td> </tr> <tr> <td>9 cm</td> <td>1x</td> </tr> <tr> <td>10 cm</td> <td>2x</td> </tr> <tr> <td>12 cm</td> <td>2x</td> </tr> </tbody> </table>		2 cm	3x	3 cm	28x	5 cm	3x	6 cm	3x	7 cm	2x	8 cm	3x	9 cm	1x	10 cm	2x	12 cm	2x
2 cm	3x																							
3 cm	28x																							
5 cm	3x																							
6 cm	3x																							
7 cm	2x																							
8 cm	3x																							
9 cm	1x																							
10 cm	2x																							
12 cm	2x																							

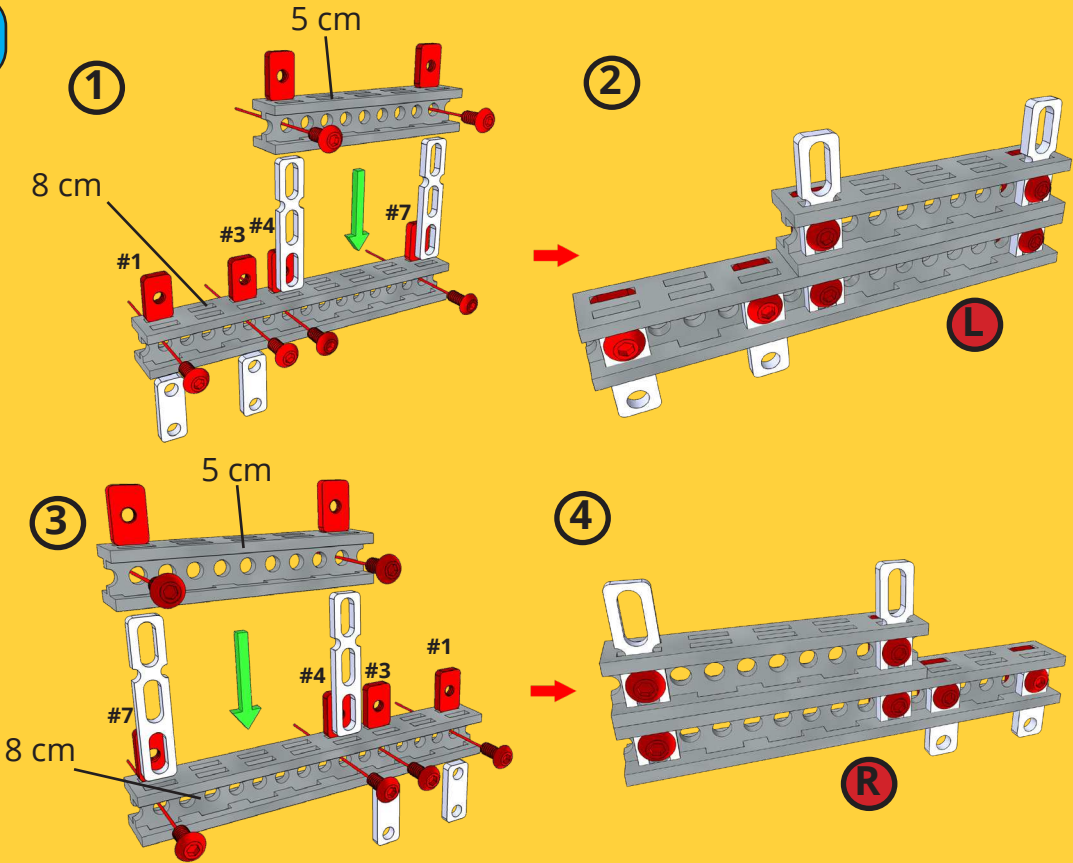
Explanation:
8H = 8 holes
etc.

PART 1



Parts list for Part 1:

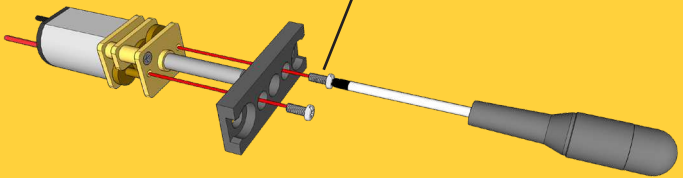
- 16x Bolt M3x6
- 16x Nut M3 6x10
- 4x 2-hole Simple
- 4x 3 hole bracket
- 2x N20 motor 75:1 6V
- 4x Bolt M1.6x3
- 2x Micro Motor bracket
- 5 cm (2x)
- 8 cm (2x)



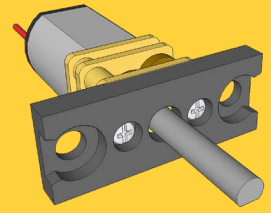
5



Note: 1.6mm / 3mm



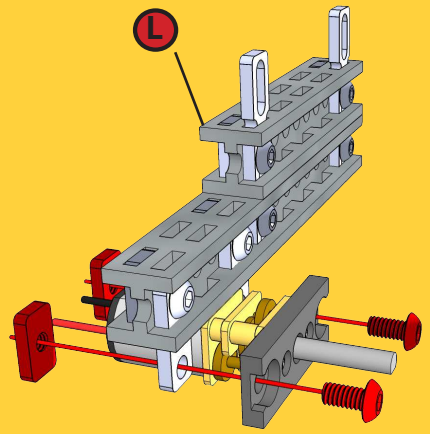
6



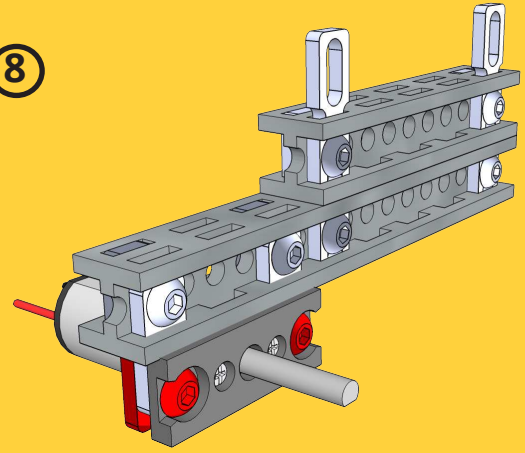
2x

7

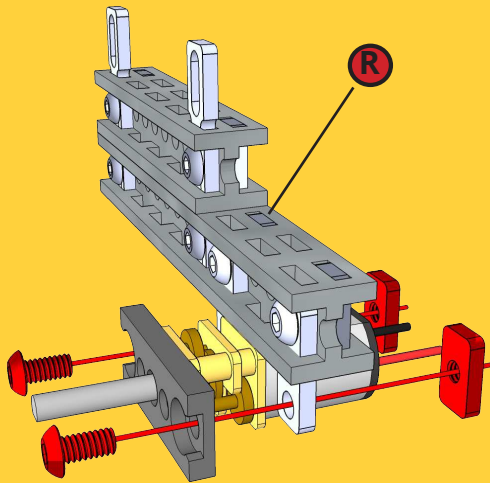
L



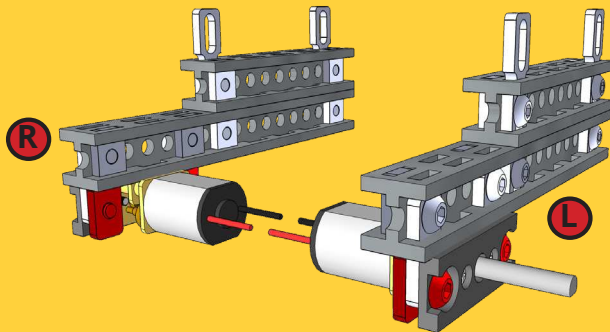
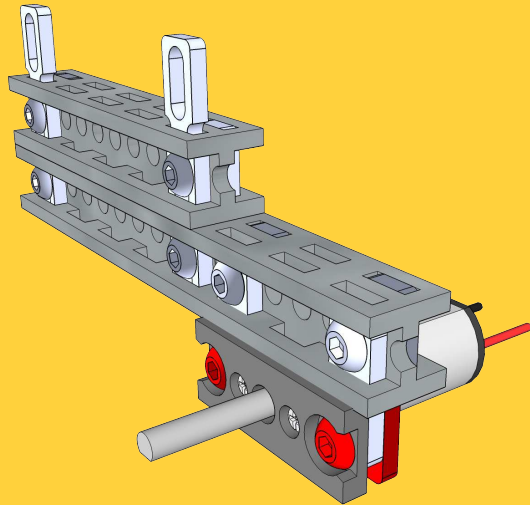
8



9

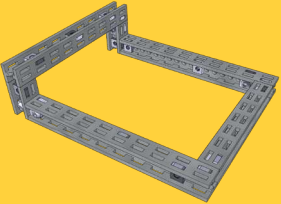


10



✓
PART 1

PART 2



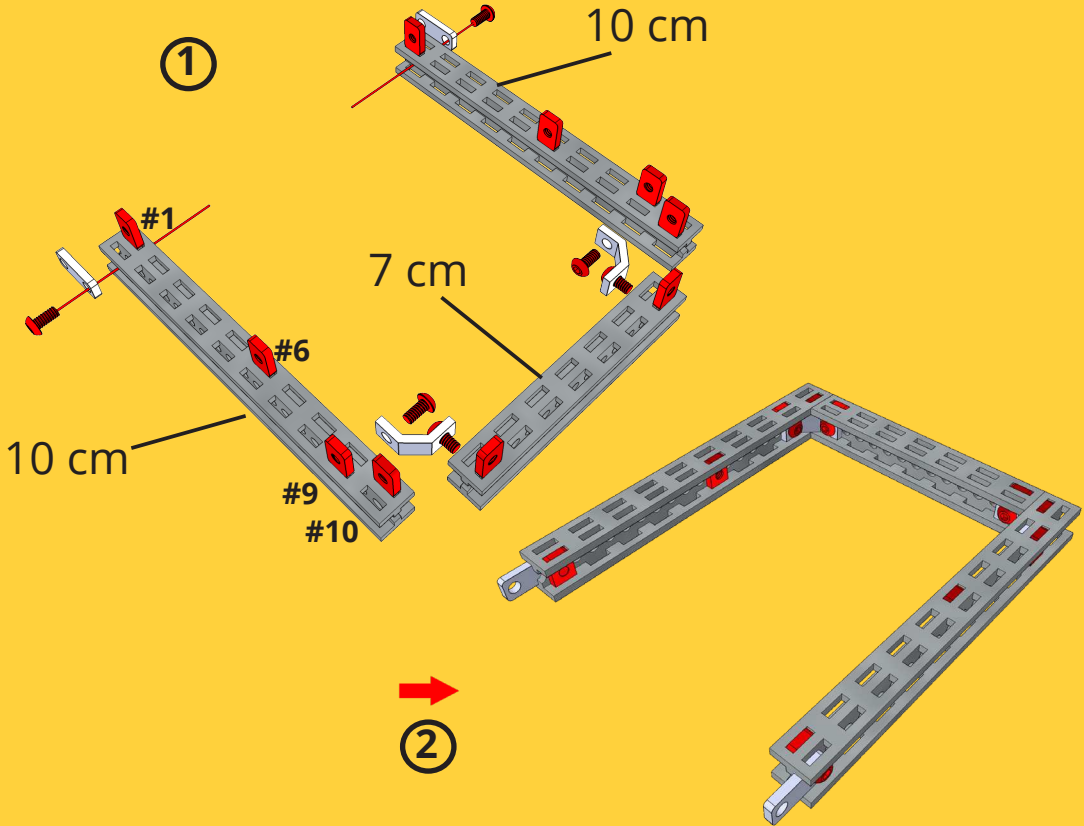
12x Bolt M3x6

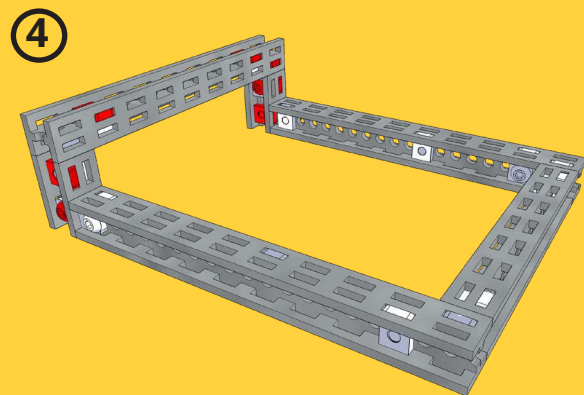
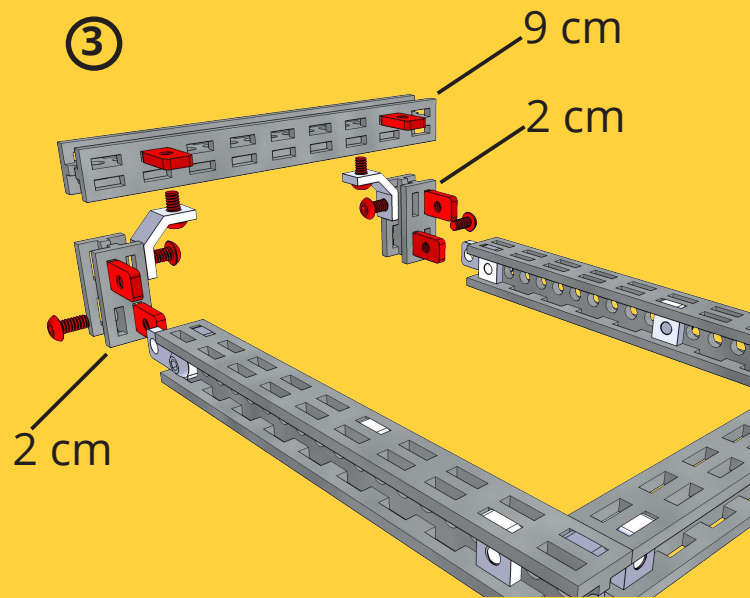
16x Nut M3 6x10

2x 2-hole Simple

4x C-Bracket

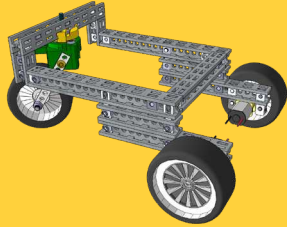
2 cm	2x
7 cm	1x
9 cm	1x
10 cm	2x





PART 2

PART 3



4x



Bolt M3x6

1x



Nut M3 6x10

2x

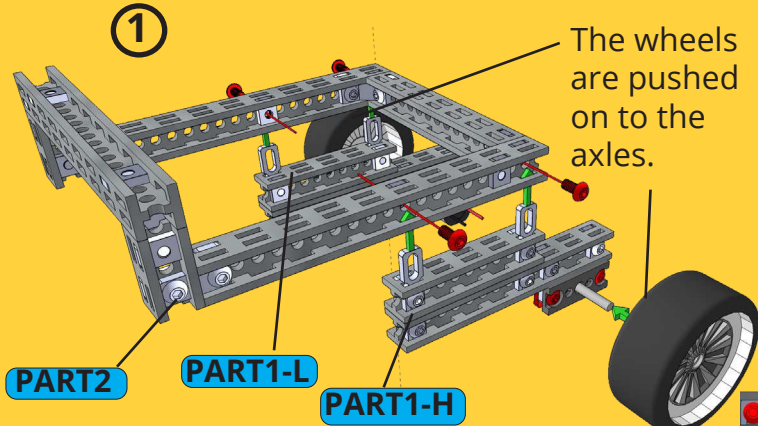


43mm D-shaft Wheel

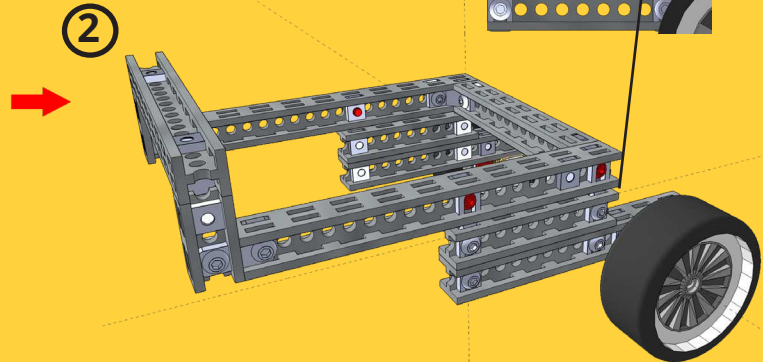
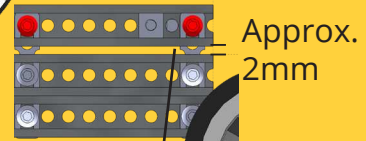
1x



Caster Wheel Kit



Below we indicate you should make a gap between the 2 beams by adjusting up or down. It makes the robot level to the floor. It is **not** important to have it accurate. Just make it approximately 2-3mm.

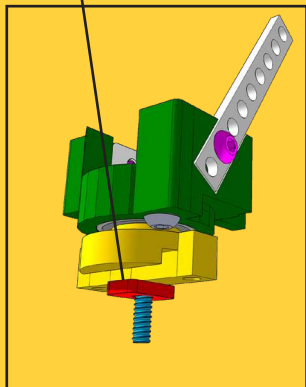


1x



Castor Wheel Kit

You can skip putting a beam to the castor wheel set here. Just temporarily put a 6x10mm nut there to hold it together during building the castor set.



Castor Wheel Kit:

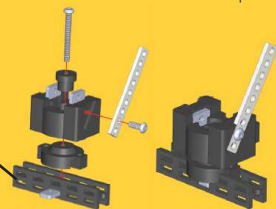
Read in the **Robotics Kit Booklet** in page 30 and 31 about how to build a Castor Wheel set.
The colour green and yellow in some instructions are for clarity only, the actual colour may be different.



Skip Step 4, it is not needed.

Castor Wheel

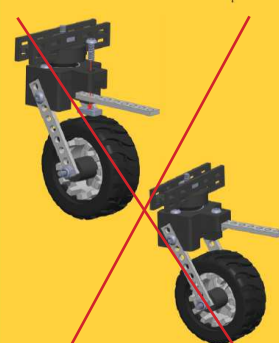
Castor Wheel Set Step 2

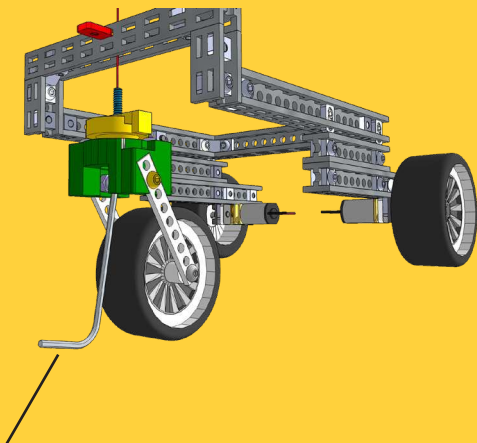


Castor Wheel Set Step 3

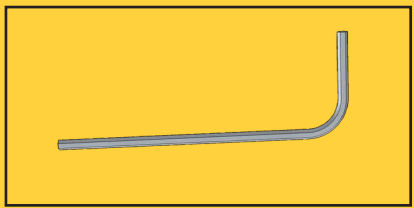


Castor Wheel Set Step 4

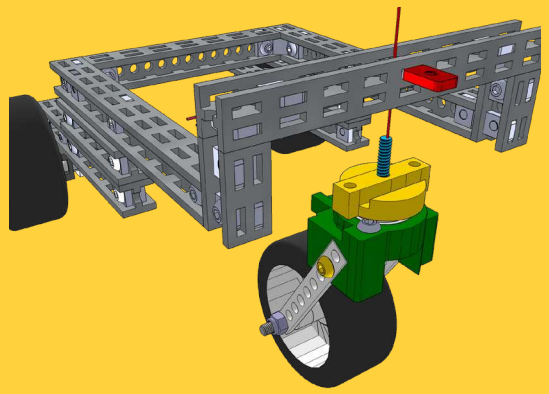




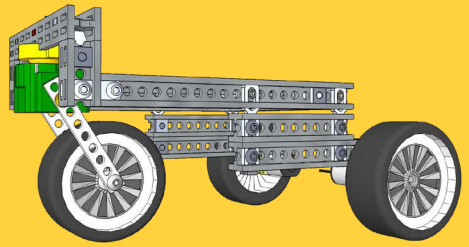
Use the included Allen key to easier tighten the bolt.



3

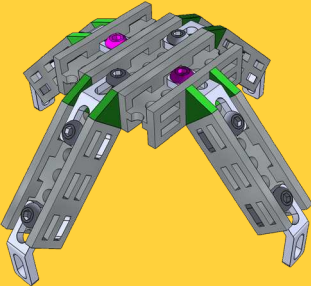


4



PART 3


PART 4

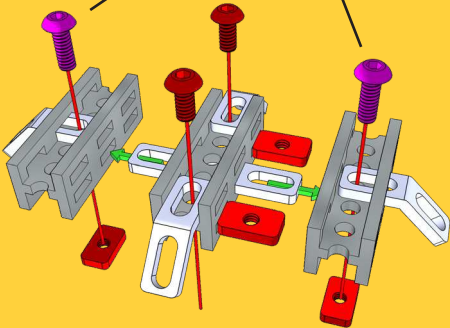



10x	2x	12x
Bolt M3x6	Bolt M3x8	Nut M3 6x10
8x	1x	4x

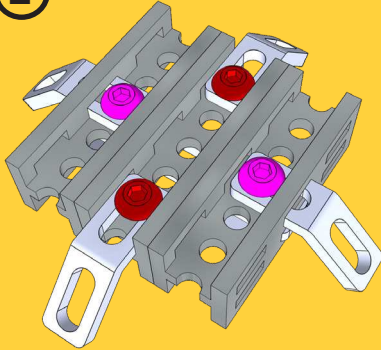
2-hole 45 degrees	3 hole bracket	Double side filler

3 cm	7x


①  Note: 8mm

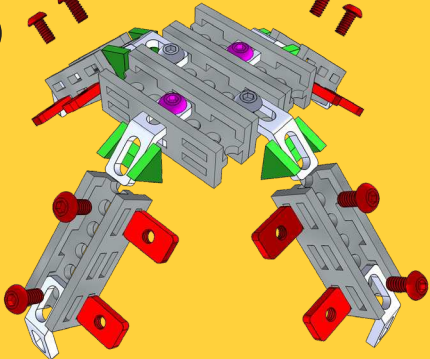



② 

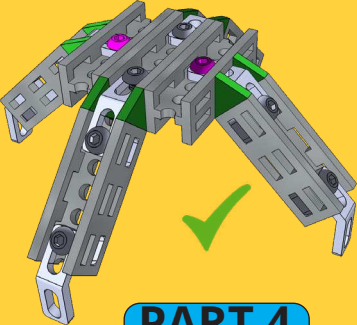


ALL: 3 cm

③ 



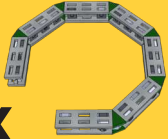
④ 








PART 4

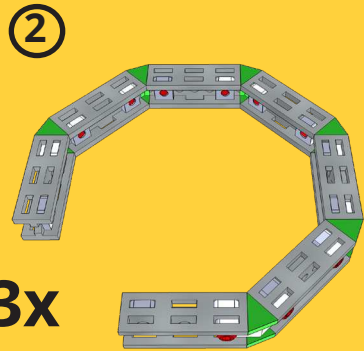
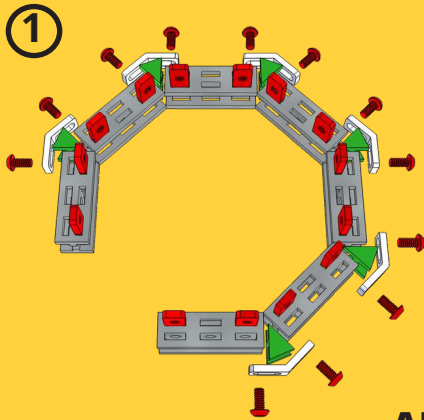
PART 5

3x



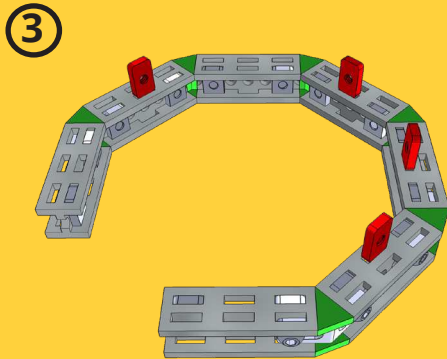
 36x Bolt M3x6	 54x Nut M3 6x10
 18x 2-hole 45 degrees	 18x Double side filler

 3 cm	21x
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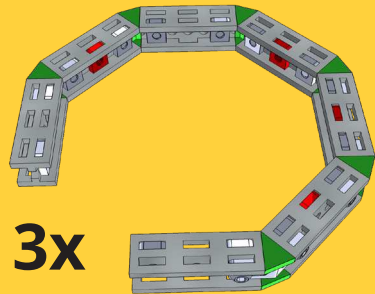


3x

ALL: 3 cm



④




3x



PART 5

PART 6

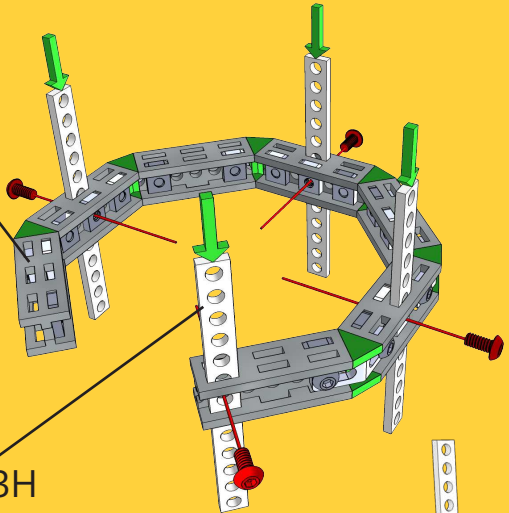


17x	2x	3x
Bolt M3x6	Bolt M3x8	Bolt M3x10
9x	4x	
Nut M3 6x10	Double side filler	
3x	2x	
Spacer Nylon 4mm	Nylon Standoff M3x8mm	
1x	1x	
L-Twisted	L-Twist mirror	
7 cm	1x	6.5cm/13H 4x
		8cm/16H 1x

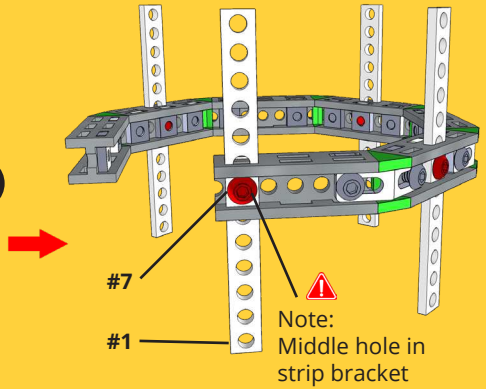
①

PART5

4x 65mm/13H



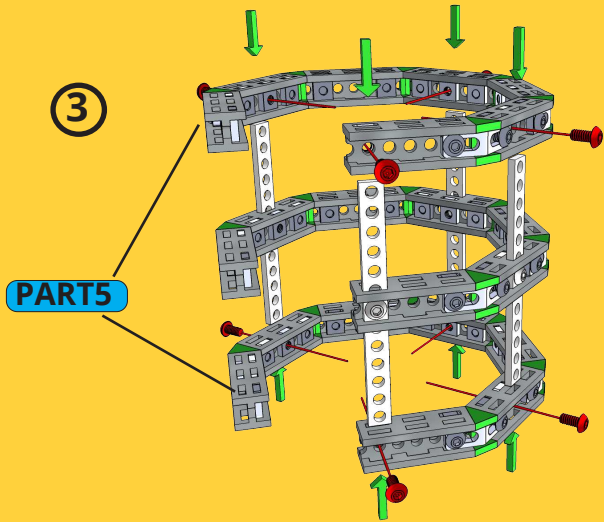
②



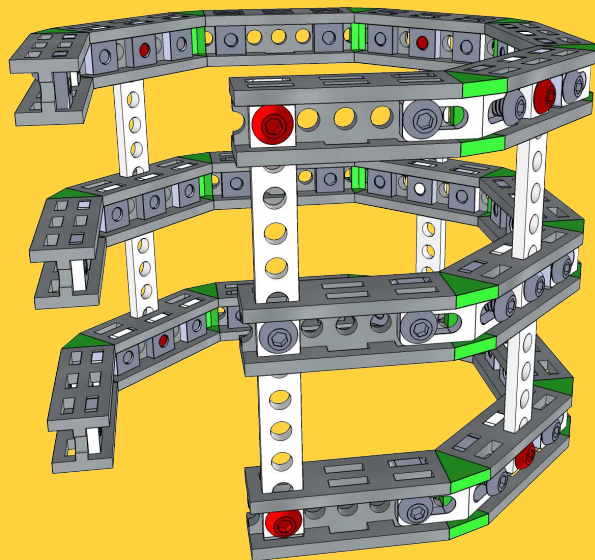
#7

#1

Note:
Middle hole in
strip bracket

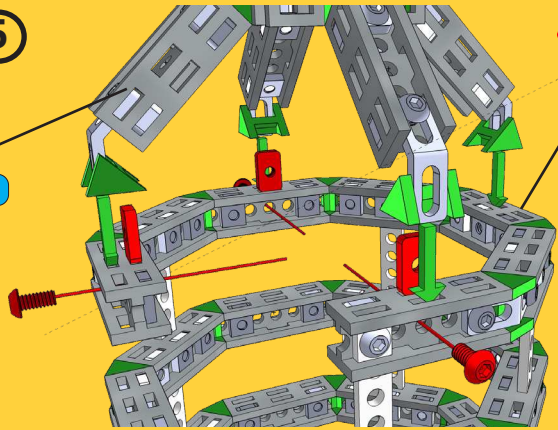


④



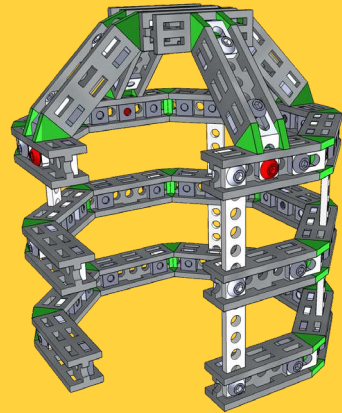
⑤

PART4



Note: No bolt here yet.

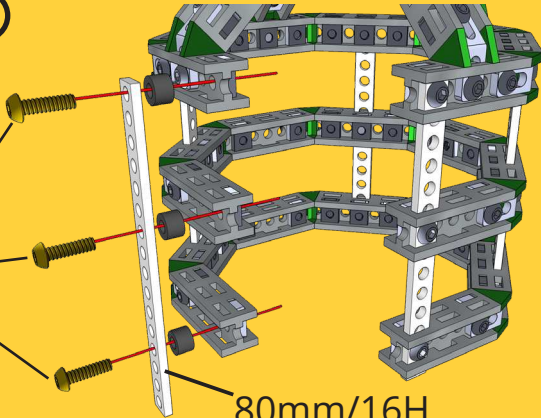
⑥



⑦

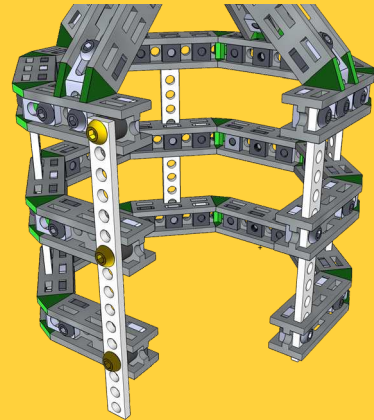


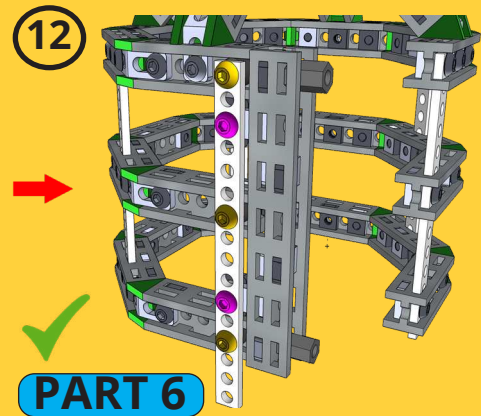
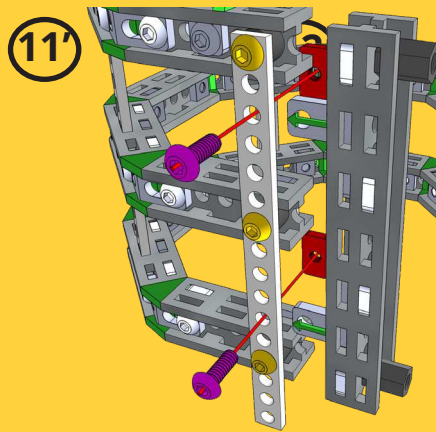
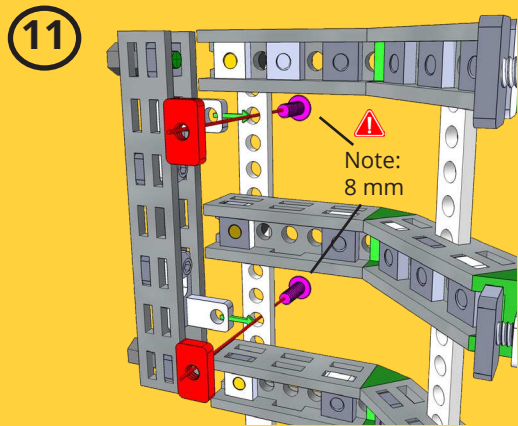
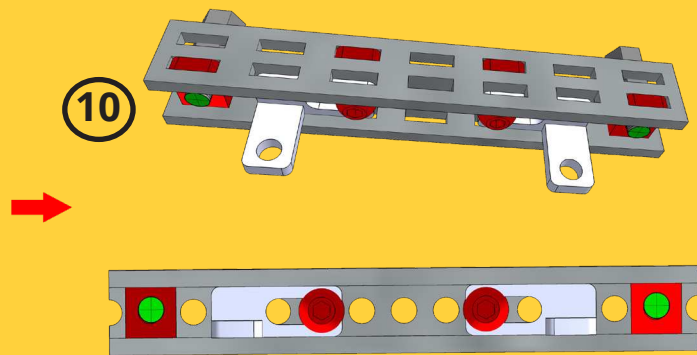
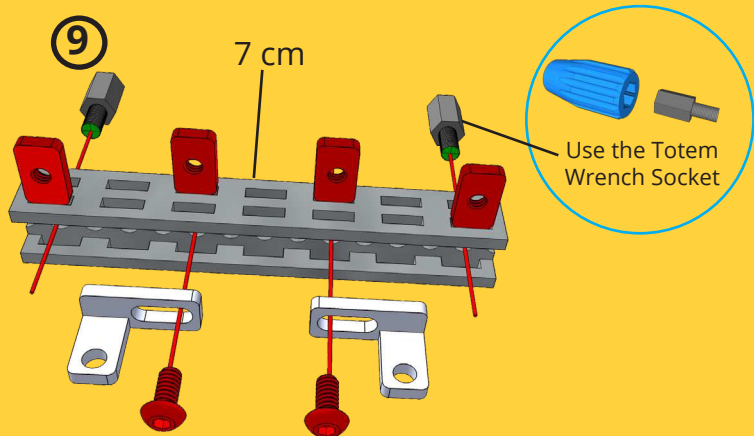
Note: 10mm



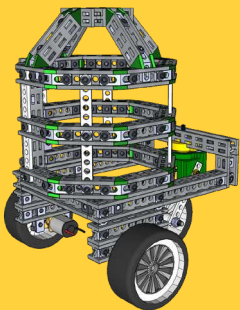
80mm/16H

⑧





PART 7



1x



Bolt M3x10

2x



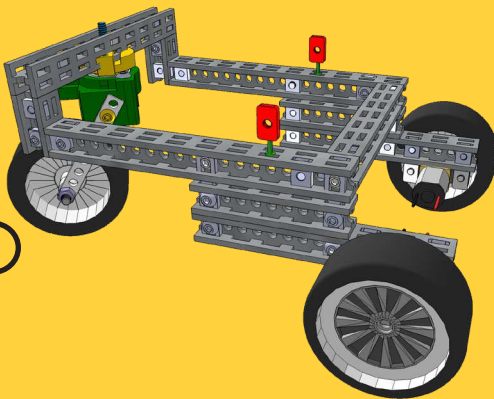
Nut M3 6x10

1x

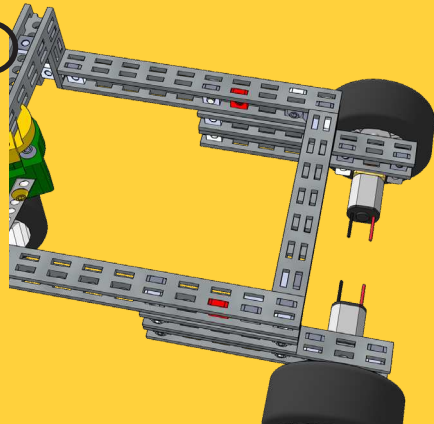


Spacer Nylon 4mm

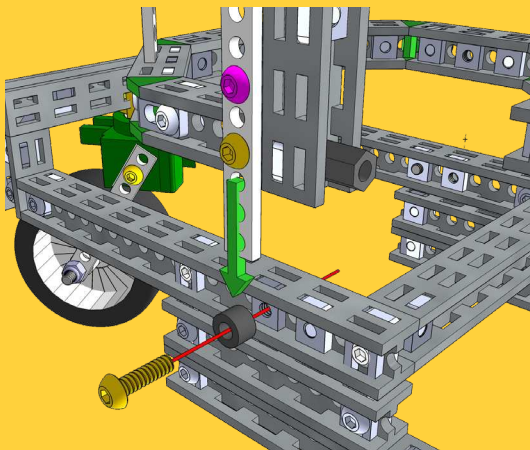
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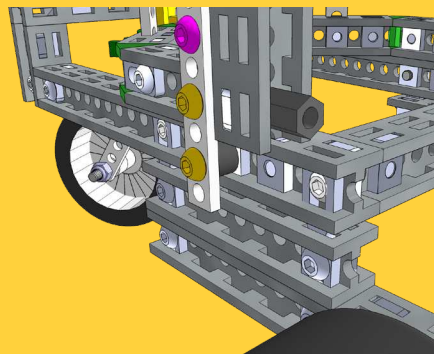
2



3

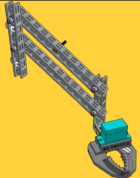












4




PART 7

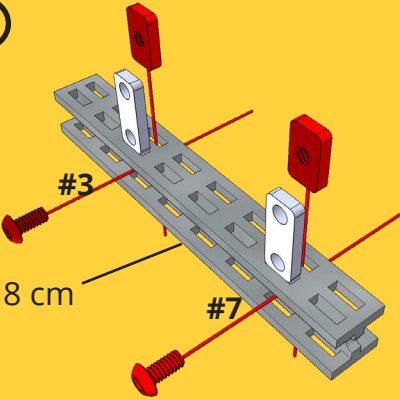
PART 8



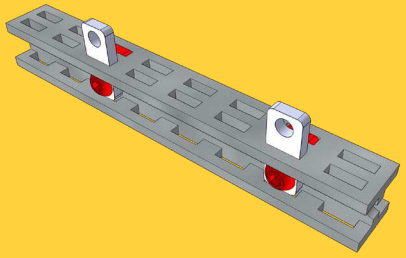
4x	1x	5x
		
Bolt M3x6	Bolt M3x10	Bolt M3x20
9x	1x	2x
		
Nut M3 6x10	Nut M3 5,5x5,5	2-hole Simple
4x	4x	
		
Metal washer M3 9x0.8mm	Lock Nut M3	
8x	1x	
		
Spacer Nylon 4mm	Gripper	

	2 cm	1x
	6 cm	1x
	8 cm	1x
	12 cm	2x

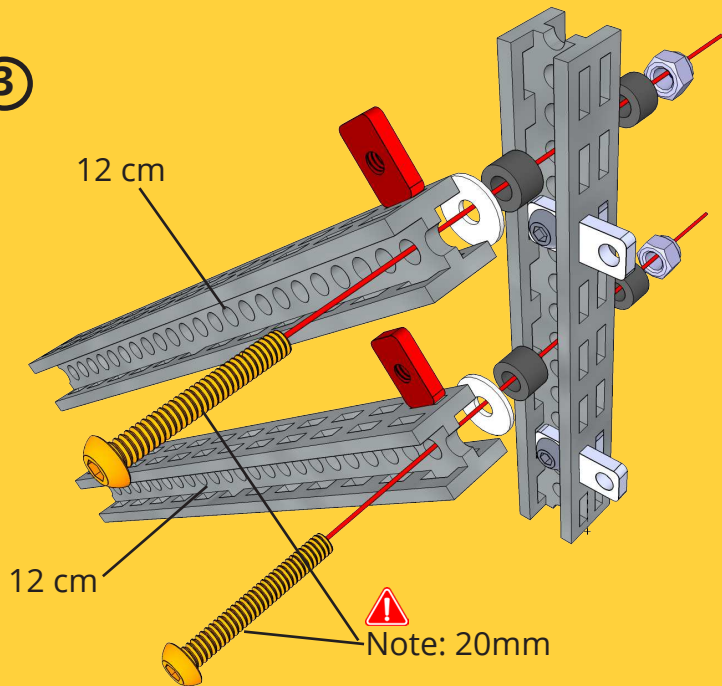
①



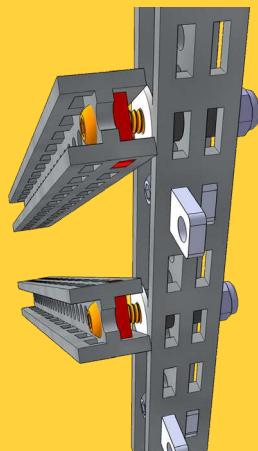
②



③



④



5

2 cm

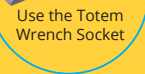
6 cm

#2

6



7



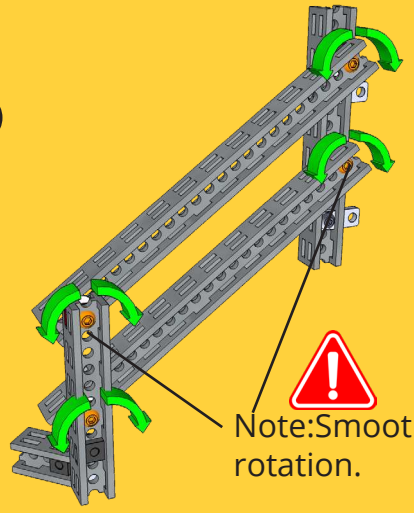
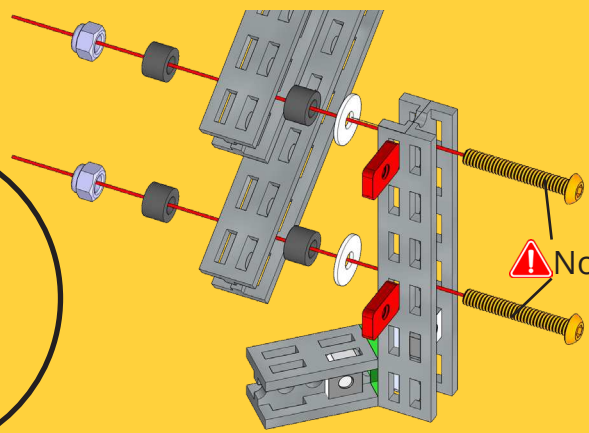
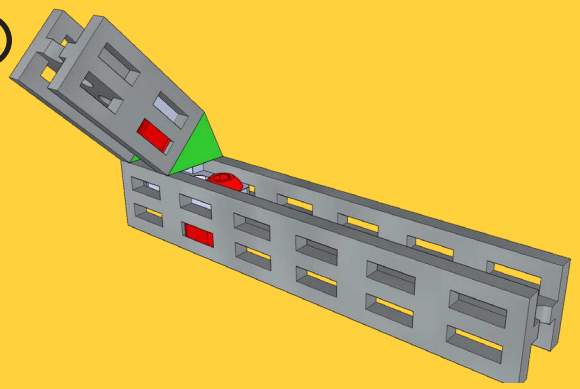
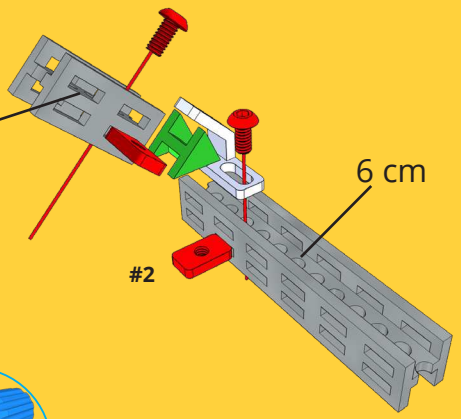
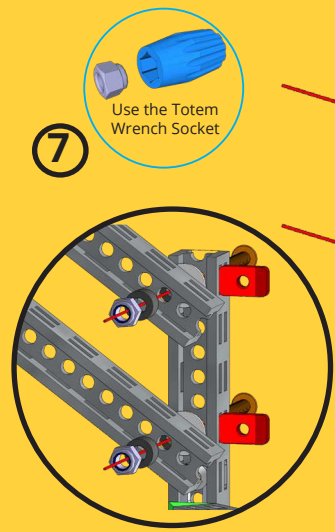
Use the Totem Wrench Socket

8

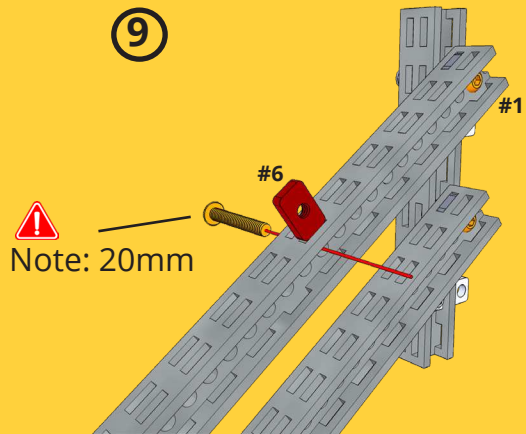


Note: 20mm

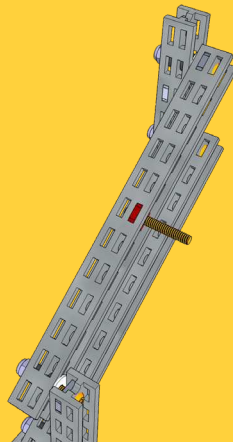
Note: Smooth rotation.



9

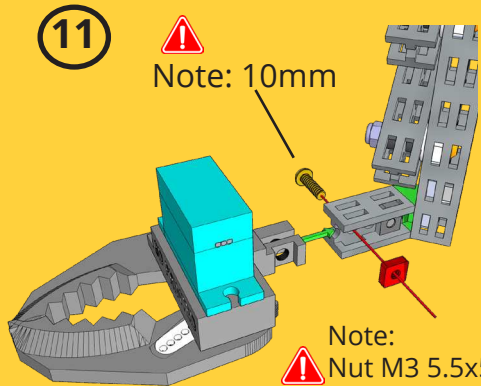


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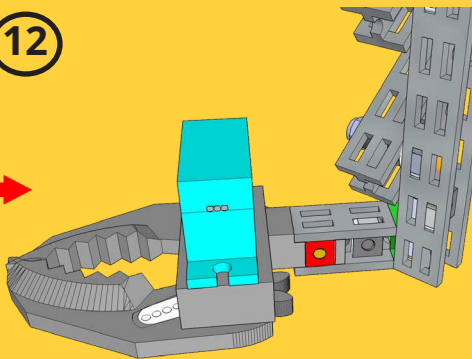


11

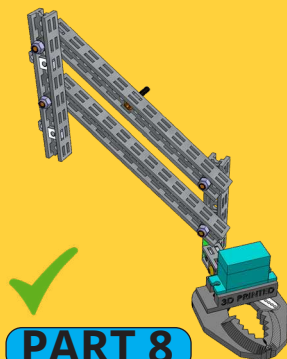
Note: 10mm



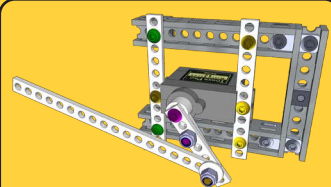
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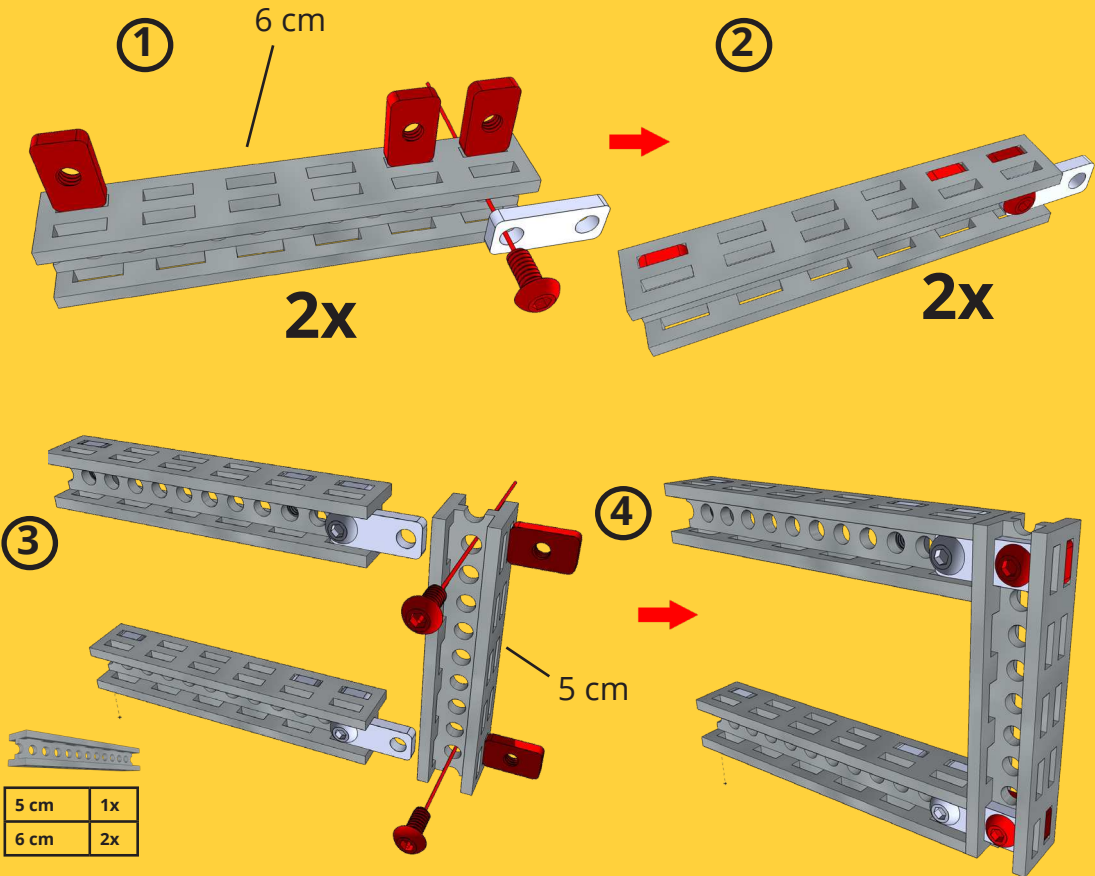
13

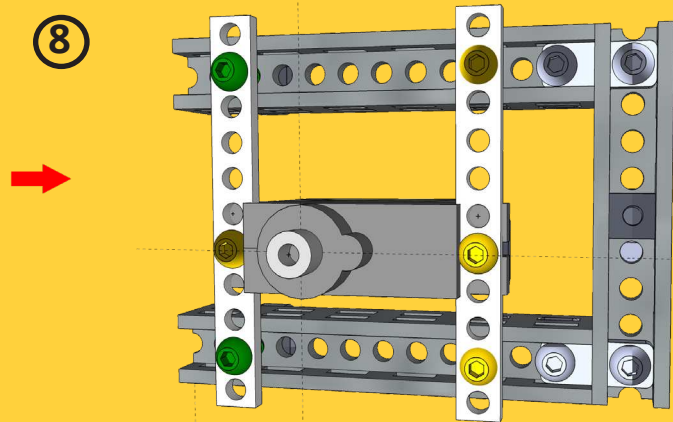
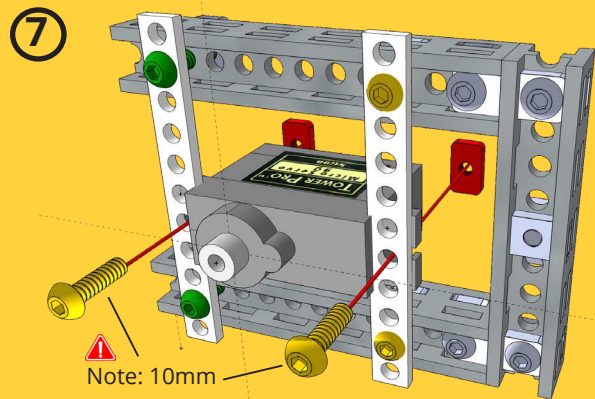
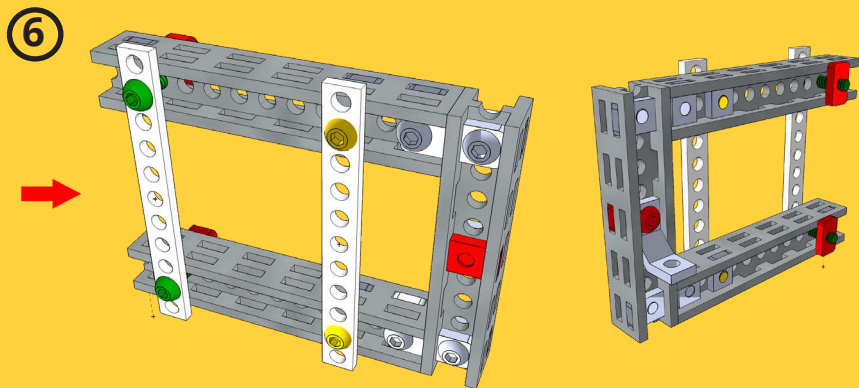
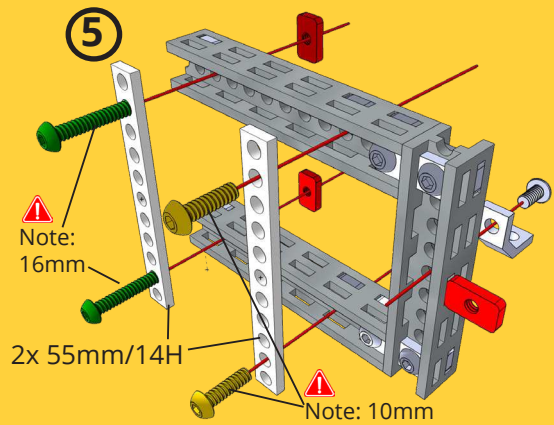


PART 9

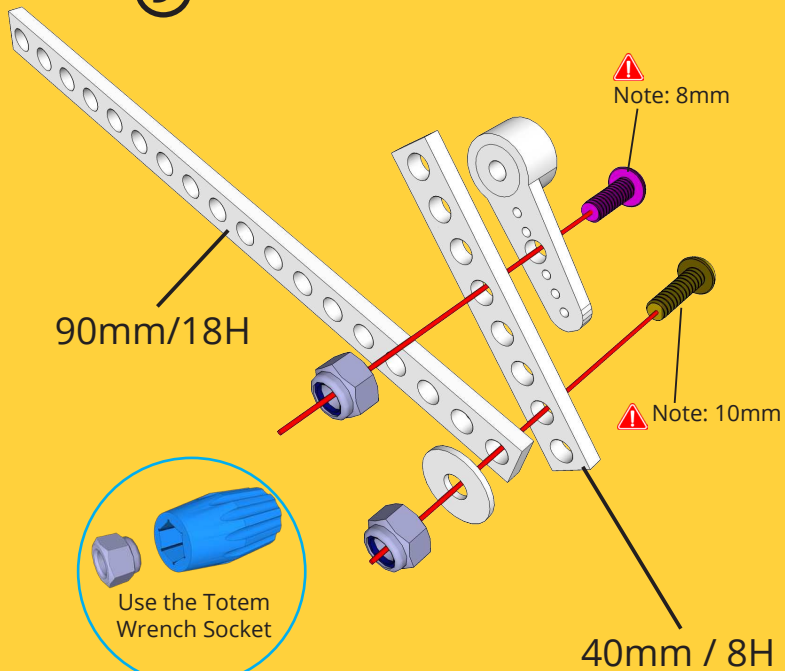


8x	1x	5x
Bolt M3x6	Bolt M3x8	Bolt M3x10
2x	13x	3x
Bolt M3x16	Nut M3 6x10	Lock Nut M3
2x	1x	3x
2-hole Simple	C-Bracket	Metal washer M3 9x0.8mm
1x	1x	1x
Mini Servo Motor	Arm for Mini Servo Motor	Spacer Nylon 4mm
1x	1x	
Bolt M2.5x8 For servo arm	Servo arm Index Disc set	

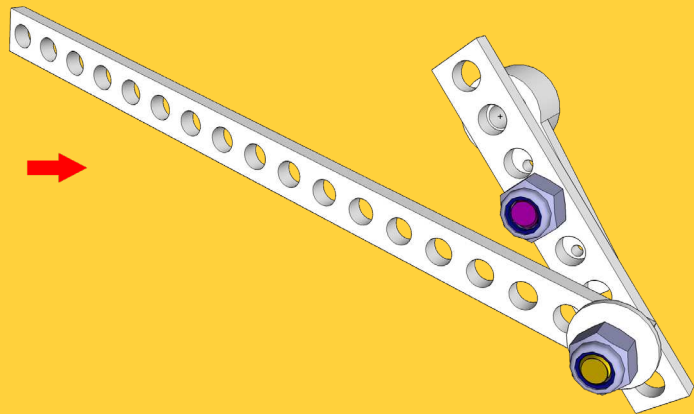




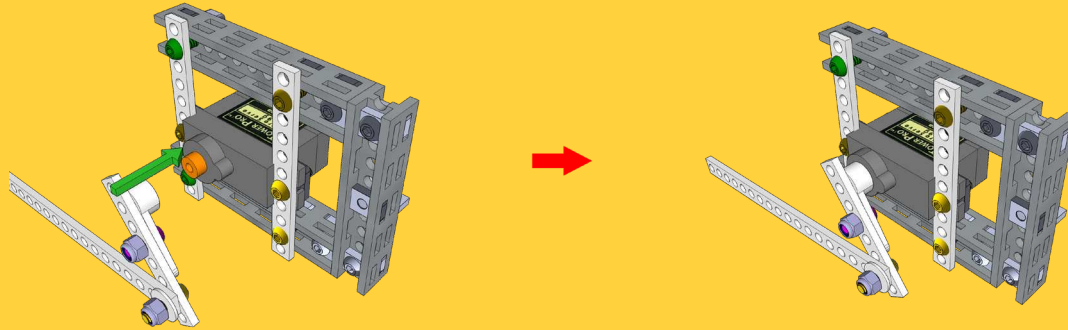
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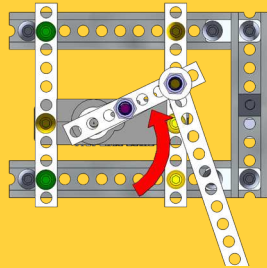
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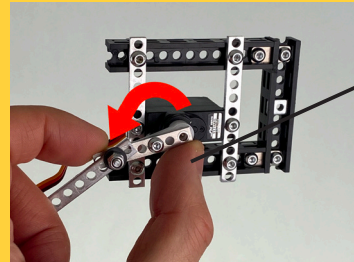
Register the servo arm.



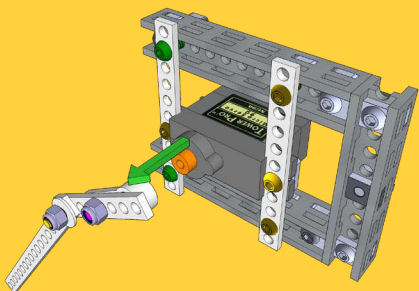
A : Put on the servo arm assembly in any position.



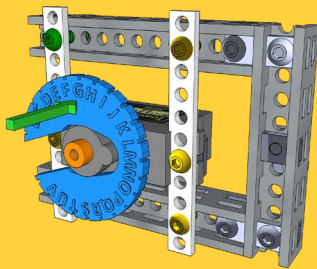
B : Manually twist the arm Counter Clockwise until it stops.



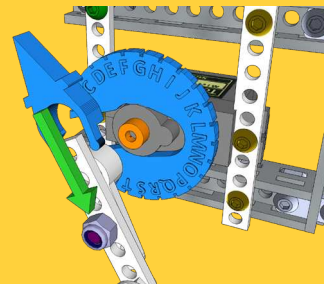
**Be careful.
Don't use too
much force. Gen-
tly twist it Counter
Clock-wise.**



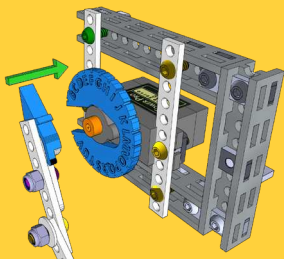
C : Temporarily take off the servo arm.



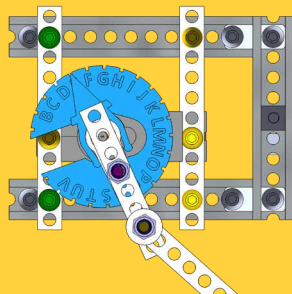
D : Slip on the Servo Arm Index Disc on to the servo.



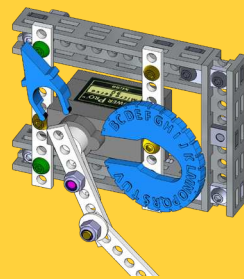
E : Attach the Servo Arm Index Arrow on to the servo arm.



F : Put the Servo Arm with Index Arrow back on the servo matching the "E" mark on the disc.

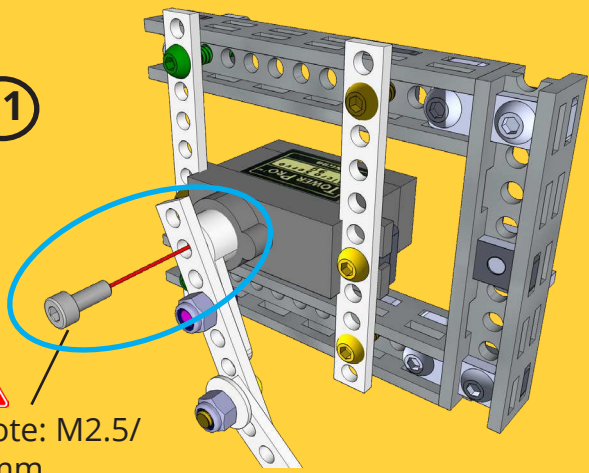


G : Here you can see the arrow points to the "E" index mark.

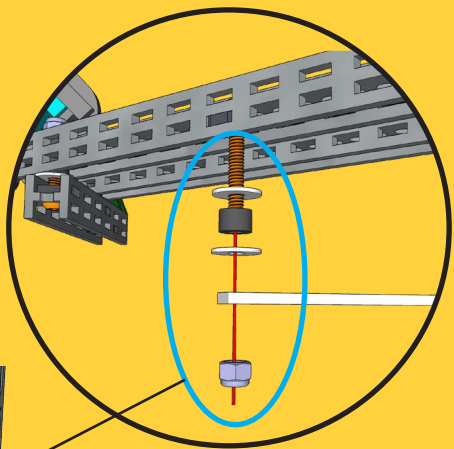


H : Take off the disc and arrow. Make sure the servo arm stays.

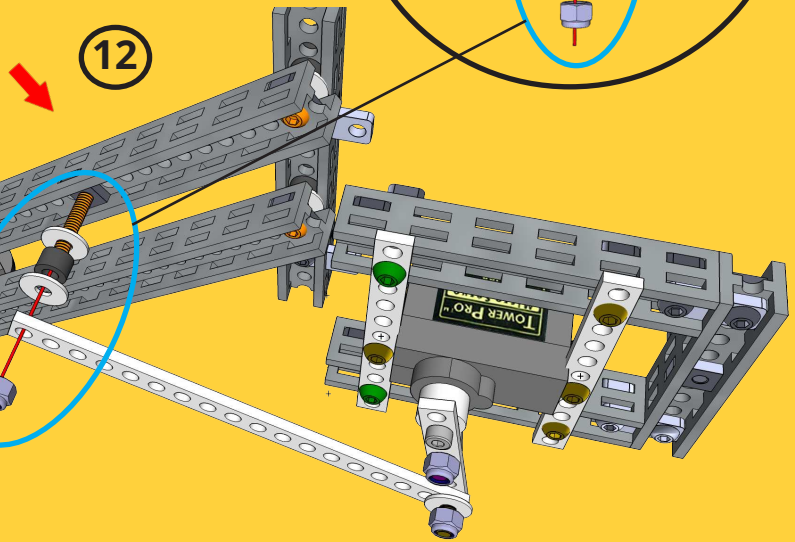
11



 Note: M2.5/
8mm



12

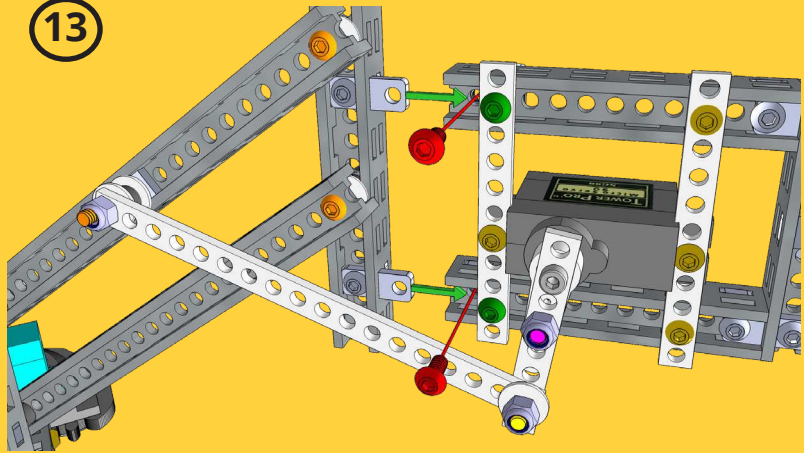


PART 8

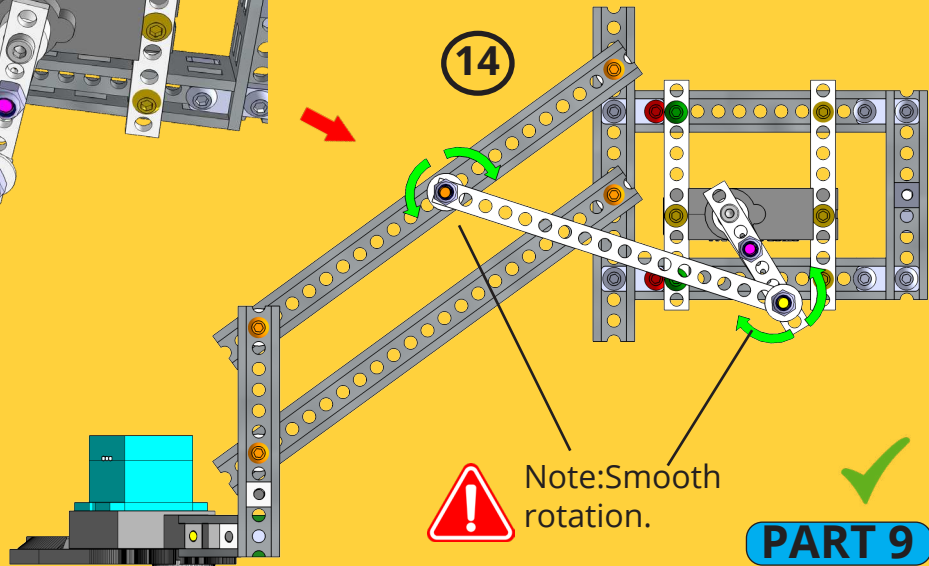


Use the Totem
Wrench Socket

13



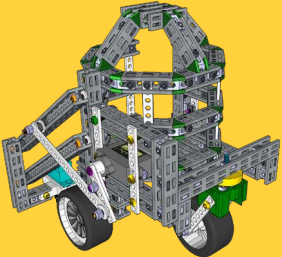
14



Note: Smooth rotation.

PART 9

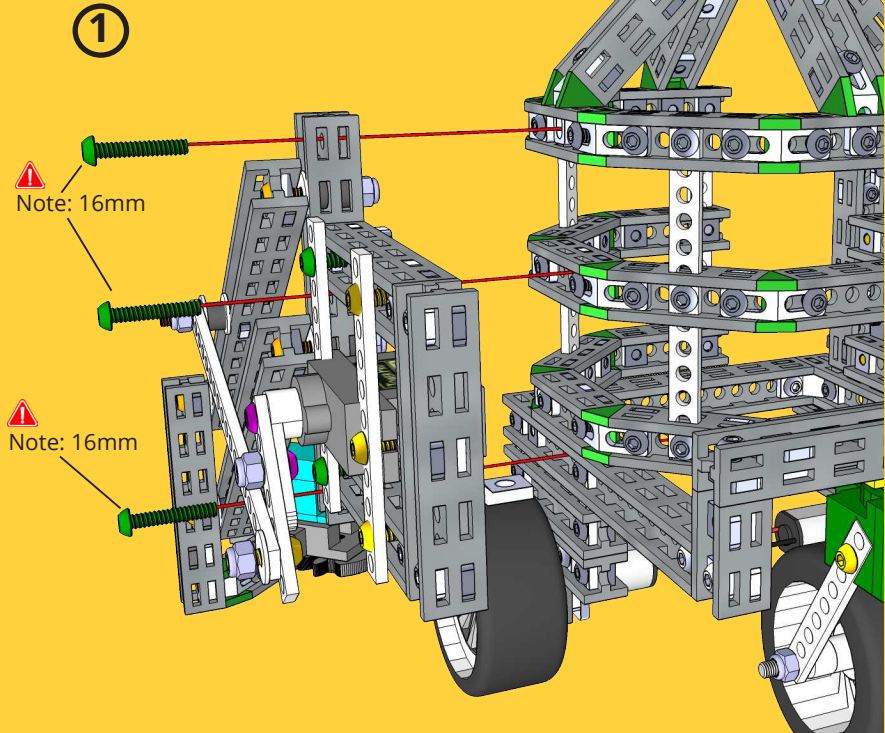
PART 10



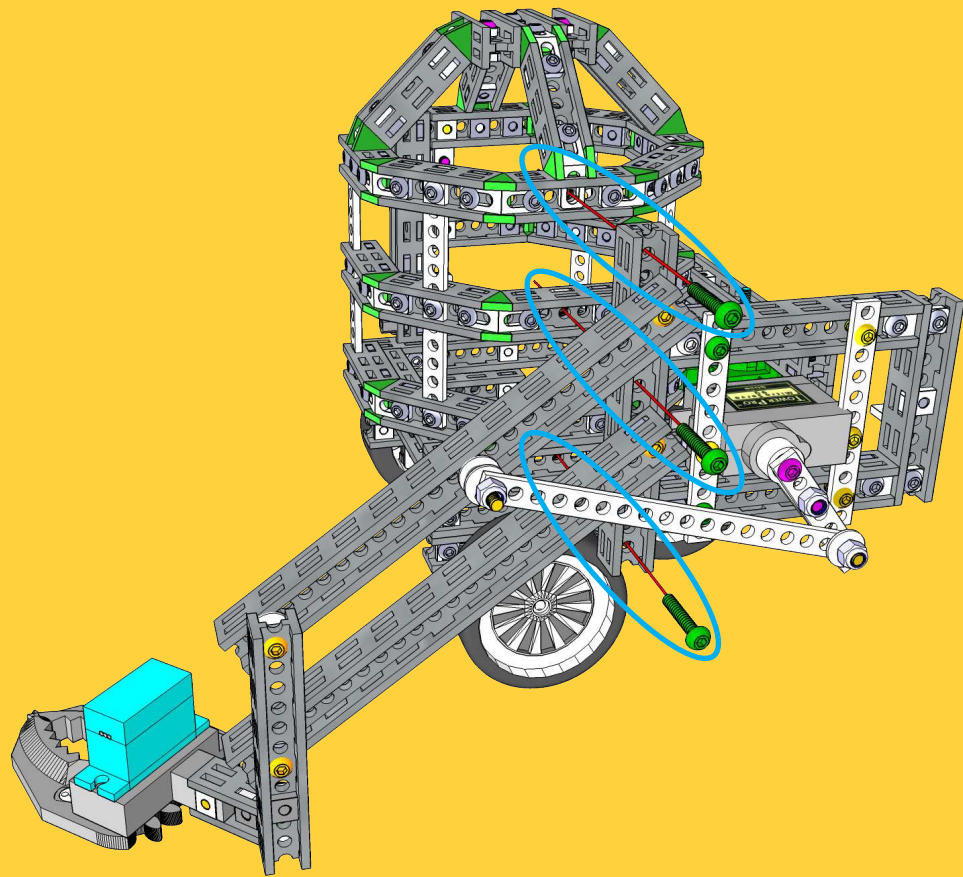
1x Bolt M3x6

3x Bolt M3x16

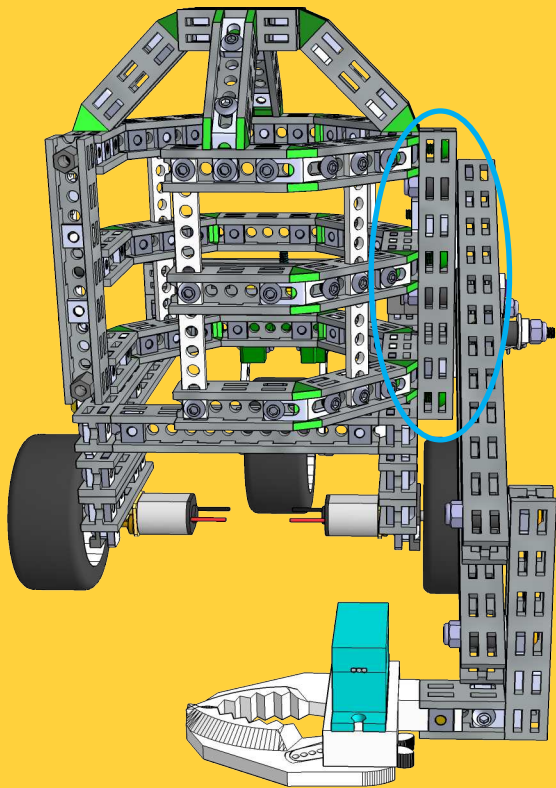
1x Nut M3 6x10



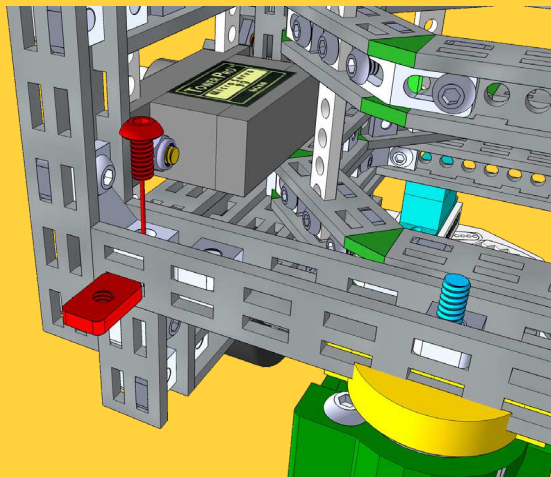
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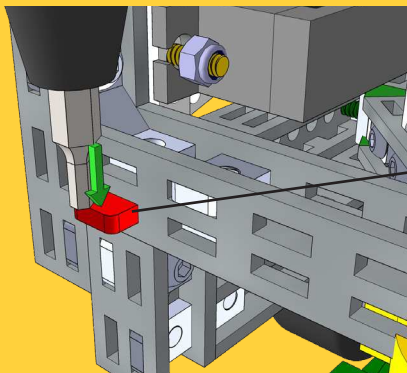
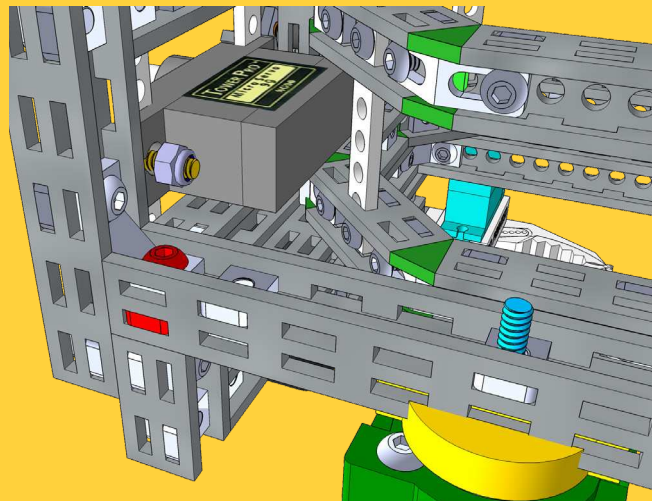
②



3



4



Tip:

If the nut is stuck when pushed in:

Use the screwdriver as shown and push down!

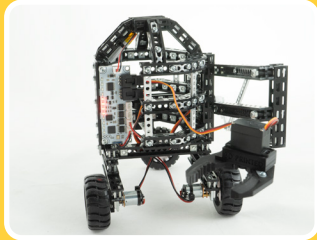
You should now be able to push it all the way in.



PART 10

PART 11

Mount the X3 controller and cable connections



2x



Bolt M3x6

1x



X3 Controller Board

1x



Li-Ion 3.7v Battery

3-5x



ZIP Tie

Light bar

Mini control board

Antenna

Battery input

A B C D
DC motor channels

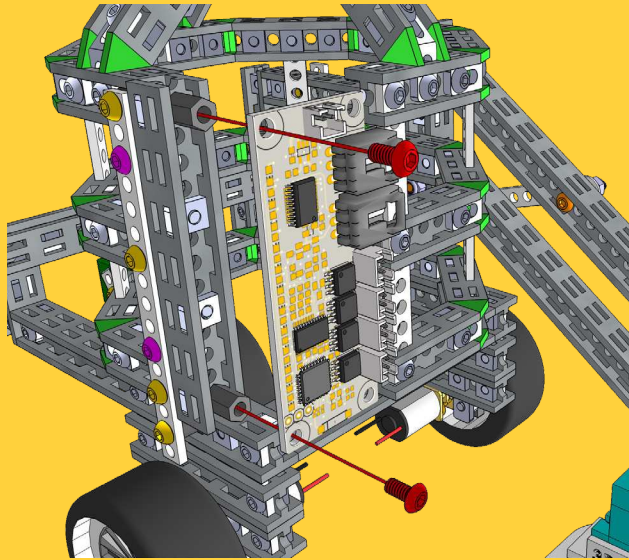
Servo channel A
Servo channel B

Integrated controller that has Bluetooth connection, 4 DC motor channels and 2 Servo motor channels.

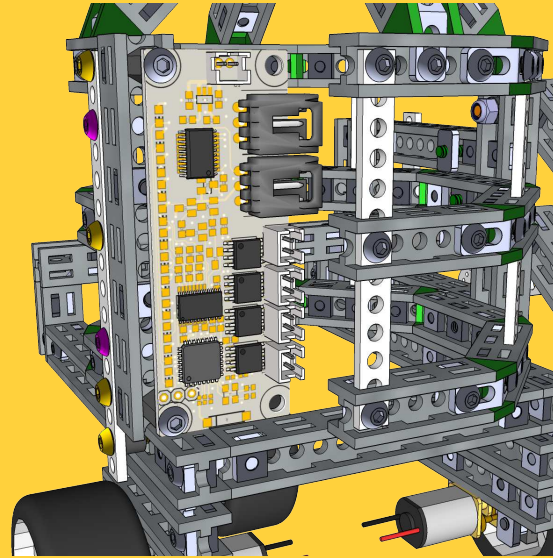
More info here:

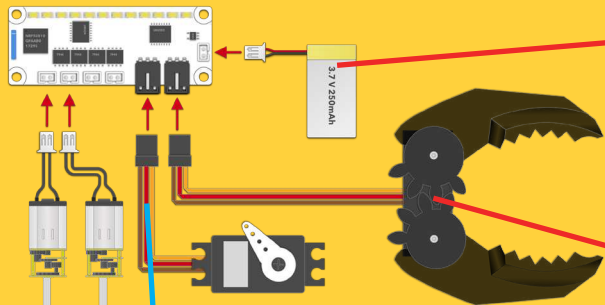
<https://totemmaker.net/wiki/x3-fbi-board-set-up/>

5

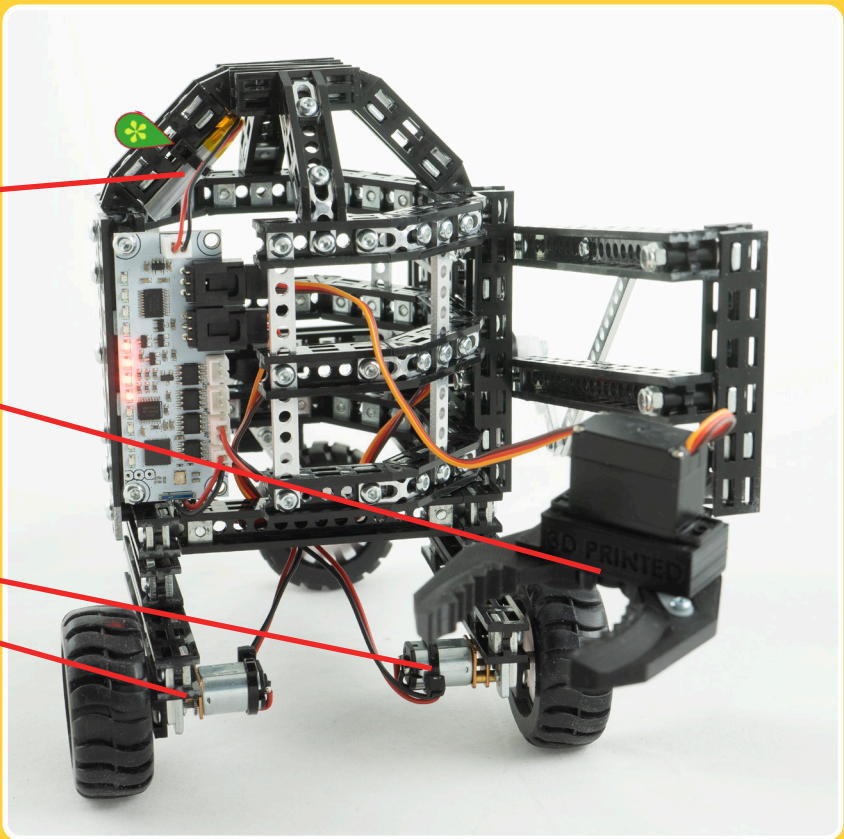


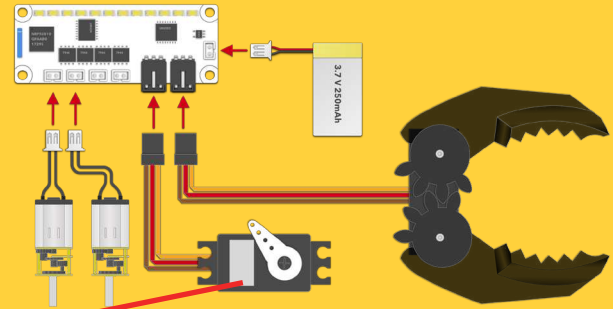
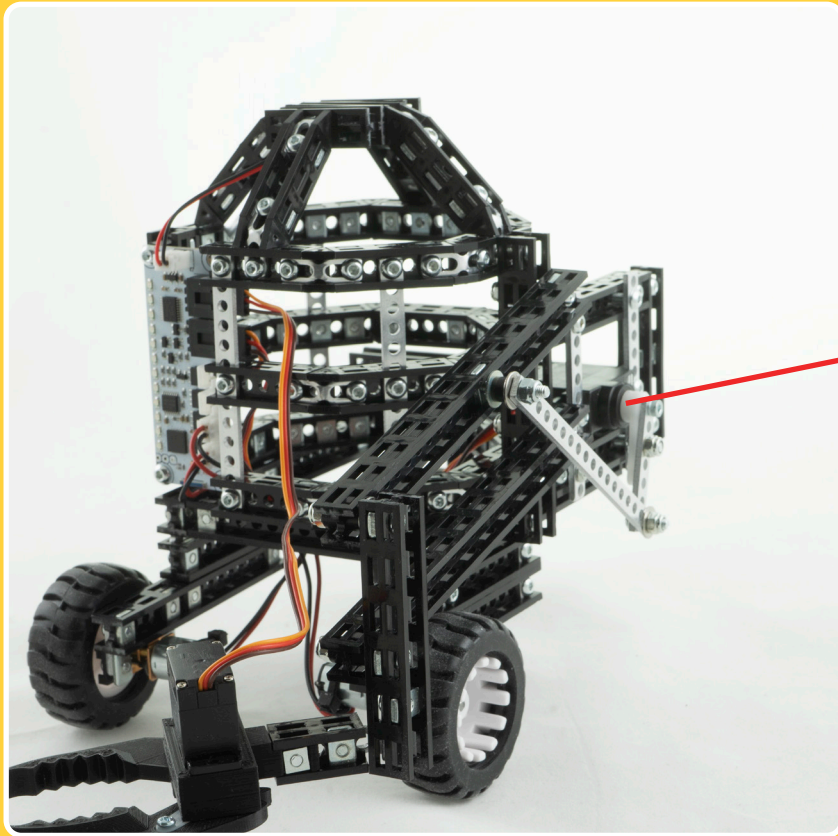
6

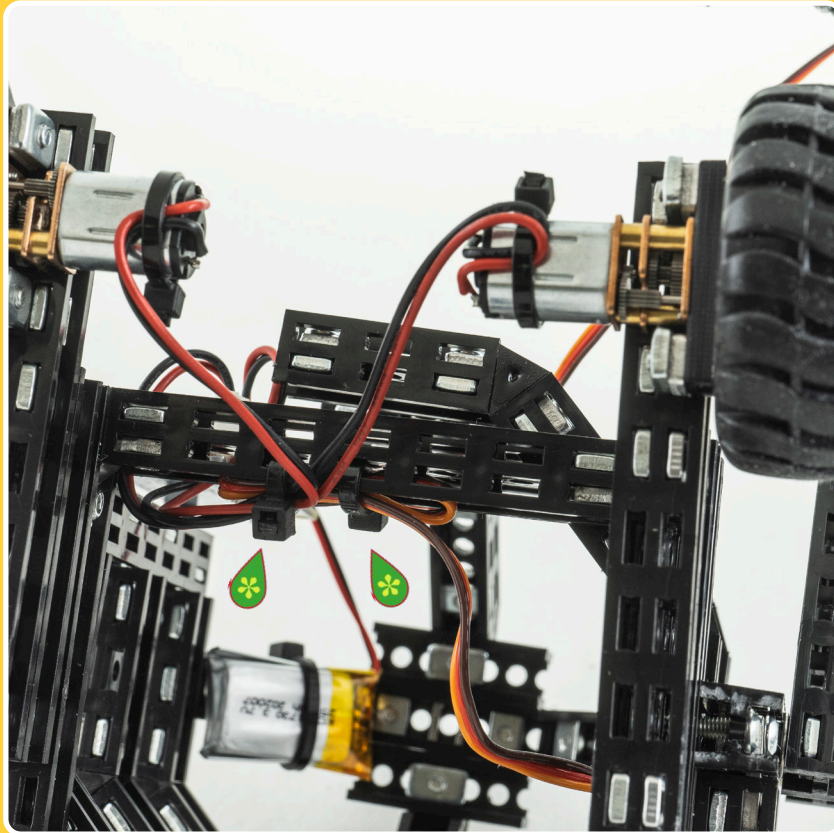




Note:
Observe the wires
orientation:
Brown, Red and
Yellow.







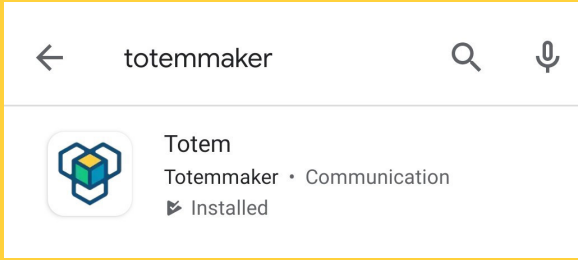
Building is finished !

**Now it is time to
test your model.**



HOW TO CONTROL

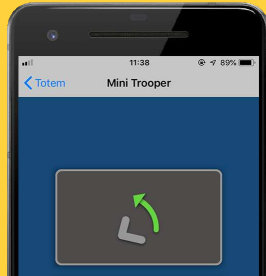
Download Totem app on your smartphone or tablet via App Store or Google Play.



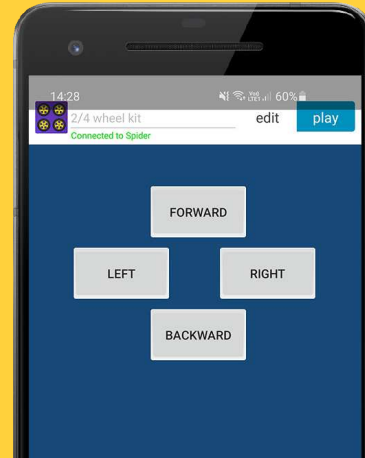
Follow the step by step guide to connect your Ladybug to your device.



Search for:
Totemmaker



To slow down the rotation speed, press two buttons at the same time. I. e. press both Forward and Right buttons.





PRECAUTIONS: ELECTRONICALLY OPERATED PRODUCT

Do not give this product to children aged 8 or below. As with all electronic products, precautions should be observed during handling and use to prevent electric shock.

Adult supervision required.

Note to adults: to ensure that the child's play is both safe and fun, please review all operating instructions and safety rules with your child.

SAFETY WARNINGS:

- Do not pick up toy while in motion.
- Keep fingers, hair, and loose clothing away from moving parts, to avoid the injury.
- Adult supervision is required when this toy is being operated.
- If you stopped operating the toy, remember to unplug the battery, to avoid accidental operation.
- If the toy is dirty, please clean it with dry and soft cloth. Do not clean electronics.
- Do not expose the toy to high temperature, high humidity, or direct sunlight.
- Indoor use only. Do not put this product in water to avoid damaging its electronic components.
- The product is made of complex electronic circuit and electronic components, do not disassemble, or modify the circuit board.

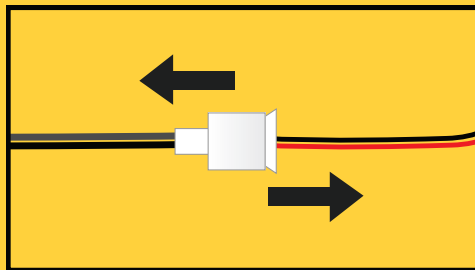
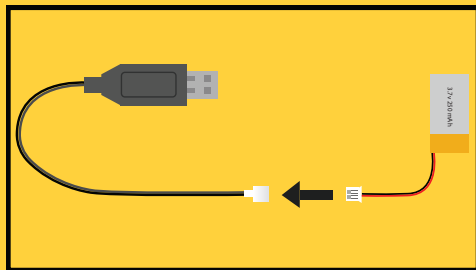
BATTERY SAFETY INFORMATION:

- This toy is designed to work with provided 250 mAh 3.7V LiPo battery and charger.
- Rechargeable battery must be charged by adult only.
- Do not leave charging without supervision of adult.
- There is a risk of fire and personal injury if battery is punctured, damaged or misused.
- Do not disassemble or damage the battery pack.
- Use only the supplied 250 mAh 3.7V LiPo battery. Using any other battery may damage the model.
- Use only the included USB charging cable to charge the battery.
- Please check on a regular basis the wire, plug, battery, charger, and other electronic parts on the toy. If any damage is found, please stop using the product immediately.
- Stop charging if battery becomes hot, smells, smokes or gives off strong odour.
- Never throw batteries into fire to avoid explosion or leakage.
- Check the batteries on regular basis to avoid leakage.
- Recycle or dispose of batteries according to local laws and guidelines.

BATTERY CHARGING:

Rechargeable battery must be charged by adult only.

- The new battery pack needs to be charged before use.
- Connect the USB charging cable to 5V USB power source, such as laptop.
- Connect the battery to the charger (see picture on the left). The charger will show a red LED light when charging the battery. When the battery is fully charged, the red LED light turns off.
- To disconnect cables, hold the connectors of both cables and pull apart (see picture on the right).
- Do not attempt to overcharge the battery.



KEEP THIS INSTRUCTION MANUAL AND THE PRODUCT BOX AS IT CONTAIN IMPORTANT INFORMATION FOR FUTURE REFERENCE.

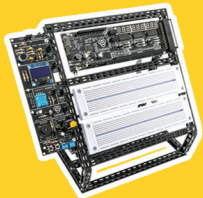
Due to the continuous product improvement, the pictures on this manual may differ slightly from the actual product. Please adhere to actual product instead.

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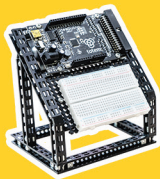
www.totemmaker.net
Totem Technology, UAB
Saulėtekio al. 15-709, Vilnius, 10224, Lithuania
For customer support please contact: support@totemmaker.net



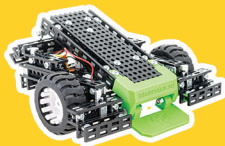
Discover more of Totem:



Mini Lab



Micro Lab



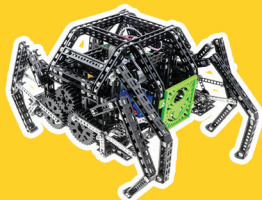
Mini Trooper



Young Engineer Kits



4WD Car Kit



Spider

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