



# R2D2-MK1

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ROBOTIC EDUCATION

Имя файла: OpenR2D2



**R2D2-MK1**



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## В далекой галактике на фабрике роботов

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Роботы все чаще используются для освобождения людей от опасной, сложной или скучной работы. А как насчет работы в космосе? Робот, без которого не обойтись в космосе - робот-механик. Поэтому сегодня мы выполним заказ на создание робота-механика, астродроида R2D2.



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# Пожарный

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Роботы-пожарные используются для сдерживания крупных пожаров, позволяя людям избежать опасности. Роботизированный пожарный Thermite RS1-T3 от Howe & Howe - это робот с продуктивностью 4730 литров в минуту, который может тушить пожары любой величины.



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# HDMS RE2: робот-механик

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Роботизированная система управления с высокой ловкостью RE2 (HDMS): это двурукий робот, который может помочь в производстве, здравоохранении и даже в опасных операциях, таких как работа со взрывоопасным оборудованием.



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## Надежный робот для опасных миссий

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Надежная платформа, которая оснащена водяной пушкой, носилками, манипуляторами, датчиком газа и тепловой камерой для решения сложных задач. Робот приспособливается к любой поверхности, по которой он движется и может преодолевать препятствия до 50см.



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## Астродроиды

Астромеханический дроид, также называемый астро-дроидом или мехом, является типом ремонтного дроида, который служил автоматизированным механиком на космических кораблях. Эти компактные дроиды используют приспособления с наконечниками, хранящиеся в утопленных отсеках.



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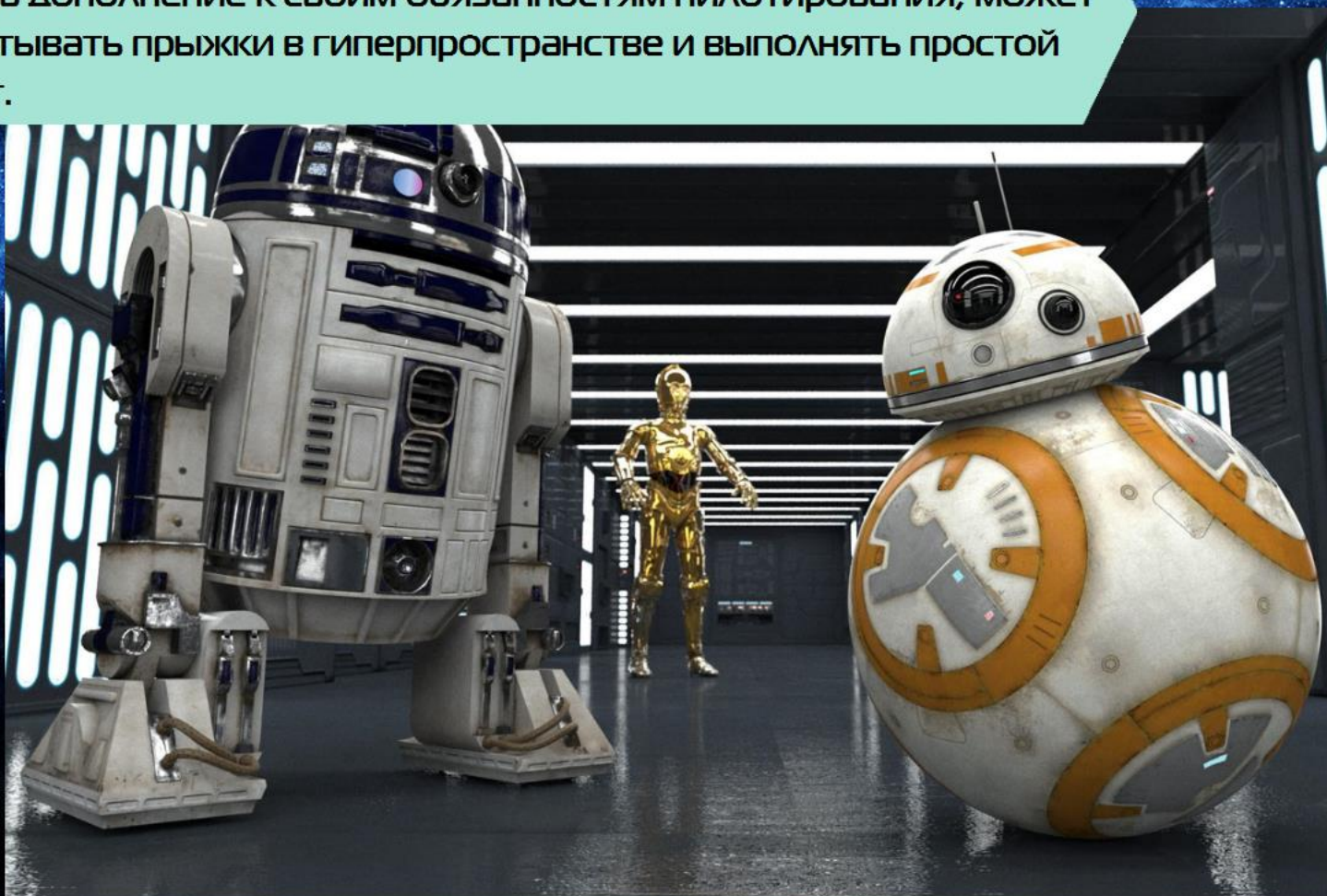




## Астродроиды

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Сидя на своем месте в корабле, находящемся в открытом космосе, дроид, в дополнение к своим обязанностям пилотирования, может рассчитывать прыжки в гиперпространстве и выполнять простой ремонт.



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## Астродроиды

Большинство астромехов могли общаться только с помощью специального кода шелчков, и подобных звуков, известных как двоичные. Некоторые другие дроиды, такие как С-3РО, могли понимать двоичный код астромехов.



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## Астродроиды

Астромеханический дроид серии R имеет основной модуль в форме цилиндра, к которому прикреплены две боковые опоры и одна опора, которая выдвигается вперед для перемещения. На каждой опоре есть колеса. Форма «головы» (верхней части) астромеханика может быть разной.



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# Основные элементы





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# Электронные компоненты

Робот оснащен одним мотором, что позволяет подключать датчик.



Найдите:

- Мотор
- Smart Hub
- Датчик



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# Особенности конструкции

Вращение от мотора передается на правое ведущее колесо по прямой через ось, а на левое - через трансмиссию, состоящую из приводных ремней, осей и зубчатых колес.



Найдите:

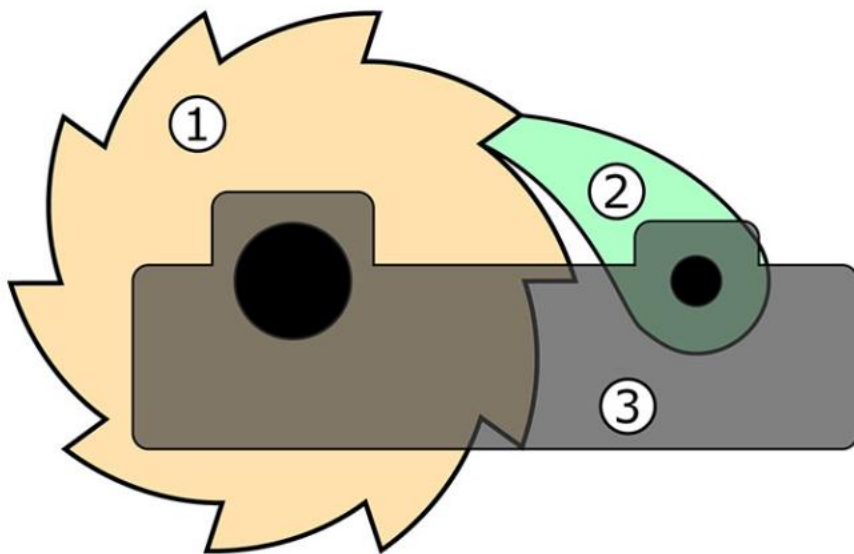
- ▶ Приводной ремень
- ▶ Мотор
- ▶ Шестерню





# Храповик

**Храповик** - это механическое устройство, которое позволяет вращение только в одном направлении, предотвращая движение в противоположном направлении. Храповики широко используются в технике и инструментах.



1 - шестерня

2 - зашелка

3 - основание



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# Храповик

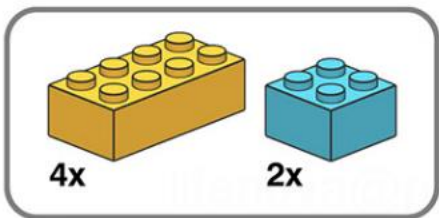
Благодаря приводному ремню двигатель не блокируется при вращении в противоположном направлении, когда храповик блокирует передачу движения на левую ногу



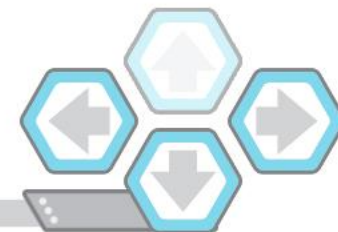
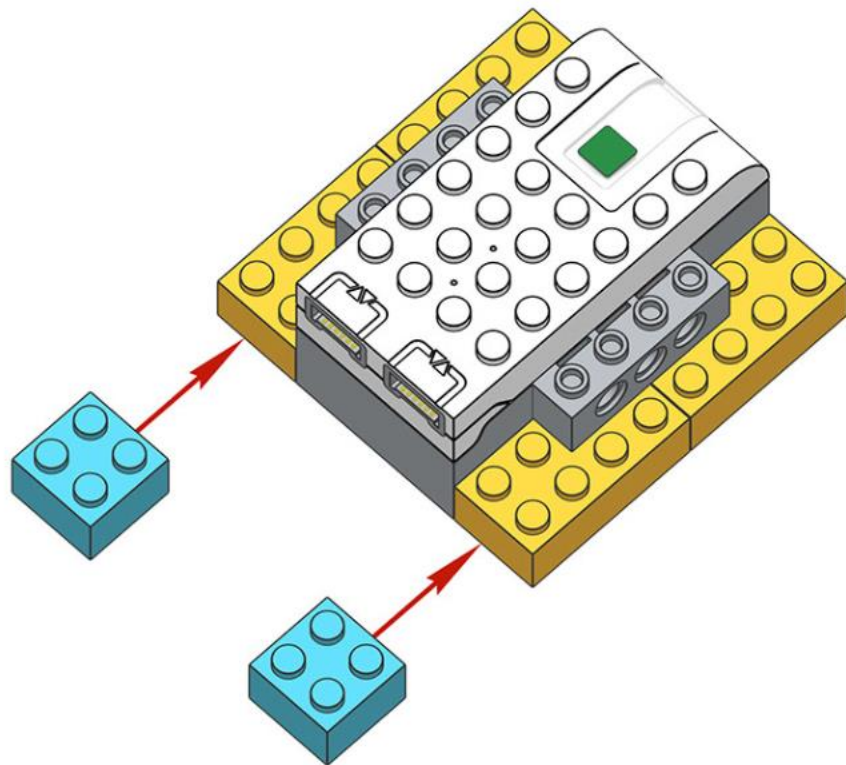
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- ▶ Зашелка
- ▶ Шестерня

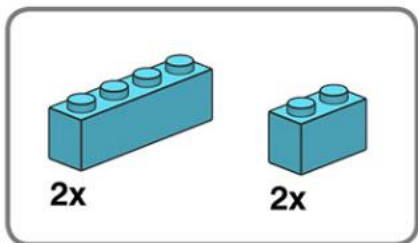




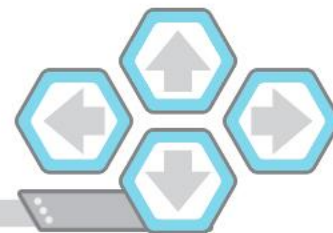
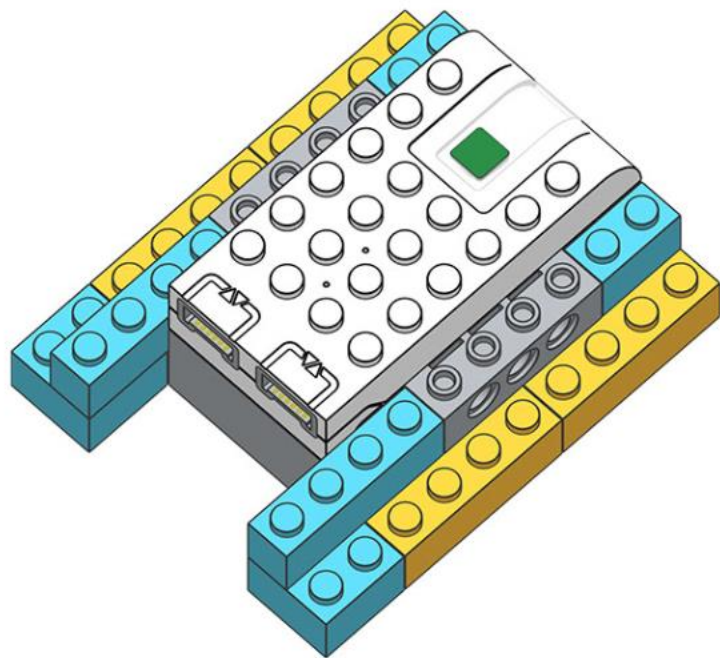
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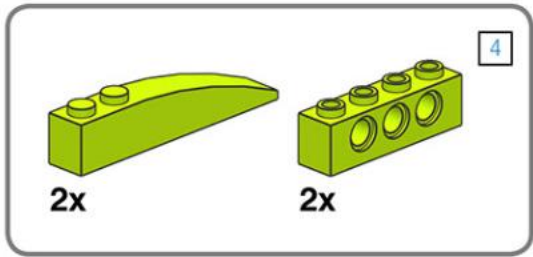




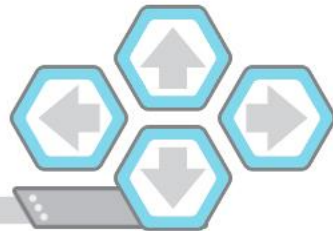
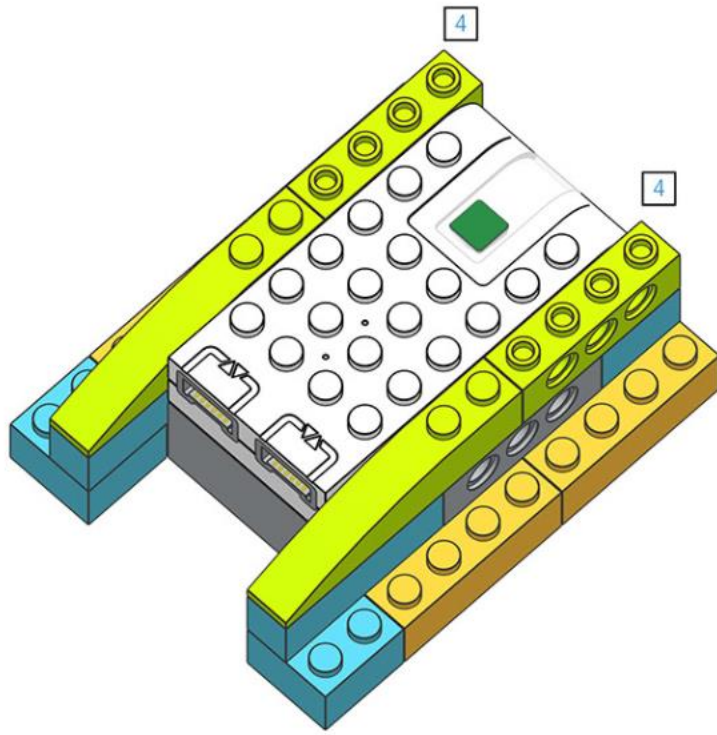


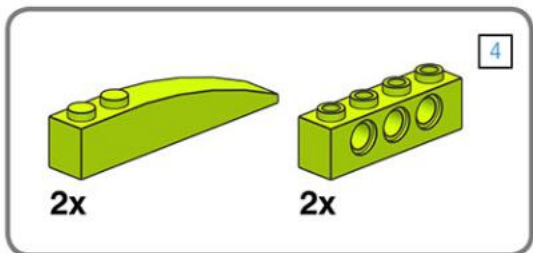
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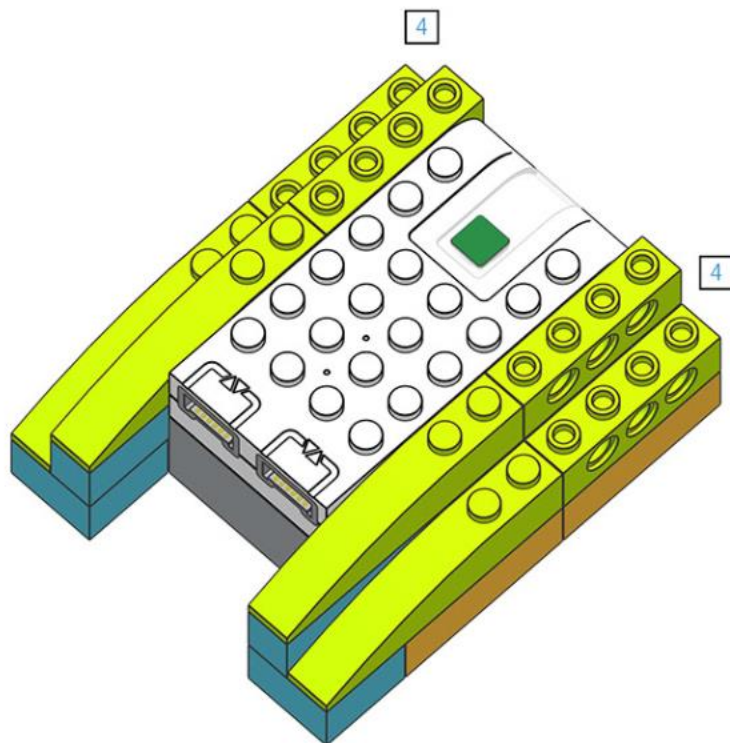


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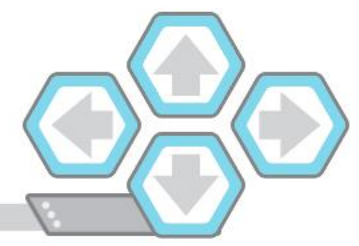


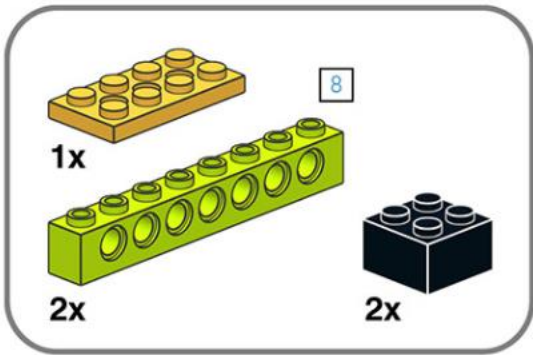


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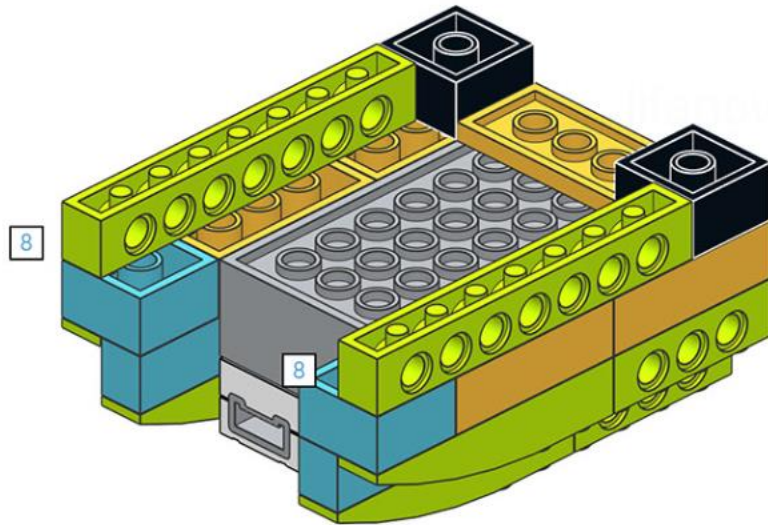


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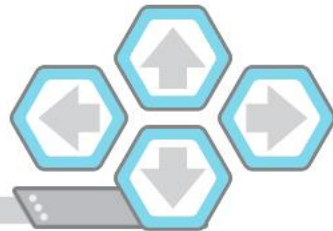


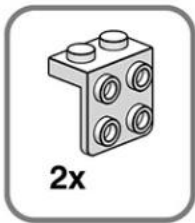


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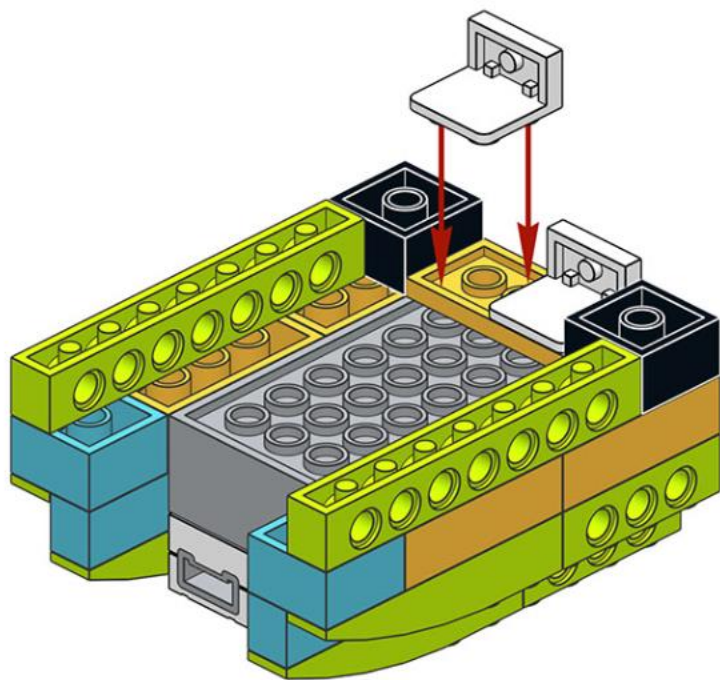


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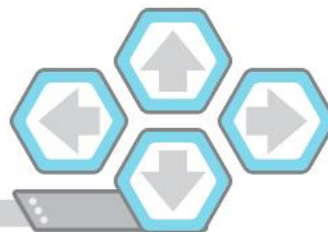


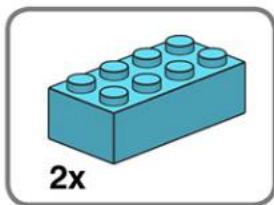


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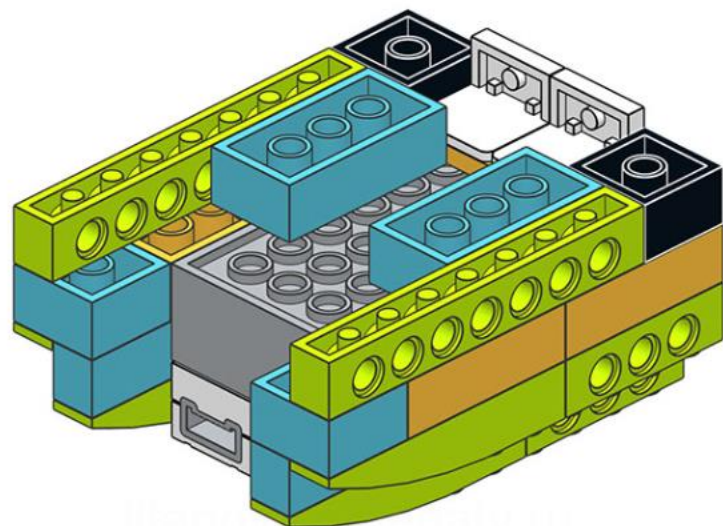


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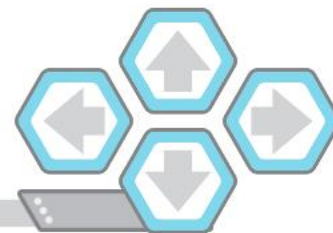


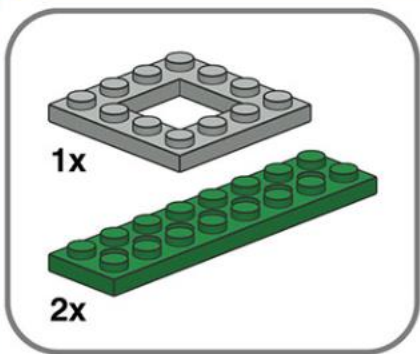


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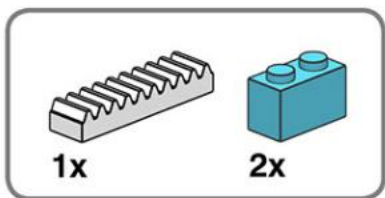
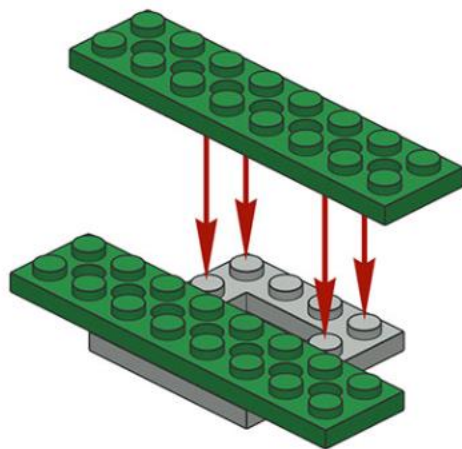


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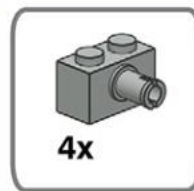
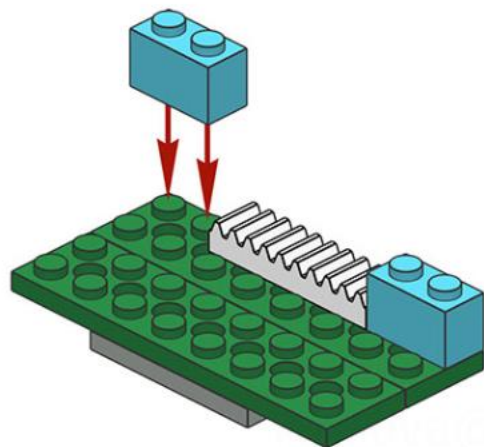




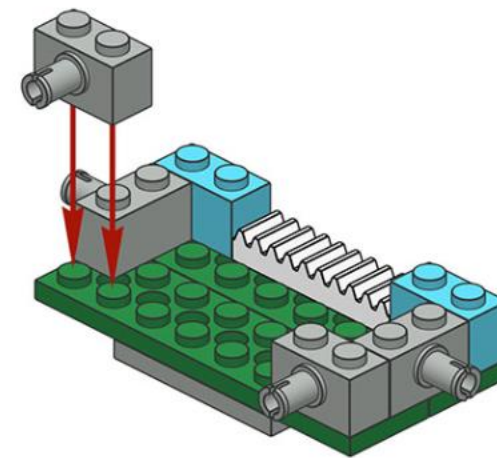
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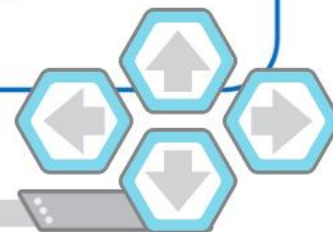
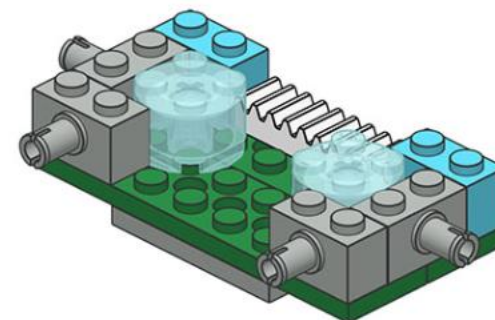
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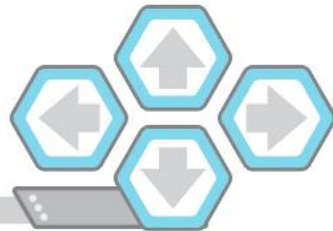
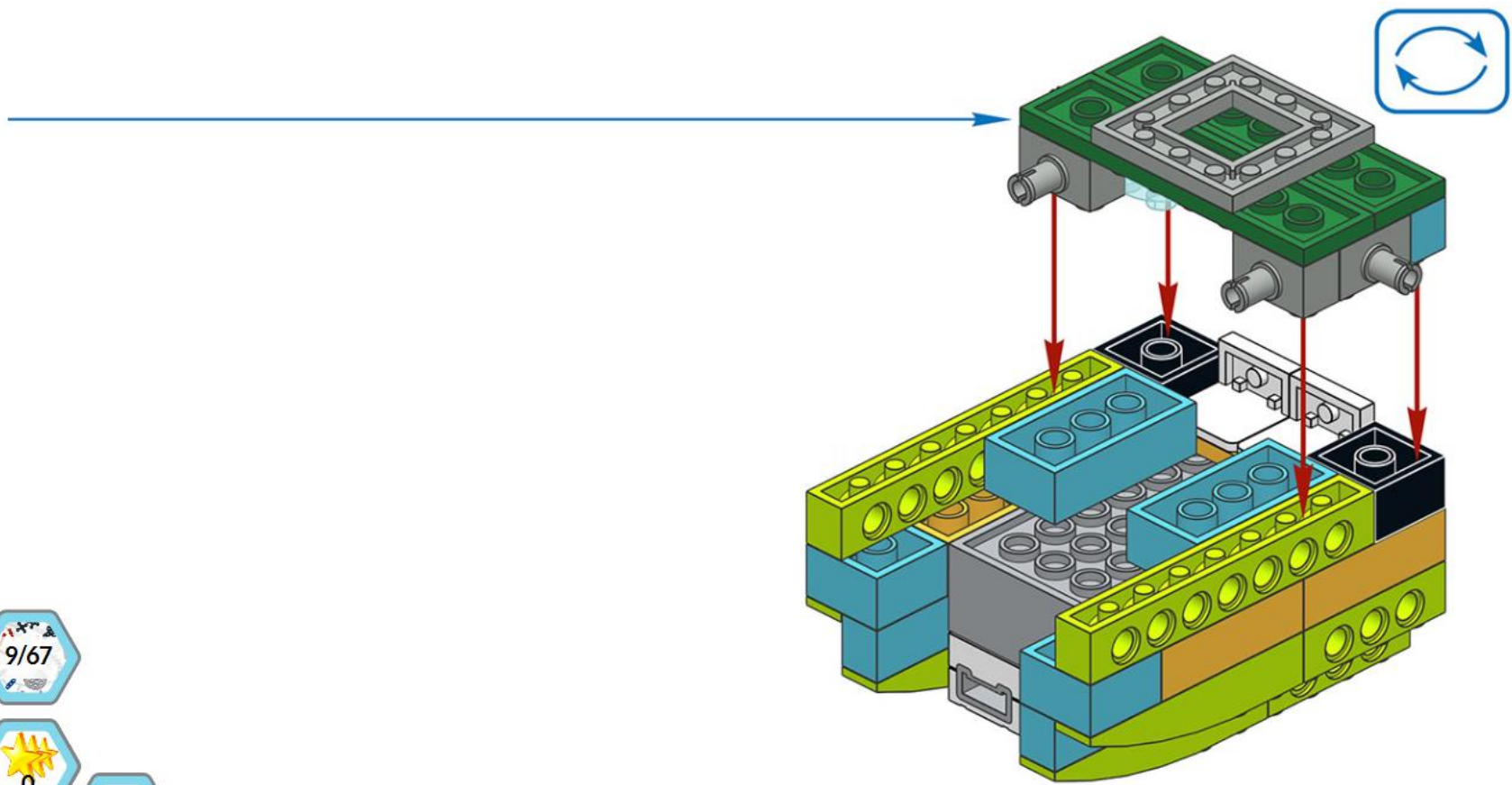
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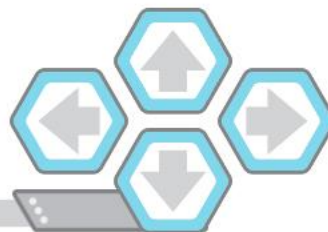
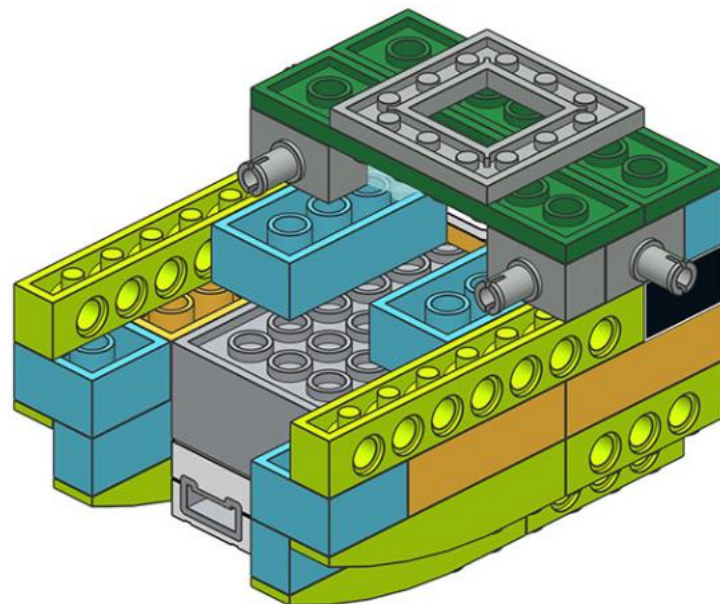
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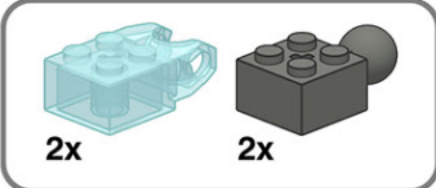
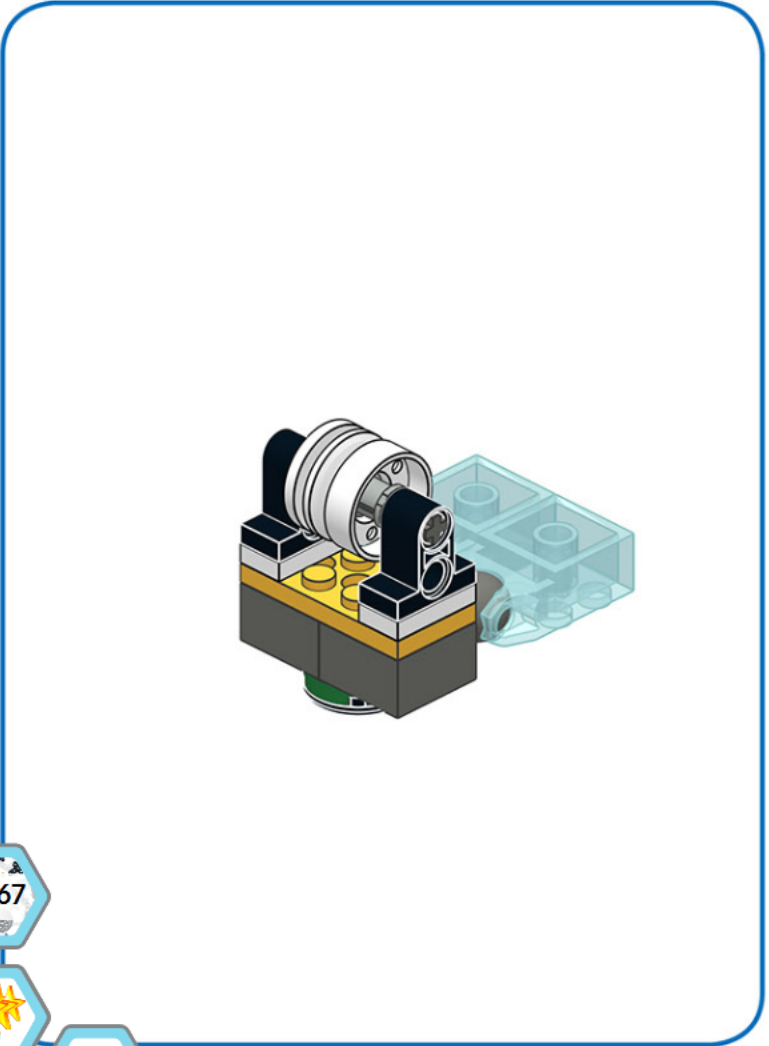
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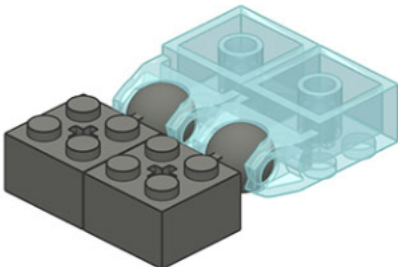
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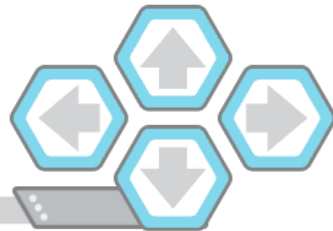
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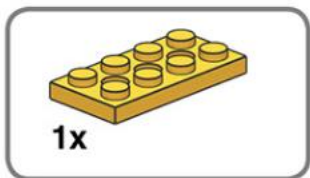


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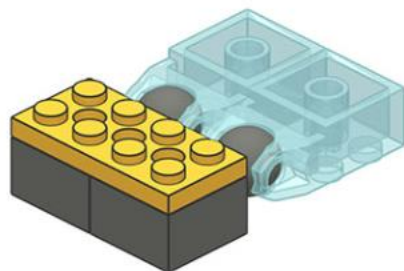
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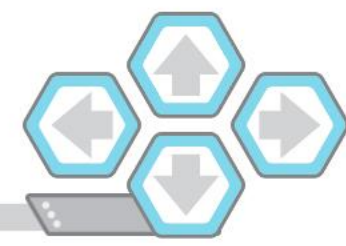


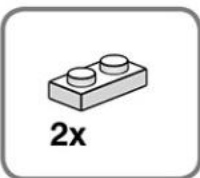


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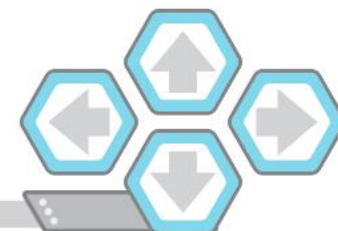
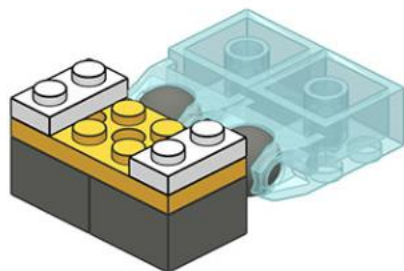
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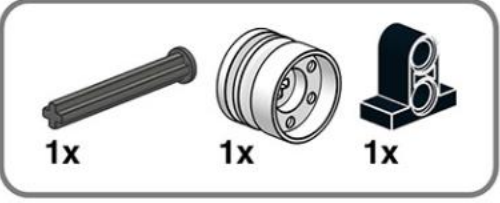




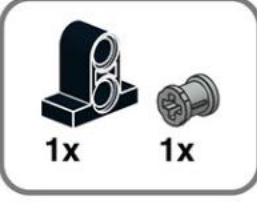
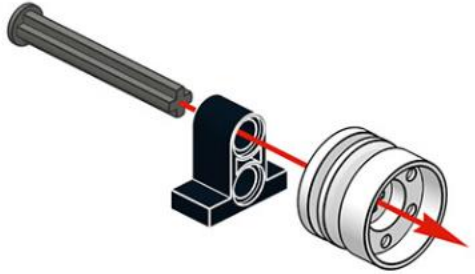
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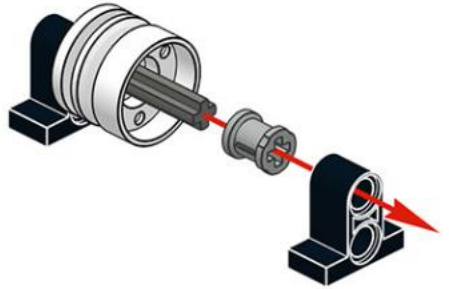




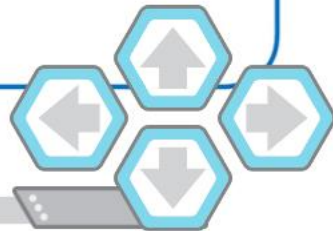
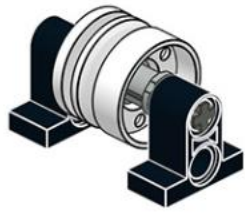
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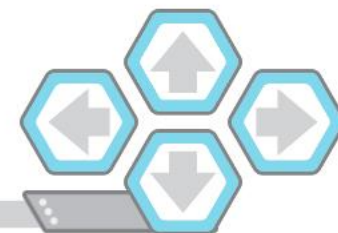
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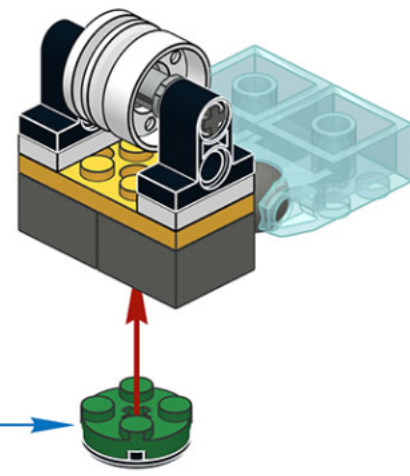


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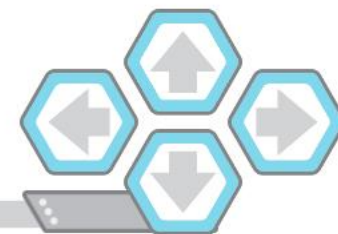
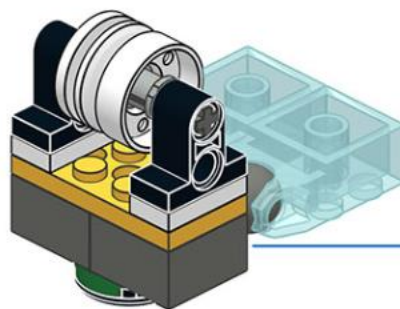
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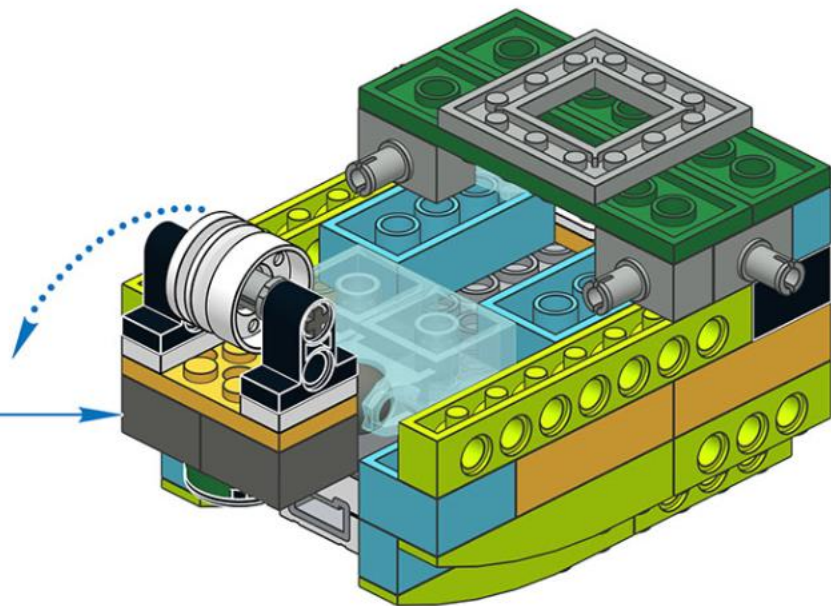
ilannys@penaty.ru





# 10

llarova@neroty.ru

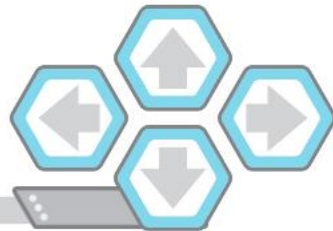


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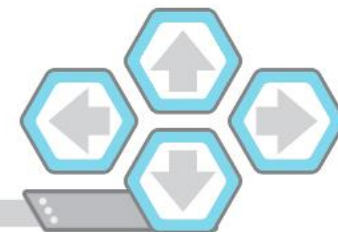
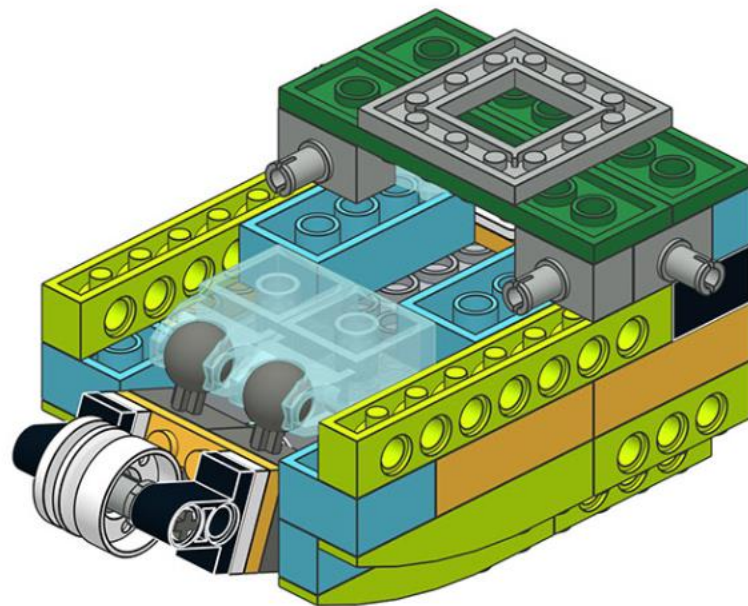


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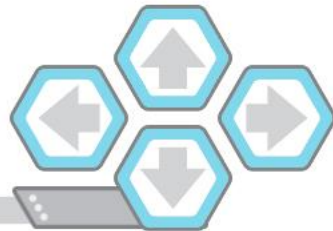
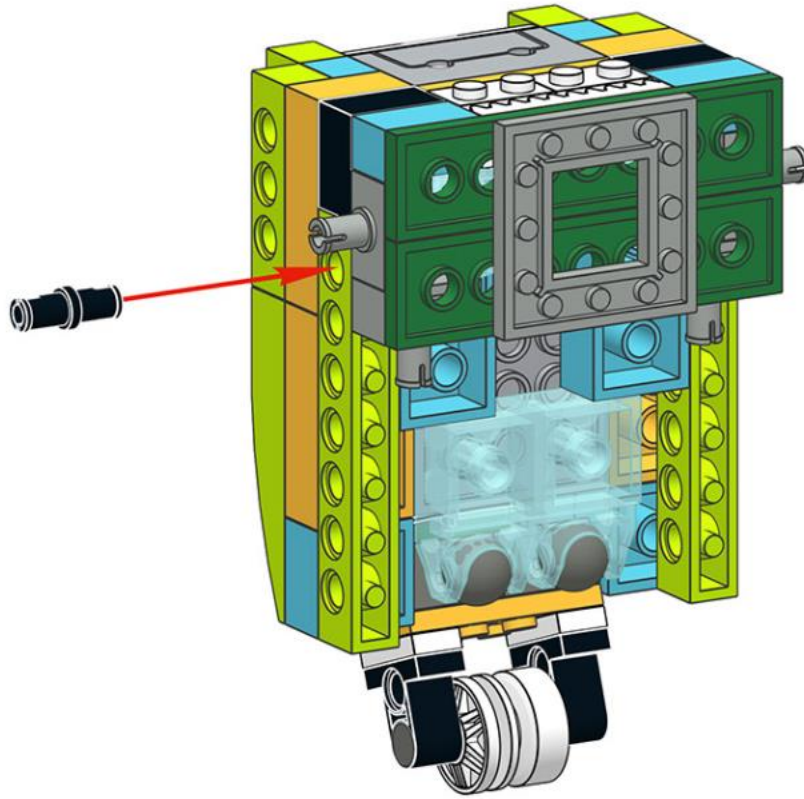
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manura@pantaly.ru

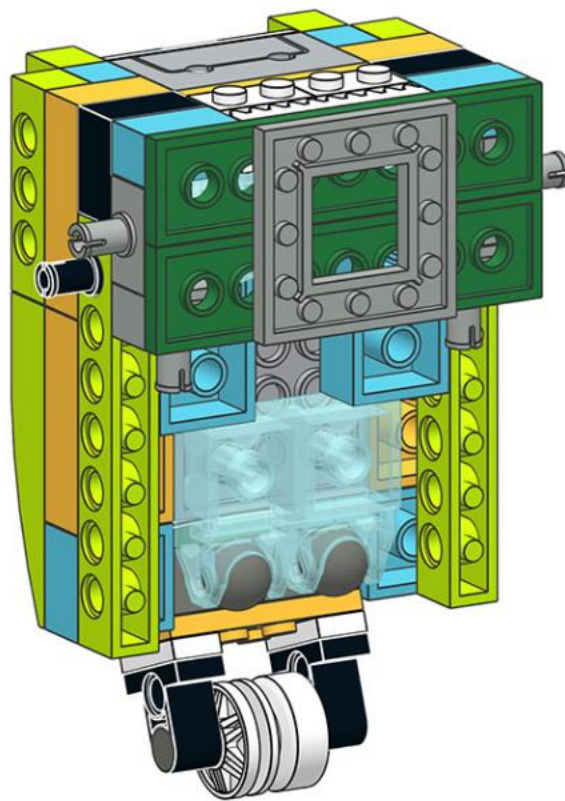




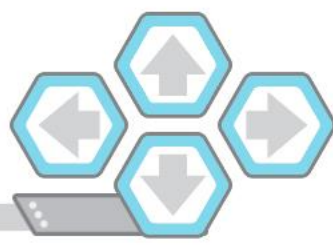
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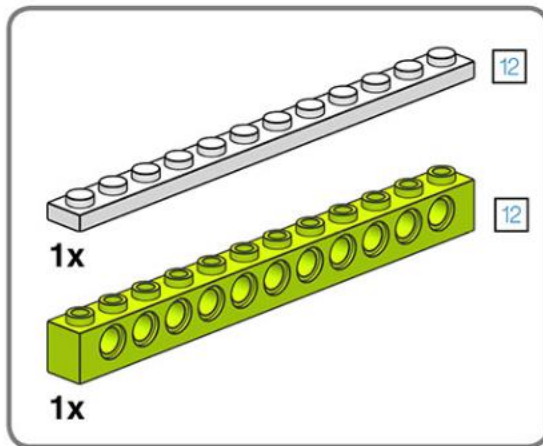
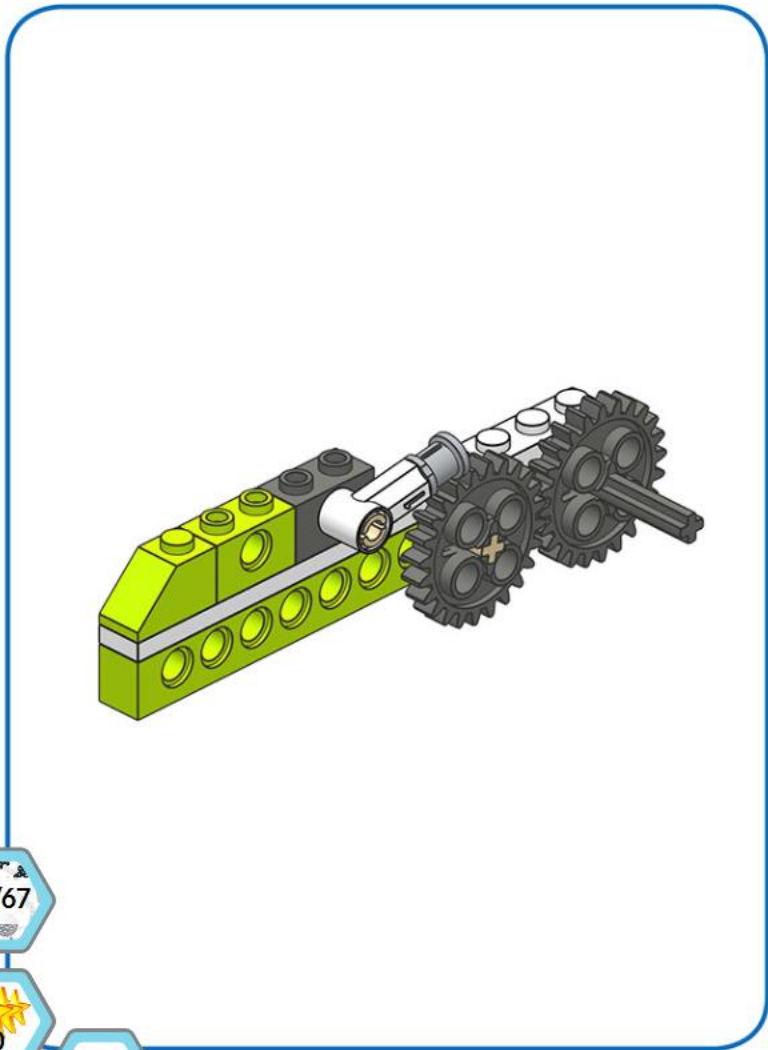


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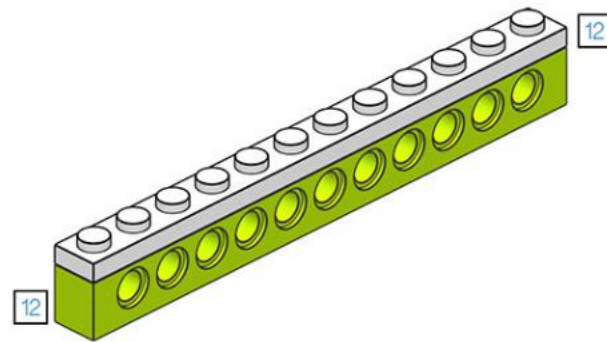


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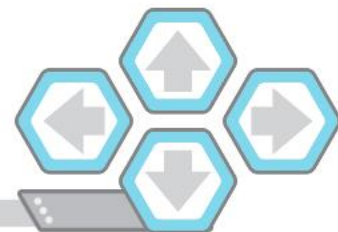




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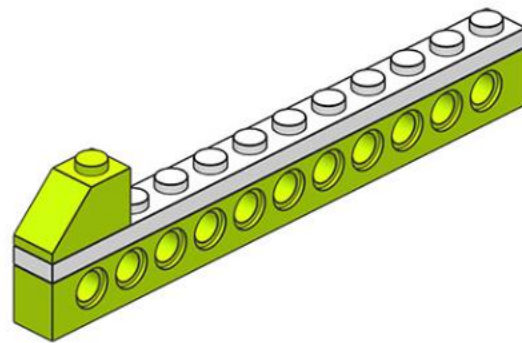


Manual

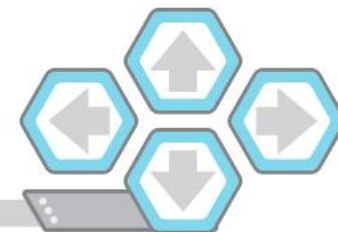


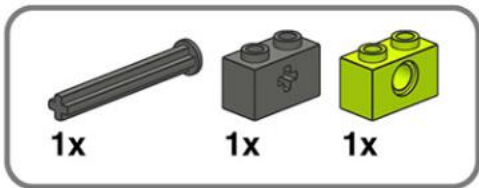


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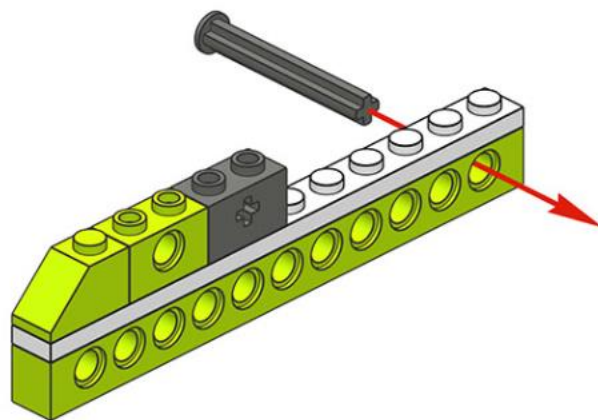


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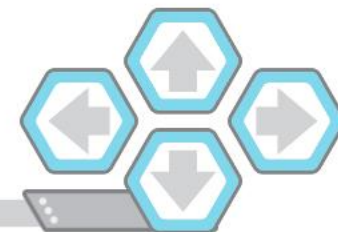


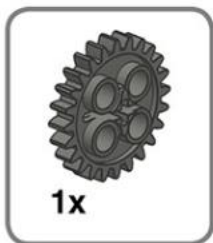


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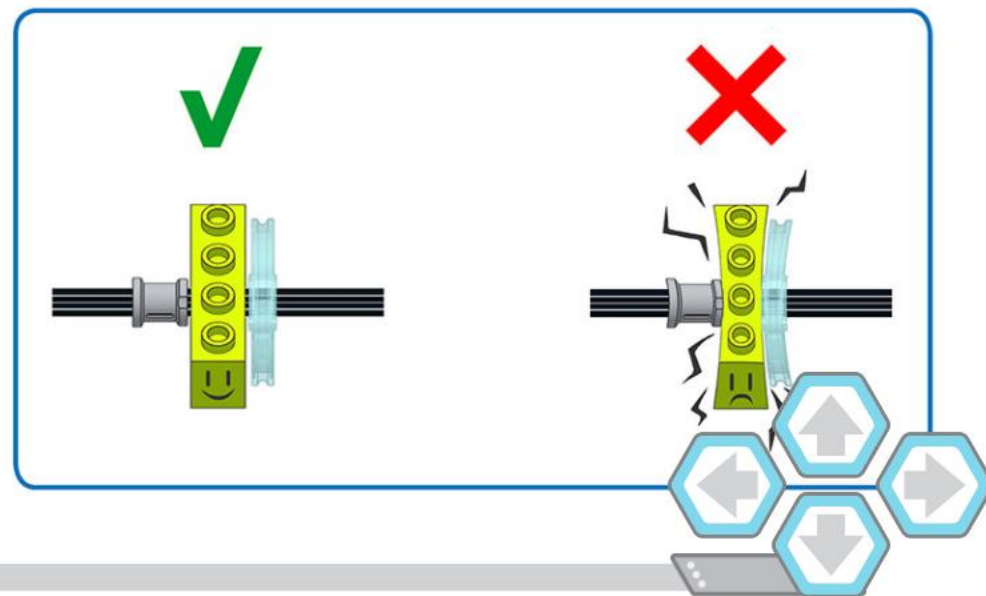
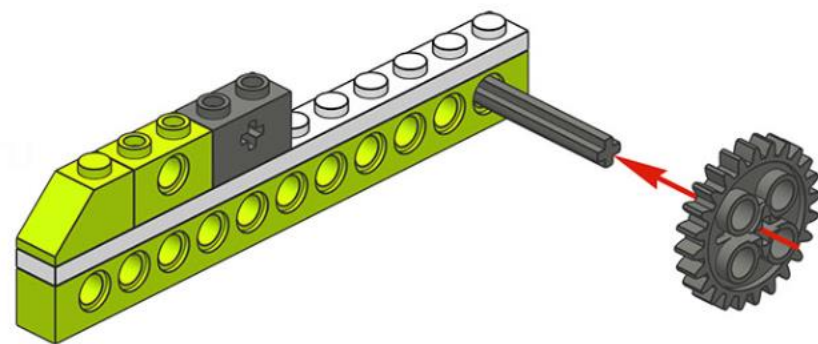


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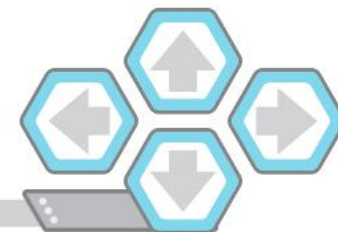
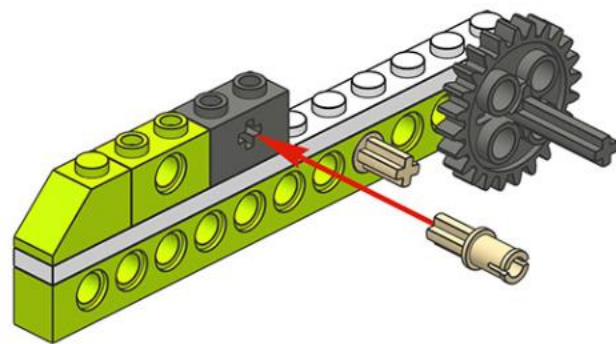
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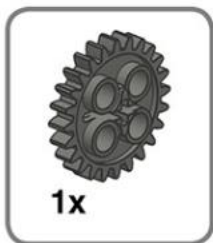


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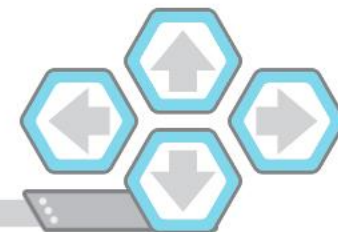
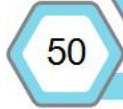
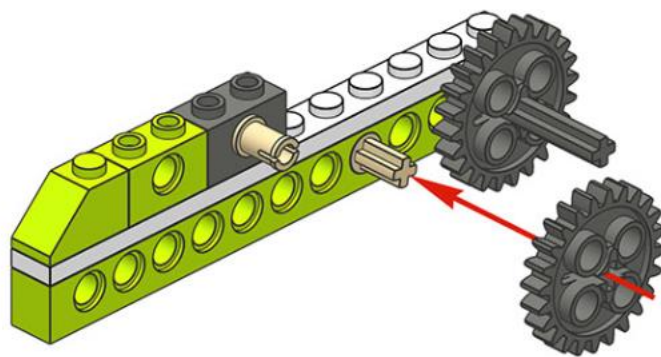
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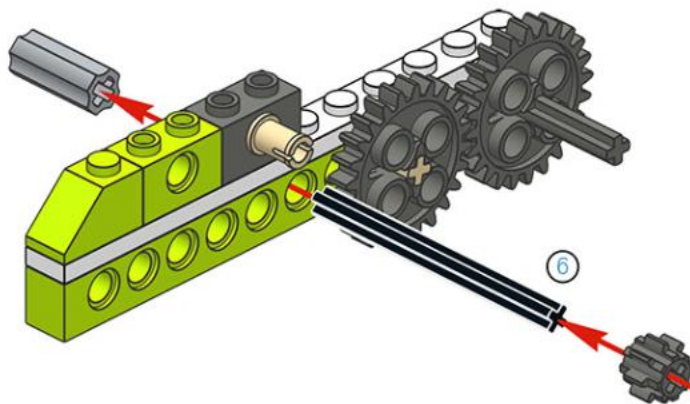
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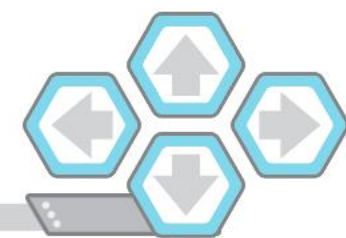




7



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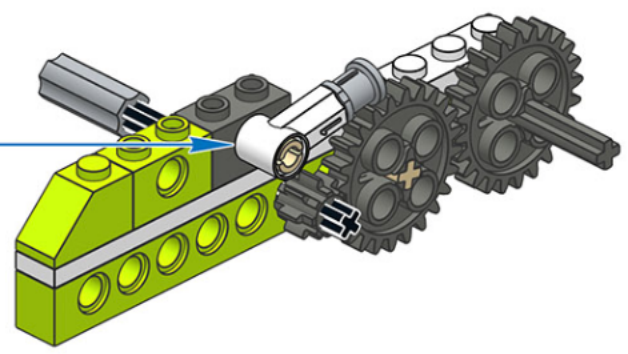
**8**

**1**

**2**

1x  
1x  
1x

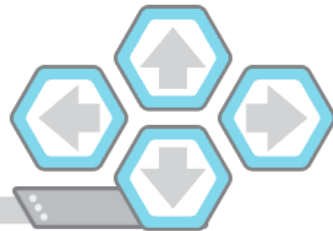
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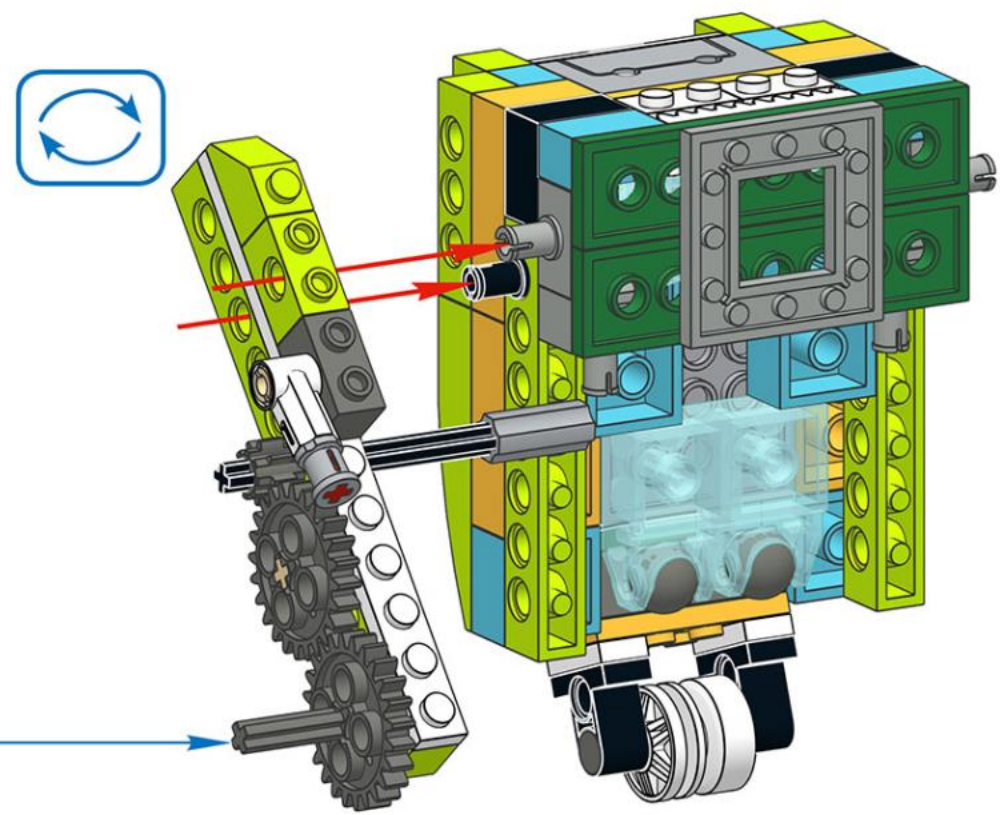
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52



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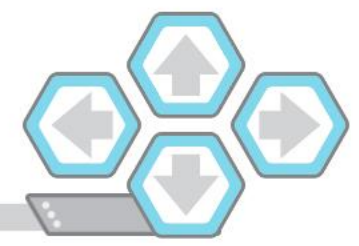
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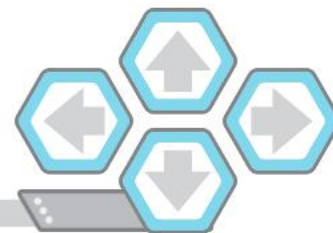
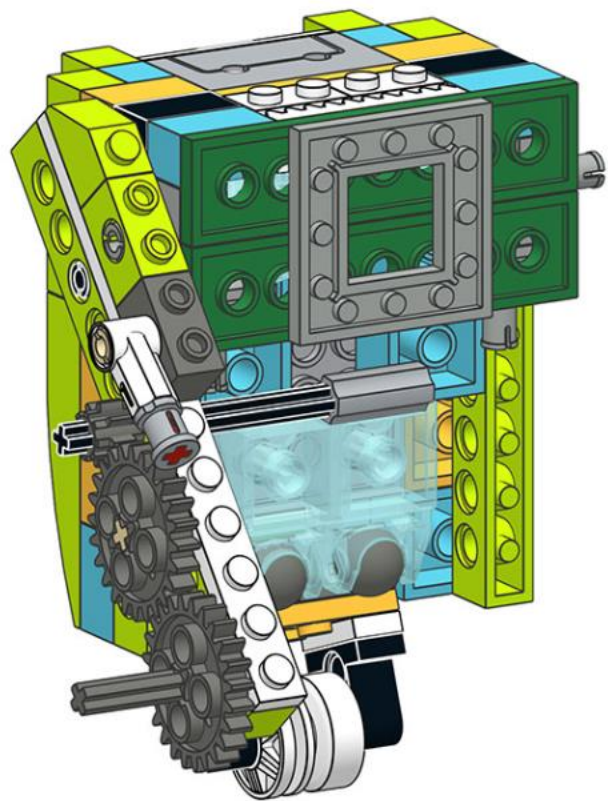
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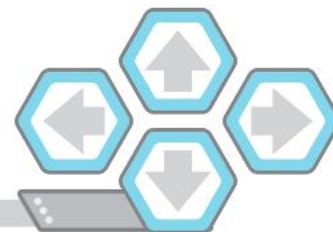
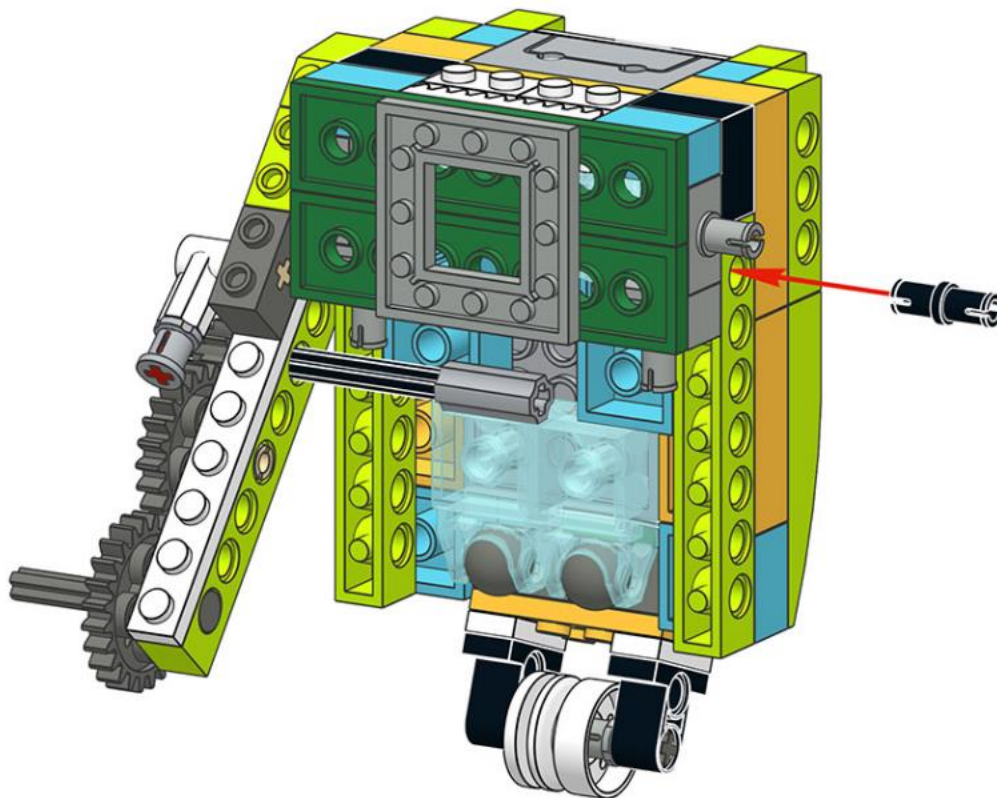
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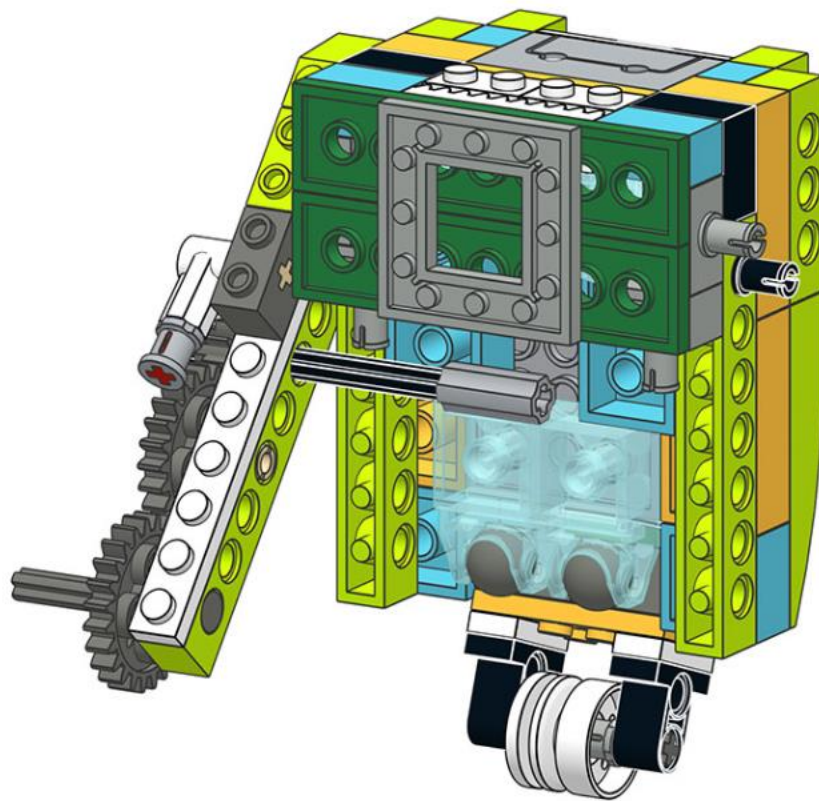




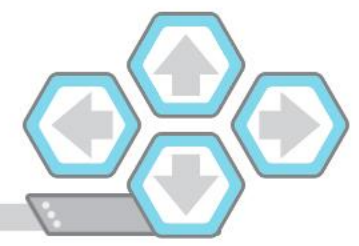
**16**



# 17



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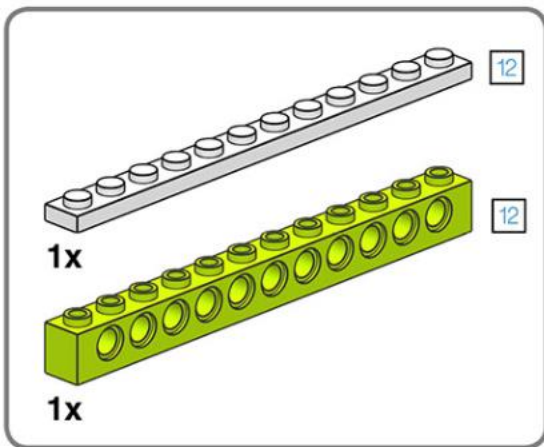
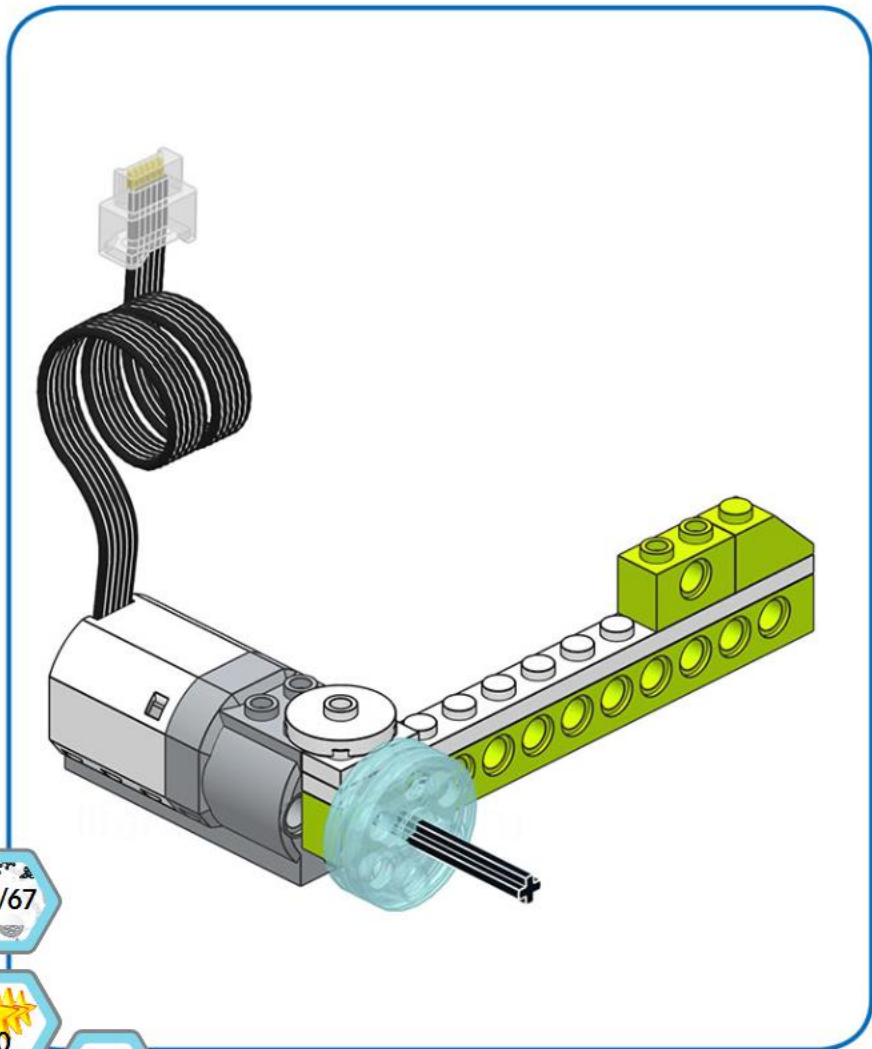
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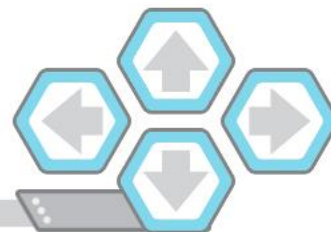
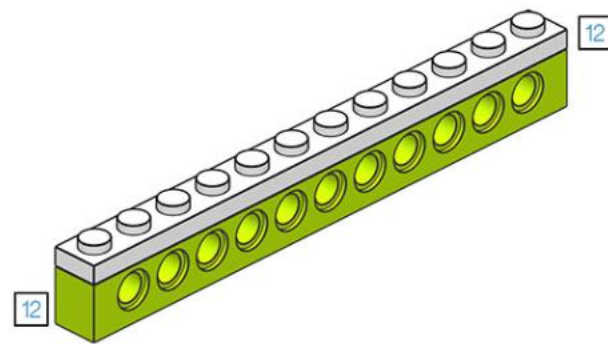


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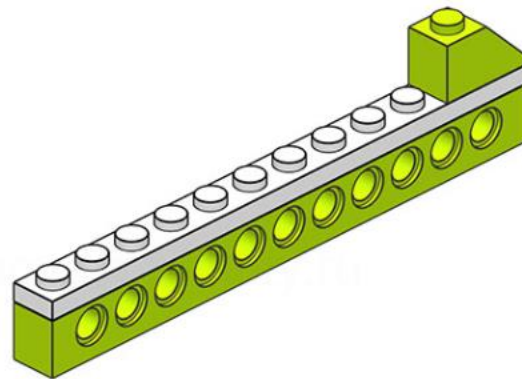
34/67

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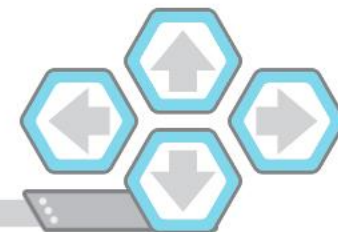
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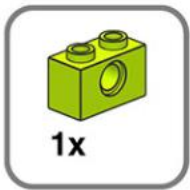


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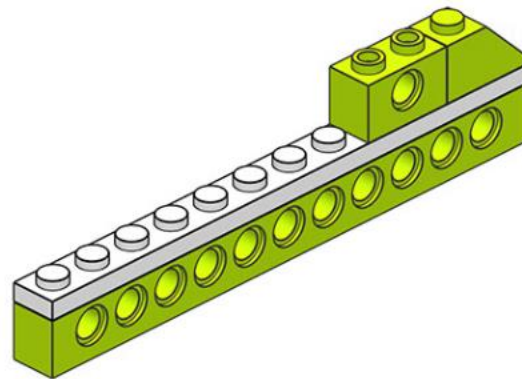


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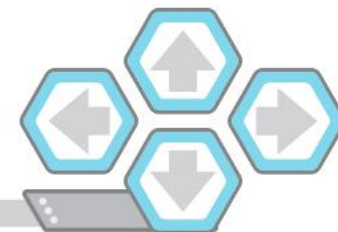


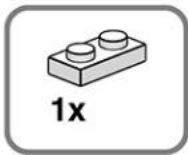


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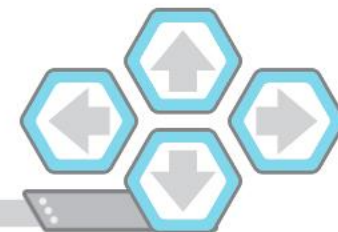
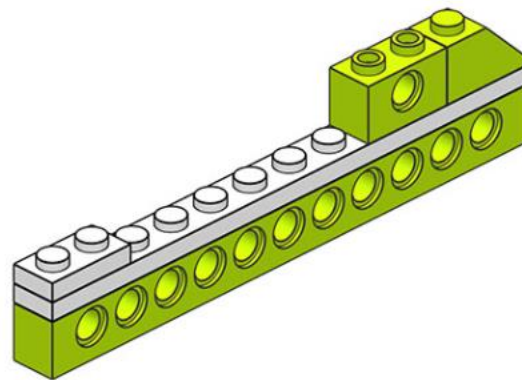
va@penaty.ru

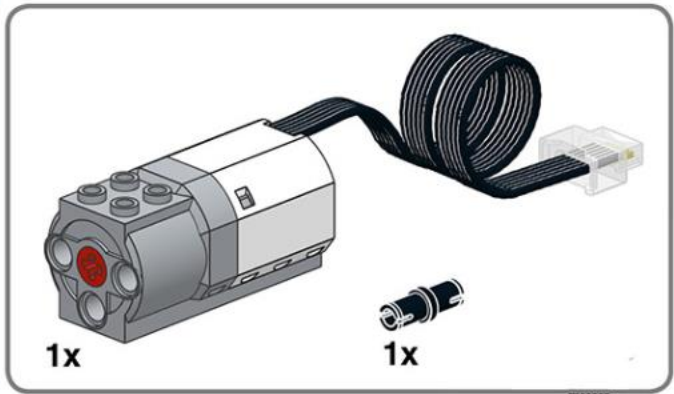




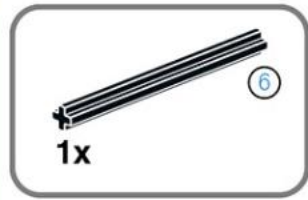
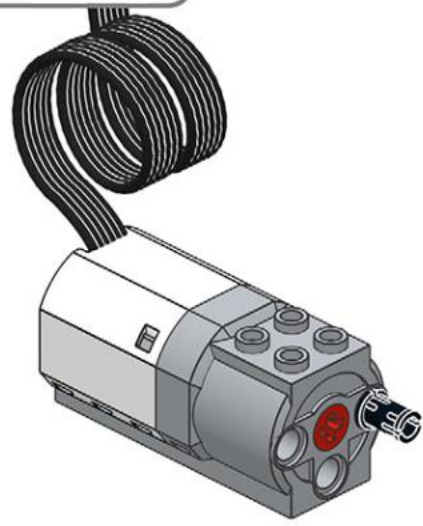
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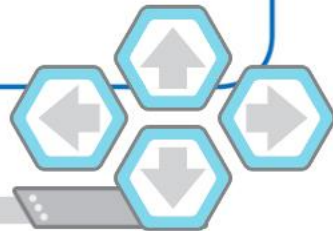
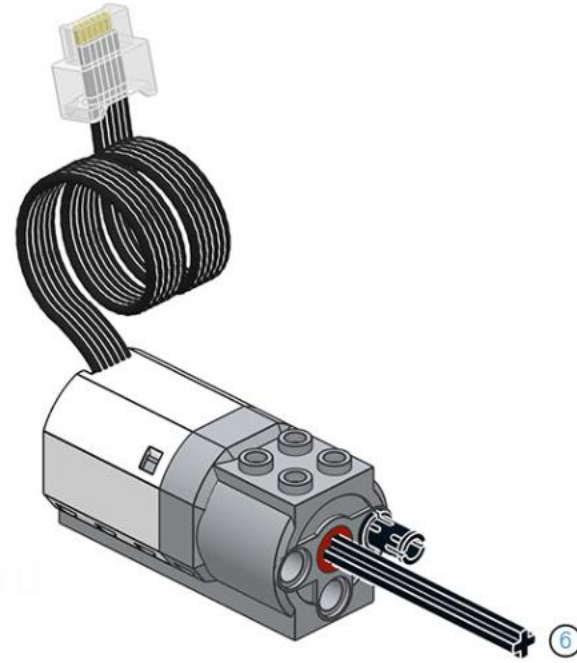


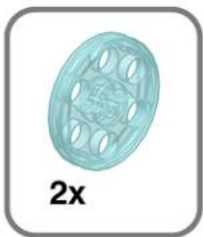


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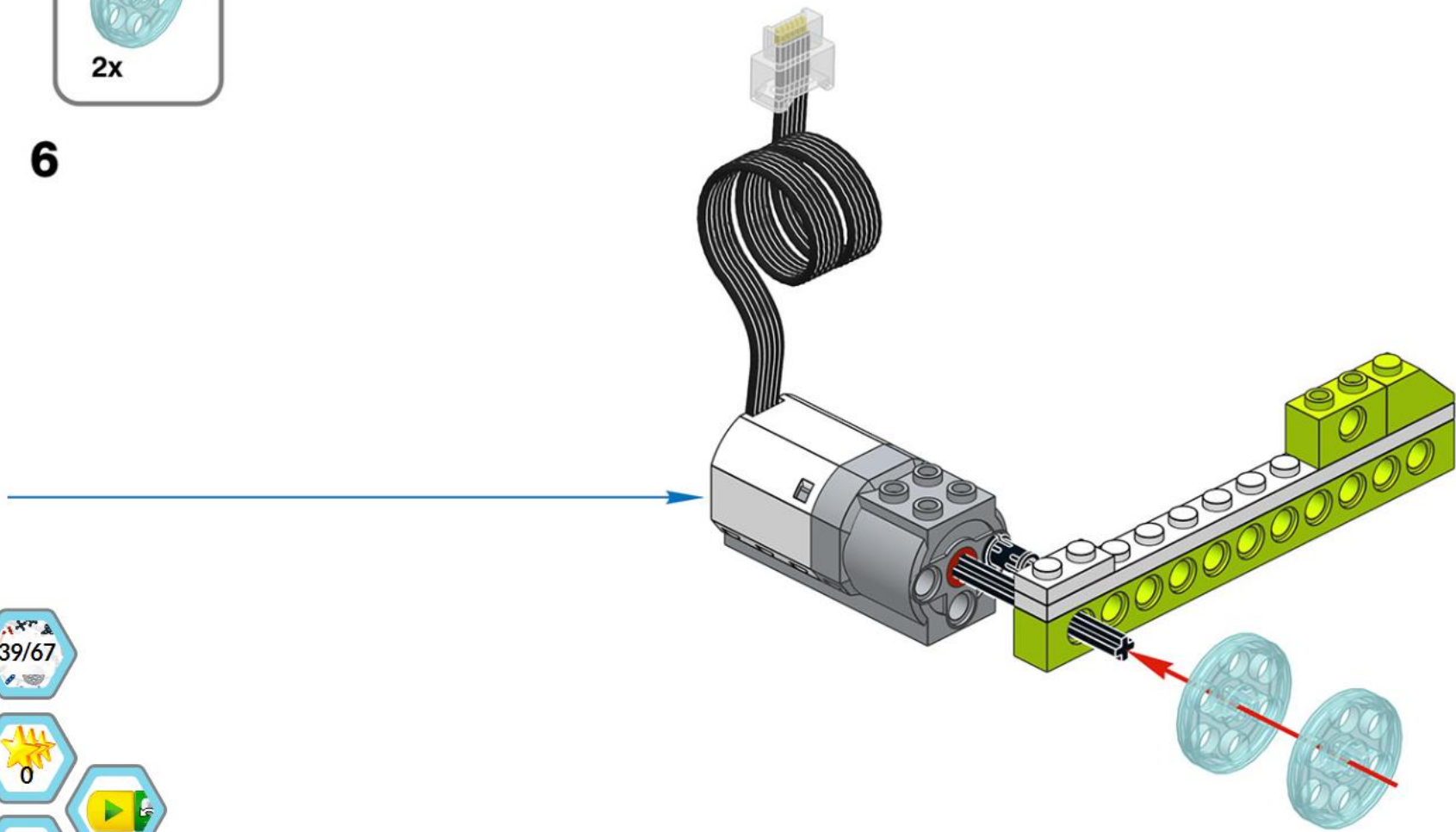


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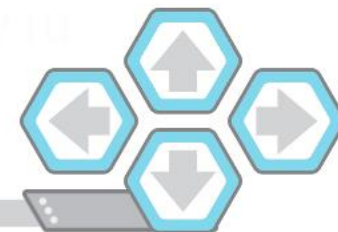


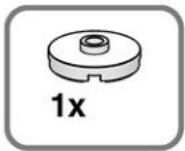


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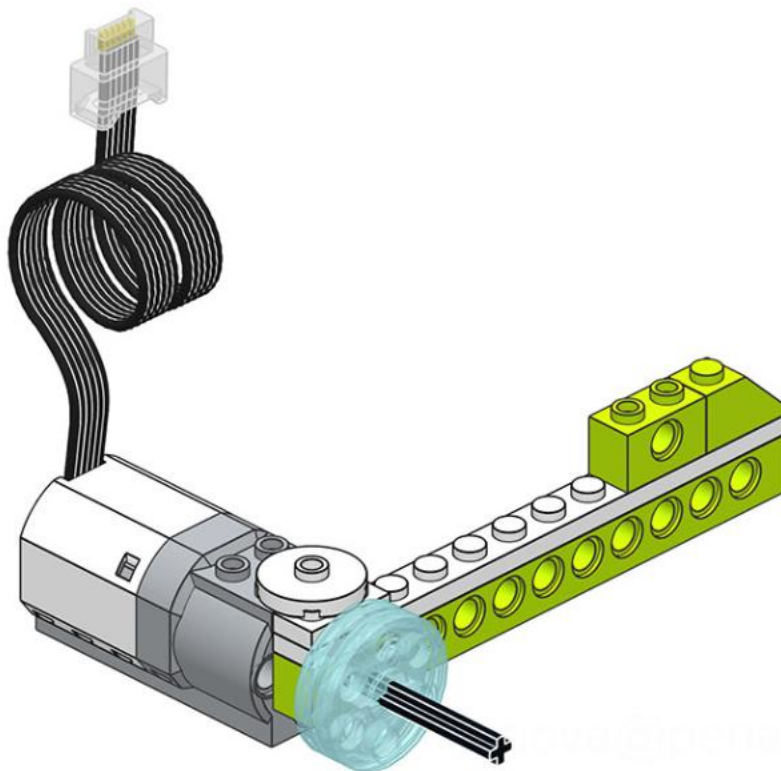


ilr@novosibirsk.ru

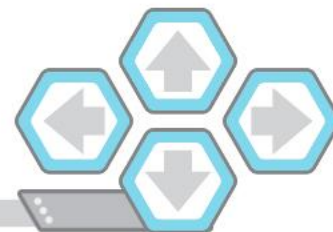




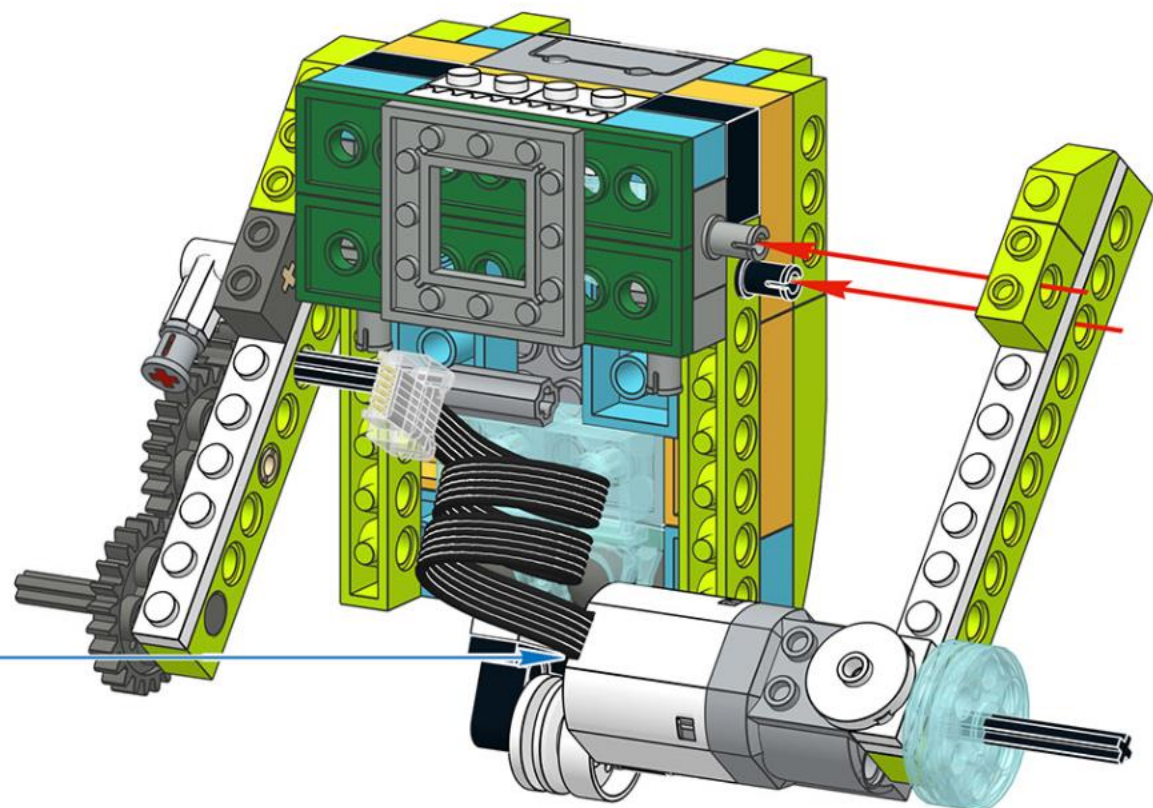
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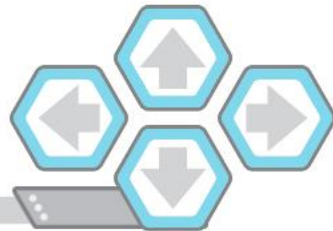
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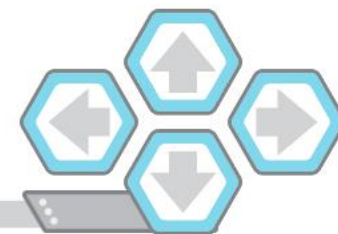
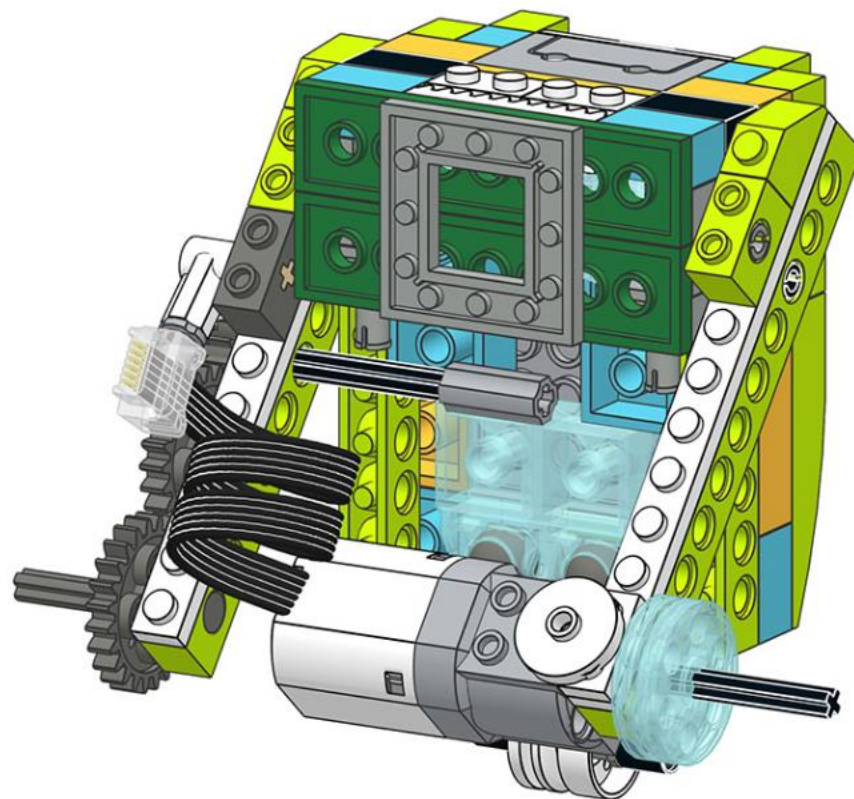


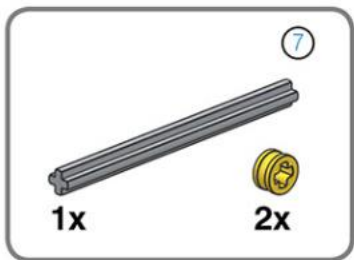
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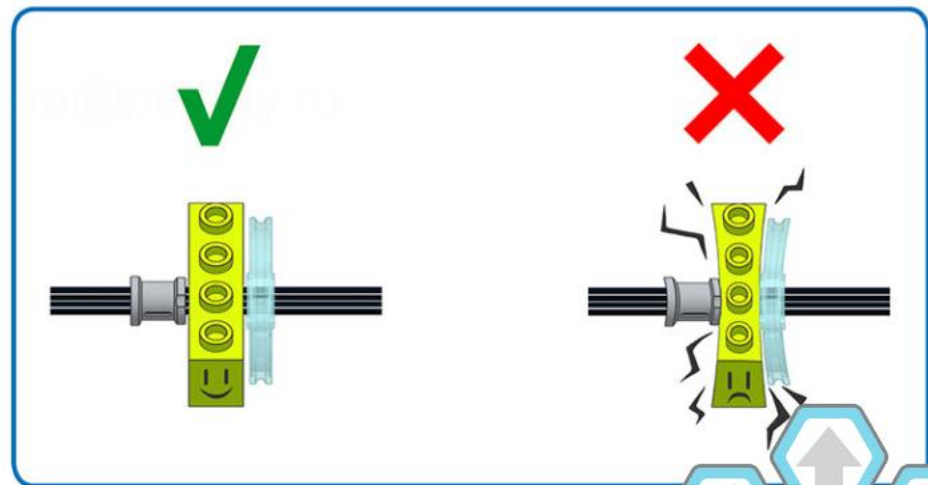
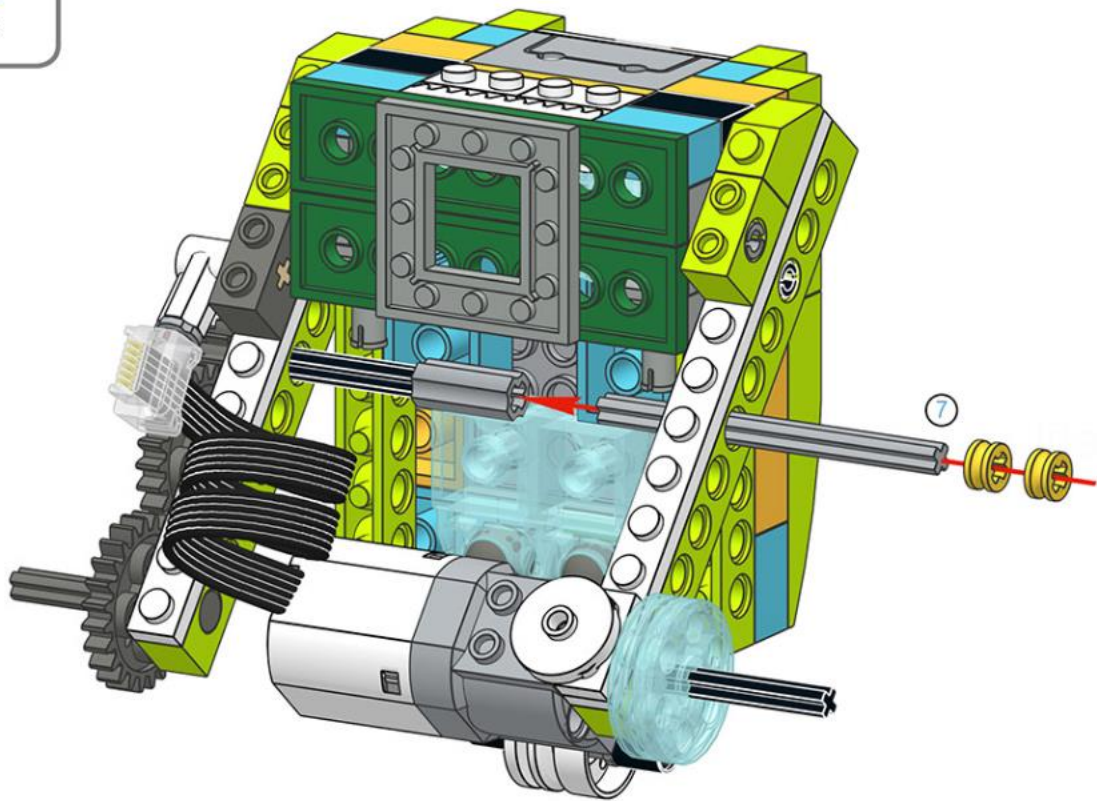
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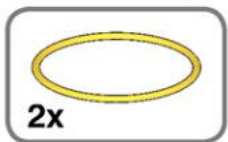
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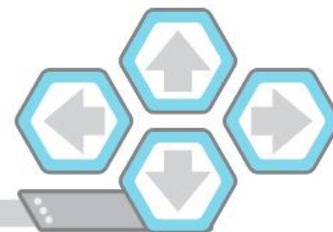
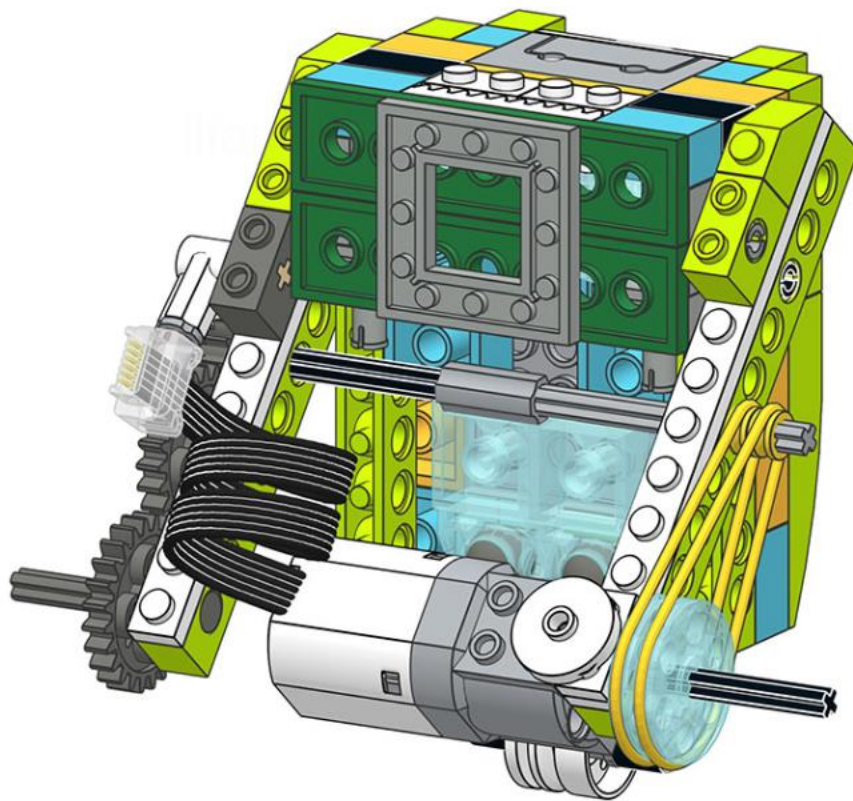
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0

66



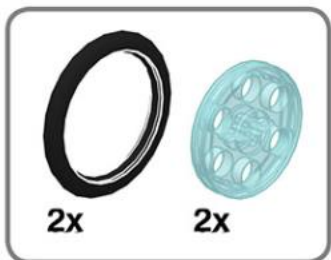
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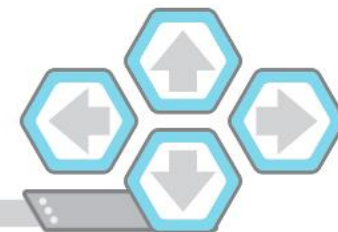
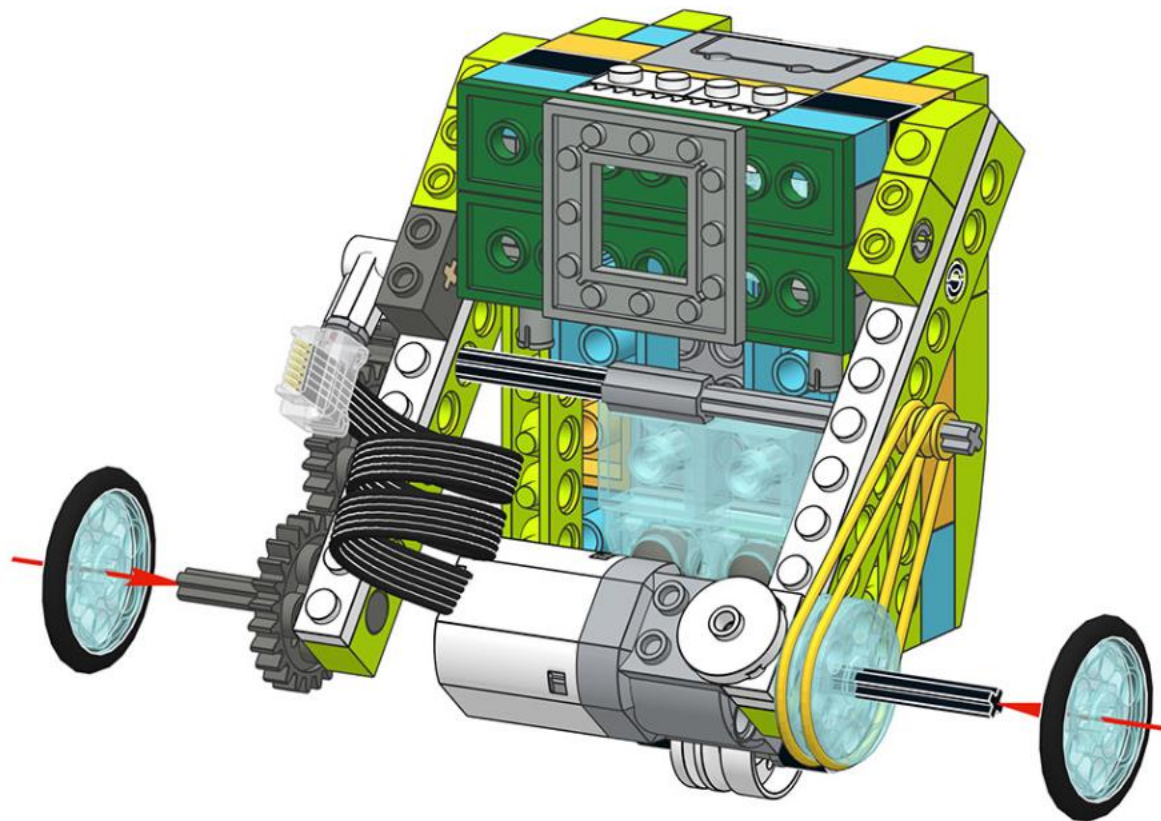
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67



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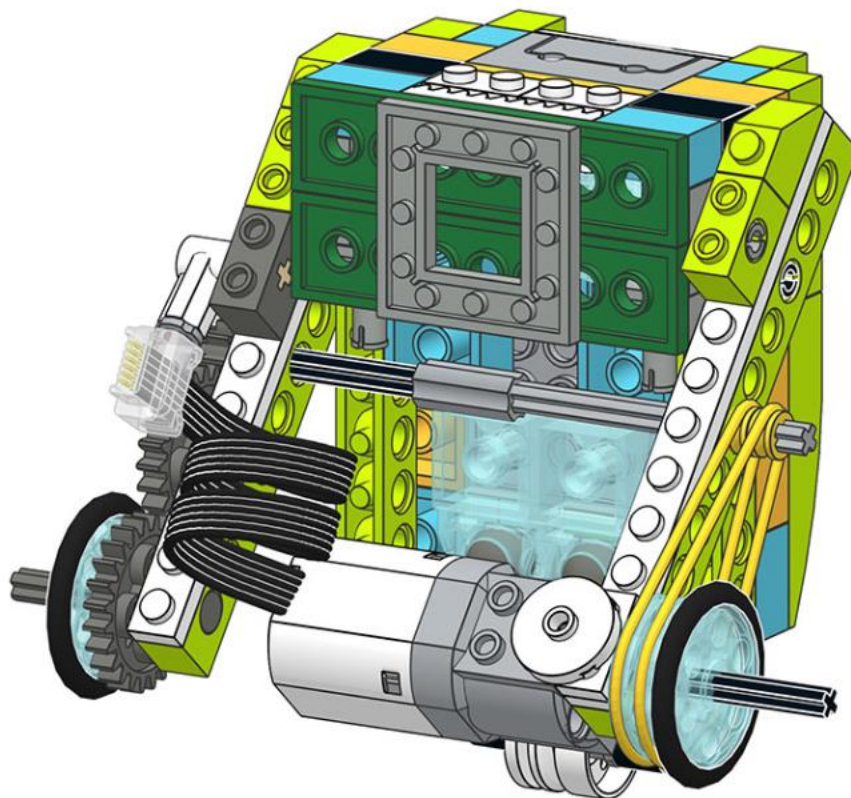
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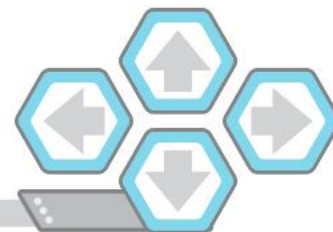


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# 23



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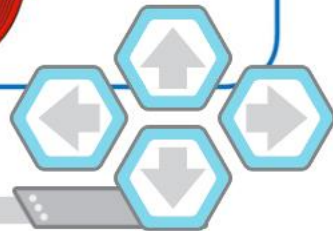
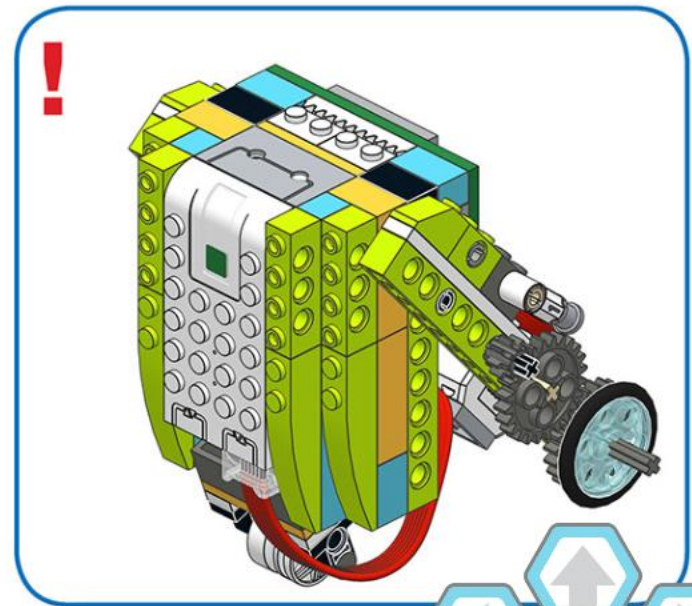
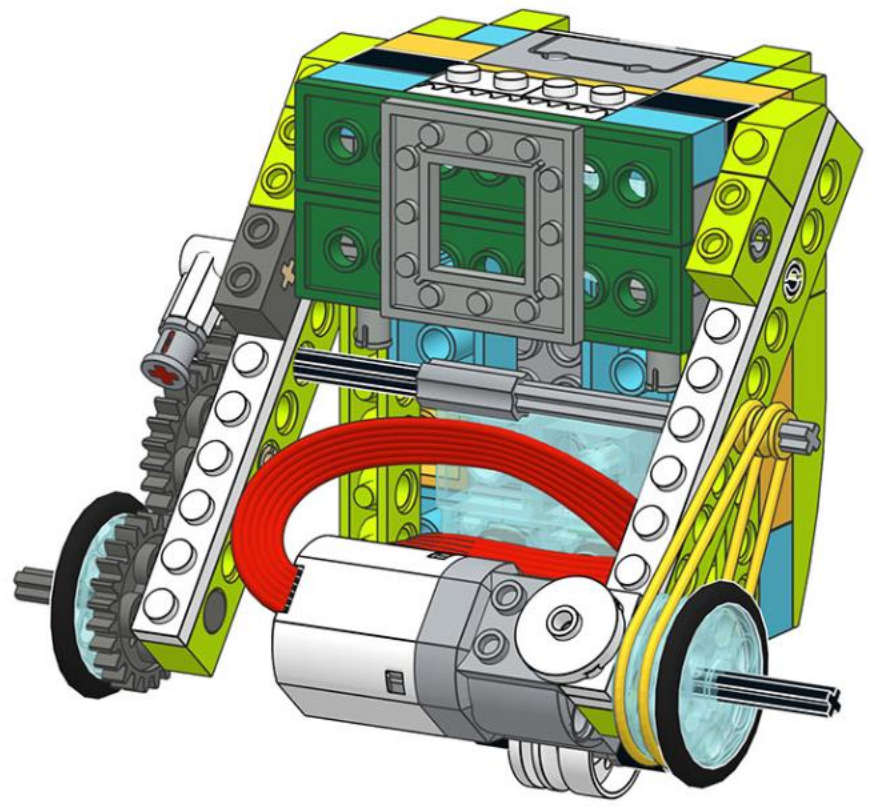


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# 24



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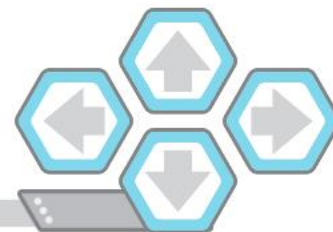
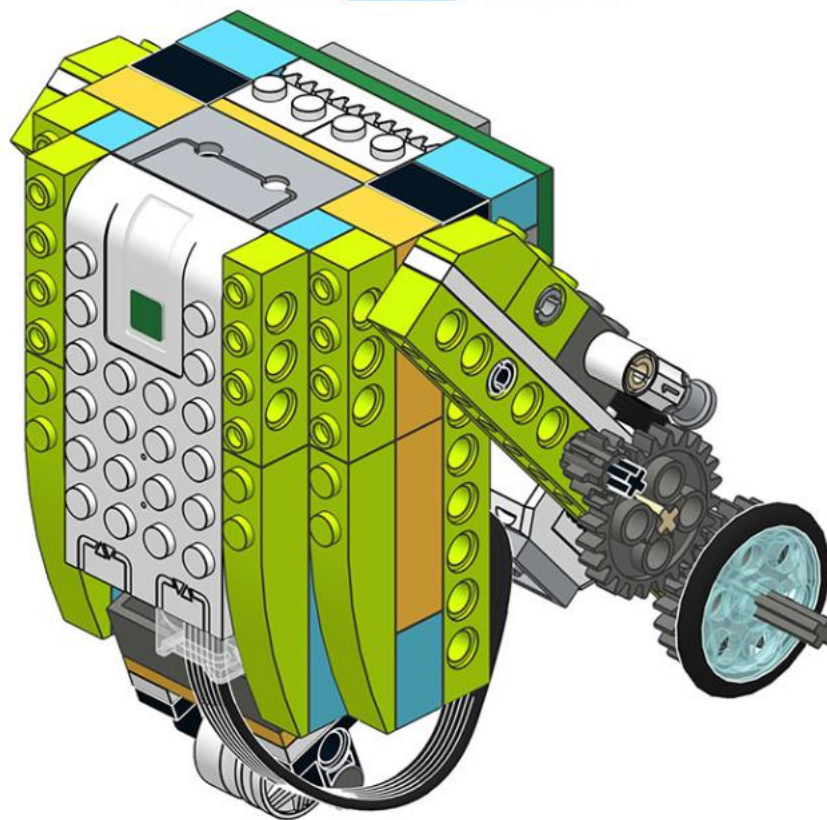
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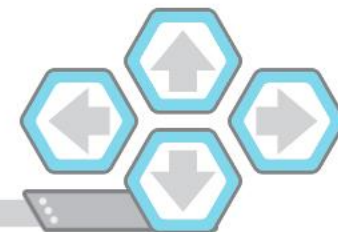
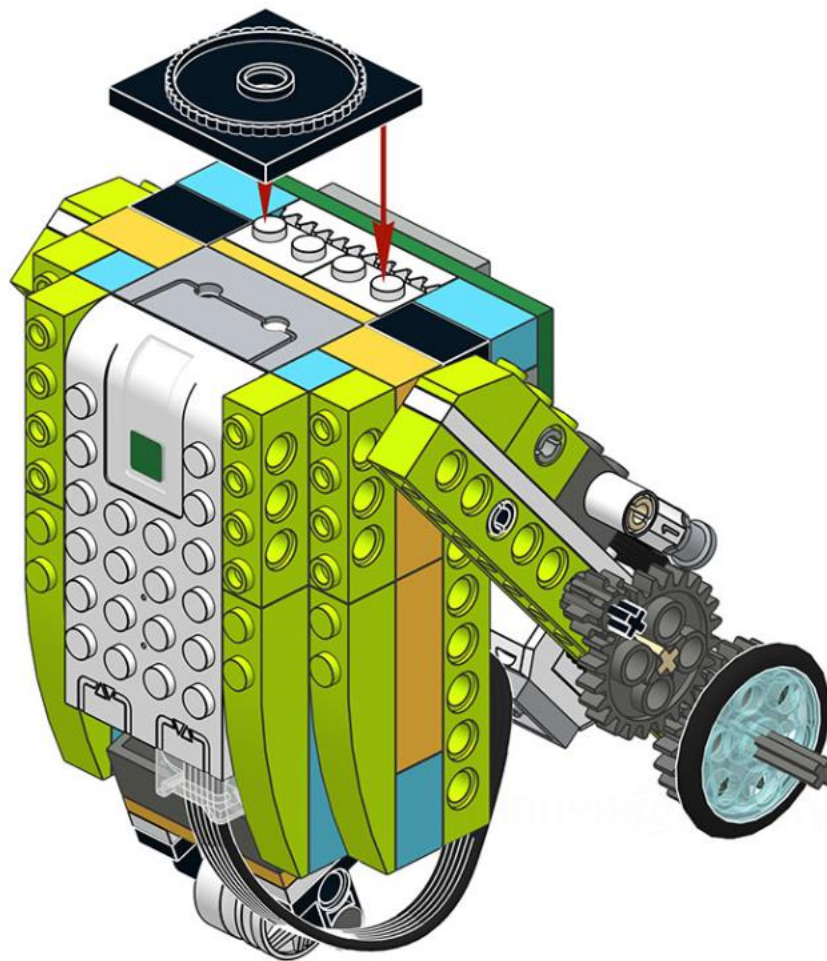
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# 25



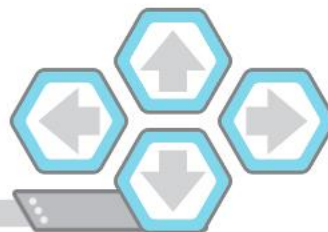
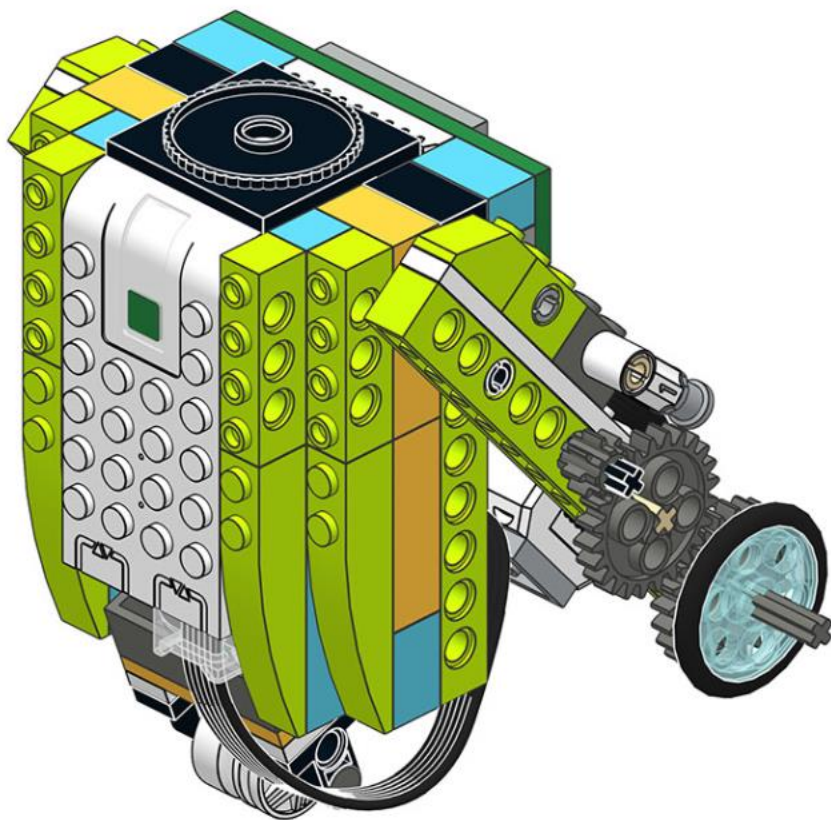


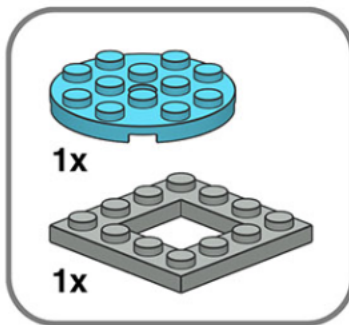
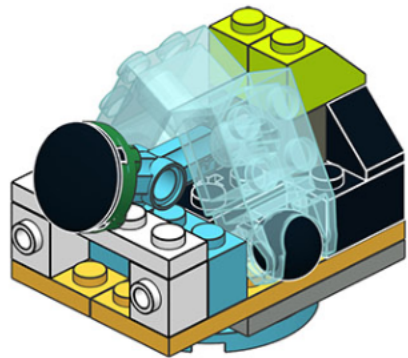
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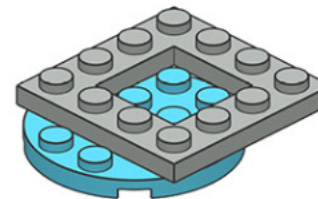


# 27





**1**



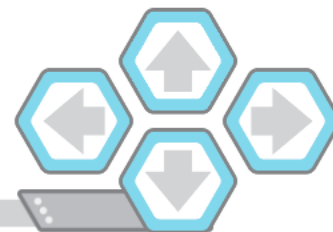
lifanova@penaty.ru

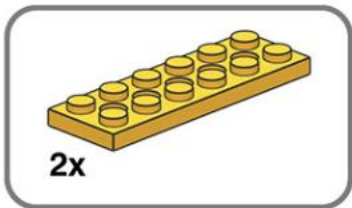
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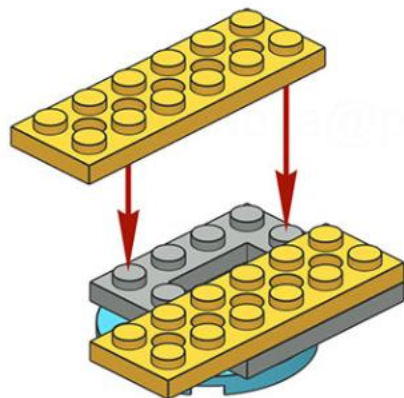


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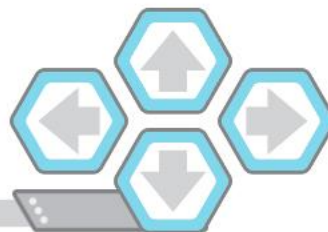




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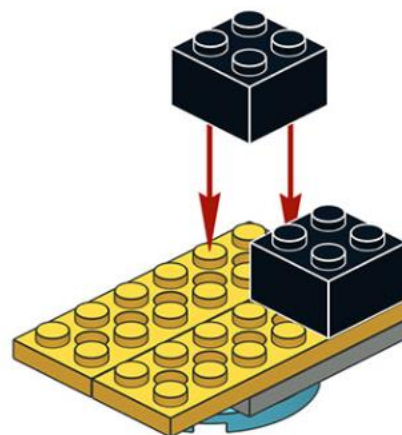


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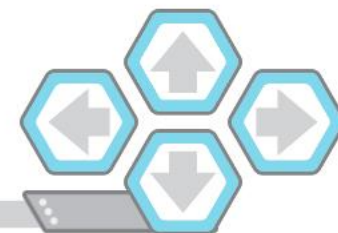




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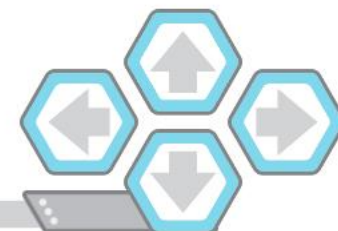
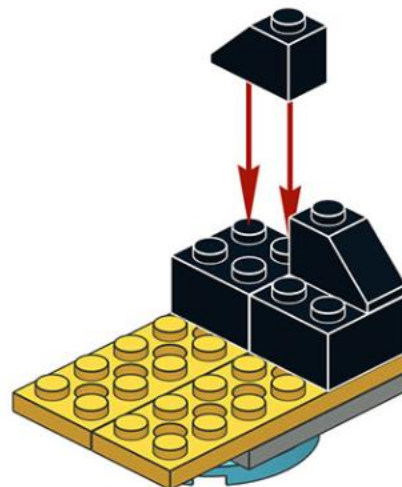


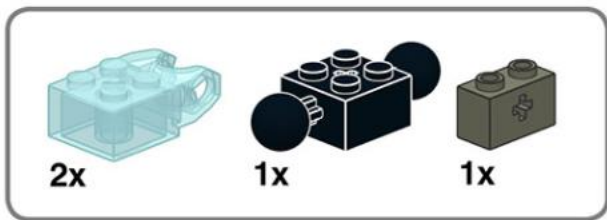
[lilanova@panaty.ru](mailto:lilanova@panaty.ru)





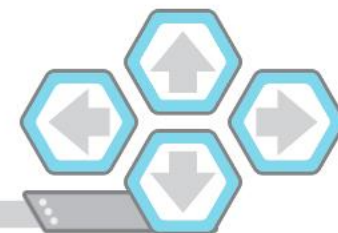
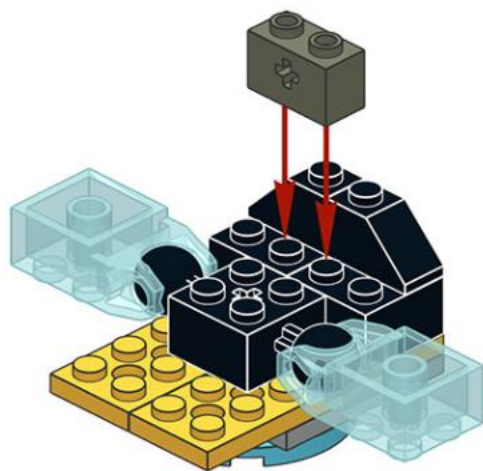
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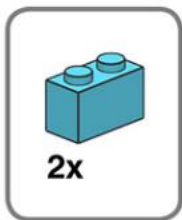




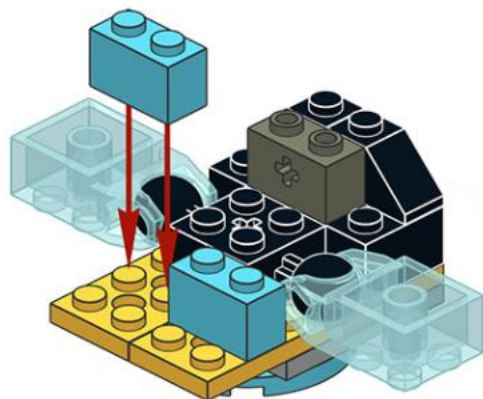
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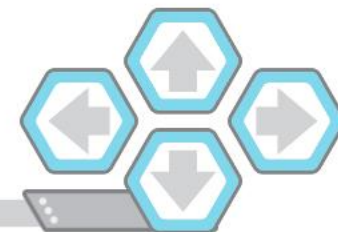


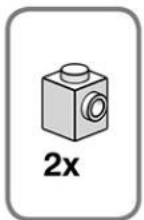


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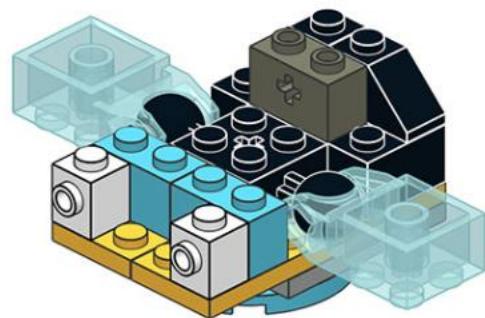


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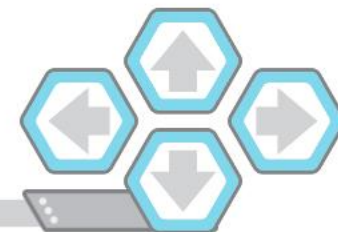




**7**



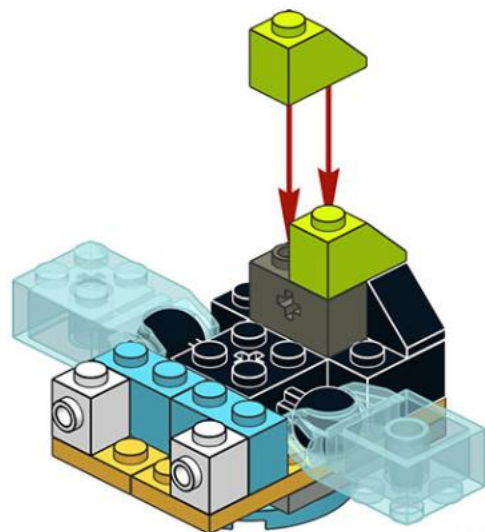
Renova@rendy.ru



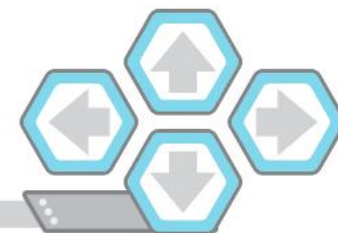


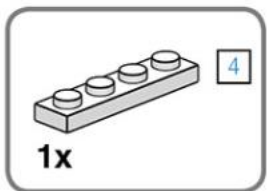


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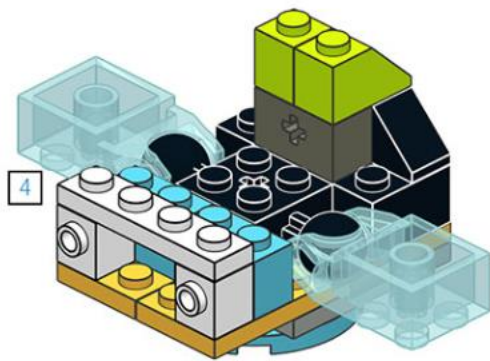


ilhanova@penaly.ru

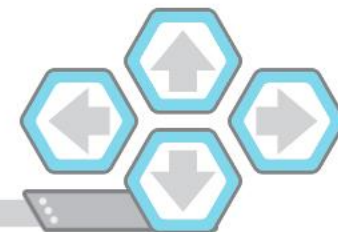


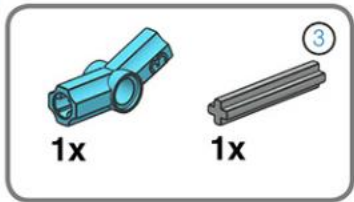


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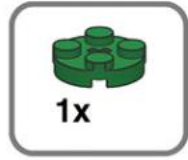
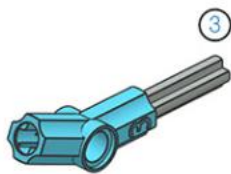


ilfanovo@peroty.ru

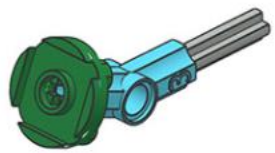




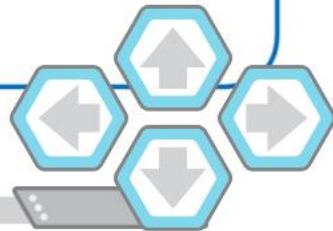
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**2**

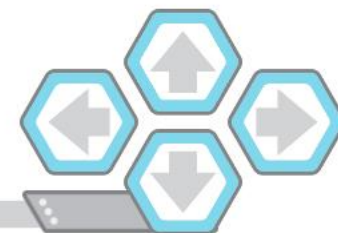


**3**



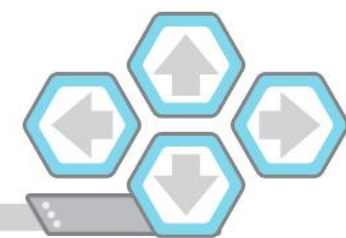
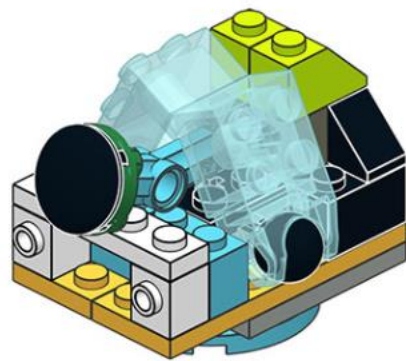
# 10

||anova@penaty.ru



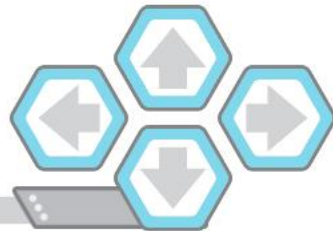
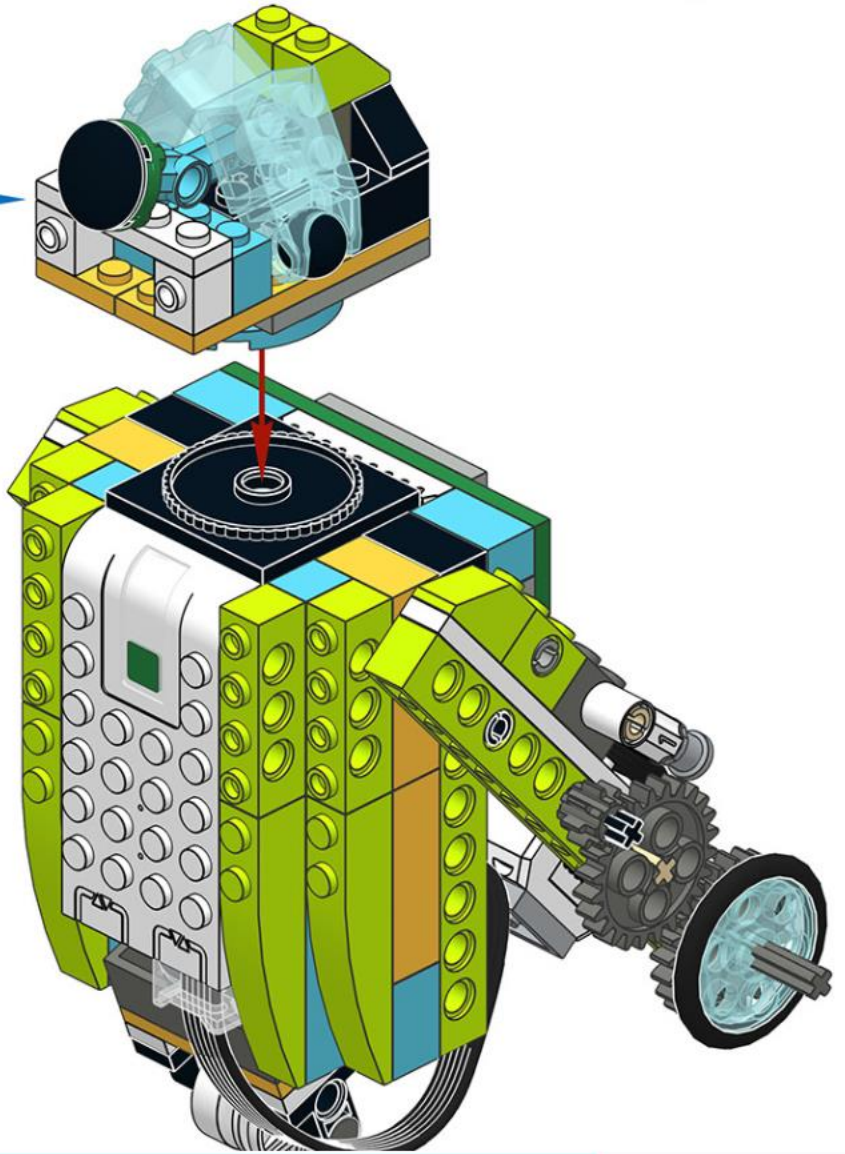
11

lfanova@penalty.ru

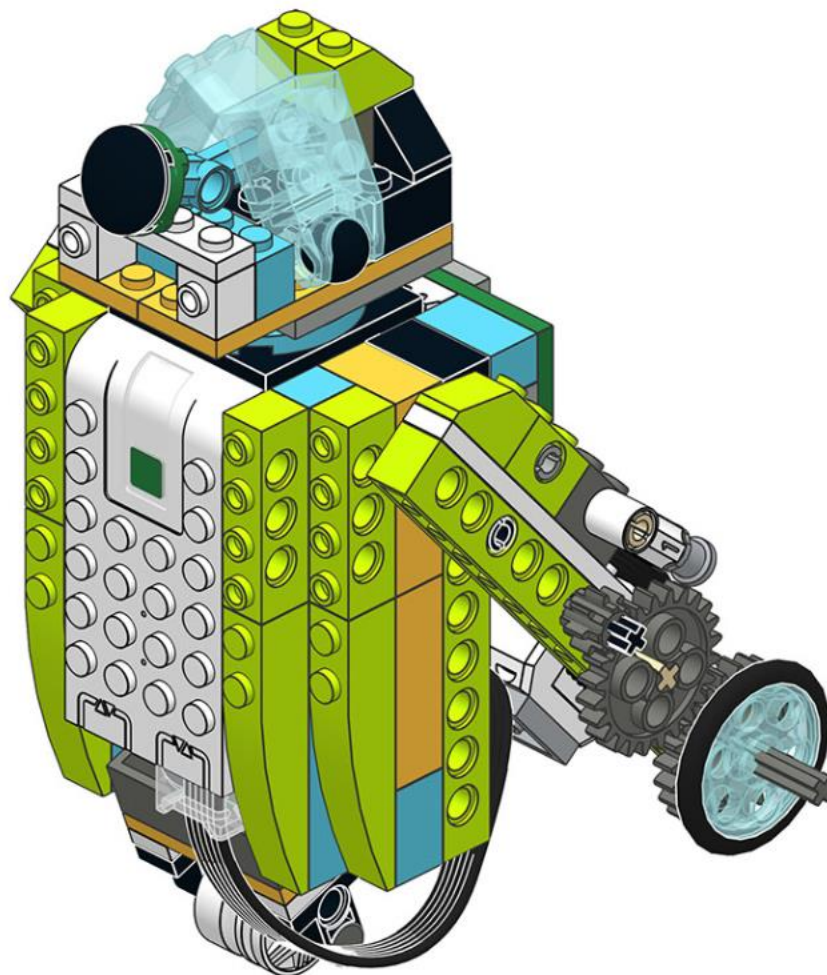


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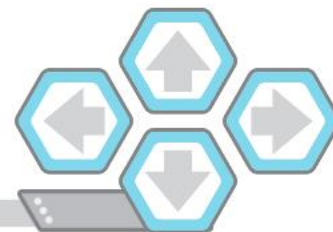
man@pms.ru



# 29



panasy.ru

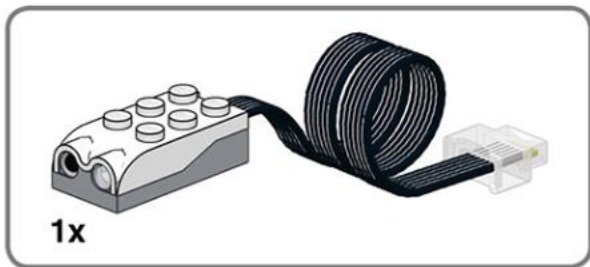


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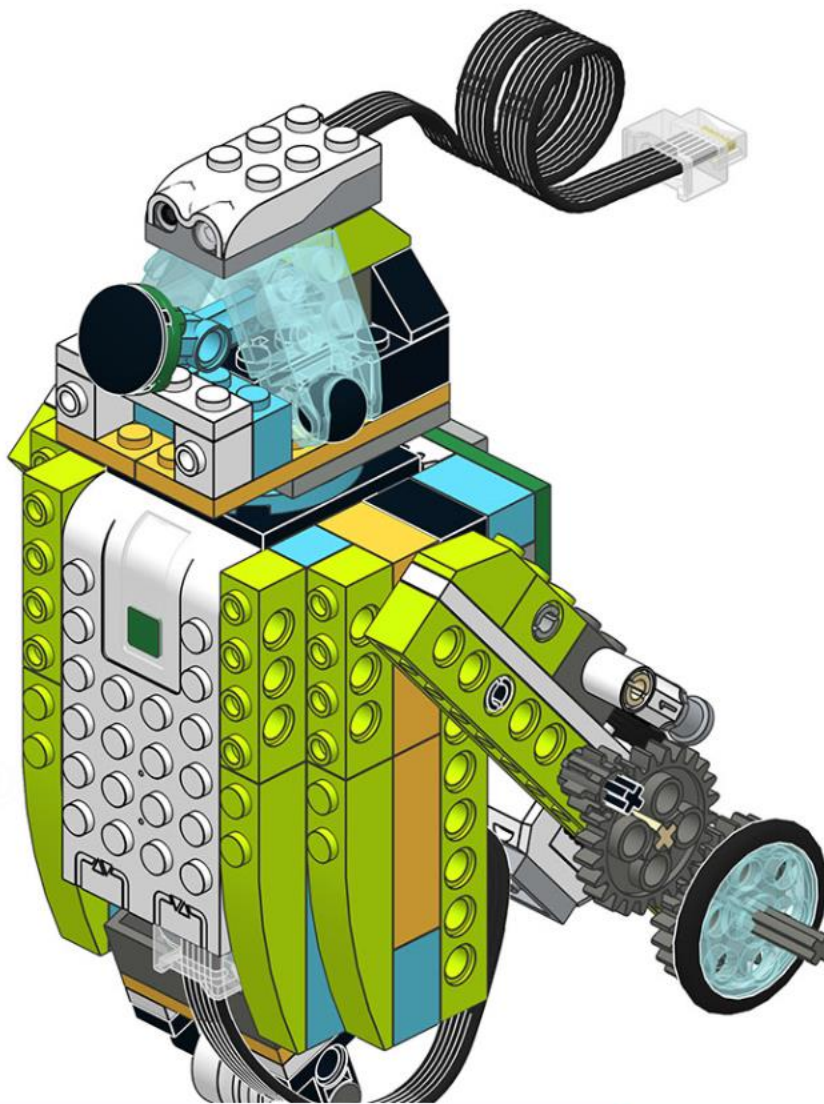
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87

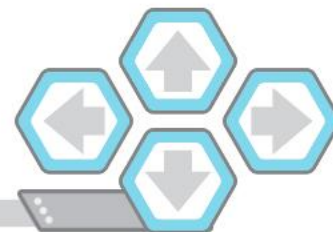




**30**



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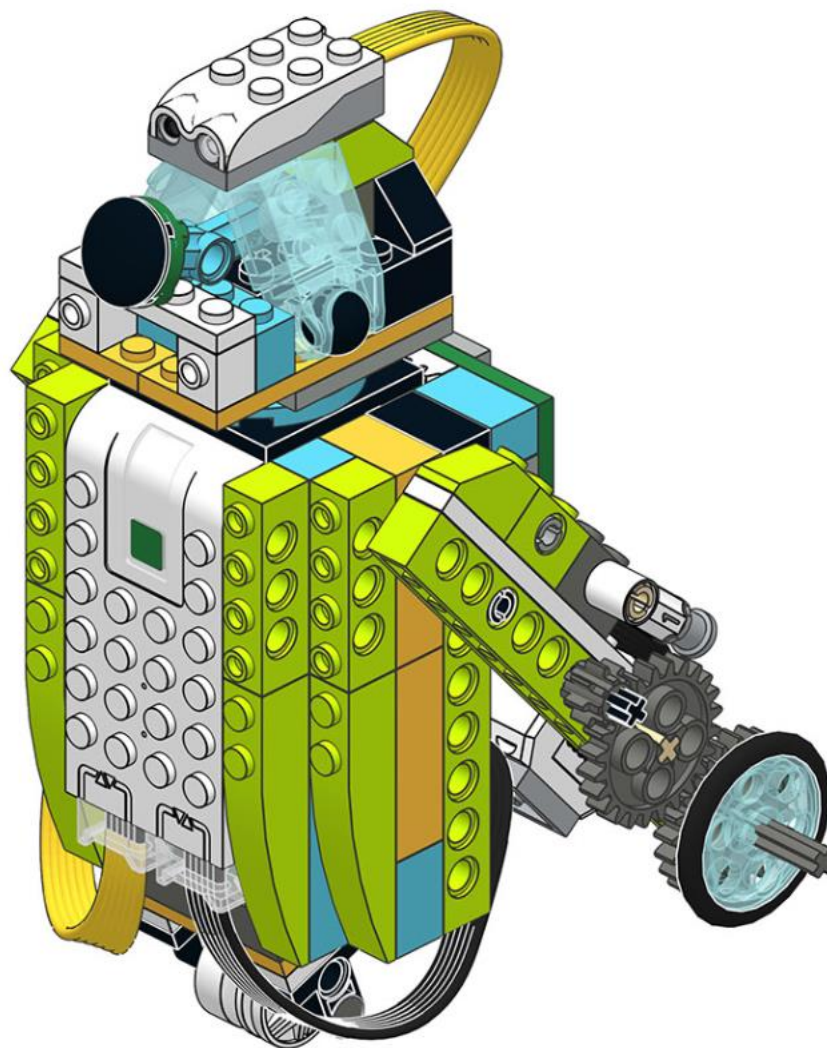
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88

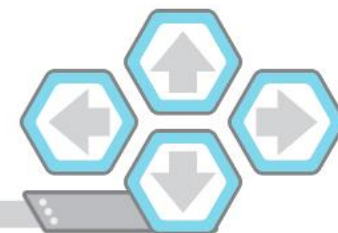




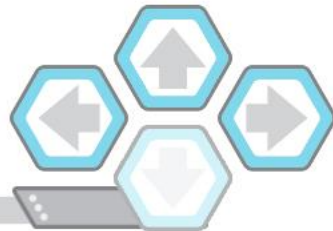
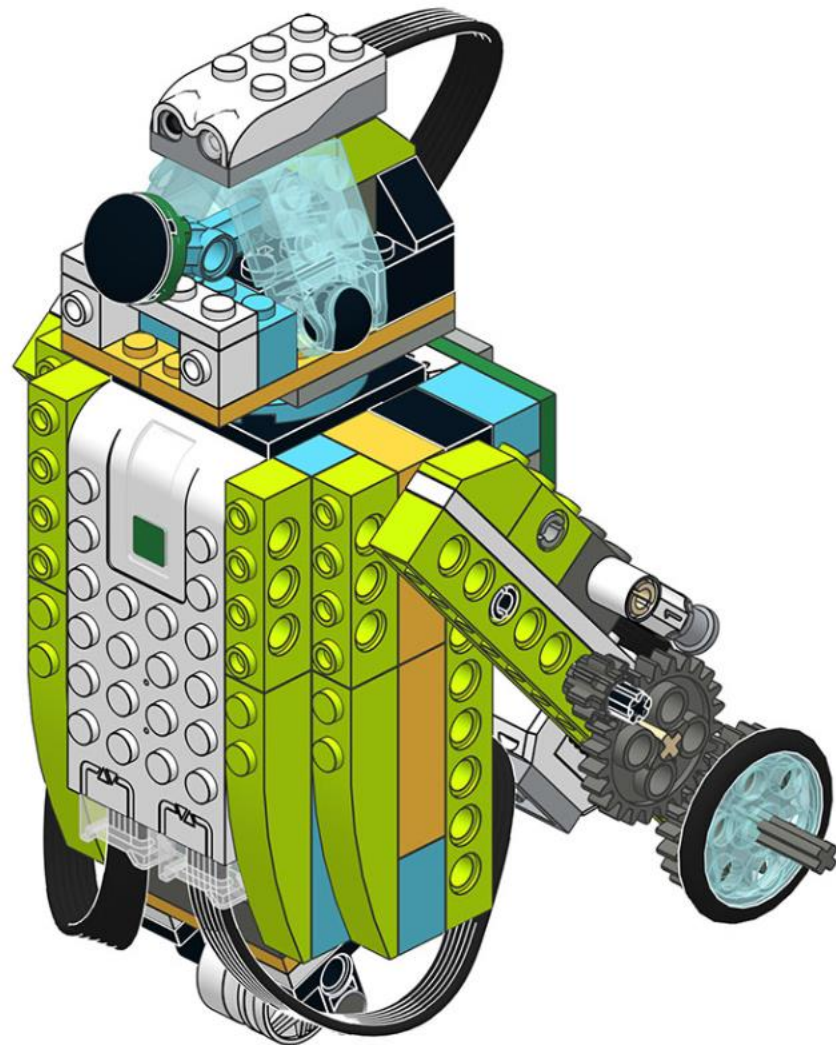
# 31



ifanovs@pencil.ru

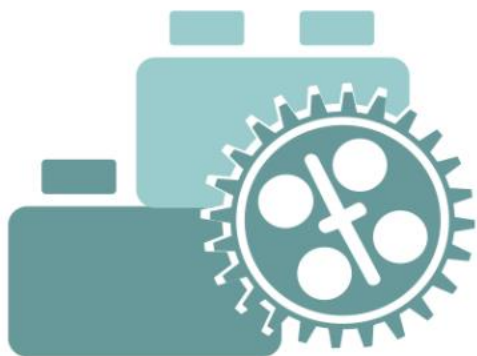


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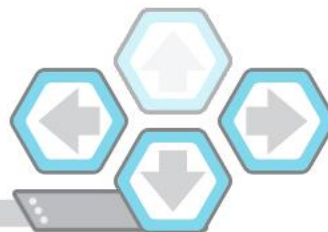
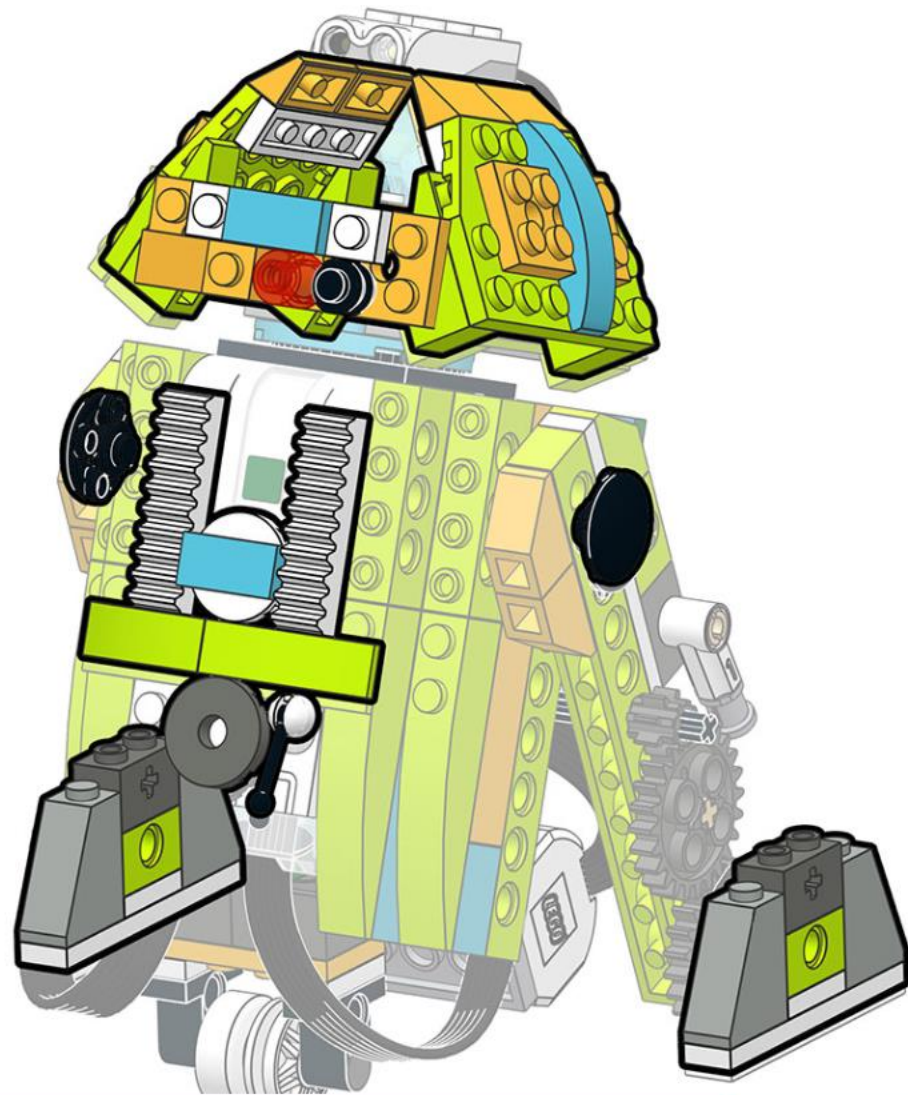


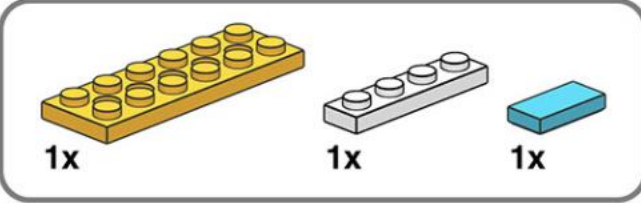


# Расширенная версия

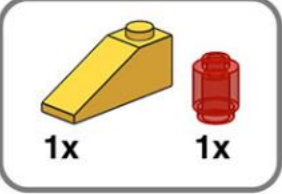
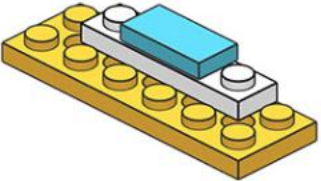


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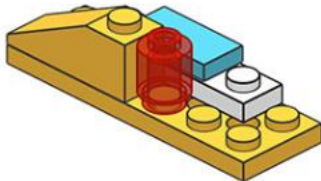




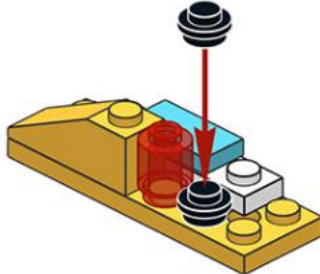
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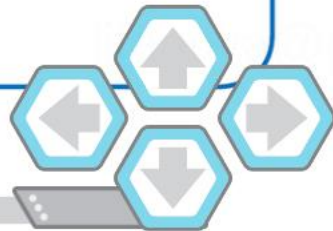
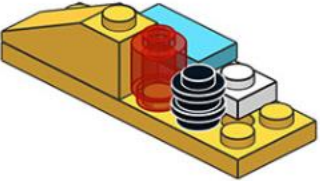
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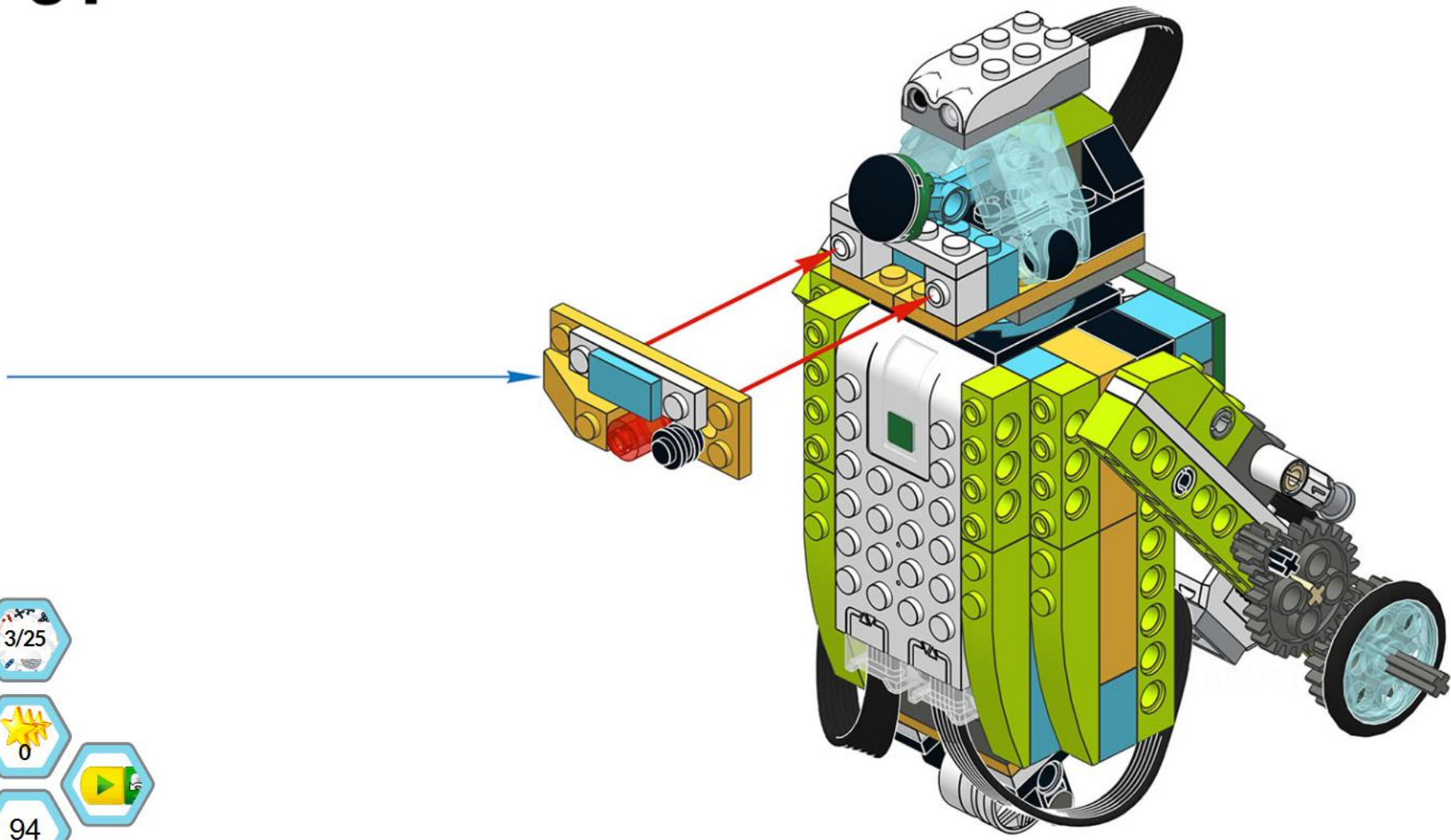
**3**



**4**



# 34

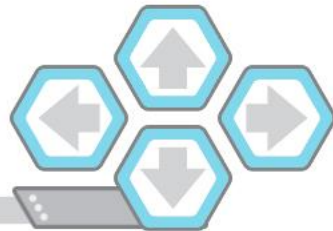


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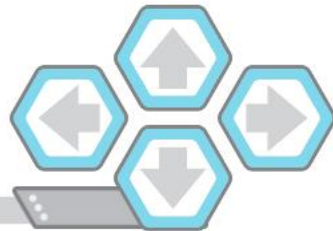
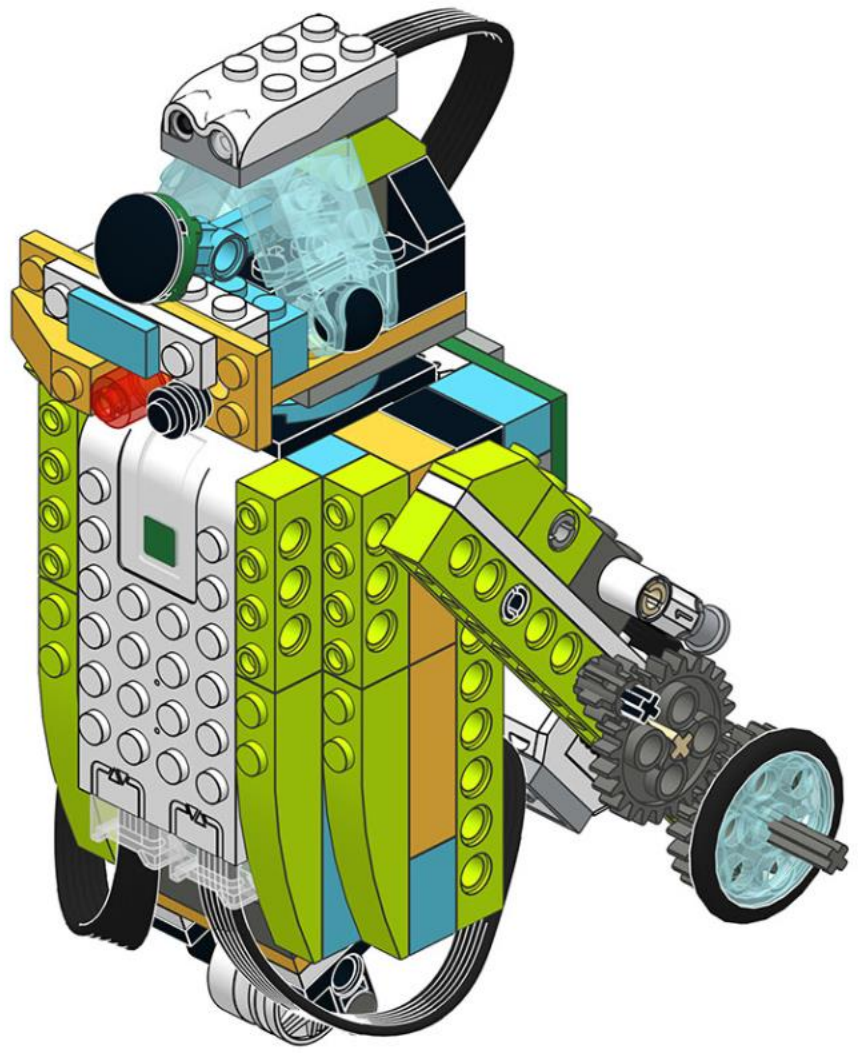
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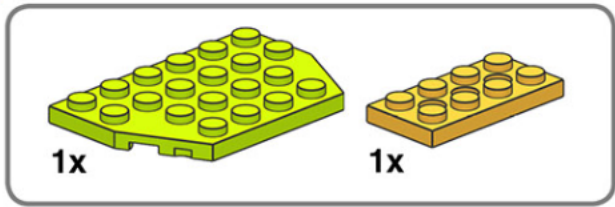


94

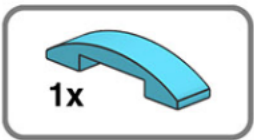
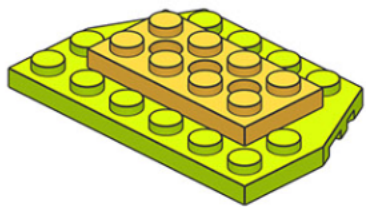


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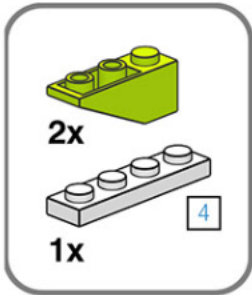
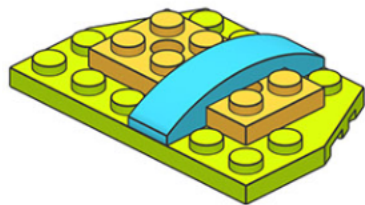




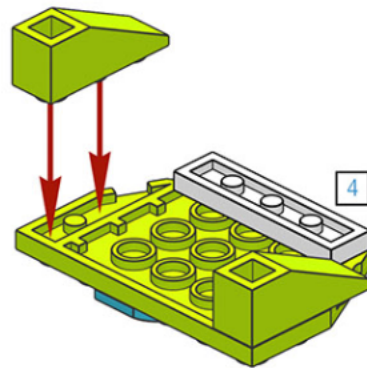
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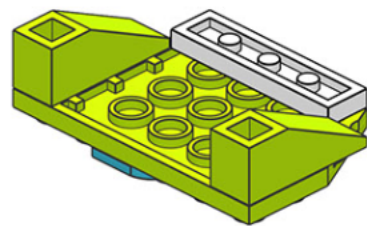
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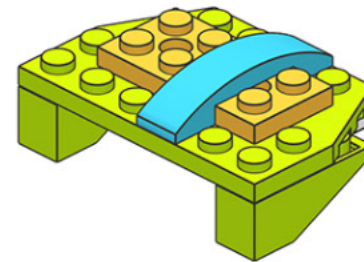
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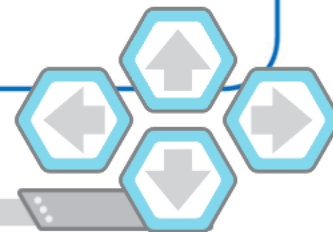
**4**



**5**

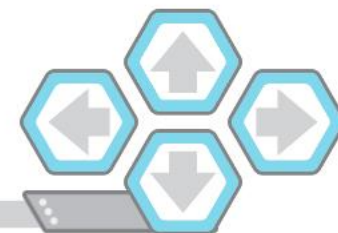
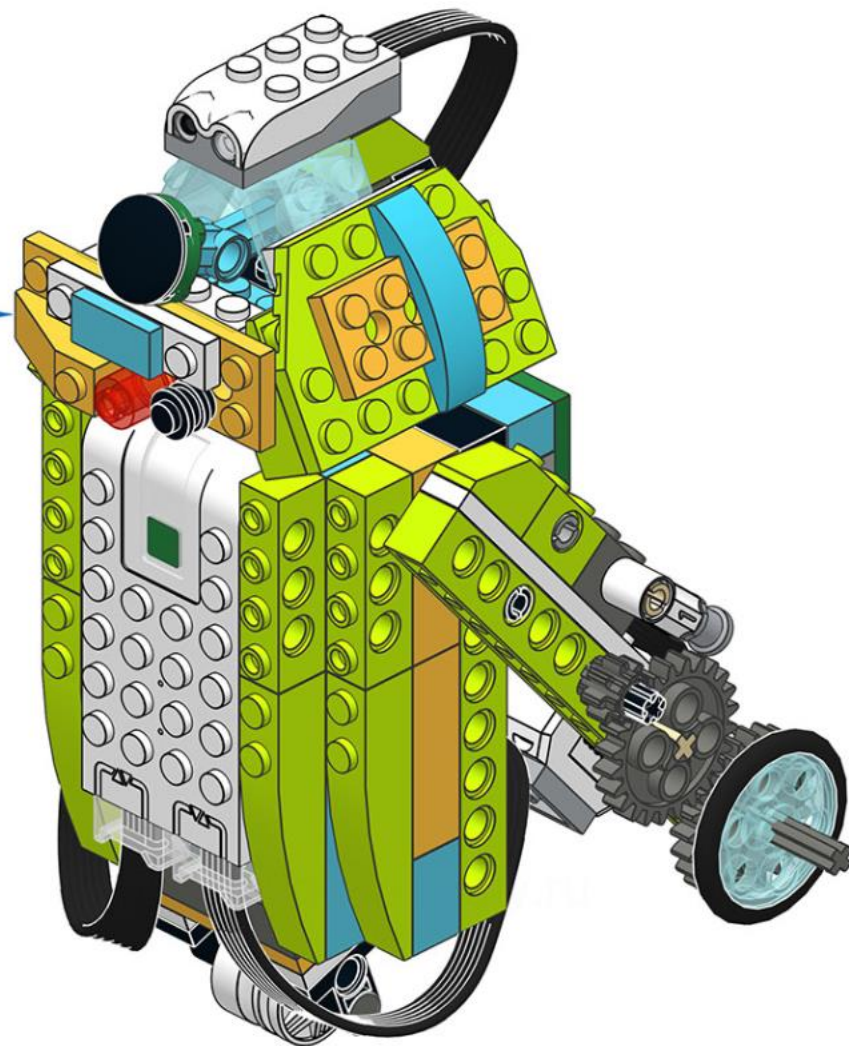


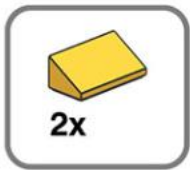
lifanova@pe...



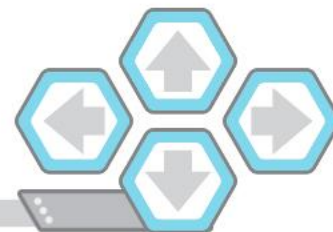
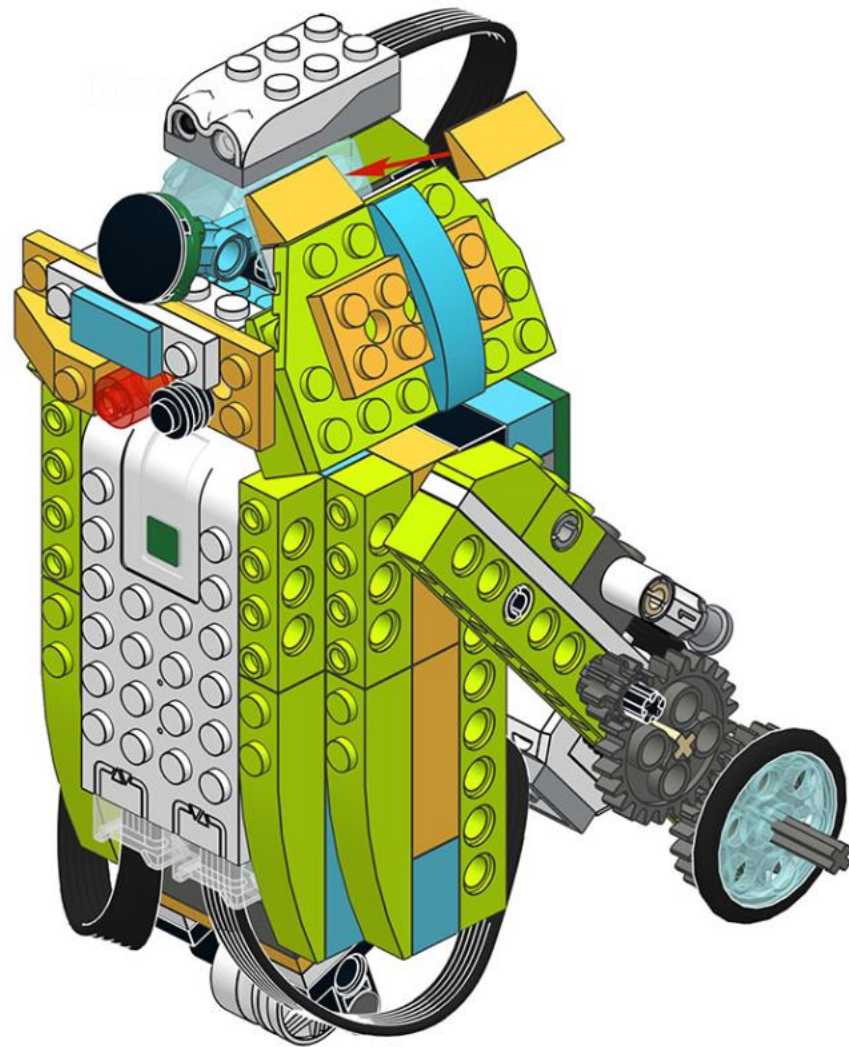


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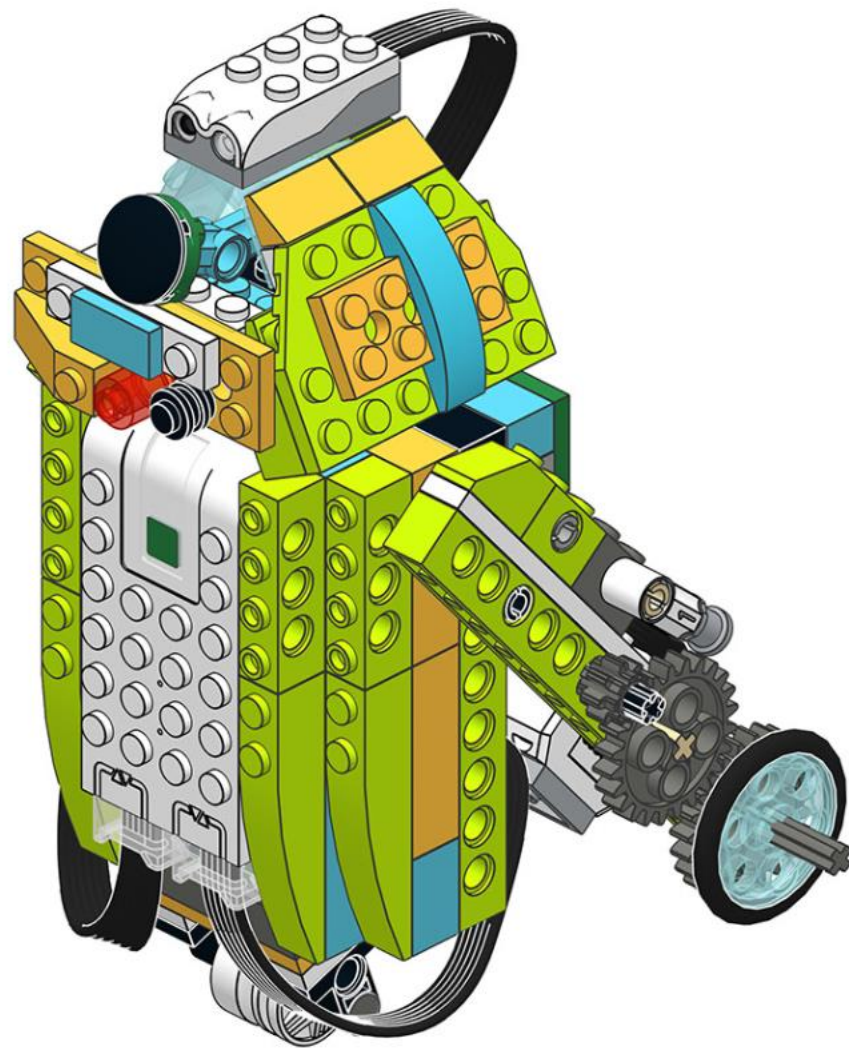




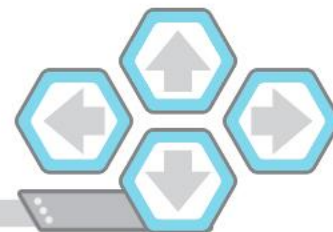
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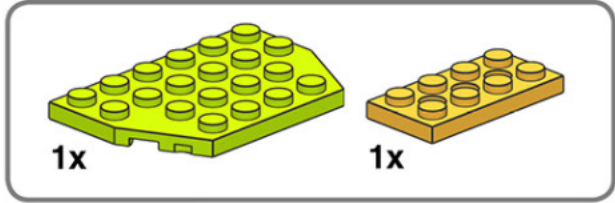


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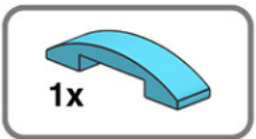
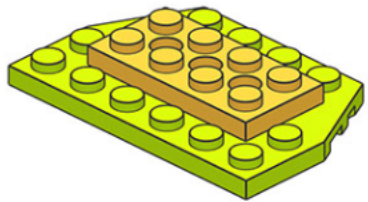


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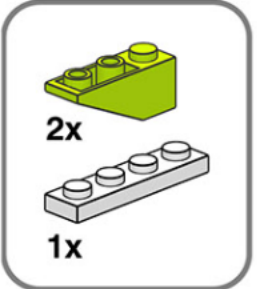
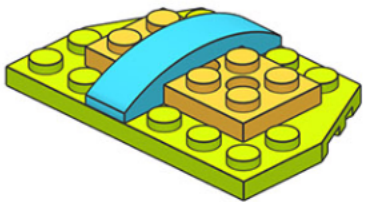




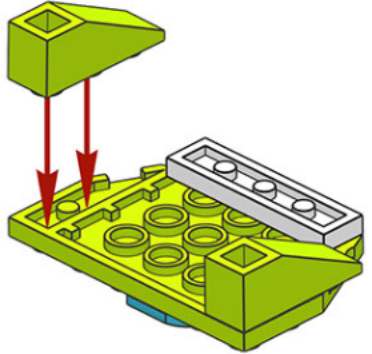
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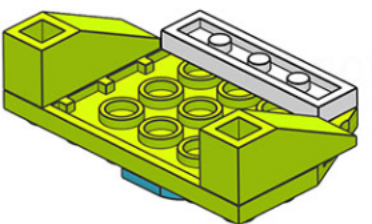
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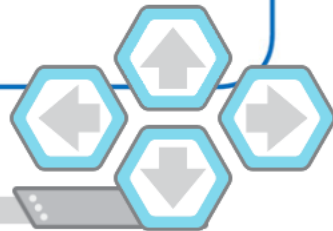
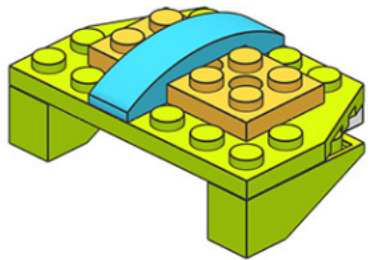
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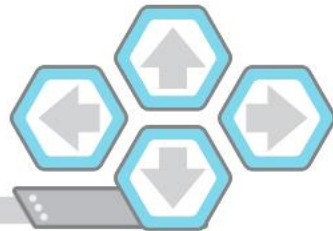
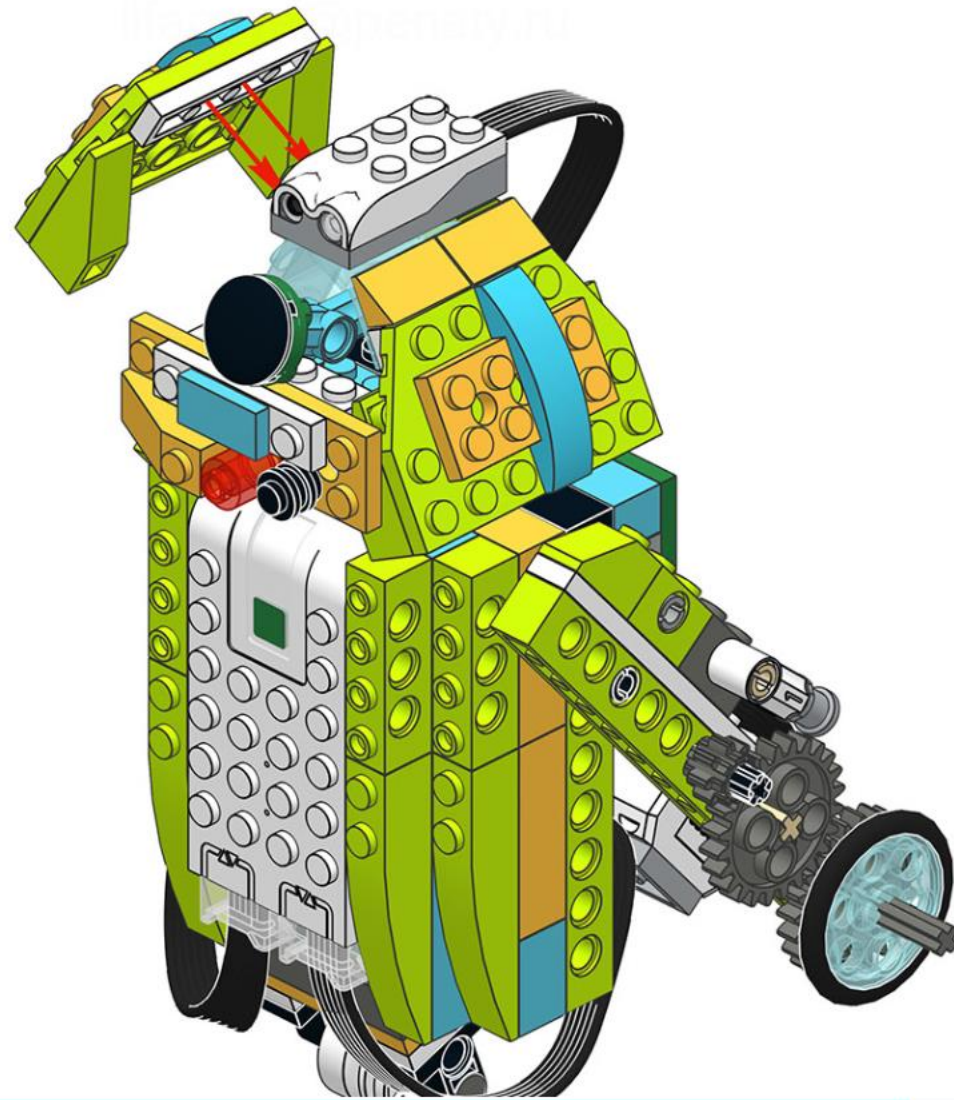
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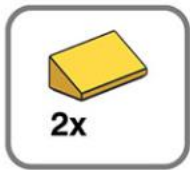


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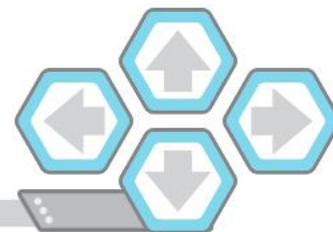
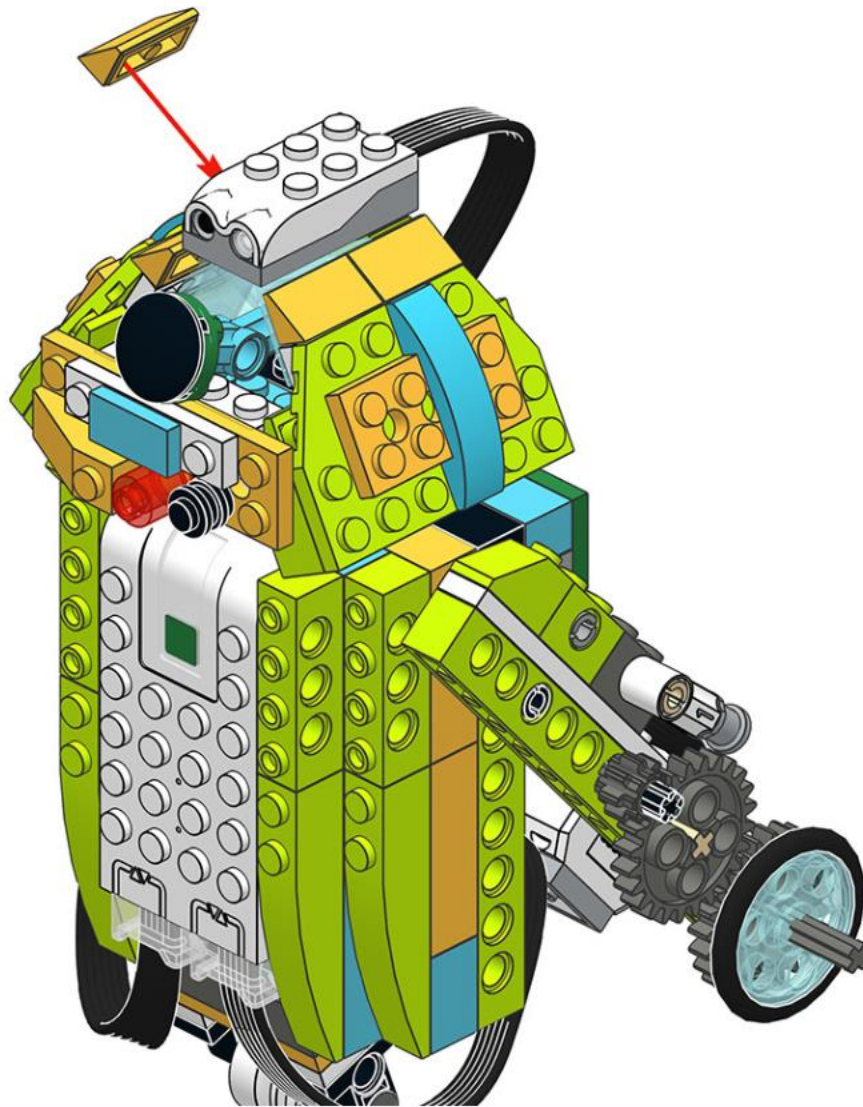


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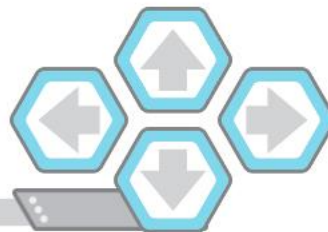
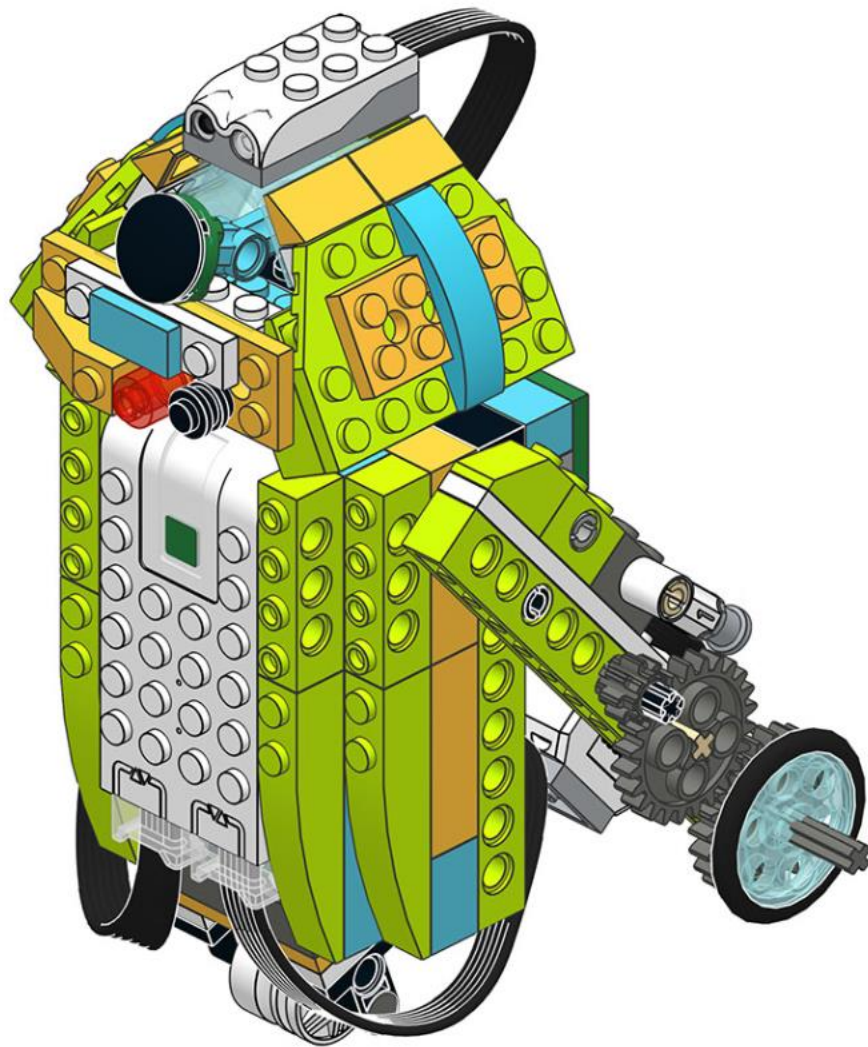


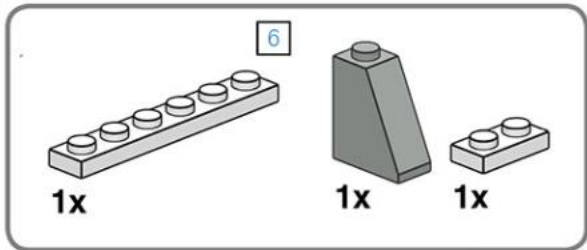


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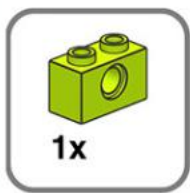
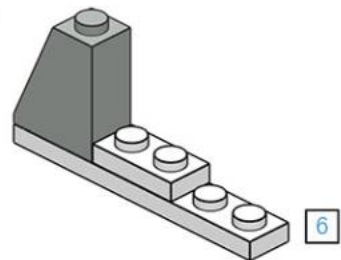


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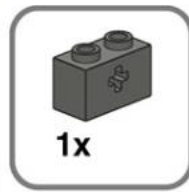
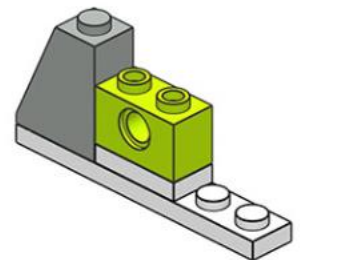




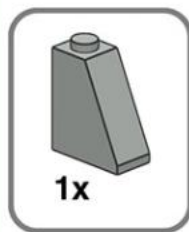
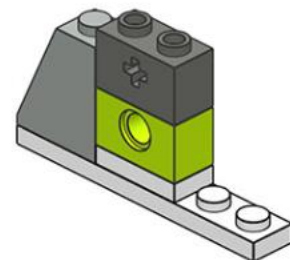
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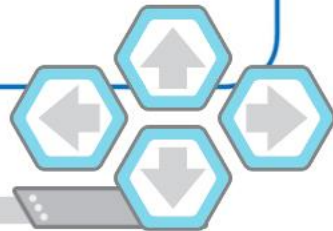
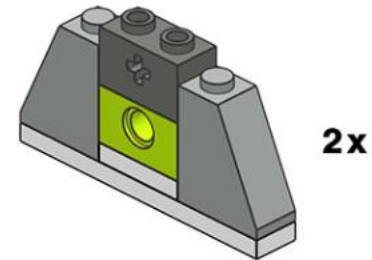
**2**



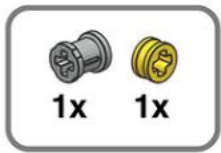
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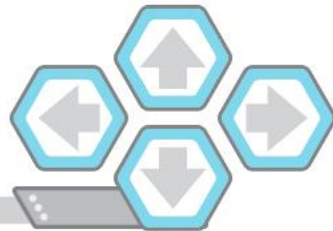
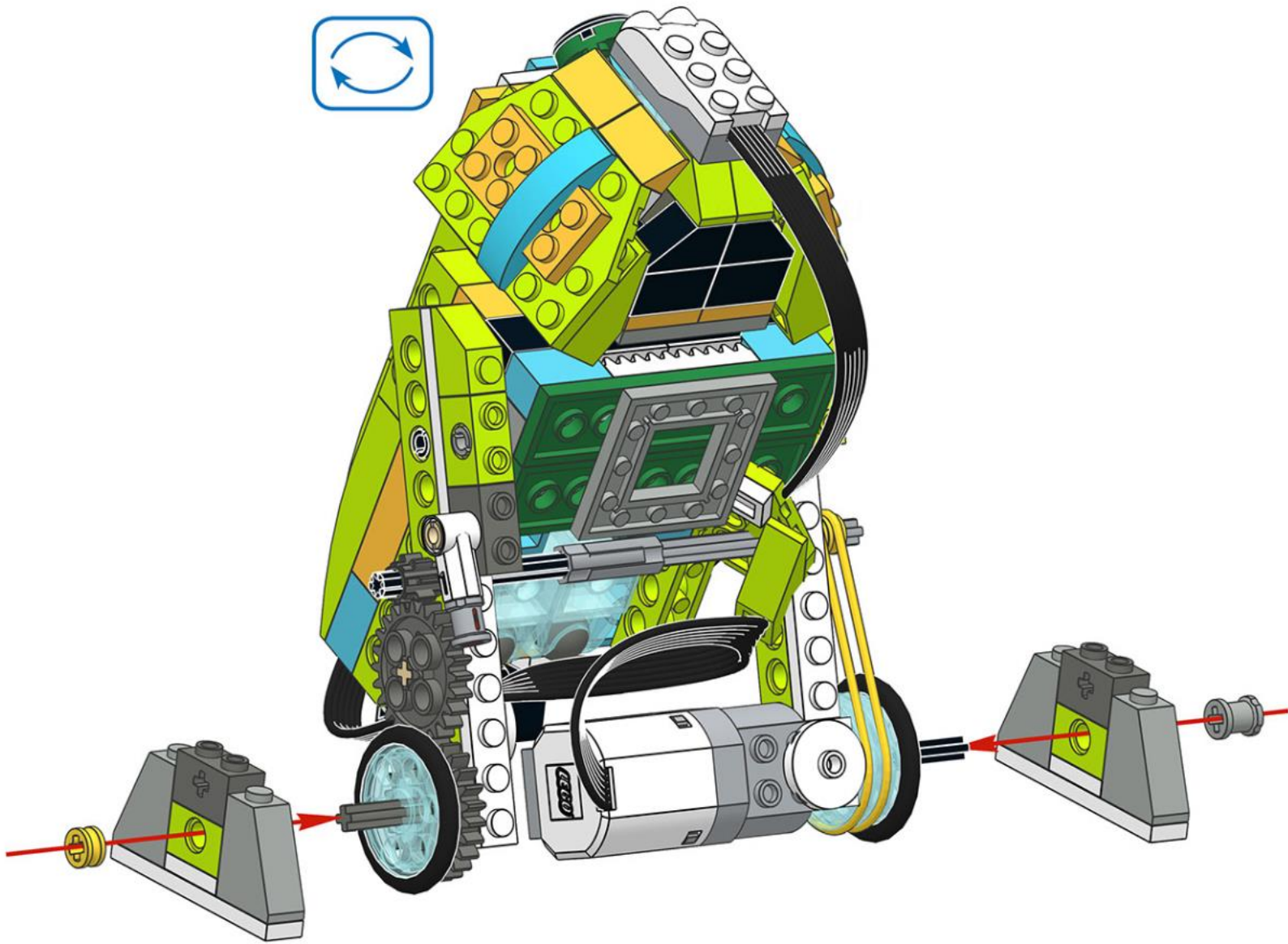
**4**

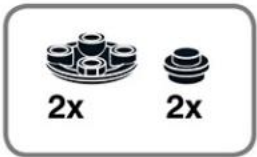




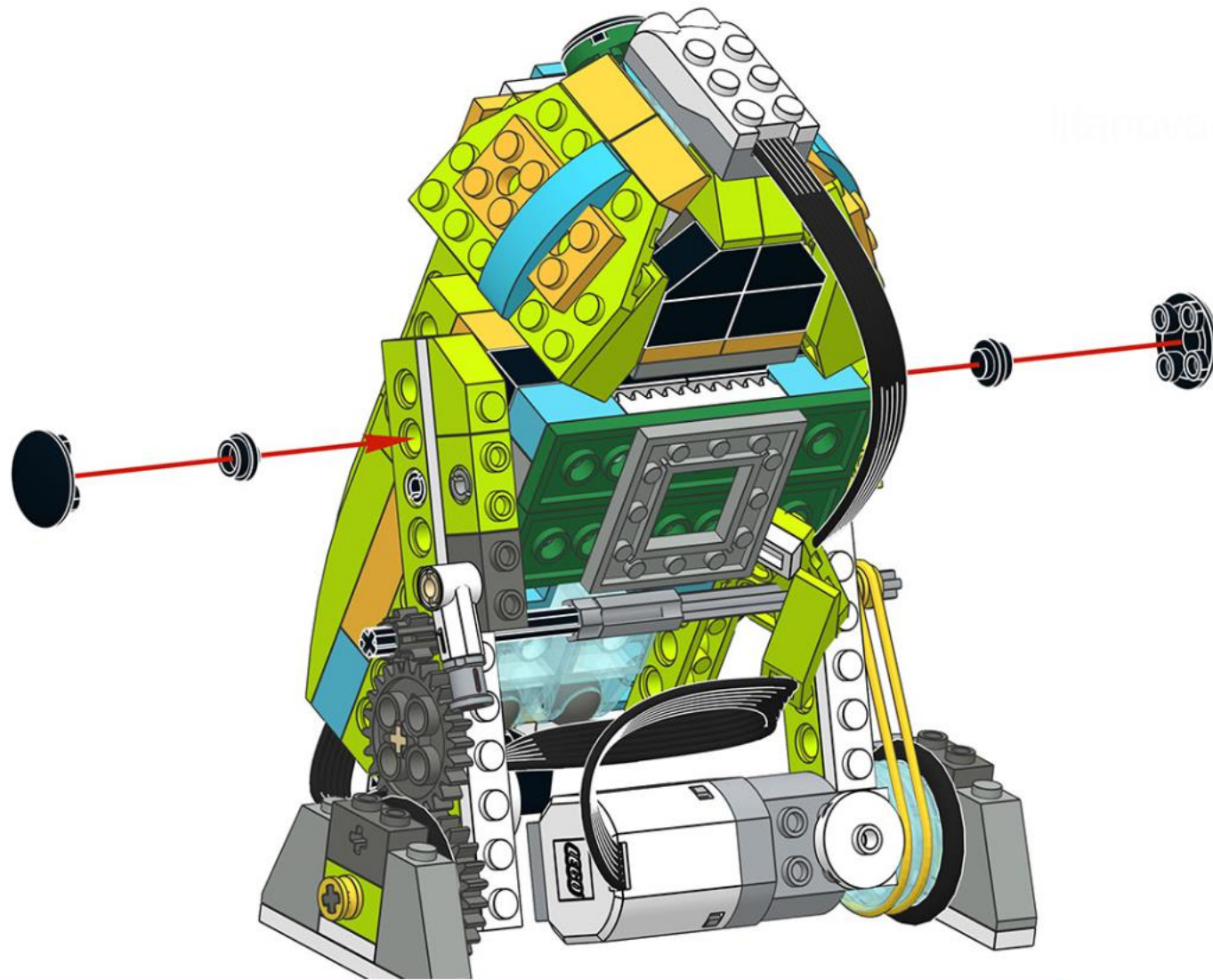


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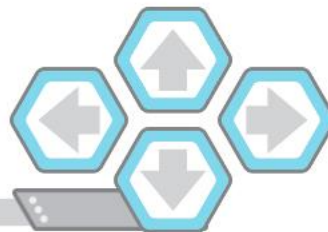




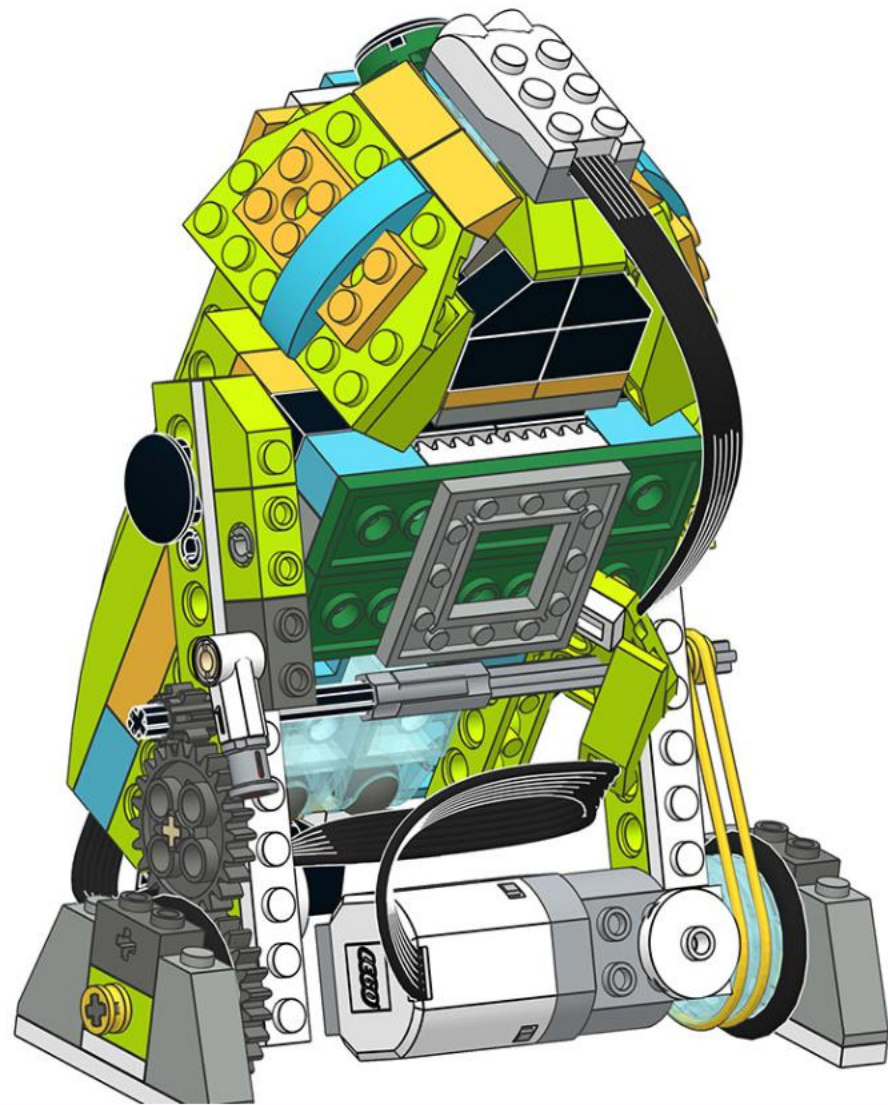
**43**



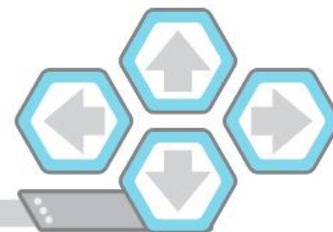
ilmanova@openstf.ru



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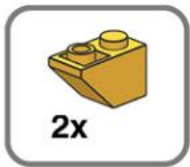


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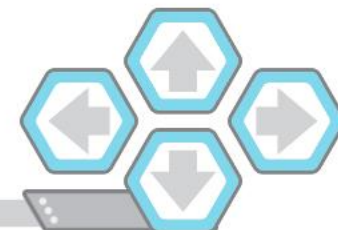
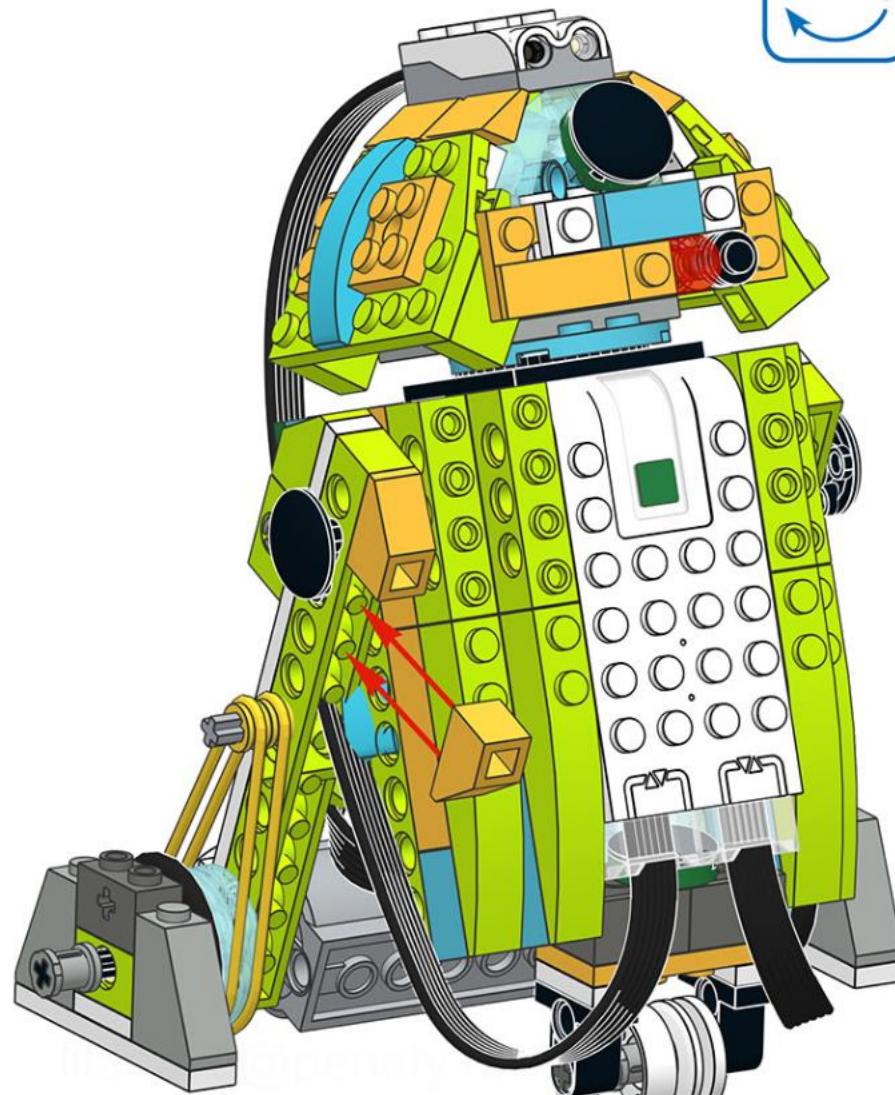
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107

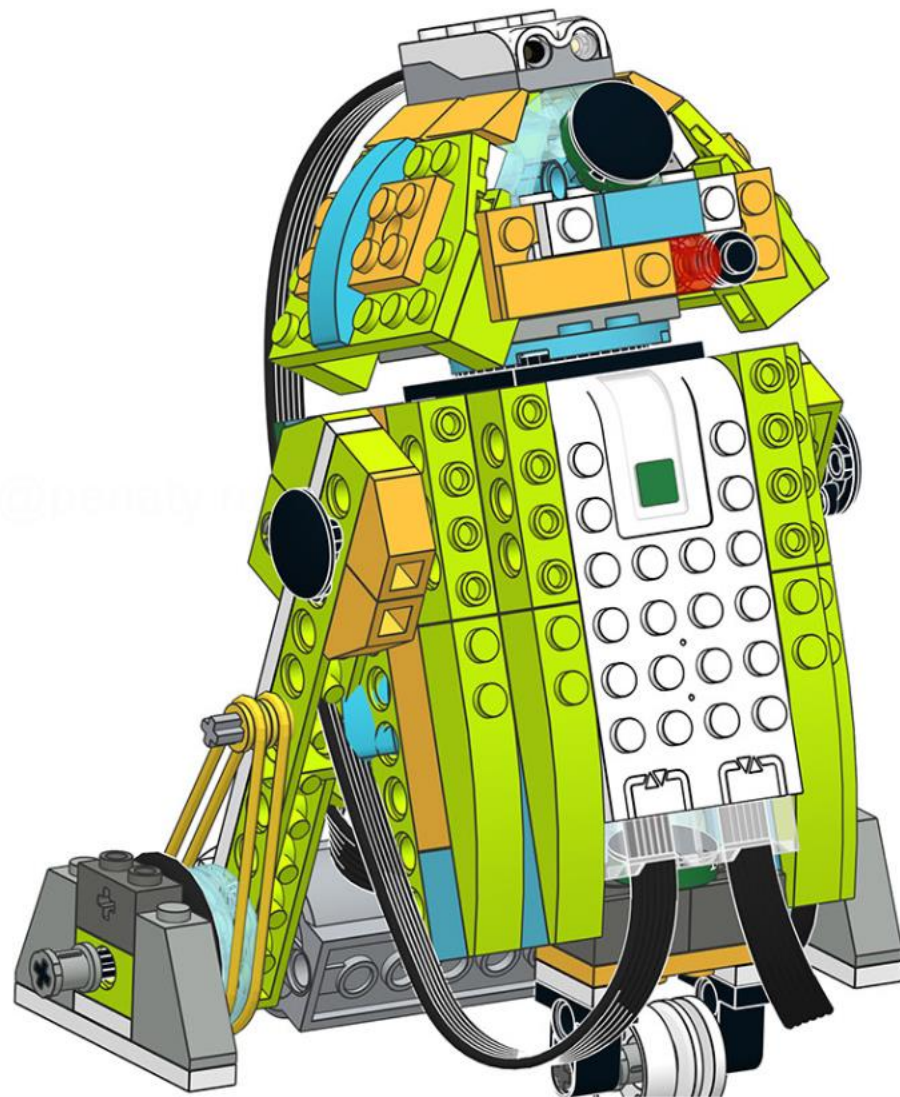




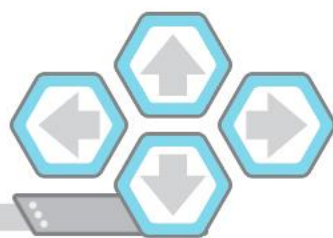
45

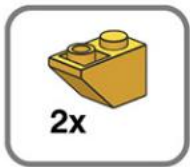


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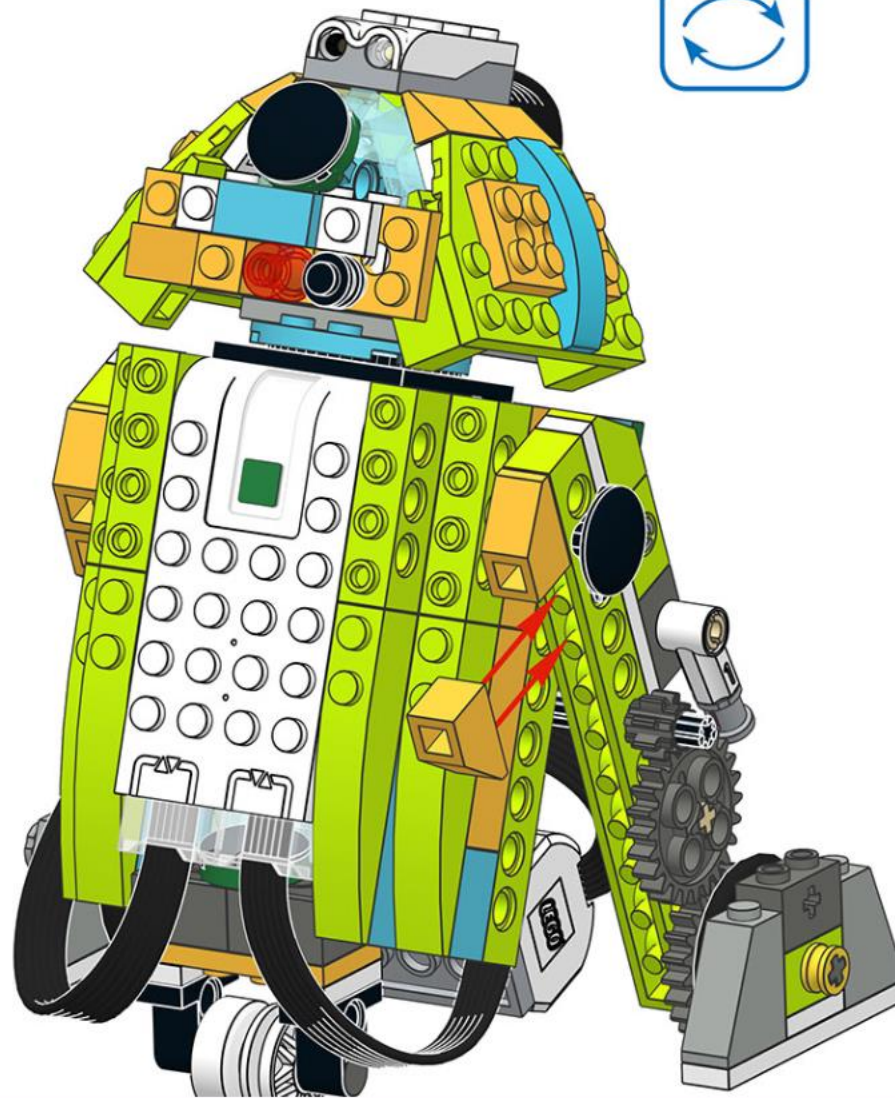


Manufactured by

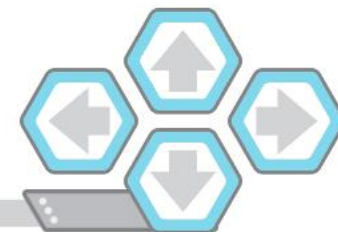


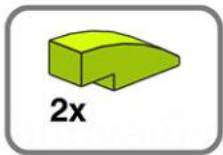


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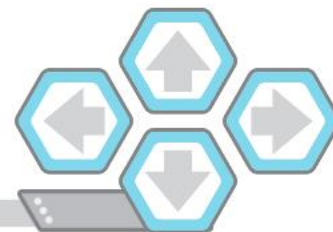
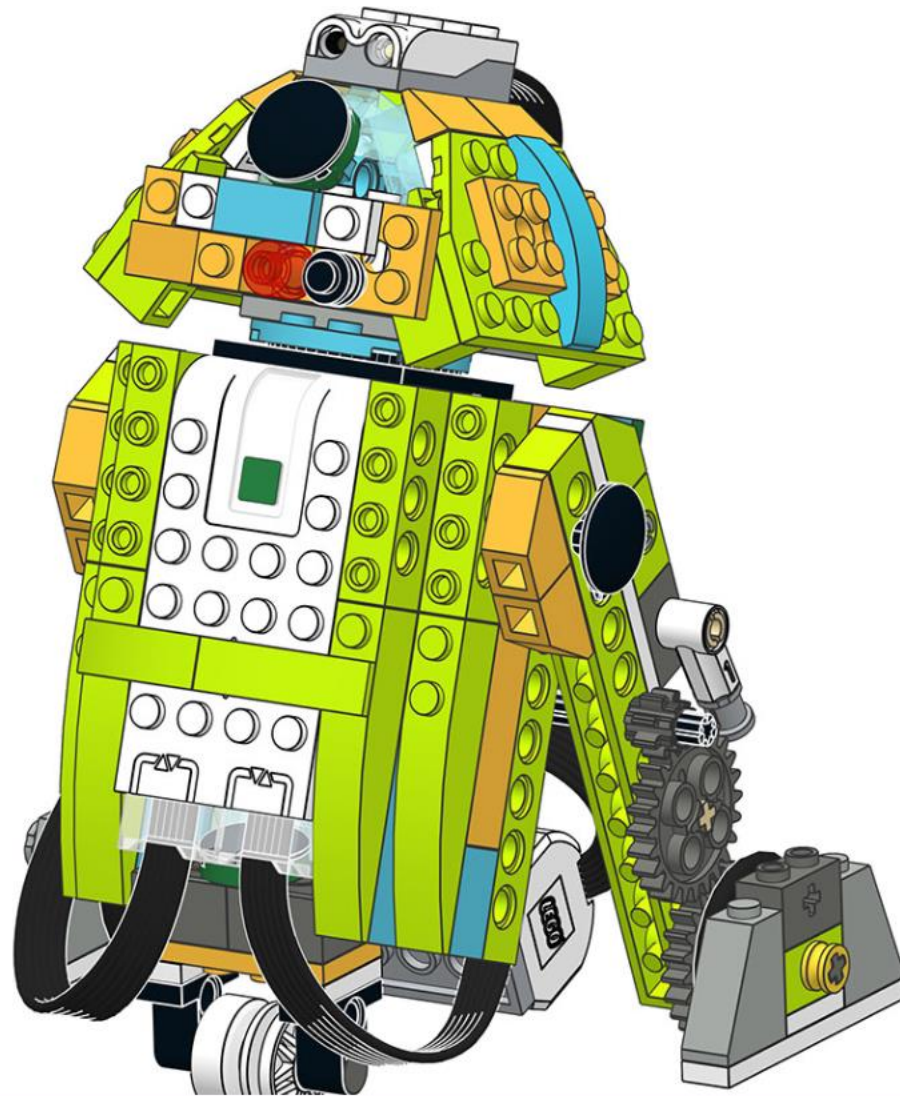


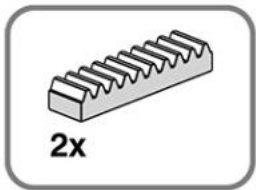
Innov@Openway.ru



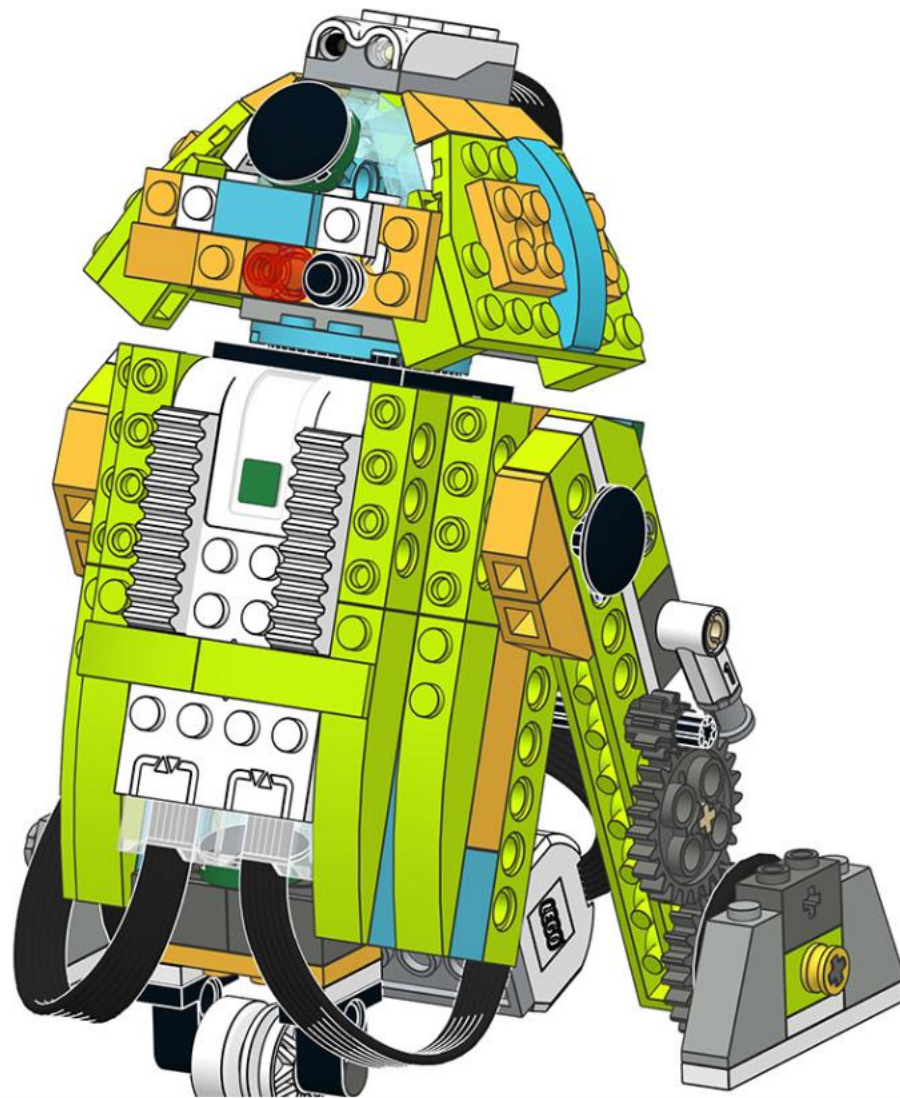


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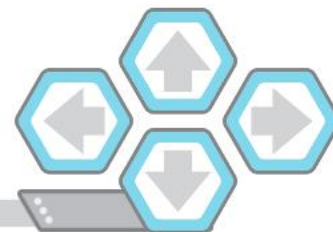




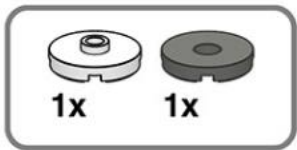
49



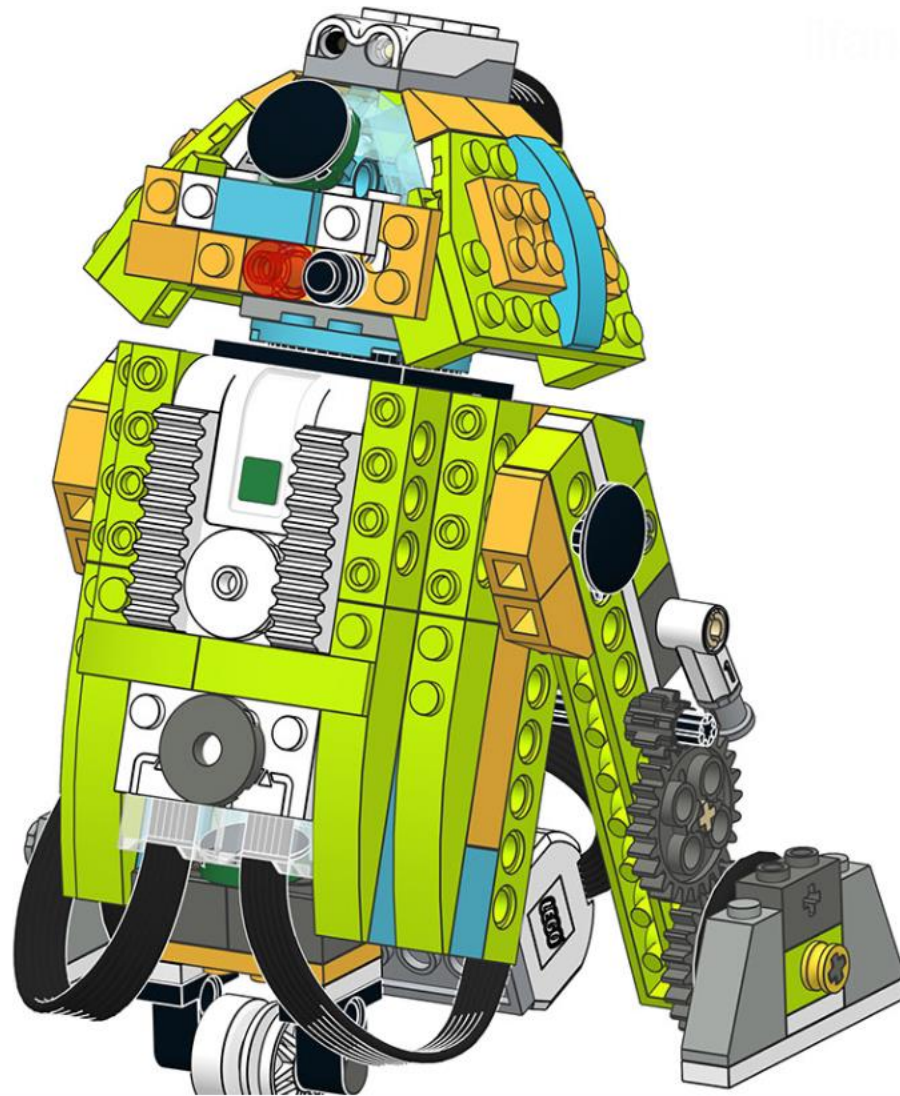
itanova@panary.ru



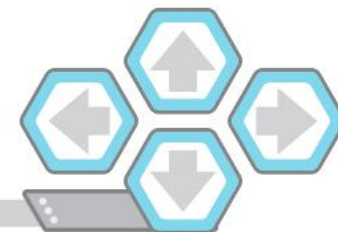


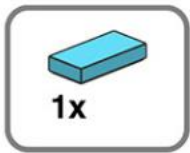


**50**

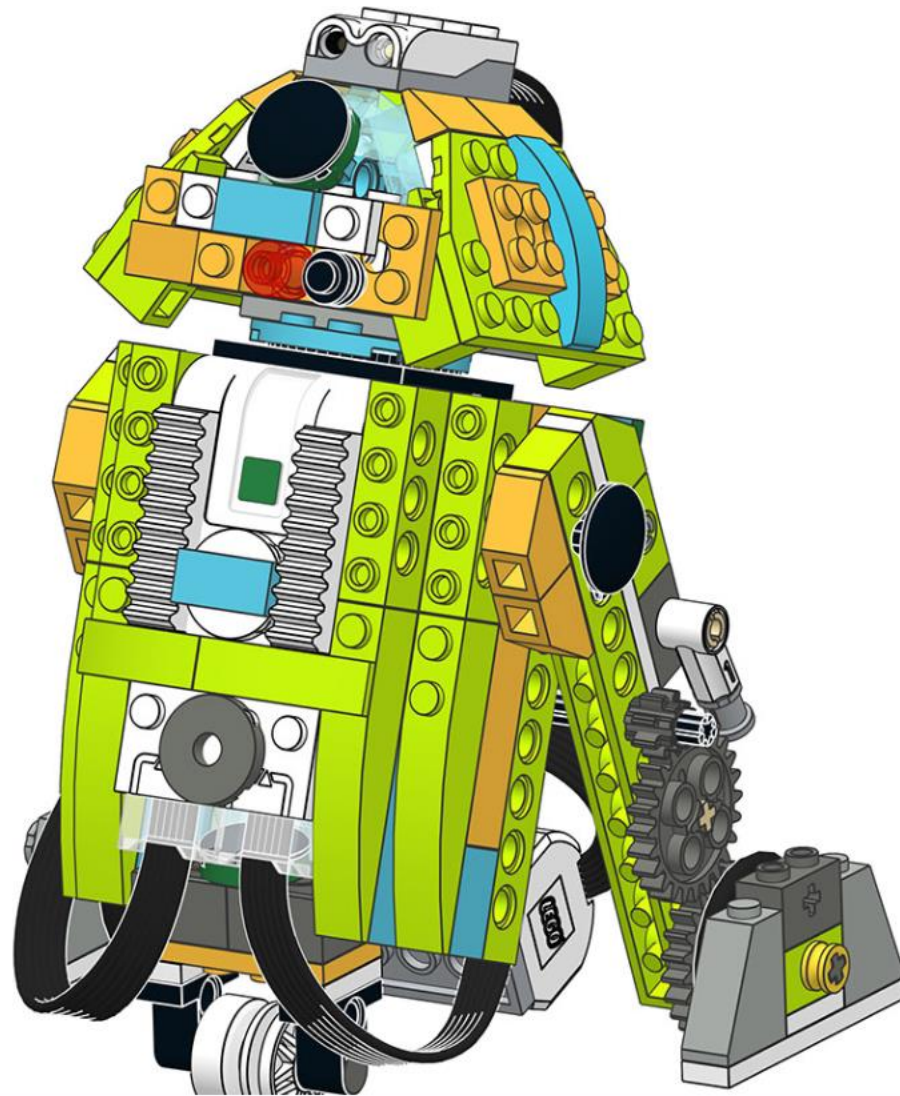


ilanova@panaly.ru

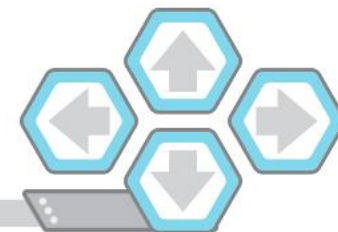




**51**



ilanova@perday



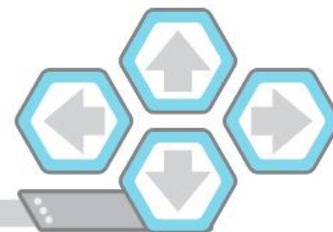
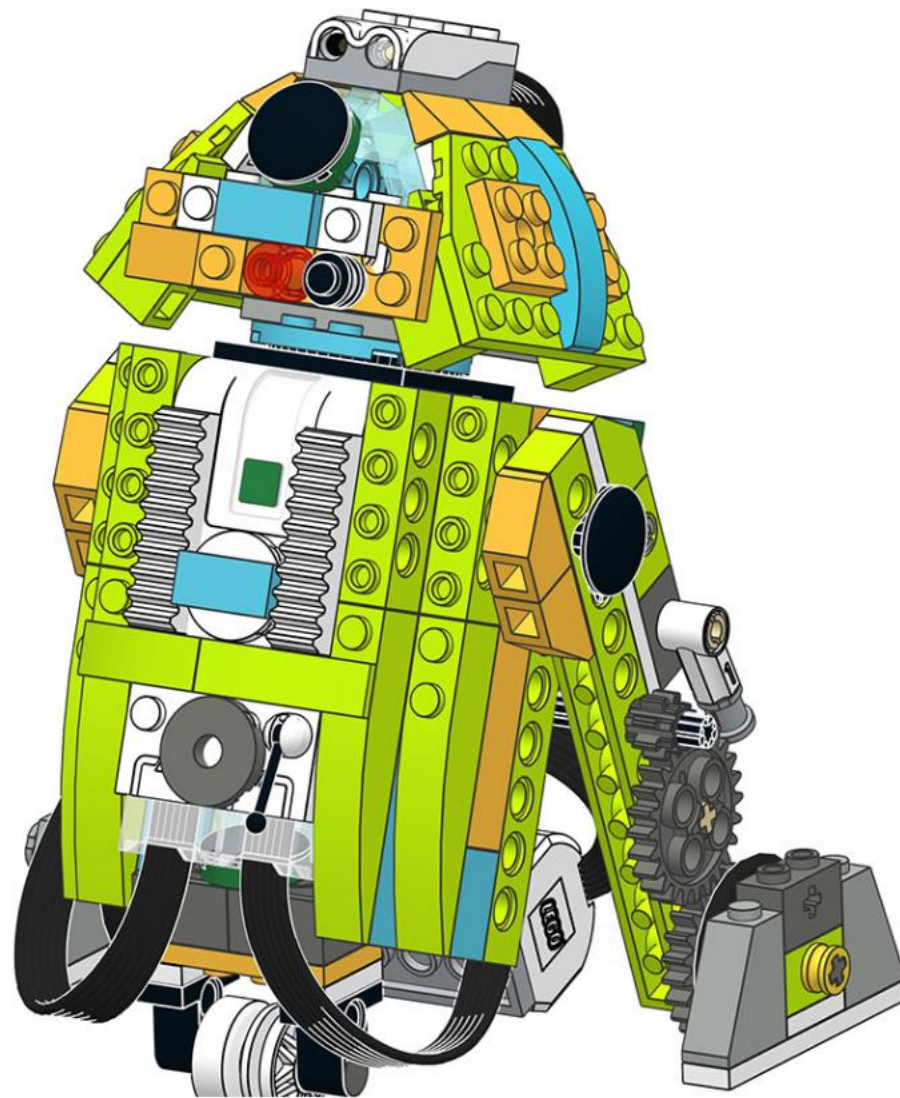
23/25

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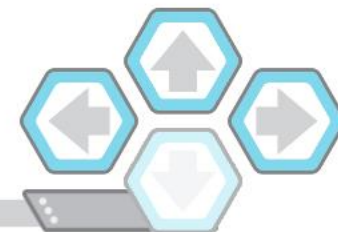
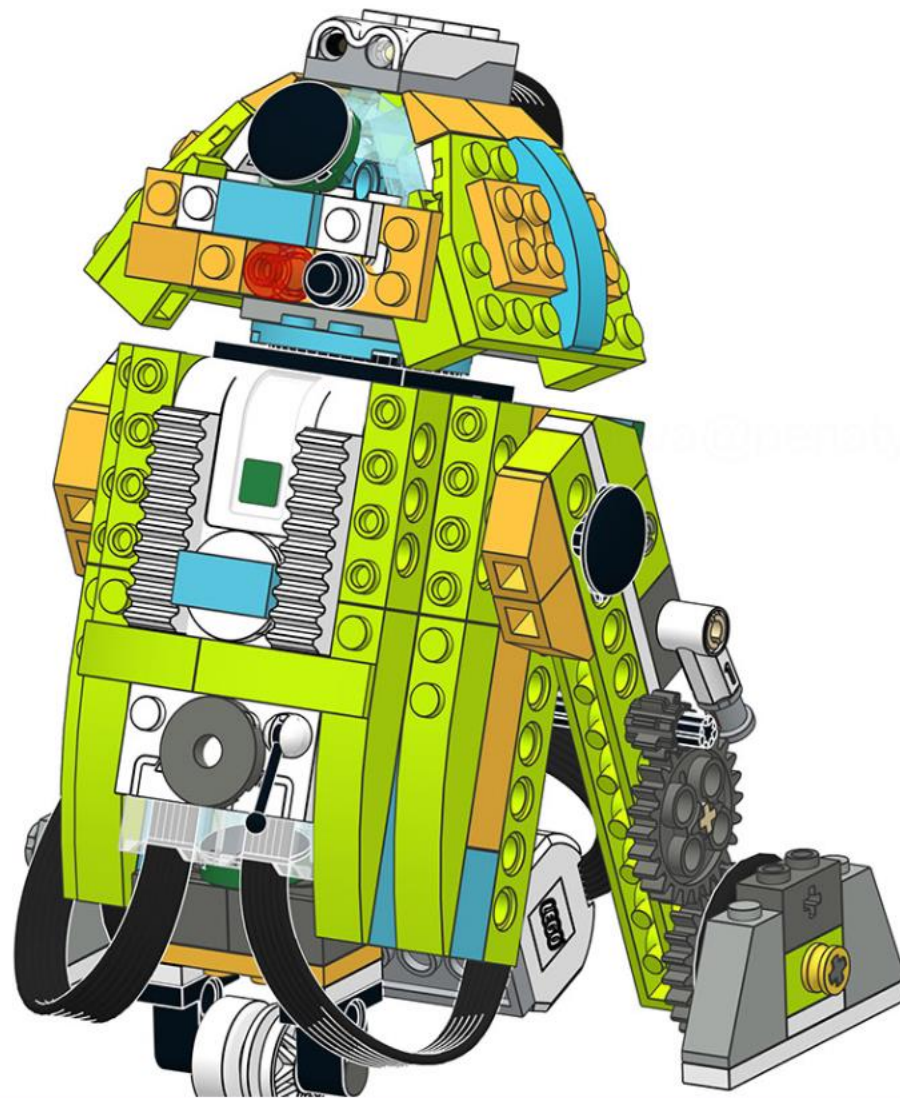
114



**52**



# 54



# Проверьте!

При движении  
кабели не должны  
тереться!





## Задание 2

ROBORISE-IT!  
ROBOTIC EDUCATION

Запрограммируйте робота для поворота на 90 градусов. Напишите программу для проверки поворота. После 4-х поворотов робот должен вернуться в начальное положение



roboriseit.com

00:07



0



121



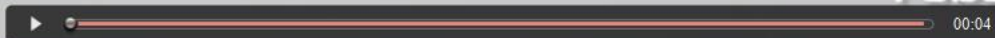


# Задание 4

Запрограммируйте робота так, чтобы он поворачивался на 90 градусов перед препятствием



roboriseit.com



00:04



0



125



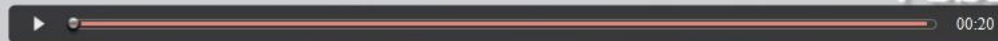


## Задание 6

Создайте произвольный лабиринт и напишите программу для его прохождения. Сравните с ручным управлением



roboriseit.com







Да прибудет с тобой STEAM

