



ДЕПАРТАМЕНТ НАУКИ,
ПРОМЫШЛЕННОЙ ПОЛИТИКИ
И ПРЕДПРИНИМАТЕЛЬСТВА
ГОРОДА МОСКВЫ



МГТУ имени Н.Э. Баумана
**КОМПОЗИТЫ
РОССИИ**



Министерство
экономического
развития РФ



АГЕНТСТВО
ИННОВАЦИЙ
ГОРОДА
МОСКВЫ

Робототехника

Занятие 2

Управление моторами



инжинириум

МГТУ им. Н.Э. Баумана

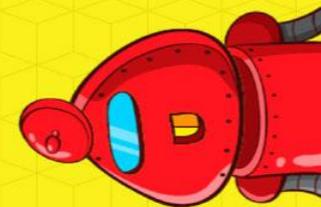
cmit@bmstu.ru | cmit.bmstu.ru
+7(495) 120-99-75; +7(903) 589-11-63



Правила хороших робототехников

- Соблюдаем дисциплину на занятии
 - не выкрикиваем с места
 - поднимаем руку
- Работаем в командах
- Соблюдаем порядок в наборах





Повторение

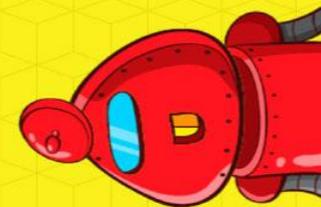


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Повторение





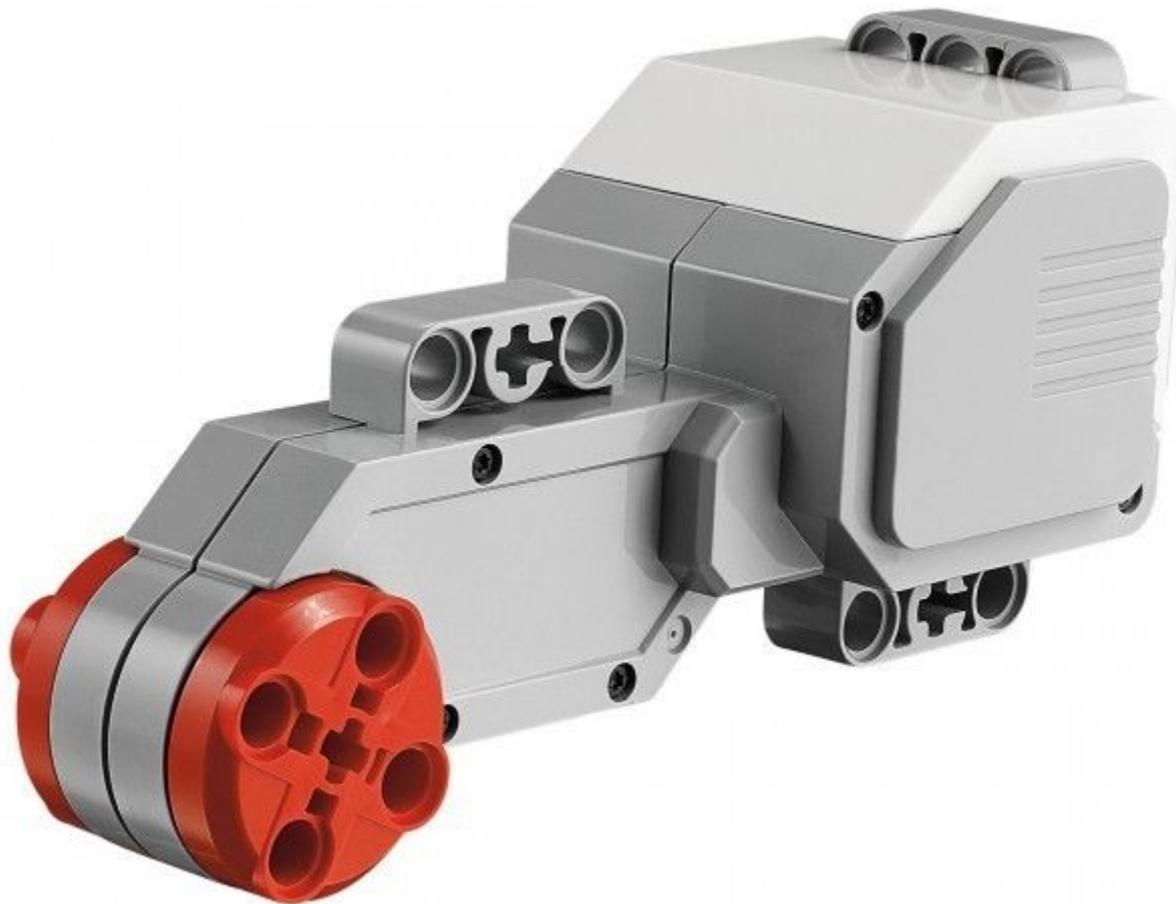
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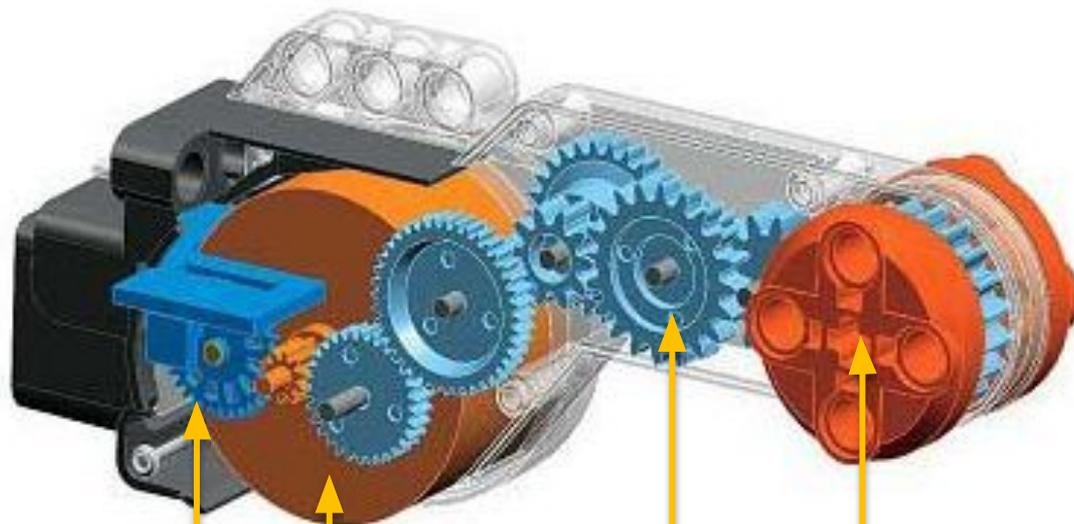
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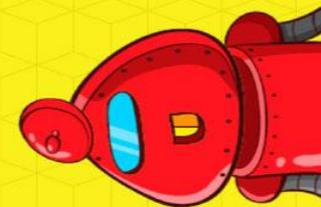
Датчик

Электродвигатель

Усилительный каскад шестерней

Коннектор





Средний мотор



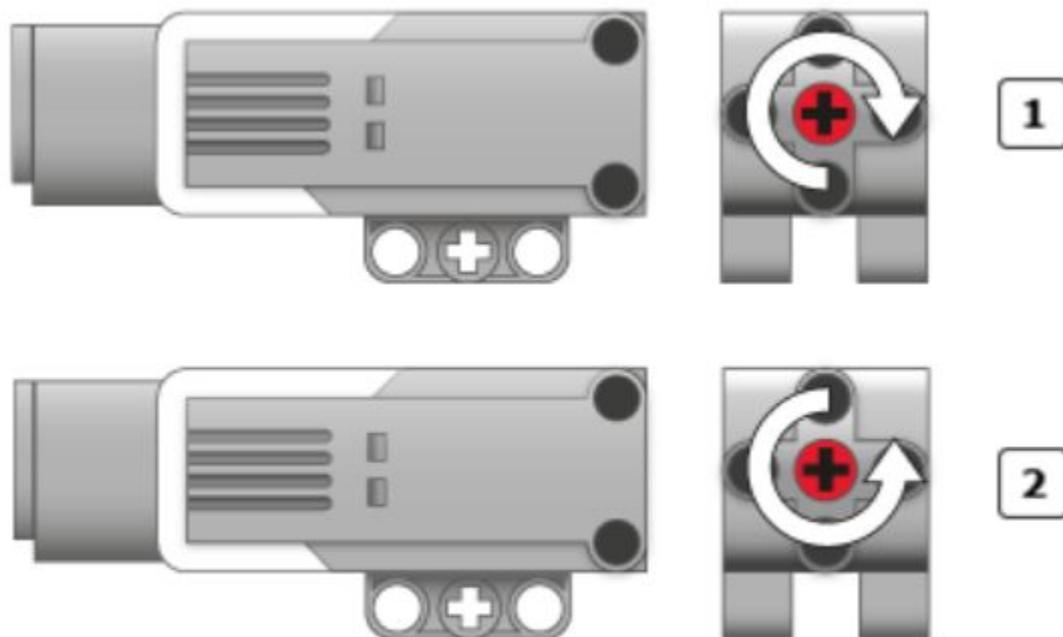
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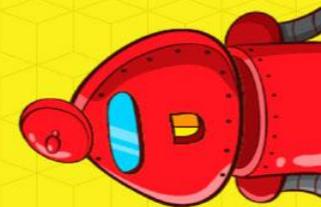


Средний мотор



- 1** Положительная мощность
- 2** Отрицательная мощность





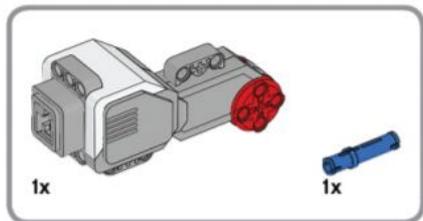
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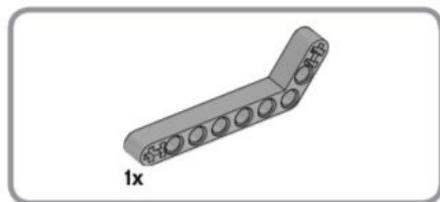
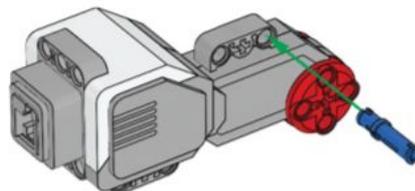
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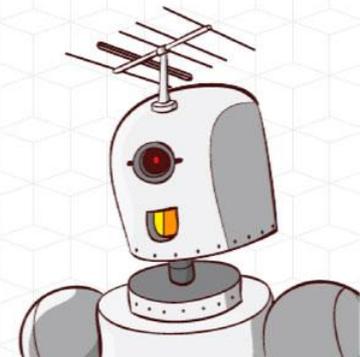
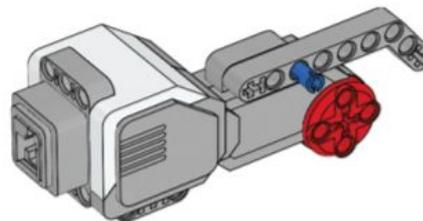
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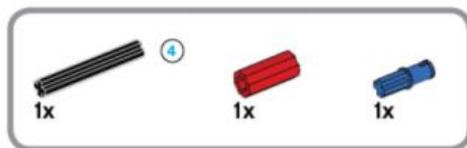
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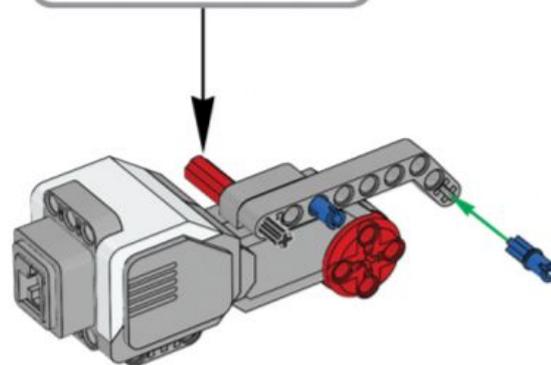
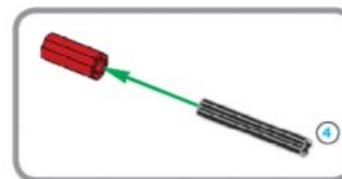
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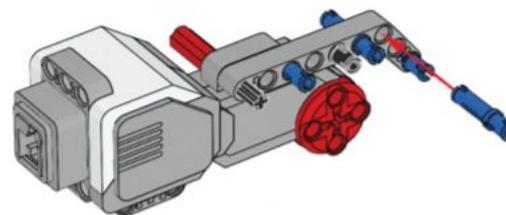
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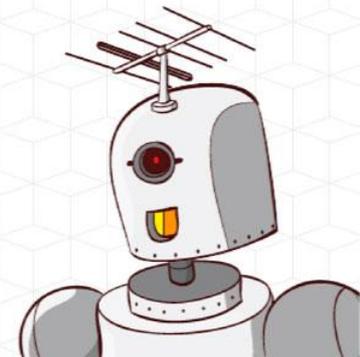


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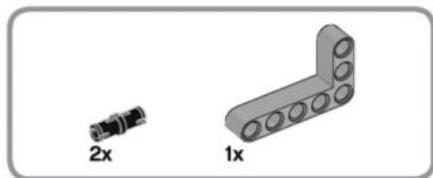


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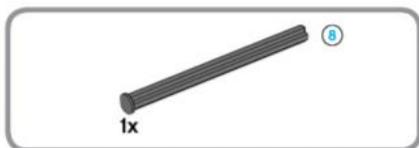
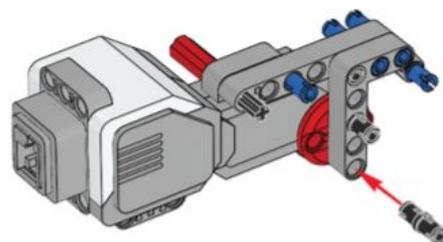
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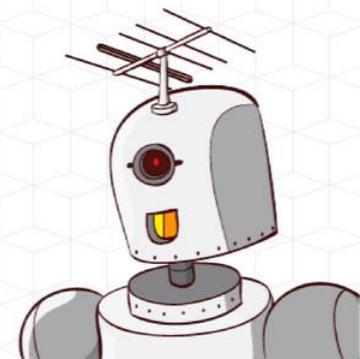
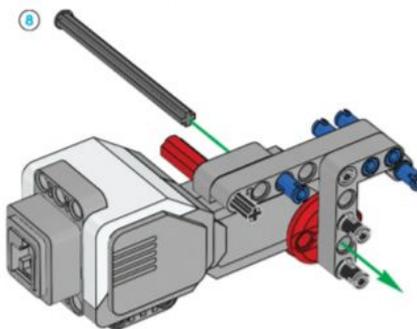
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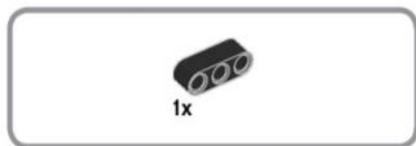
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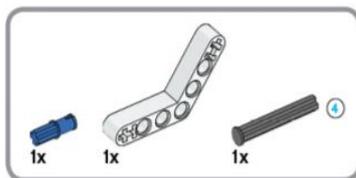
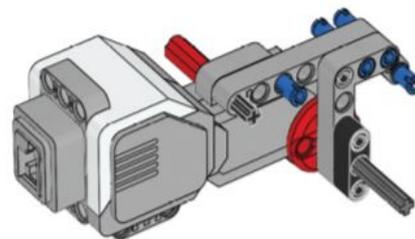
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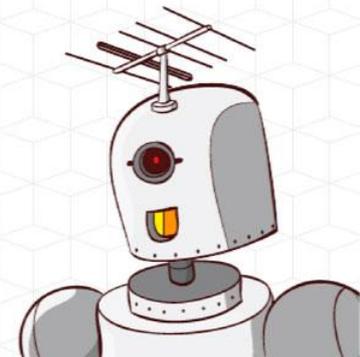
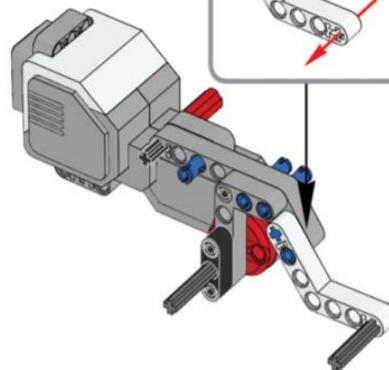
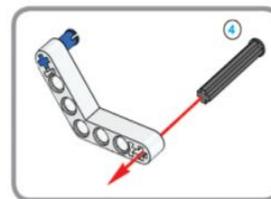
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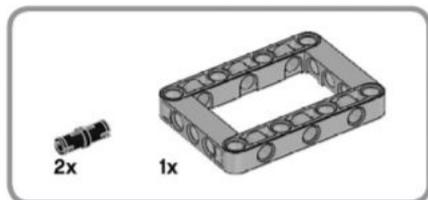
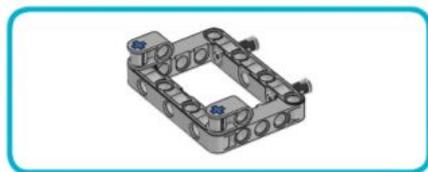
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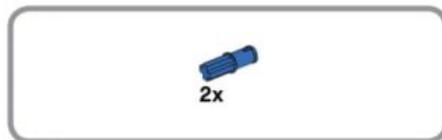
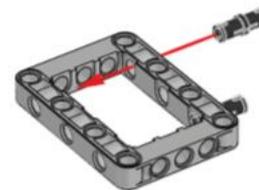
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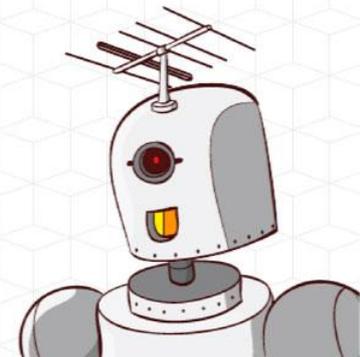
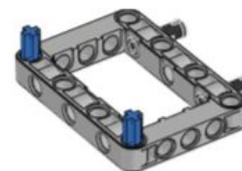
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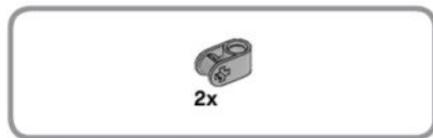
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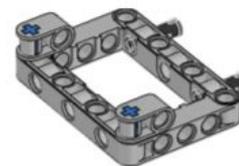
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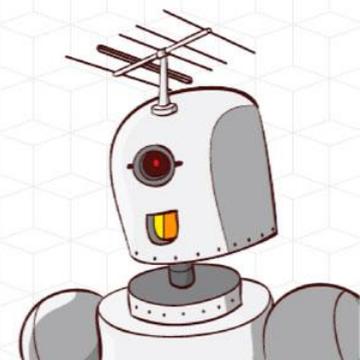
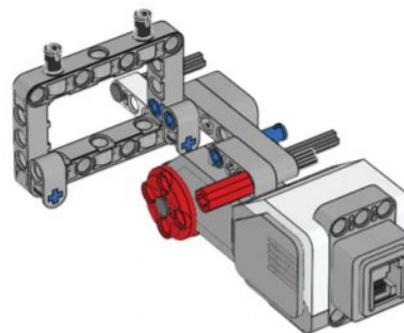
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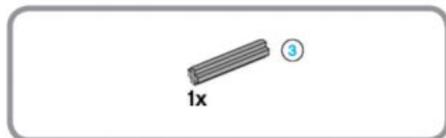
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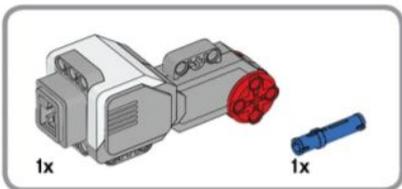
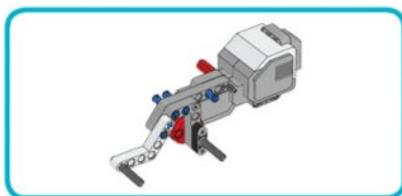
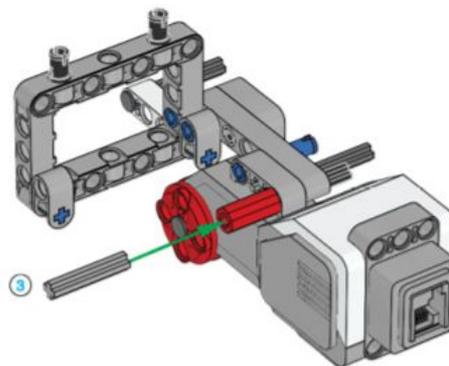
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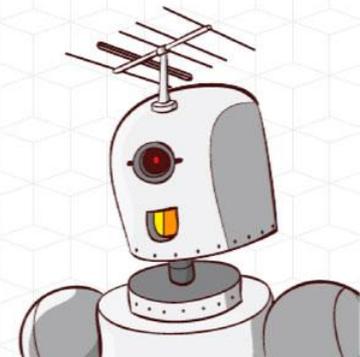
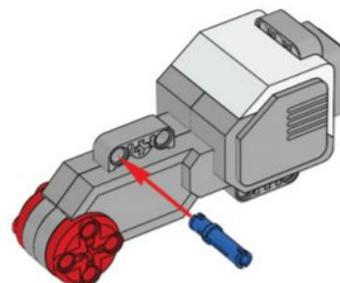
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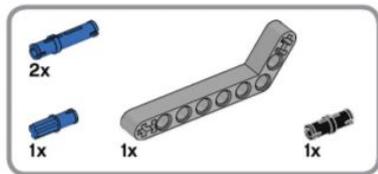
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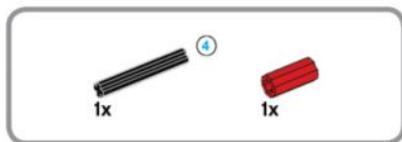
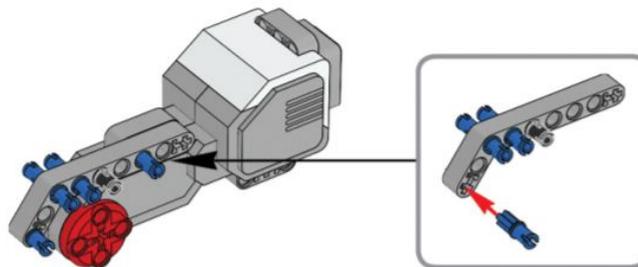
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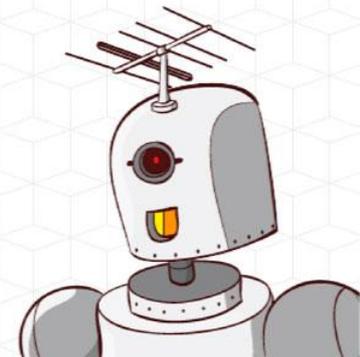
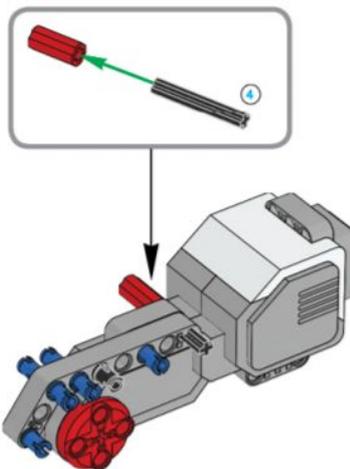
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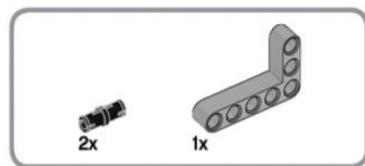
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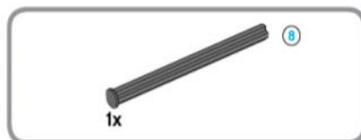
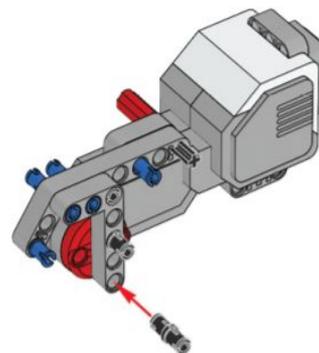
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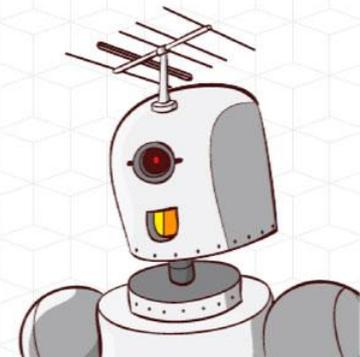
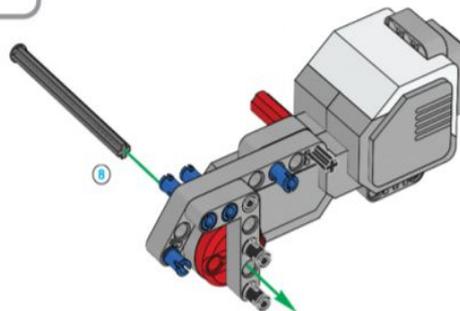
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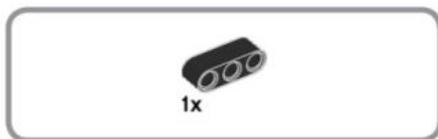
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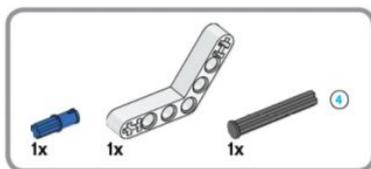
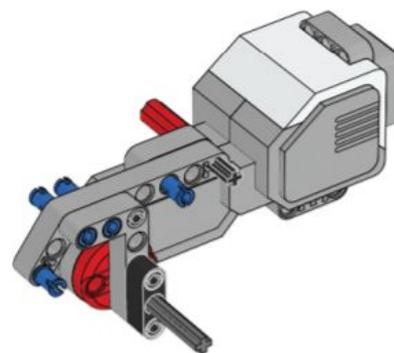
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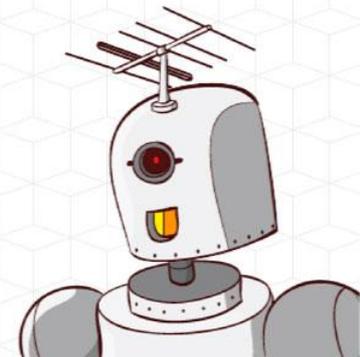
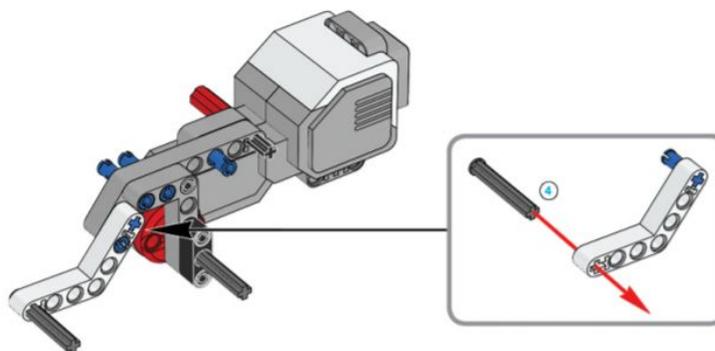
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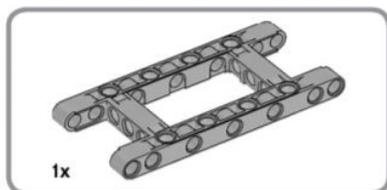
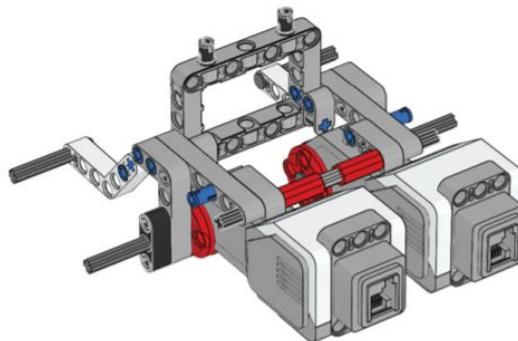


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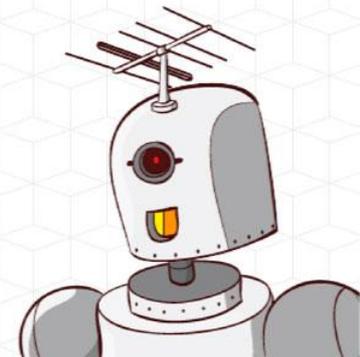
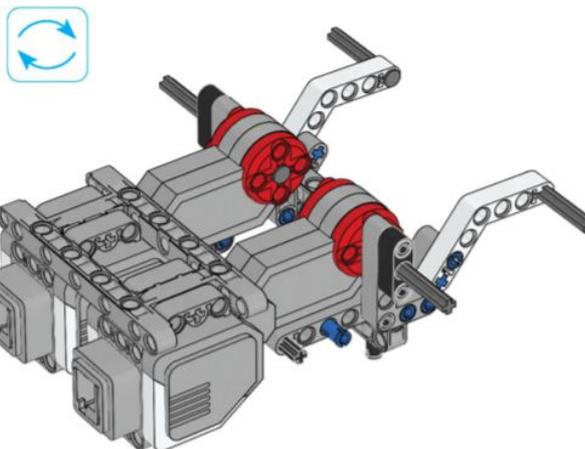


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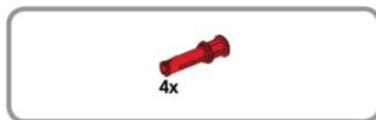
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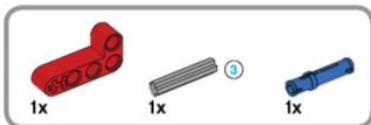
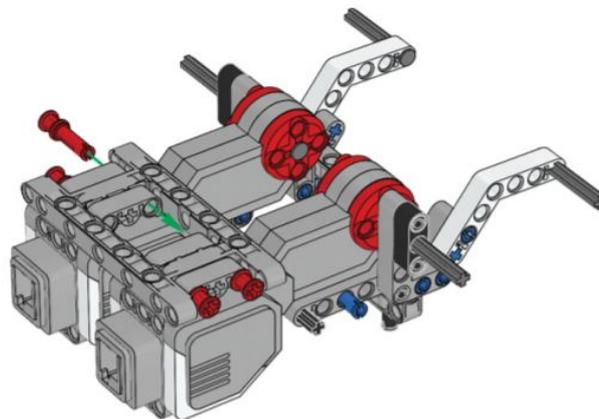
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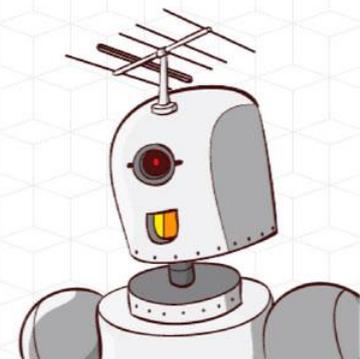
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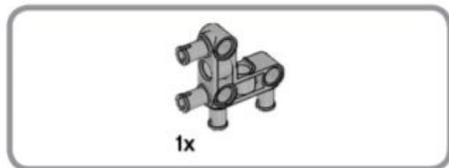
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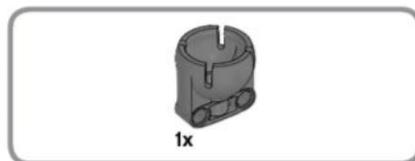
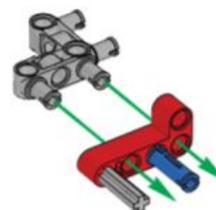
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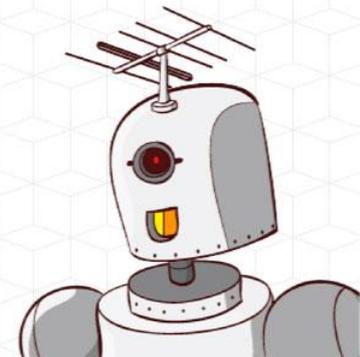
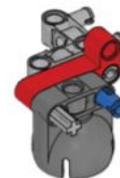
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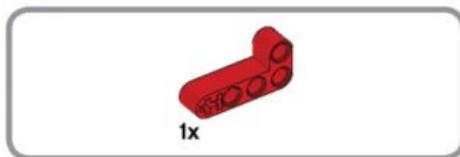
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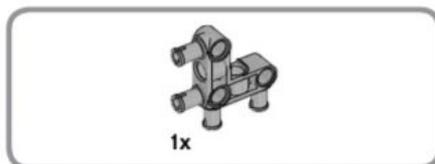
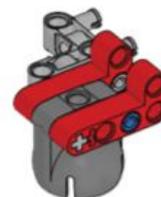
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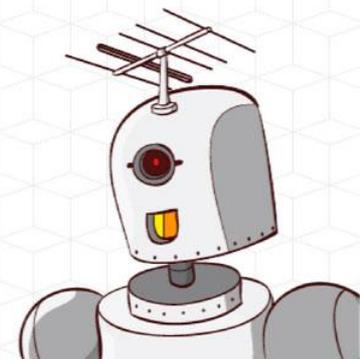
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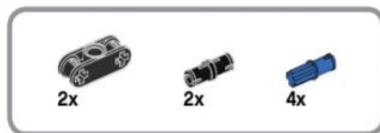
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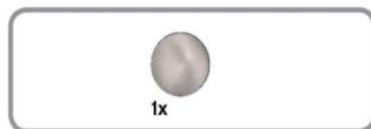
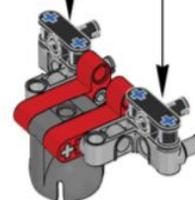
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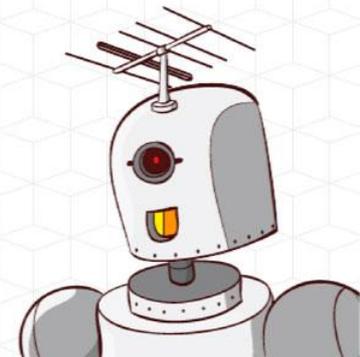
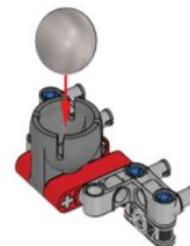
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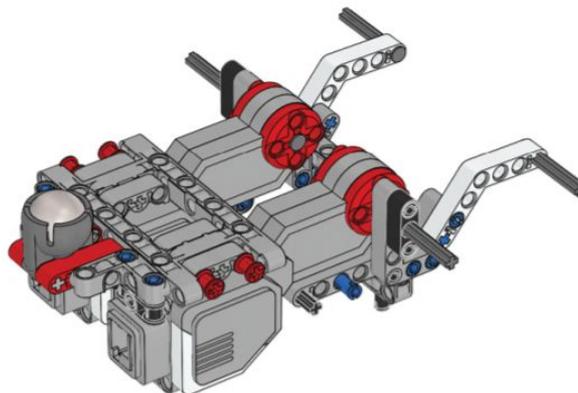


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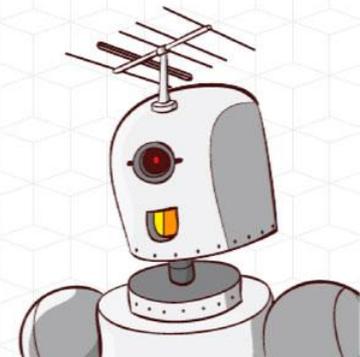
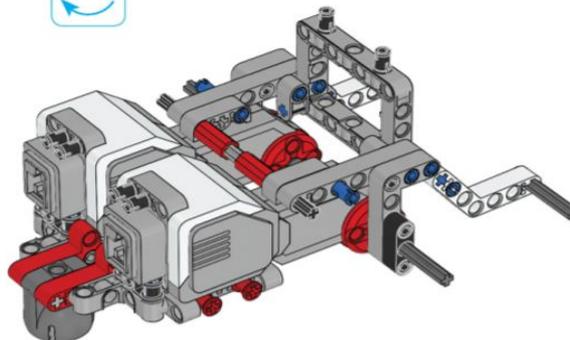


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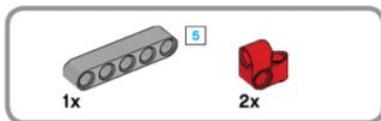
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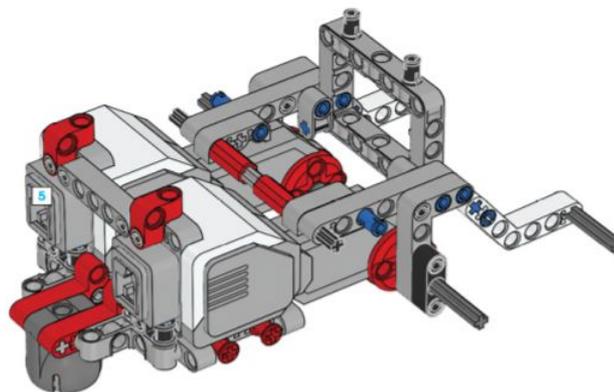
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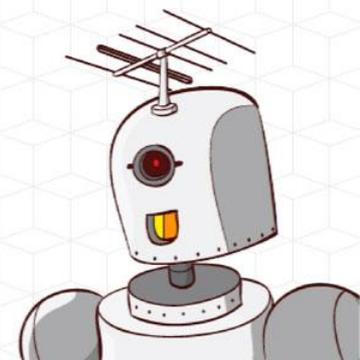
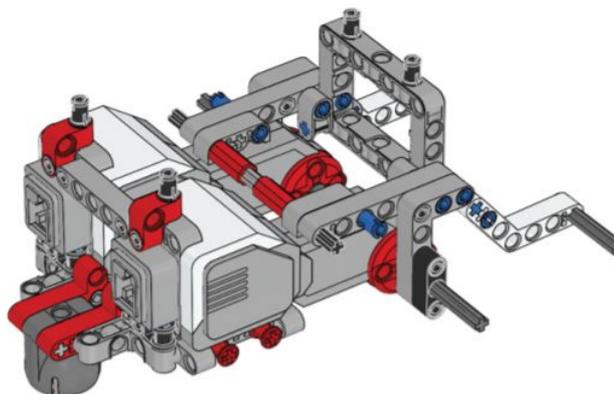
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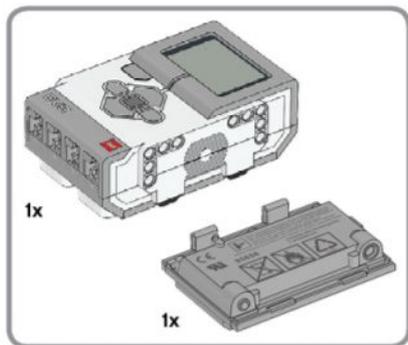
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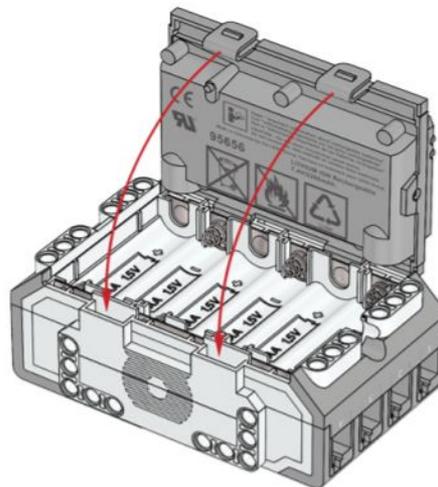
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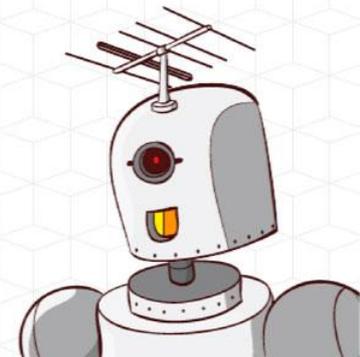
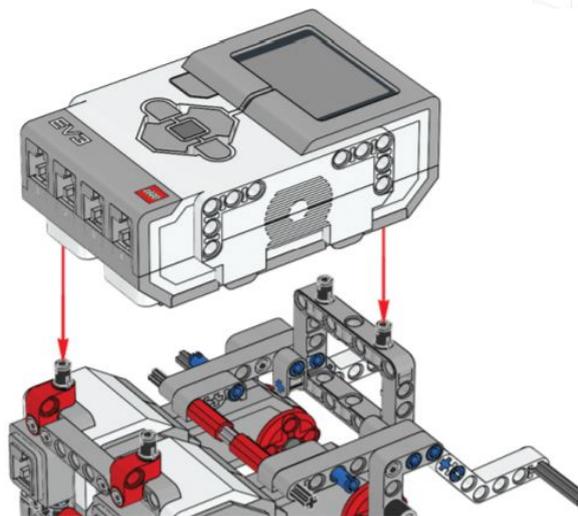
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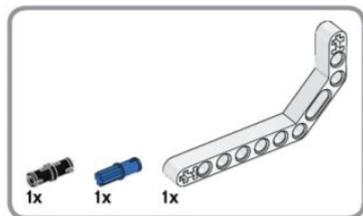
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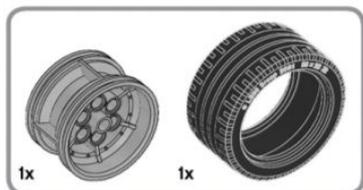
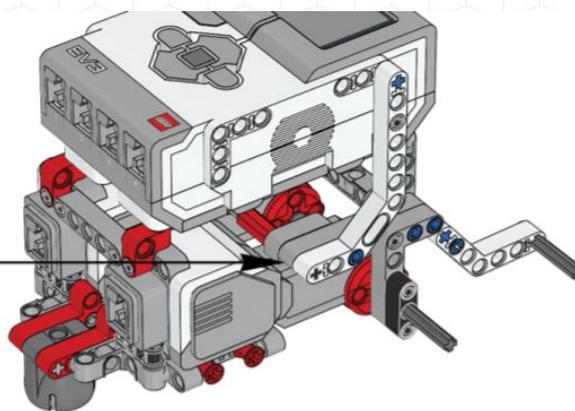
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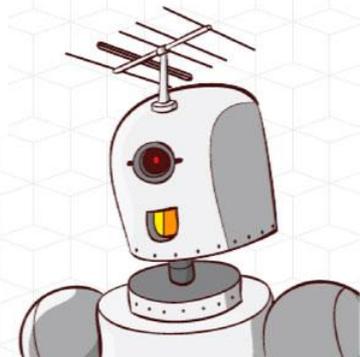
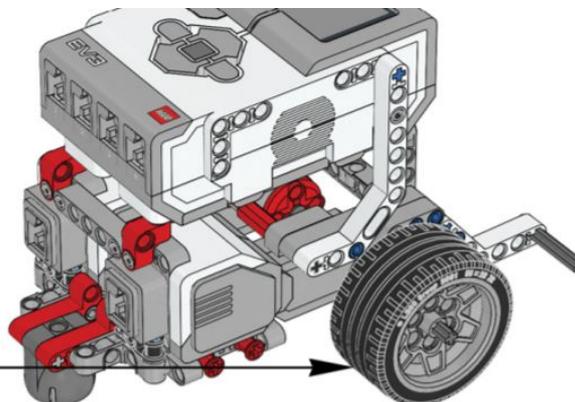
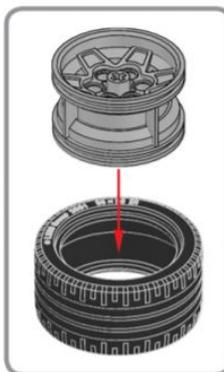
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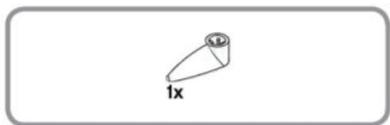
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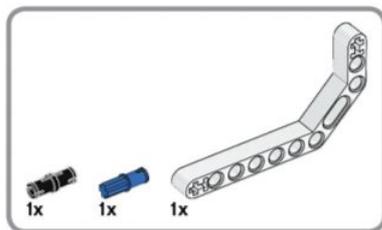
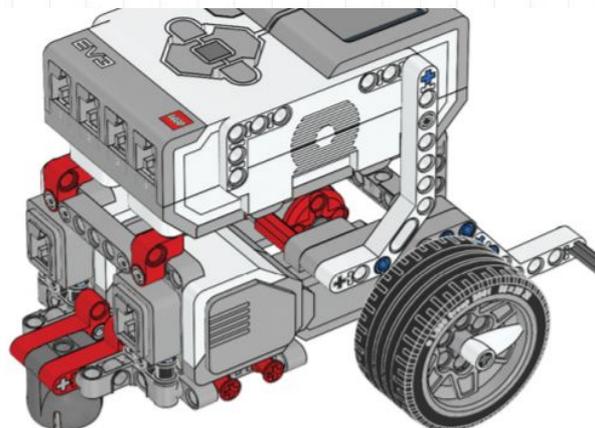
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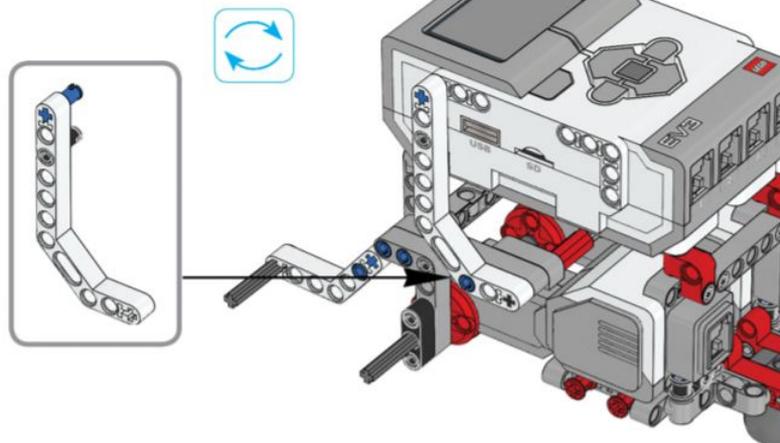
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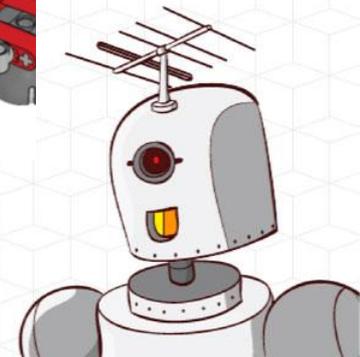


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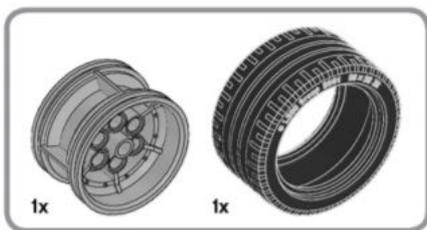


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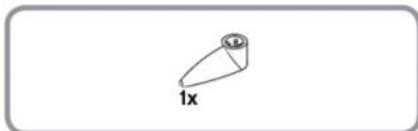
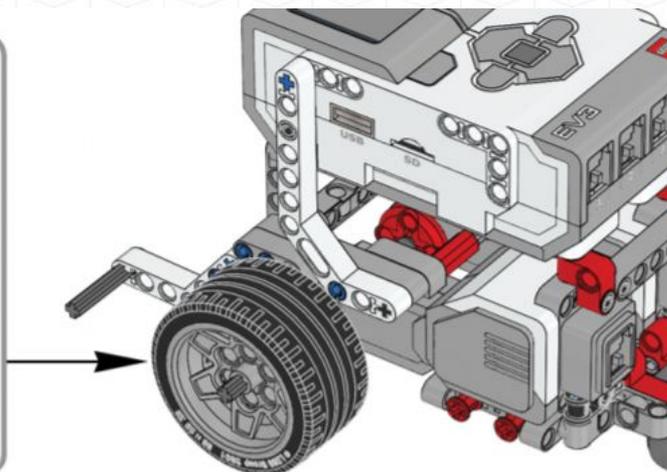
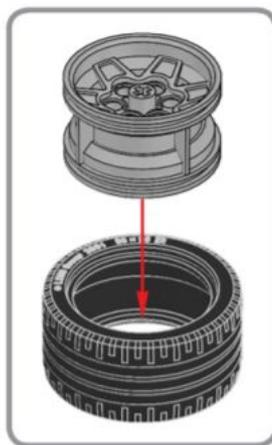
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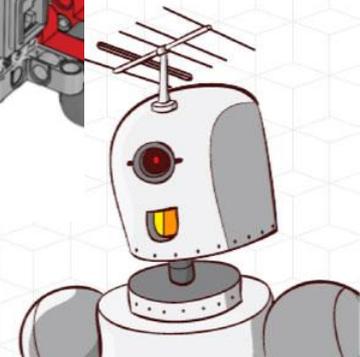
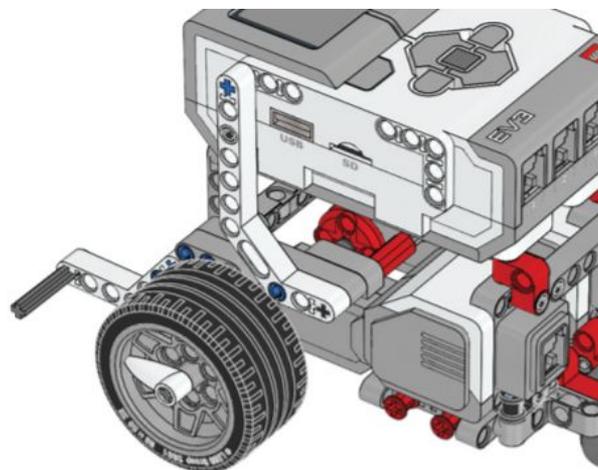
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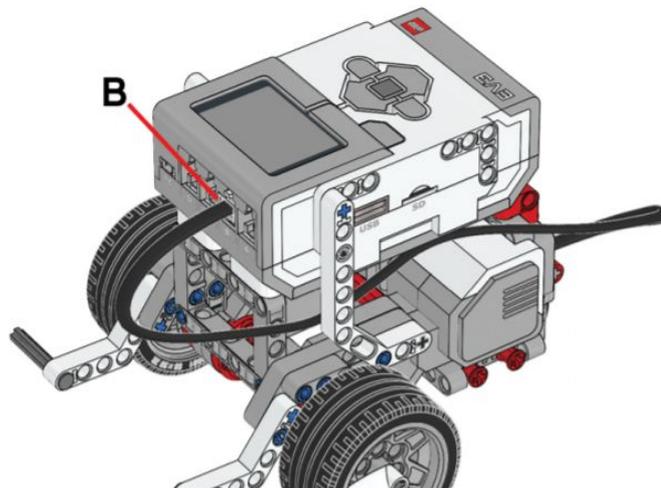
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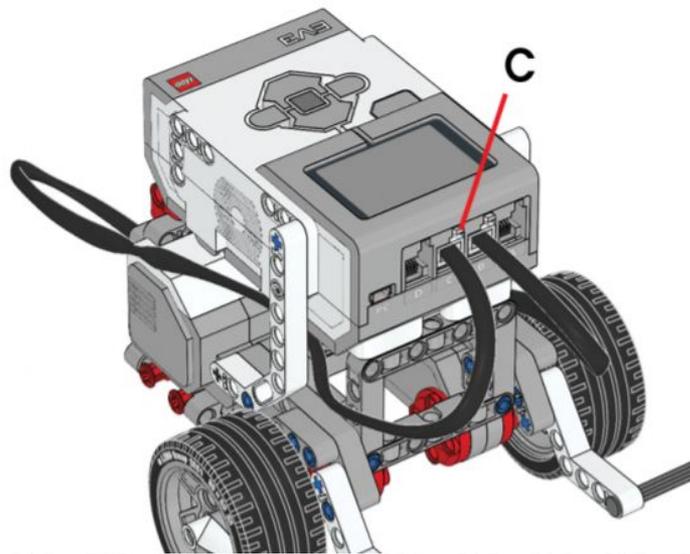
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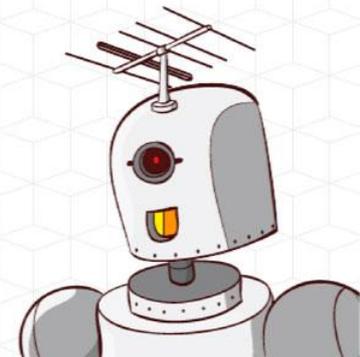


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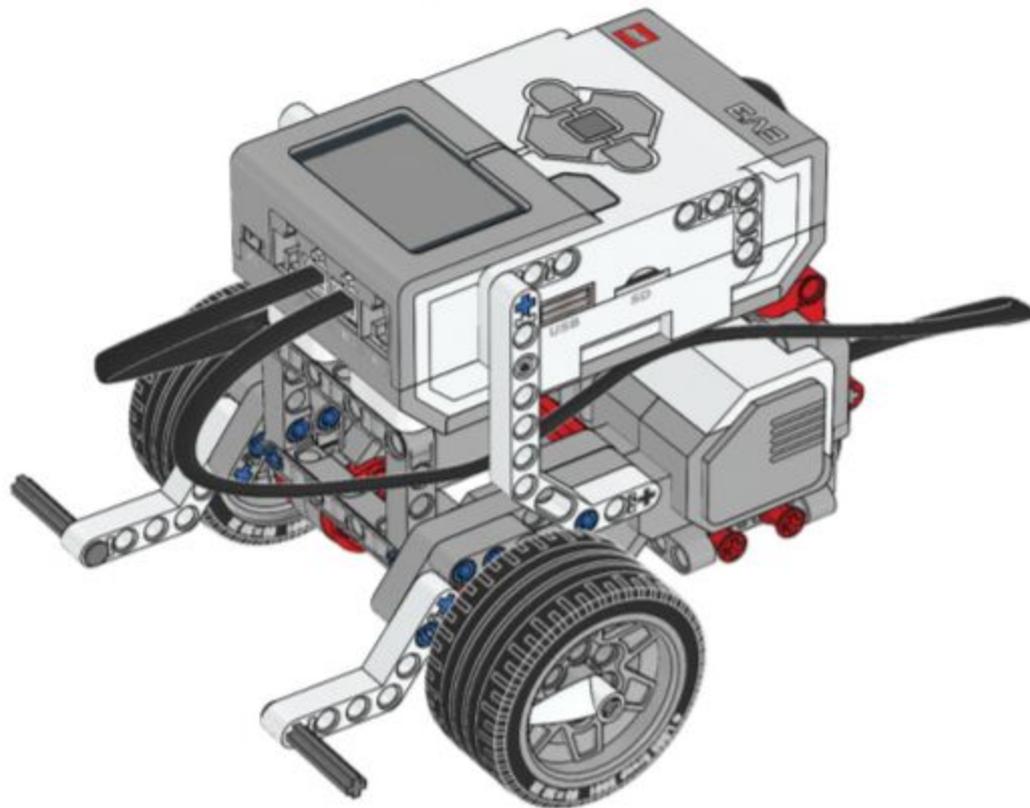


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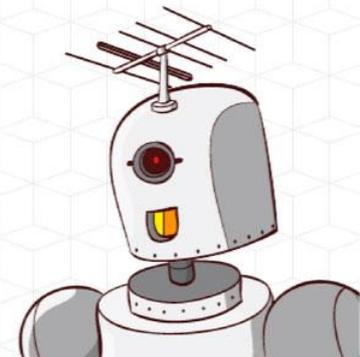
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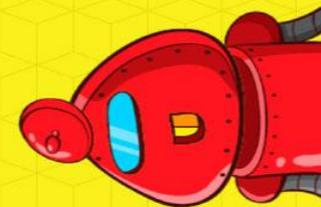


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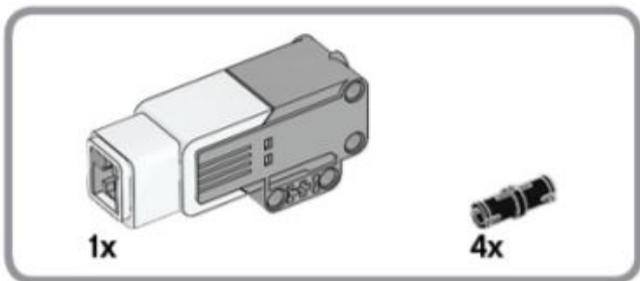
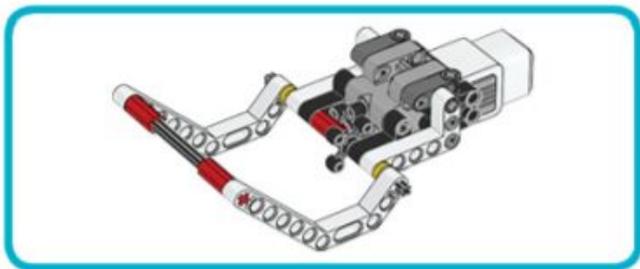
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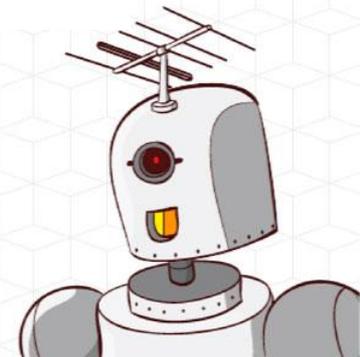
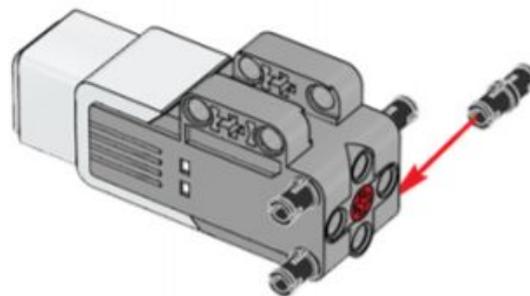
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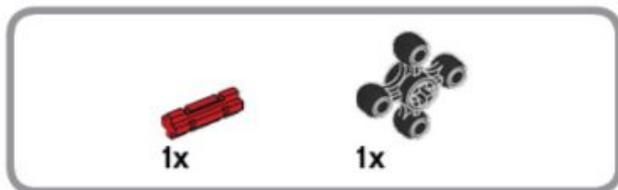
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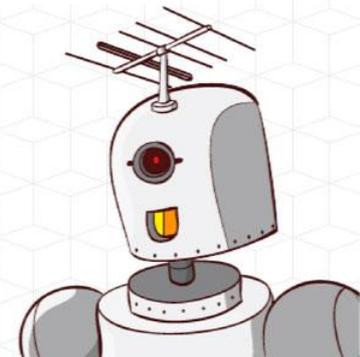
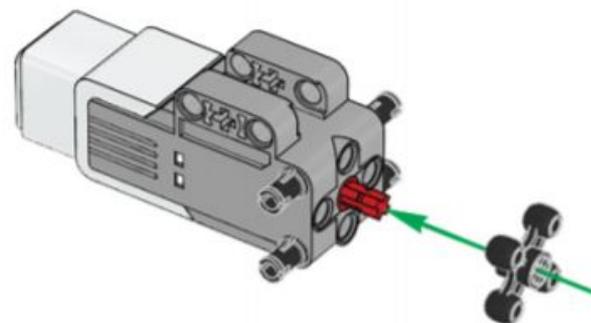
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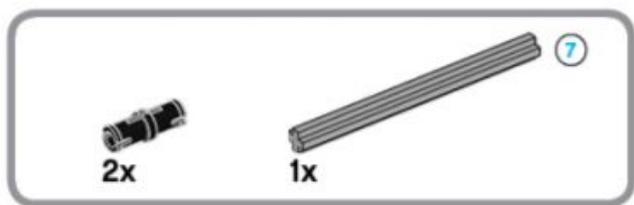
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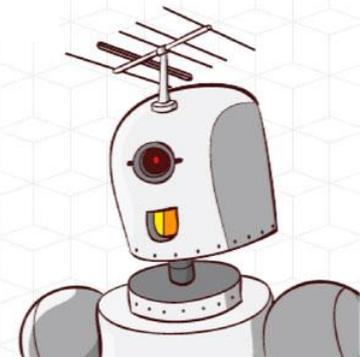
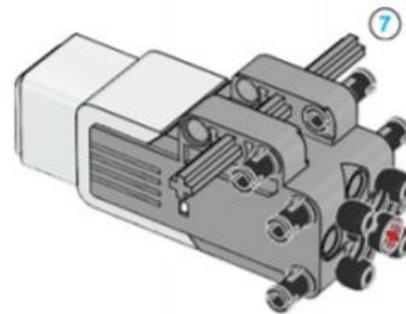
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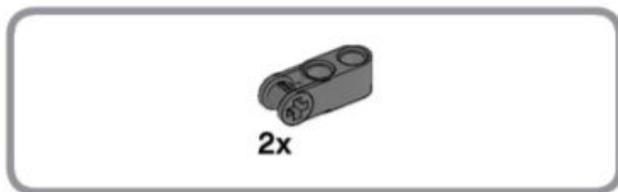
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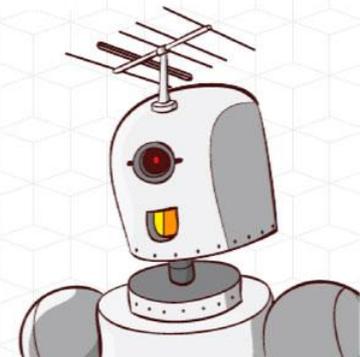
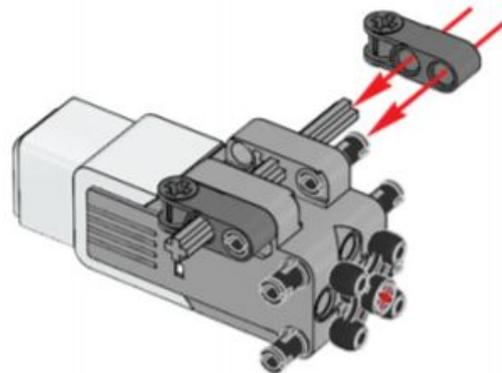
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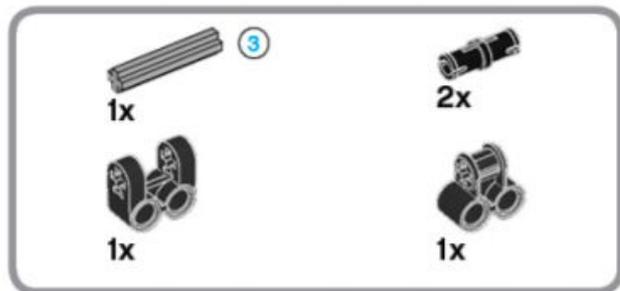
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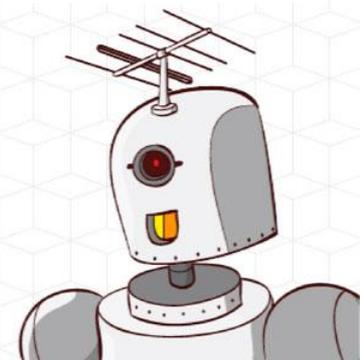
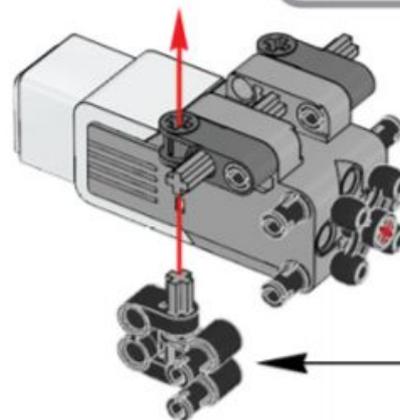
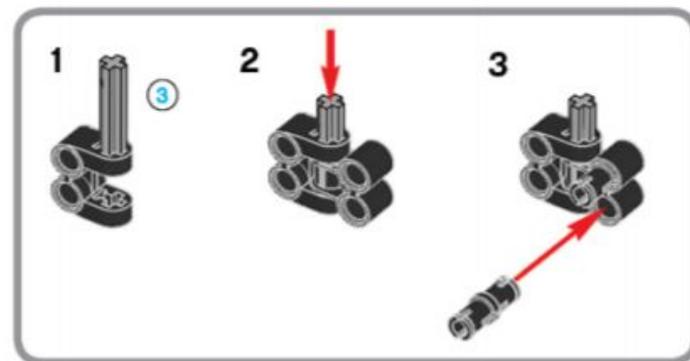
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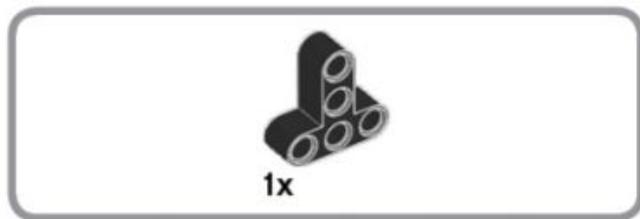
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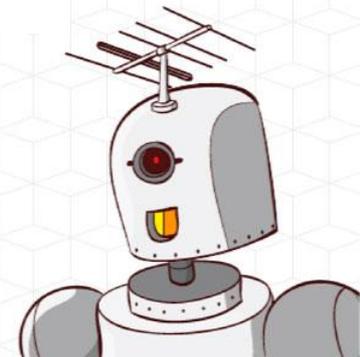
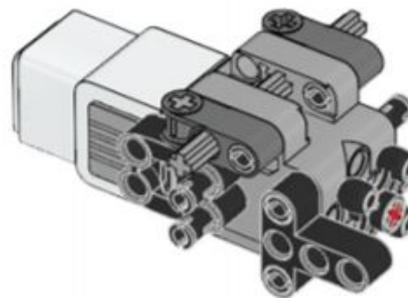
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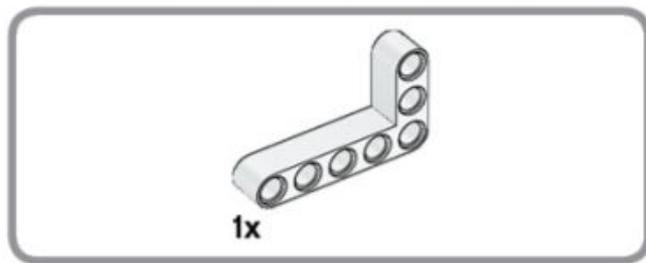
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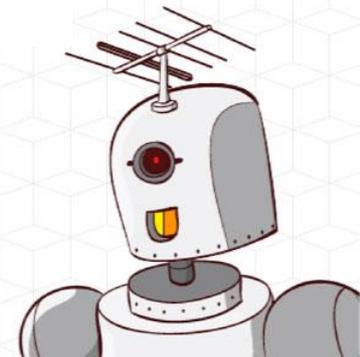
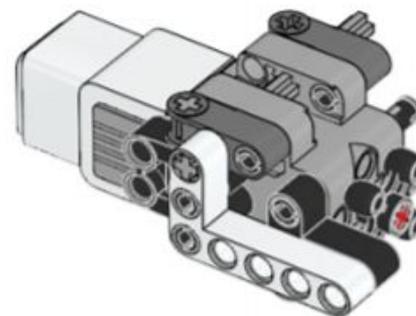
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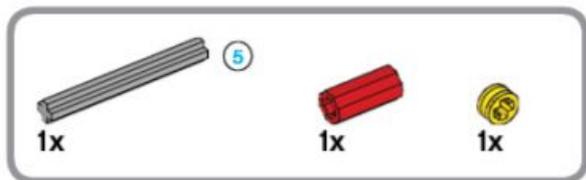
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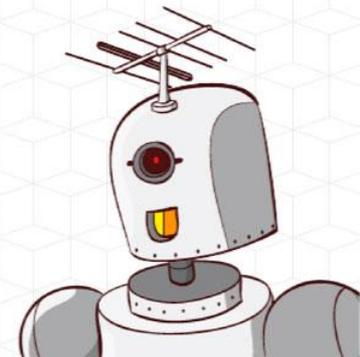
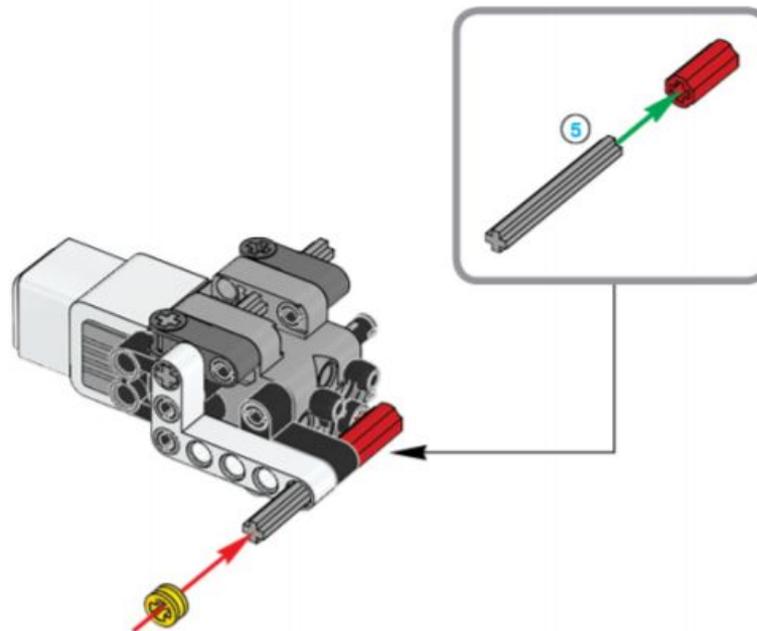
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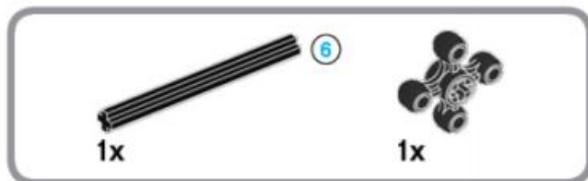
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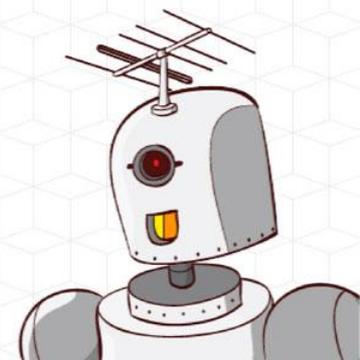
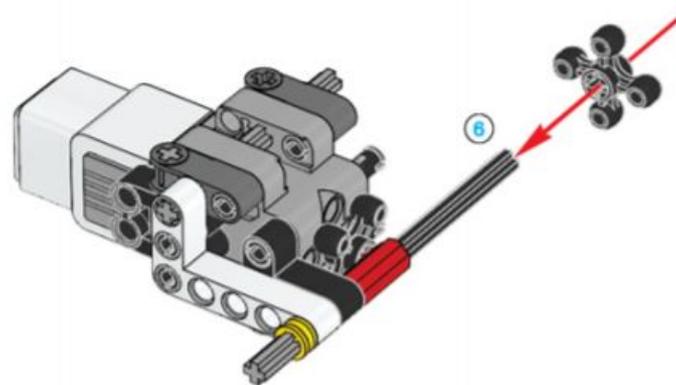
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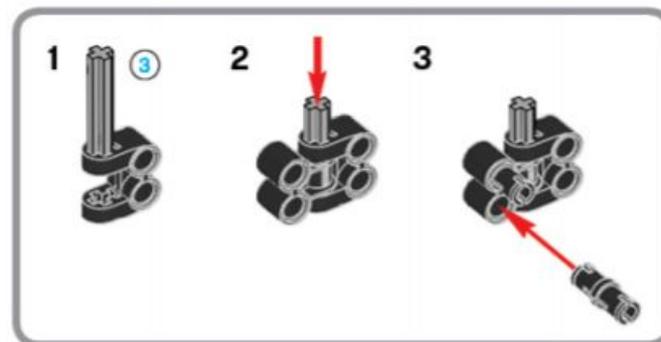
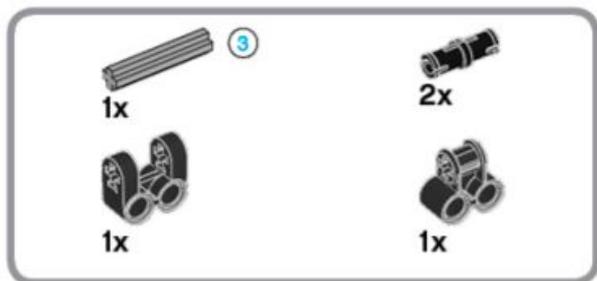
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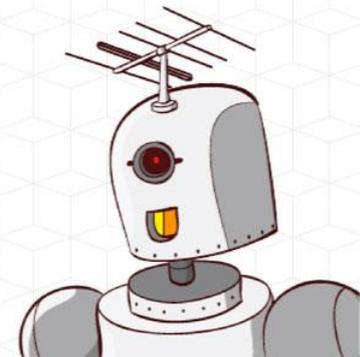
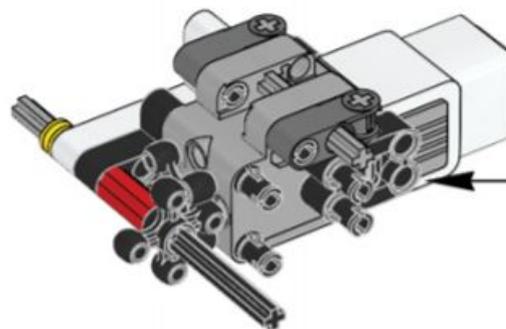
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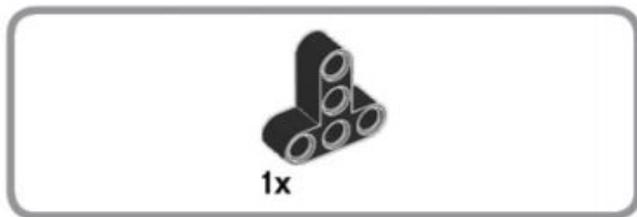
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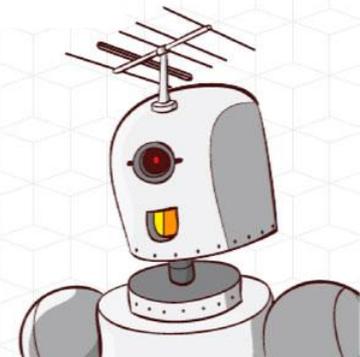
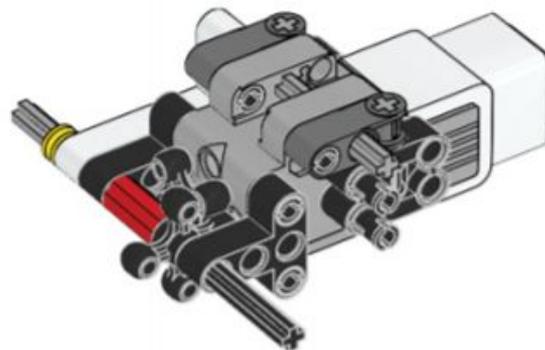
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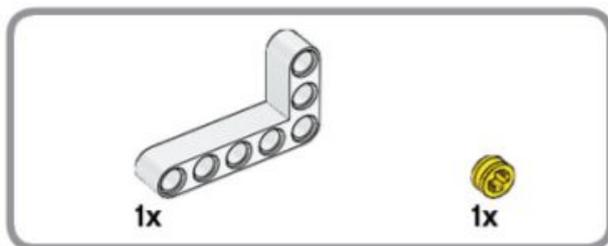
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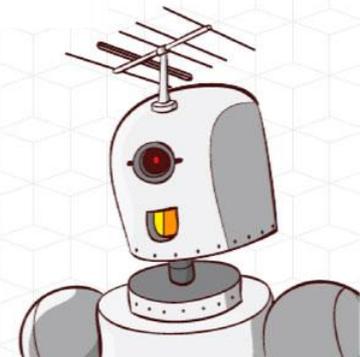
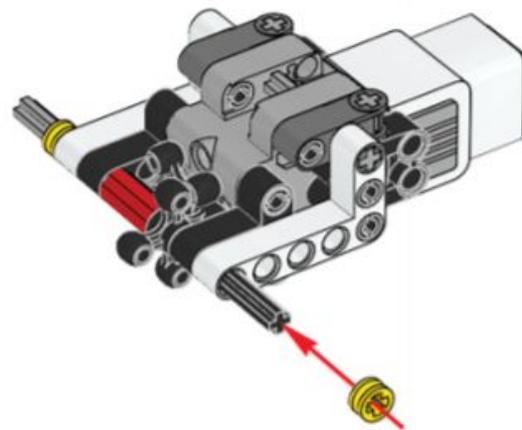
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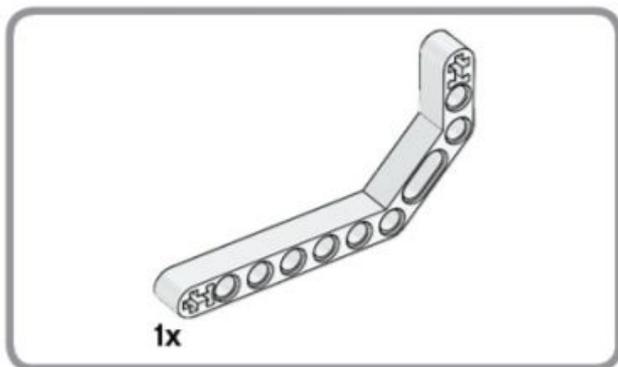
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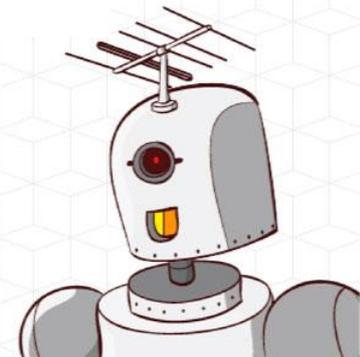
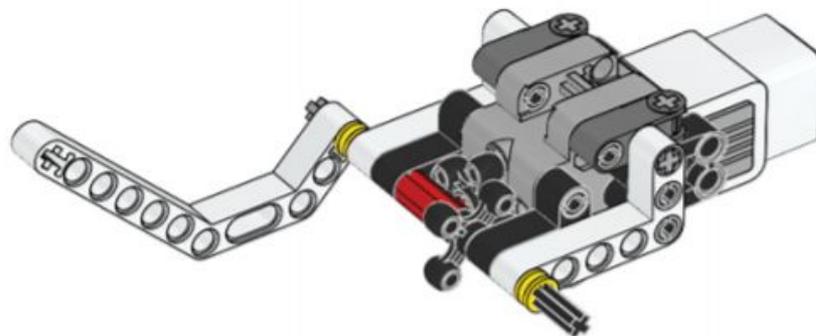
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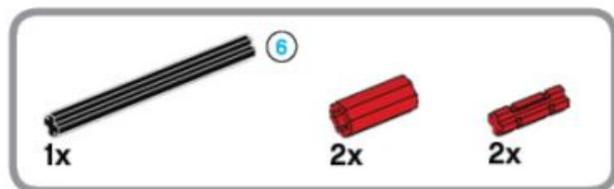
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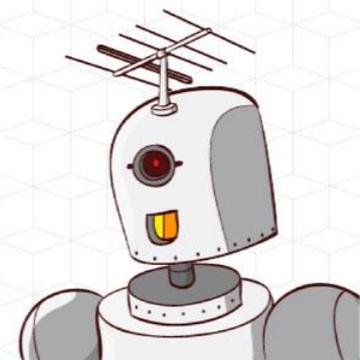
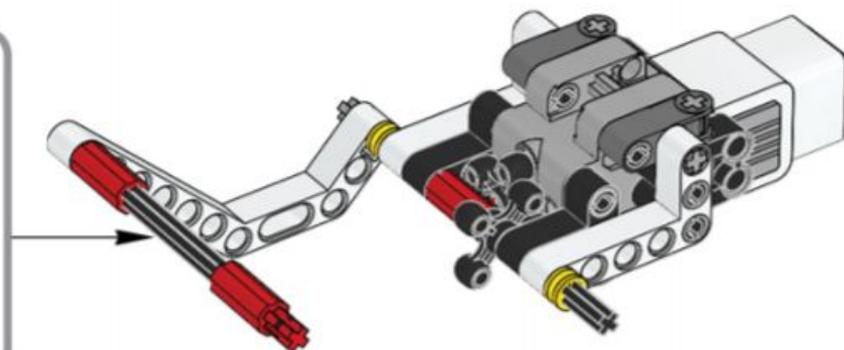
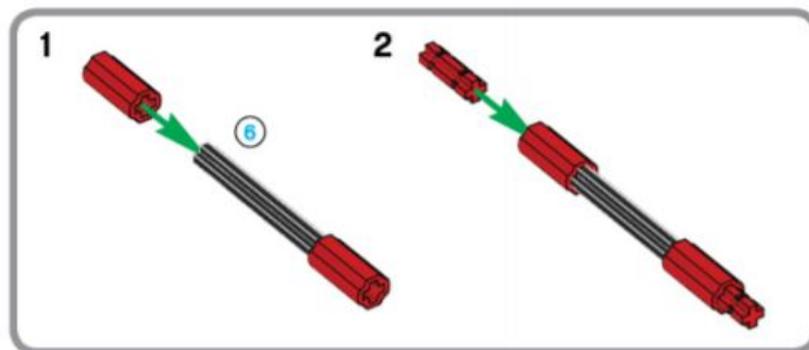
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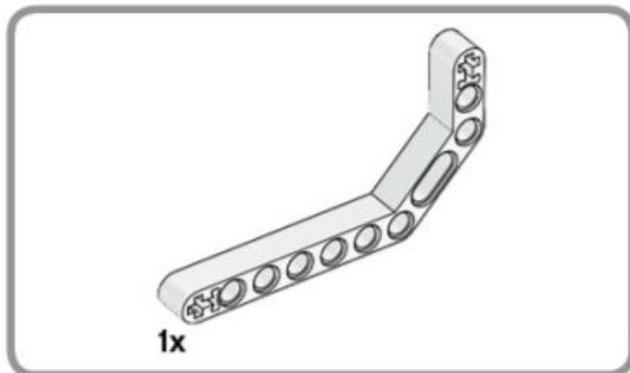
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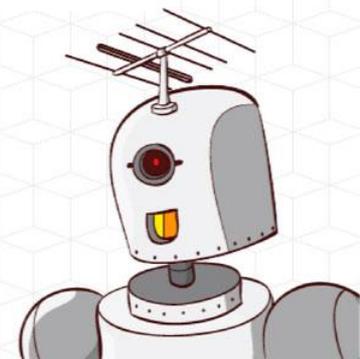
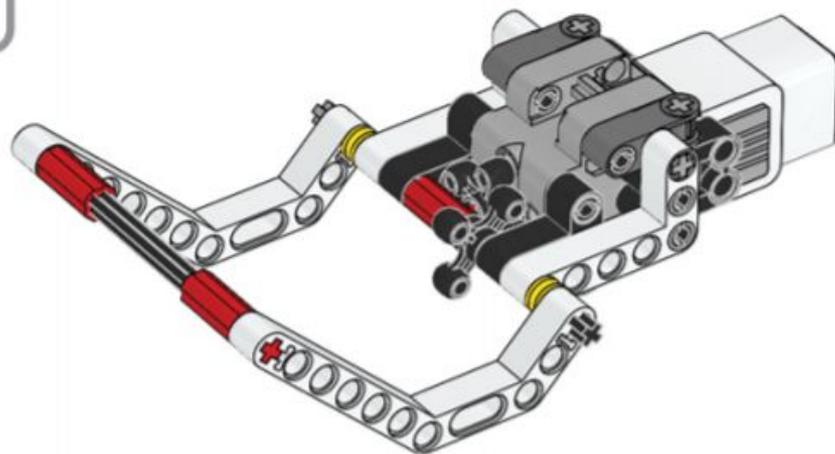
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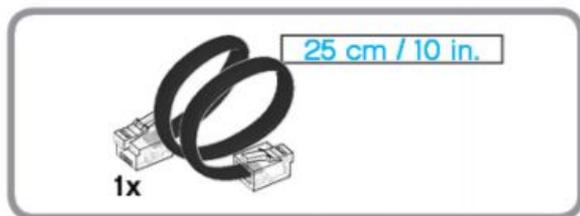
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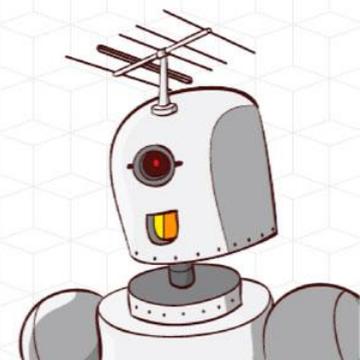
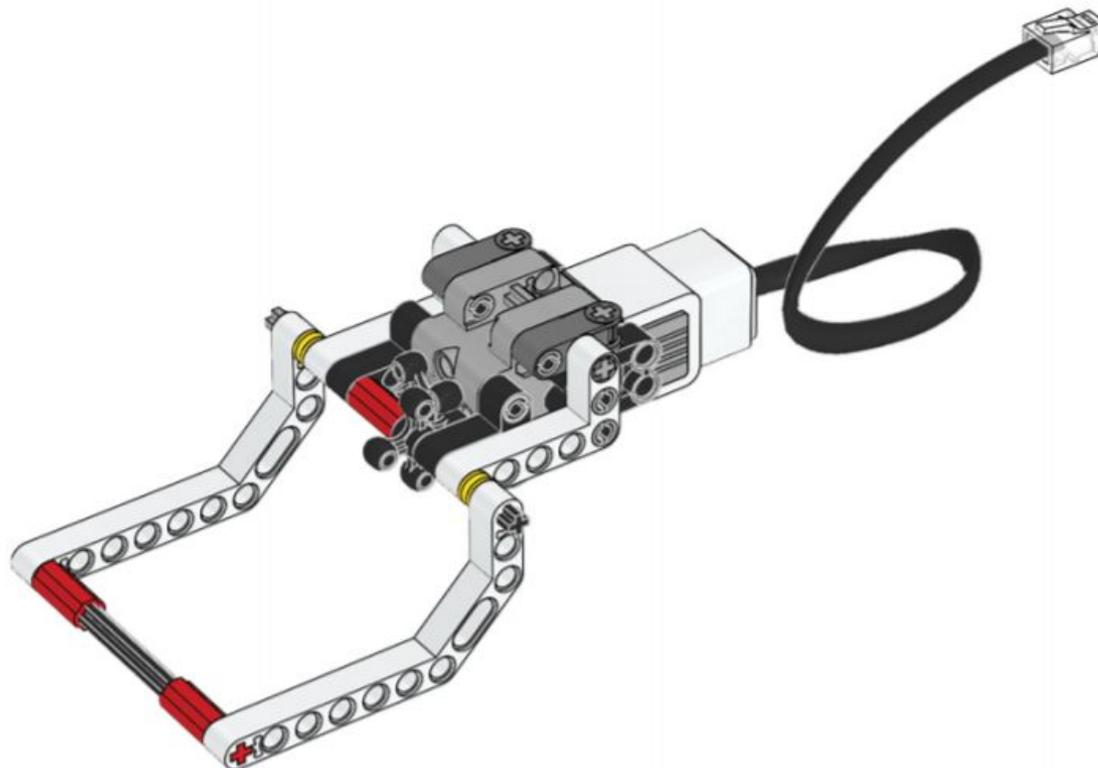
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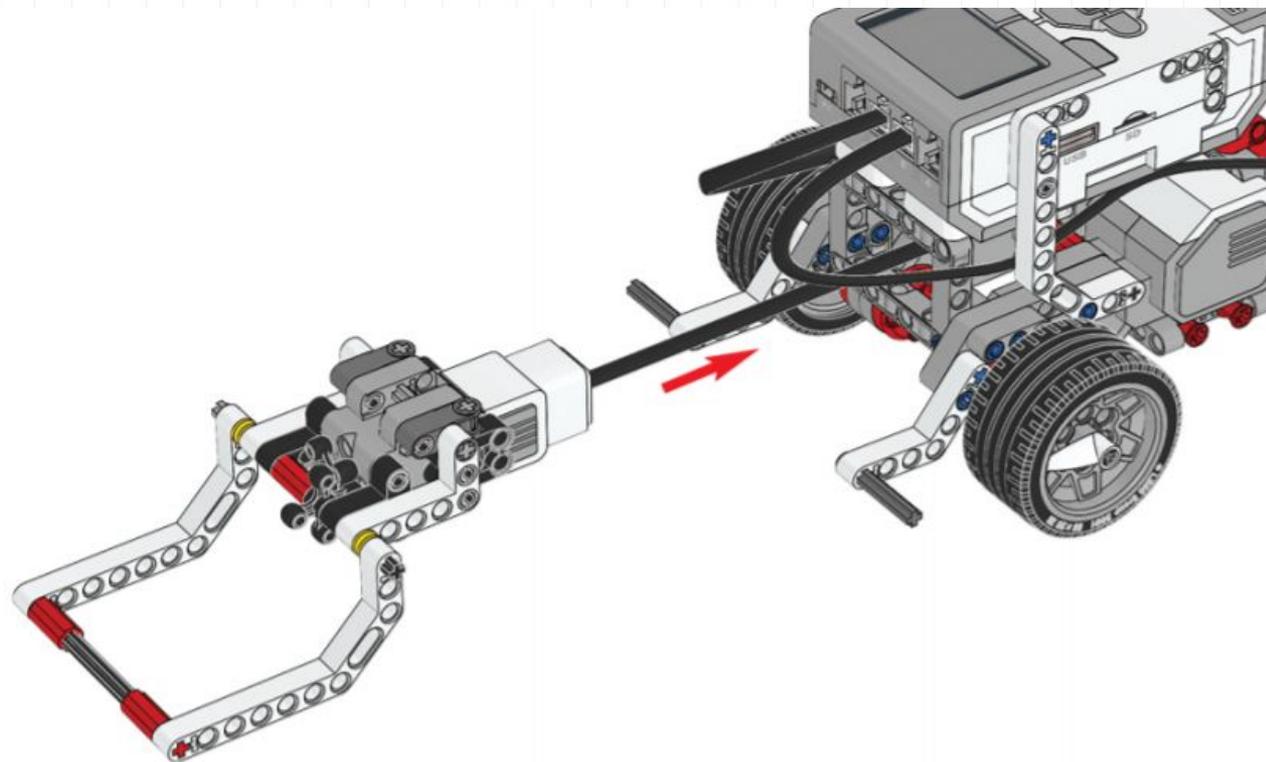


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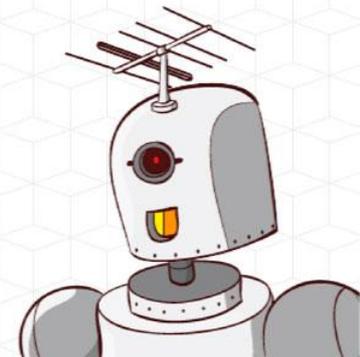
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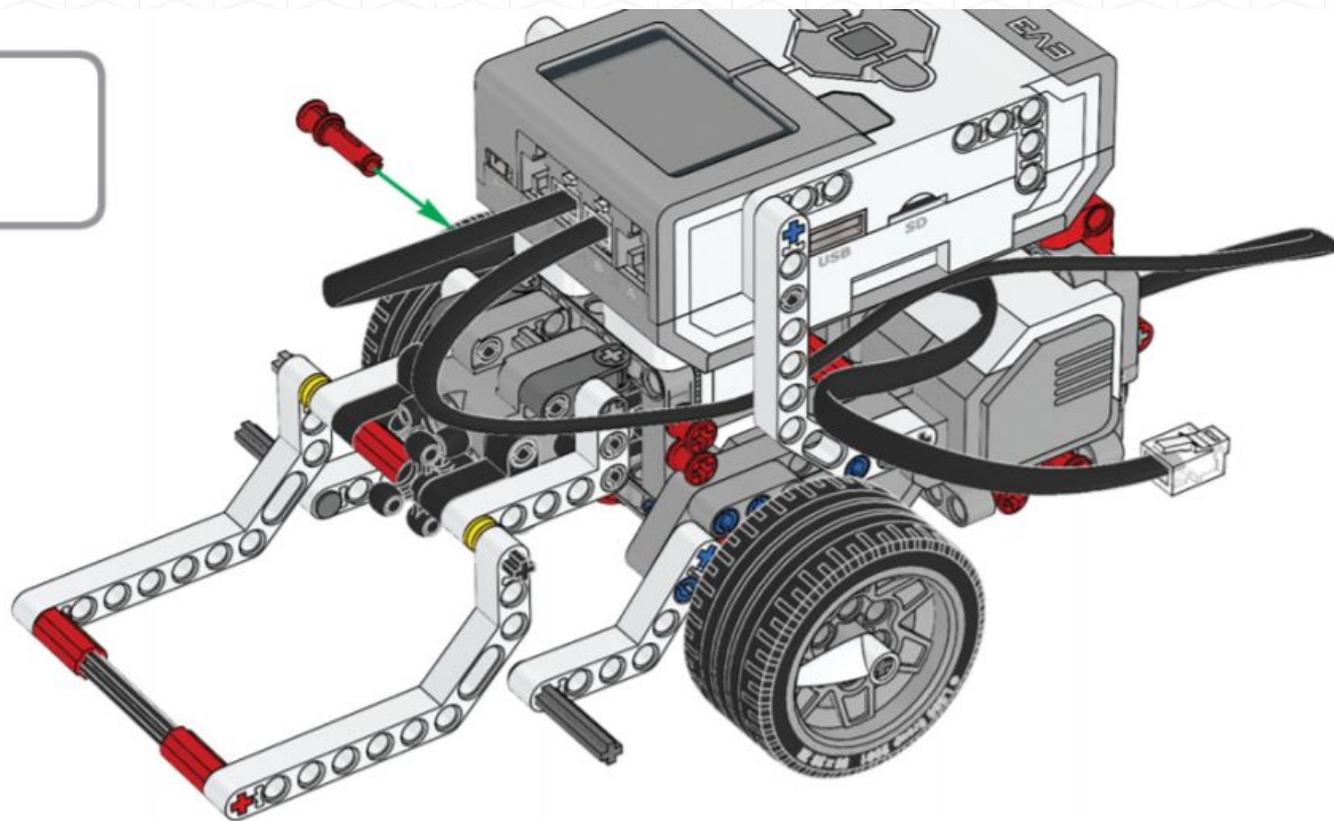


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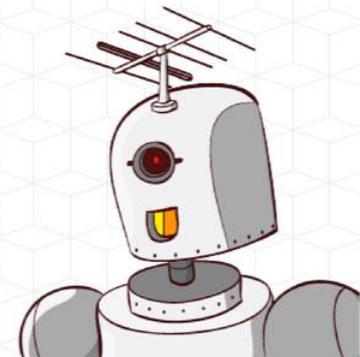
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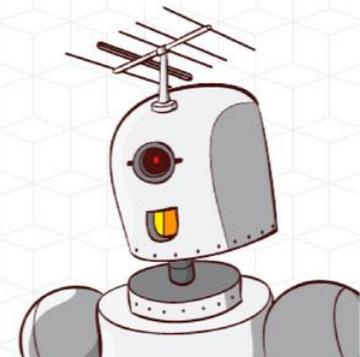
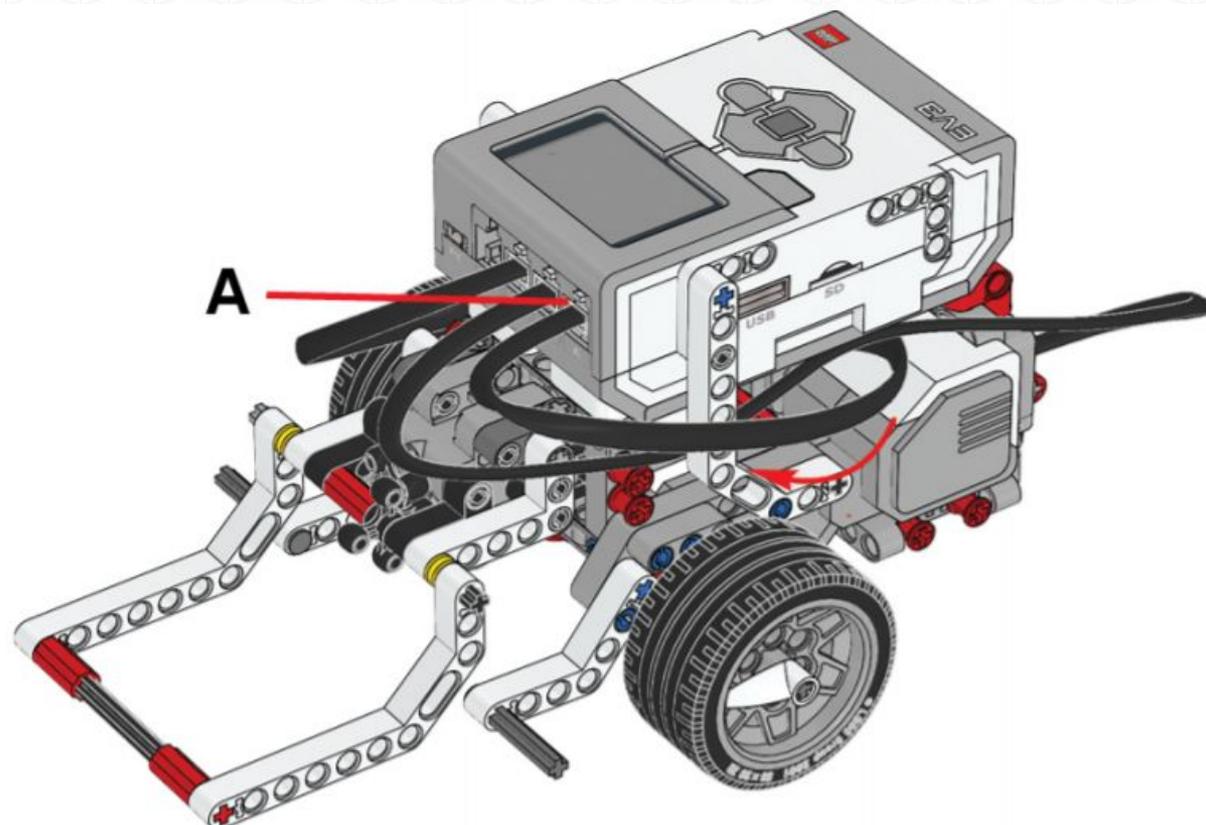
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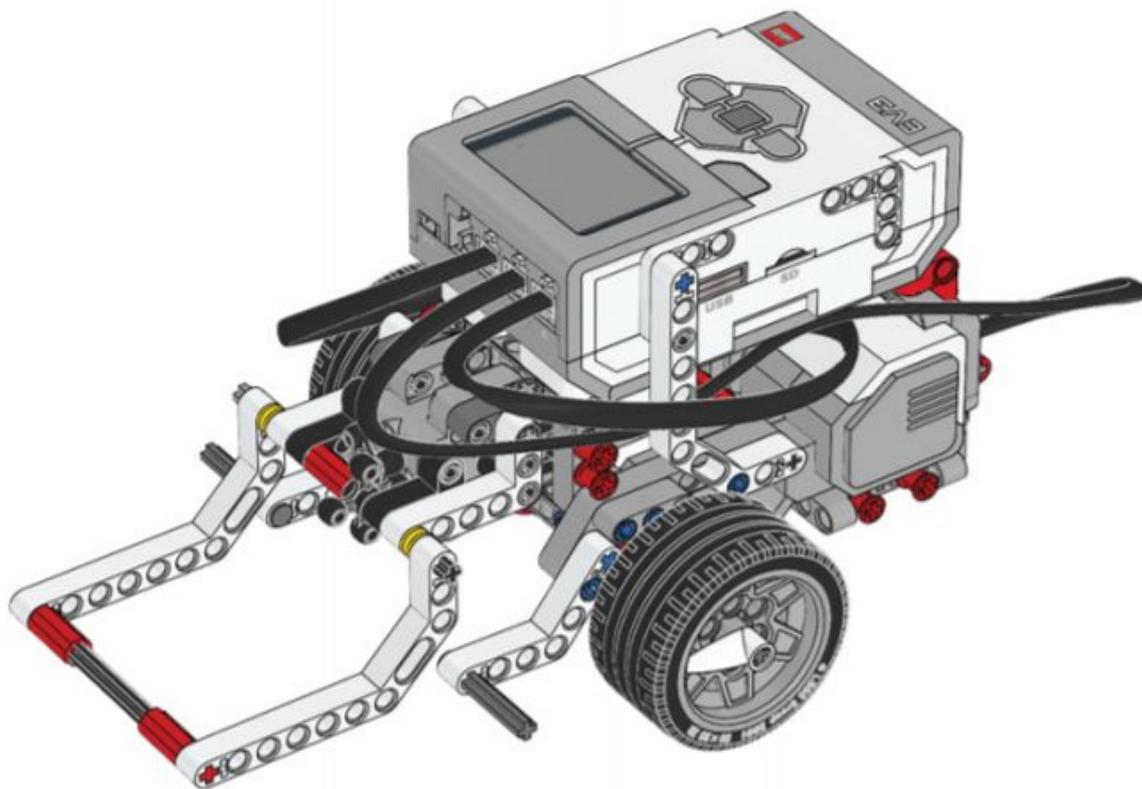


Подключение захвата

19

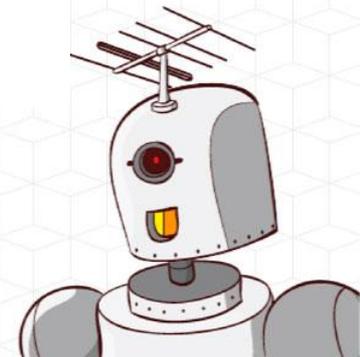


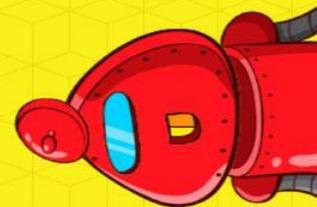
Робот ГОТОВ!



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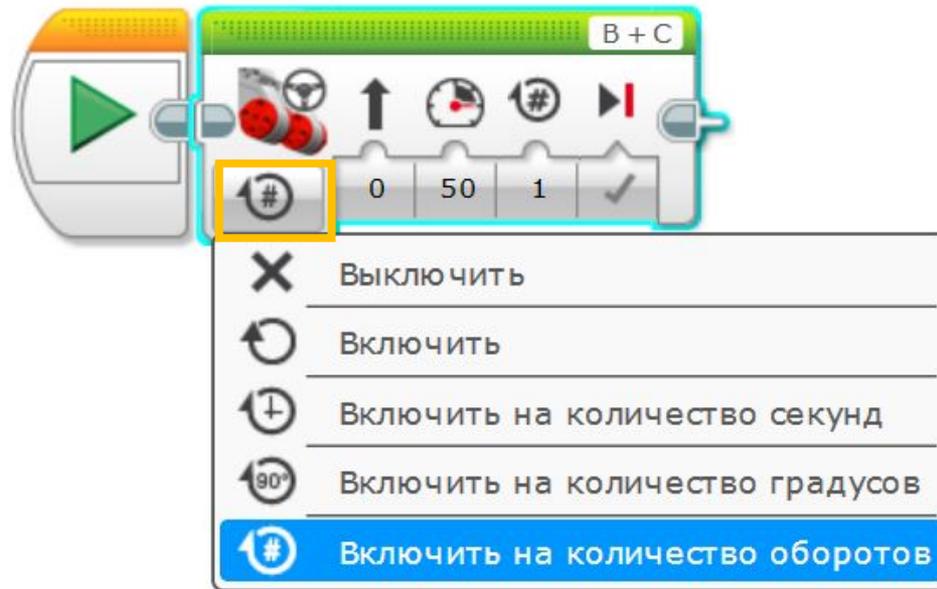
Программирование



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Режимы работы



- Это кнопка открывает режимы работы блока управления моторами.



Режимы работы



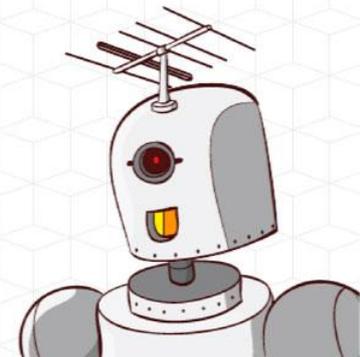
Этот параметр устанавливает, через сколько градусов поворота **МОТОРОВ** они остановятся.

! Не путать с поворотом робота! !
Поворачиваются только МОТОРЫ!

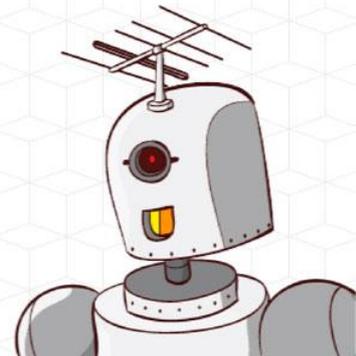
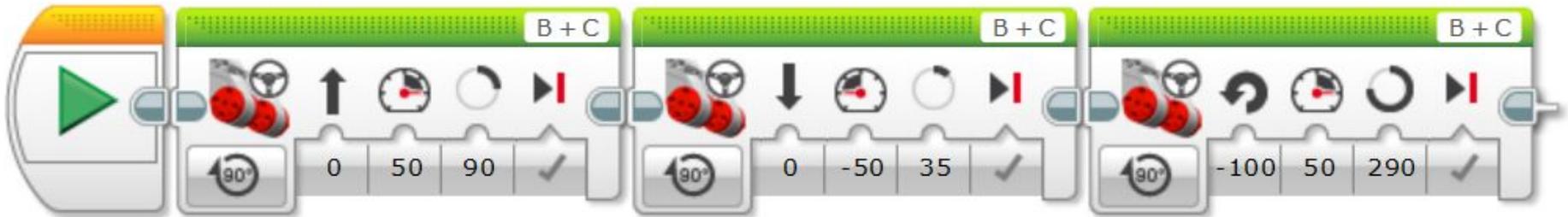


Задание 1

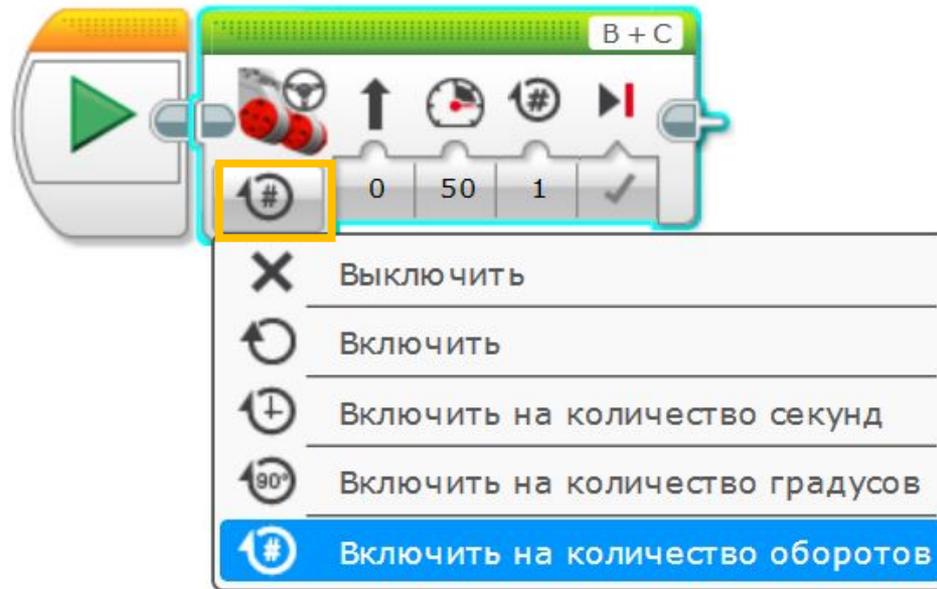
Проехать роботом 90 градусов вперед, 35 градусов назад и с направлением -100 проехать 290 градусов.



Решение



Режимы работы



Это кнопка открывает режимы работы блока управления моторами.



Режимы работы



Этот параметр устанавливает время работы моторов.



Задание 2

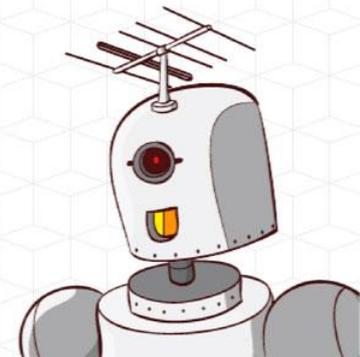
Робот едет 4 секунды вперед, 120 градусов поворачивает в направлении 30, затем едет 5 оборотов назад и 6 секунд вращается на месте.



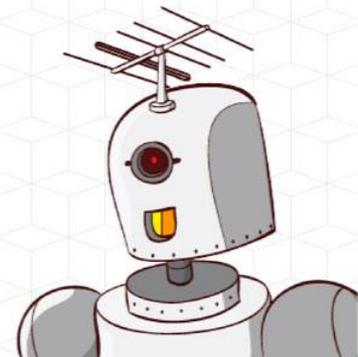
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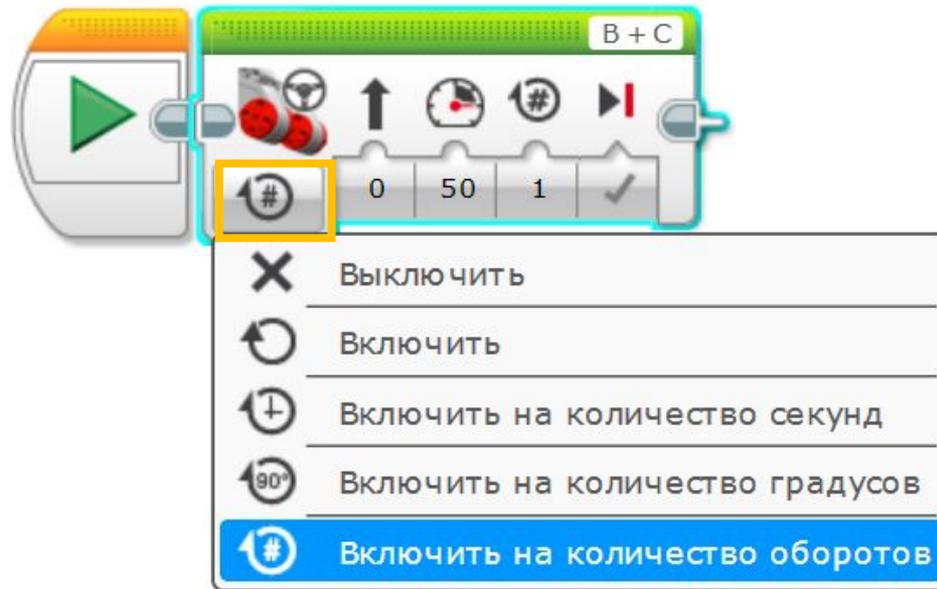
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Решение



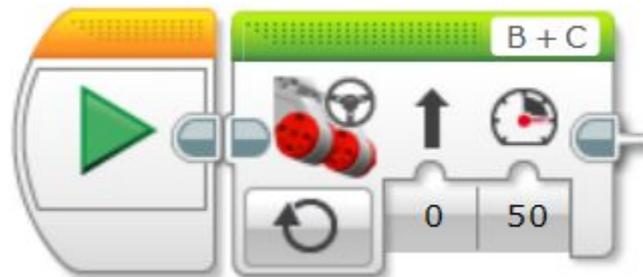
Режимы работы



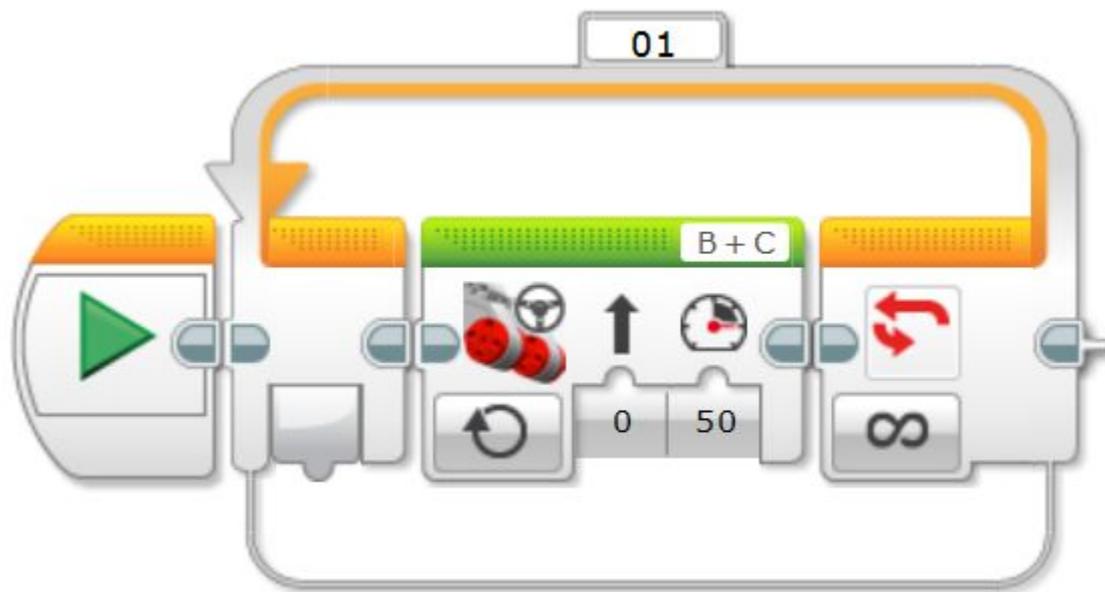
Это кнопка открывает режимы работы блока управления моторами.



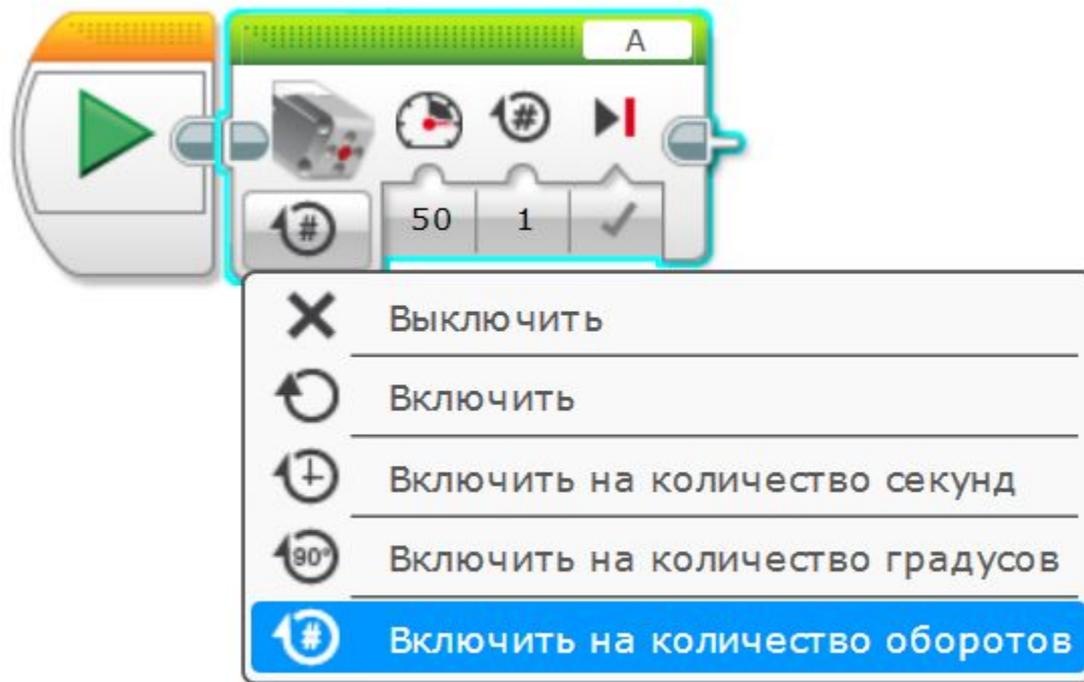
Режимы работы



Режимы работы

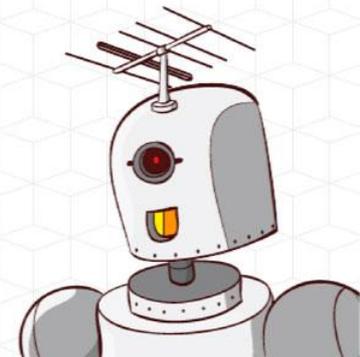


Режимы работы

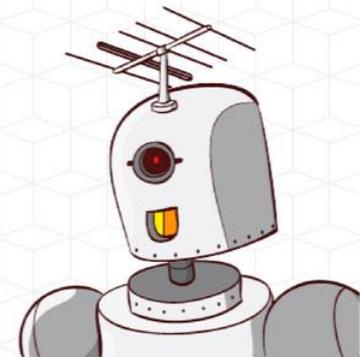
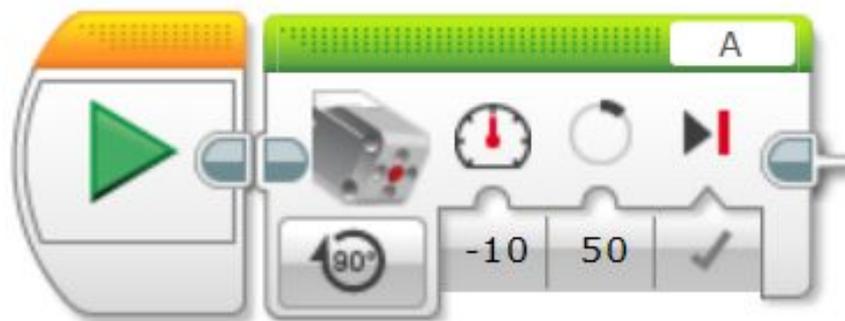


Задание 3

Робот поворачивает хват на 50 градусов так, чтобы он оказался вверху.

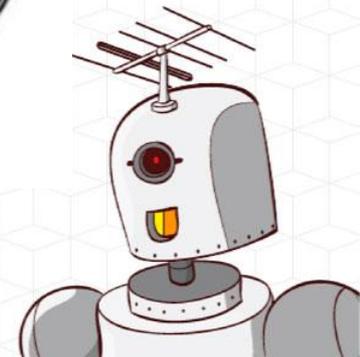
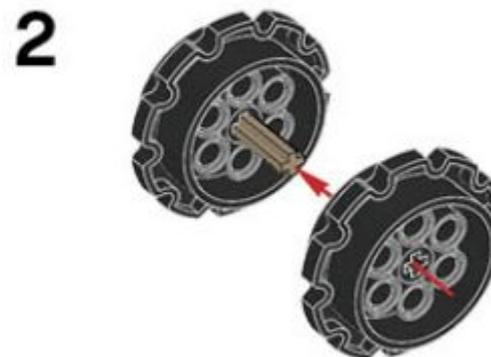


Решение

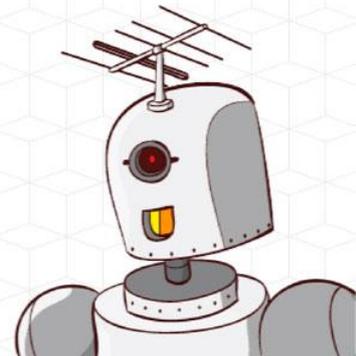
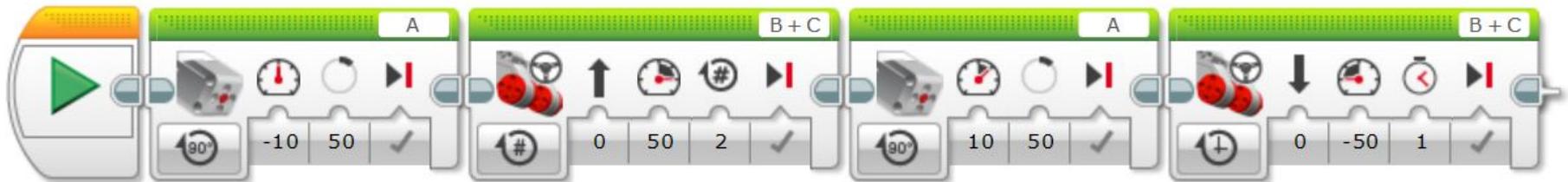


Задание 4

Робот поднимает схват на 50 градусов, едет 2 оборота вперед, опускает схват на 50 градусов, затем отъезжает 1 секунду назад.

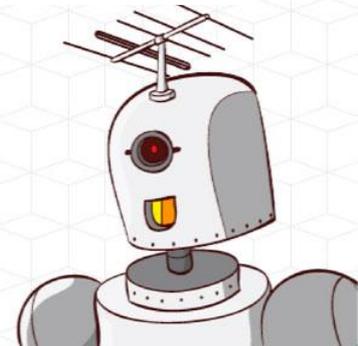


Решение



Доставка на дом

- Возьмите несколько таких банок и поставьте их в разные места, затем напишите программу, по которой робот подъезжает к ним, захватывает и отвозит на точку старта



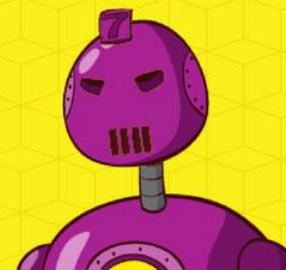
Сдаём наборы





Спасибо за внимание!

Вопросы?



инжинириум

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