

# 4 수레 밀기 로봇

Porter robot



이미지 출처

<http://www.influx.com.br> <http://ariellehanna.com/portfolio3.html>



-일본키타큐슈공항의 로봇짐꾼



손수레를 미는것과 끄는것 중 어느것이 힘이 더 적게 들까요?

당기는 방향



미는 방향

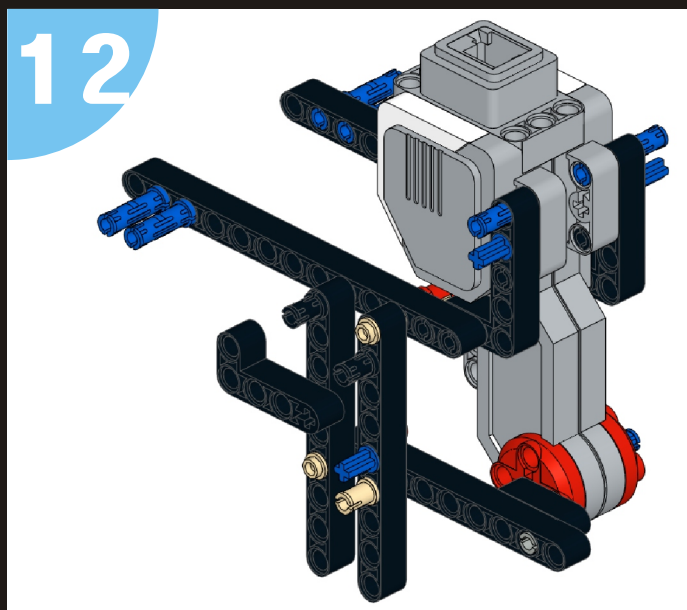
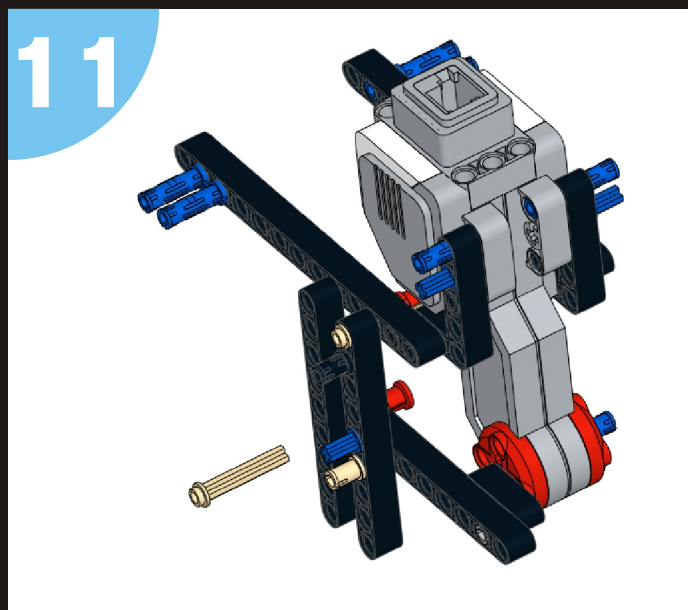
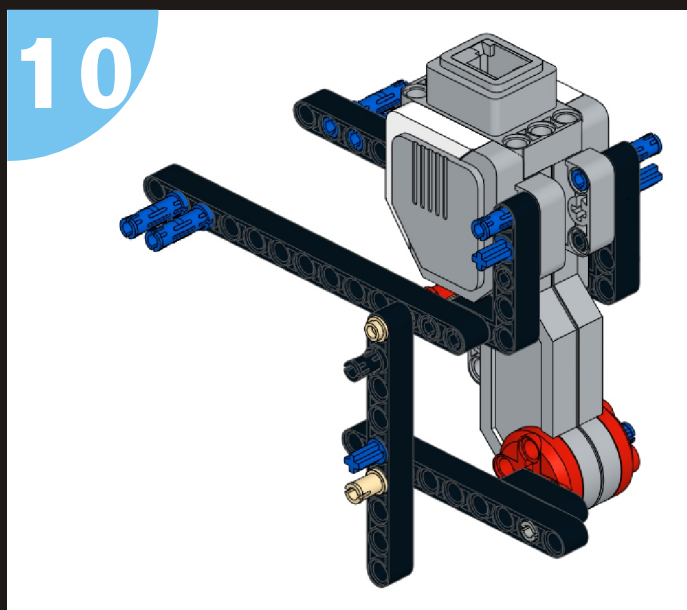
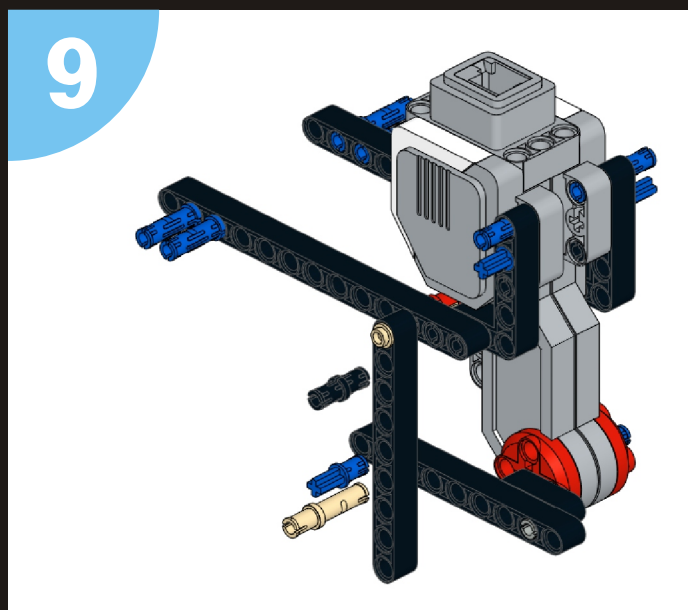
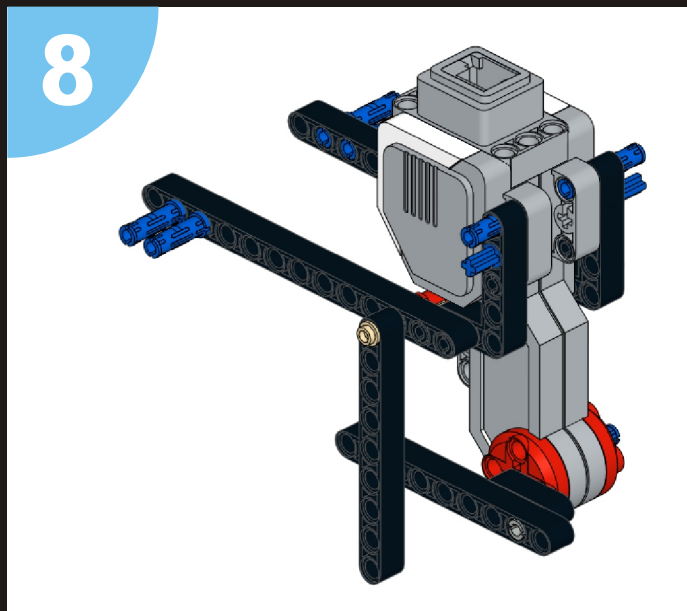
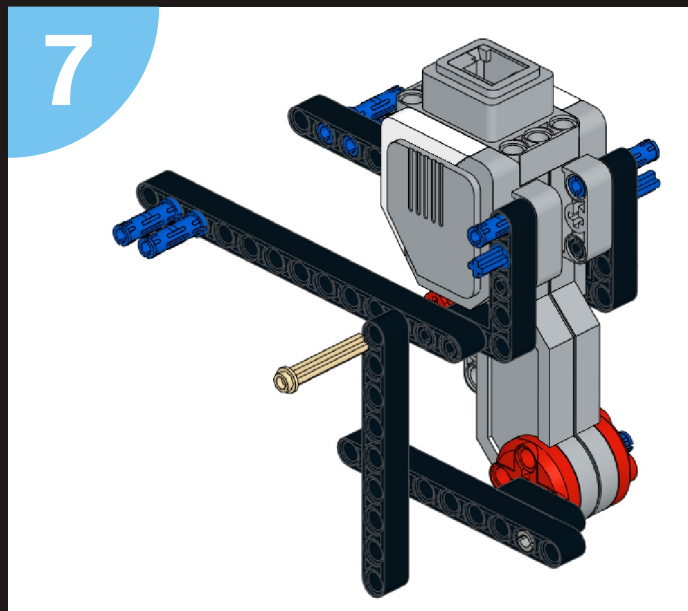


정답:당기는 방향

물체의 운동을 방해하는 마찰력이 작을수록 물체를 운동시키기가 쉽습니다  
 마찰력은 수직항력(수레가 물체를 밀어 올리는 힘 = 수레가 지면을 누르는 힘)에 비례합니다.  
 수레를 밀게 되면 지면을 누르는 연직 방향의 힘이 생겨 수직항력이 커지고, 수레를 끌면  
 수레의 위쪽으로 작용하는 힘이 생겨 수직항력이 작아지므로 끄는 쪽이 힘이 적게 듭니다.

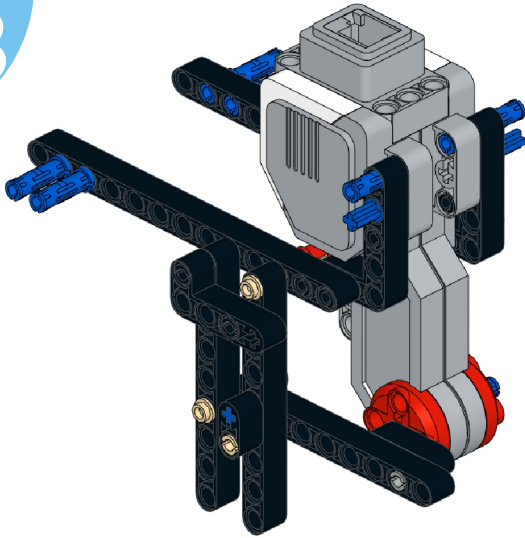
<출처> <http://www.sciencegood.com/>

# Instruction

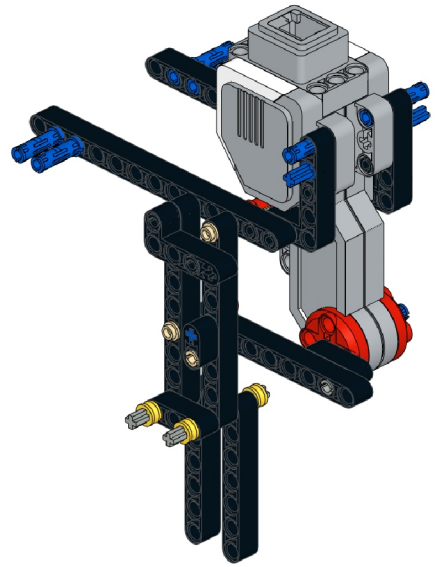


# Instruction

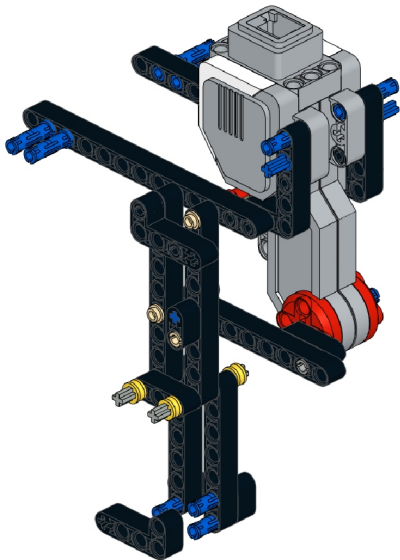
13



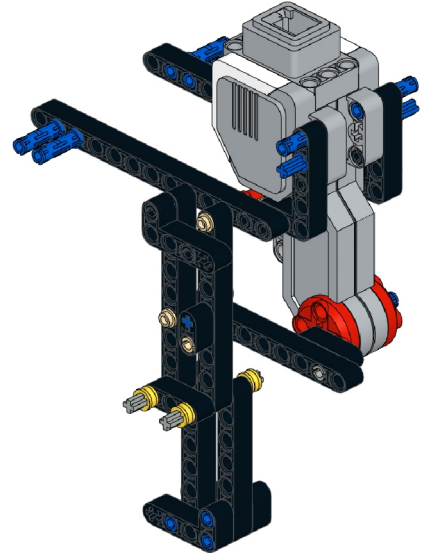
14



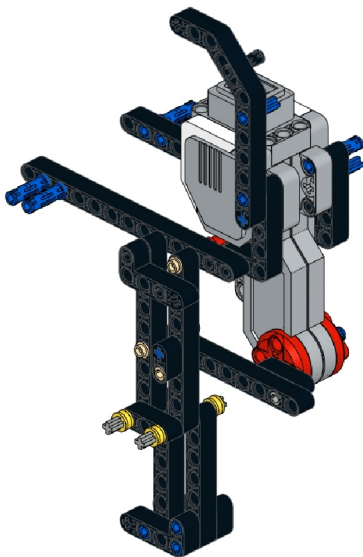
15



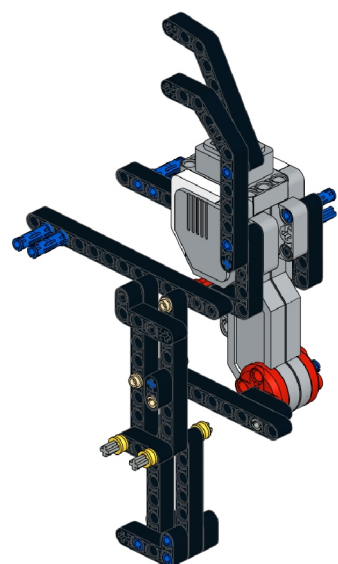
16



17

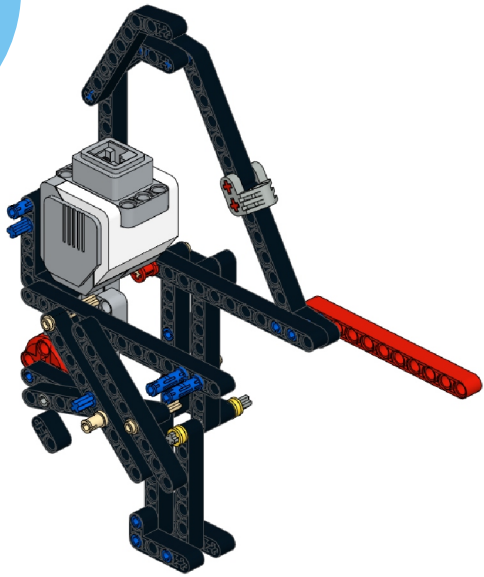


18

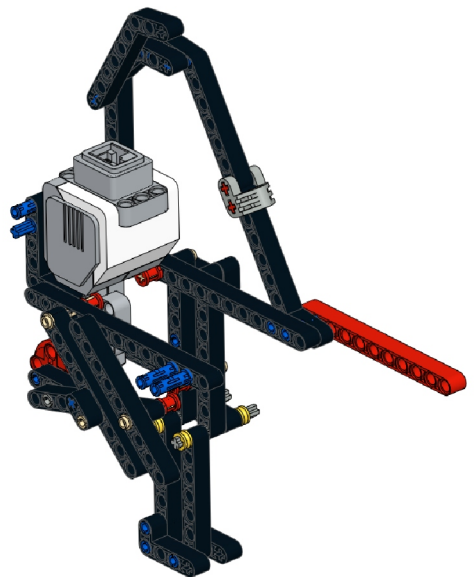




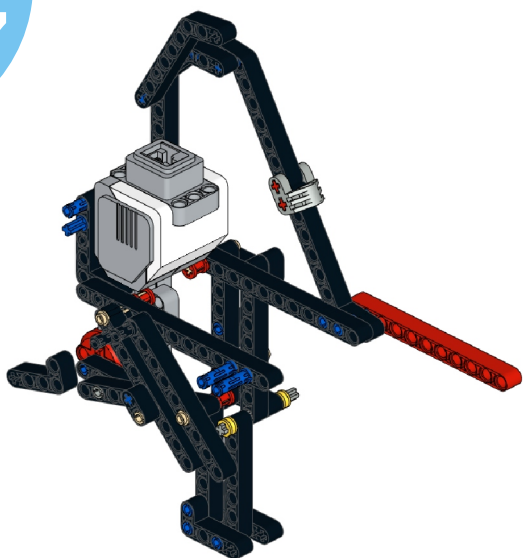
25



26



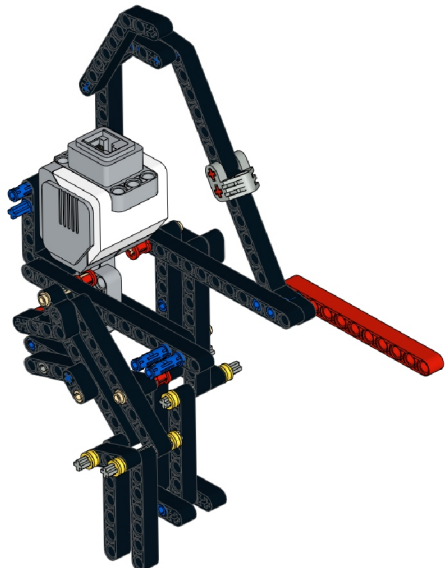
27



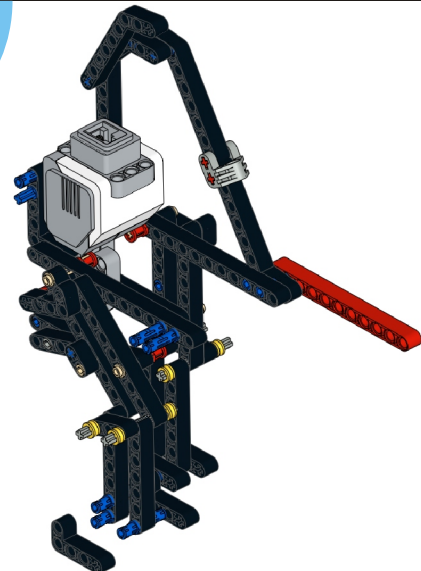
28



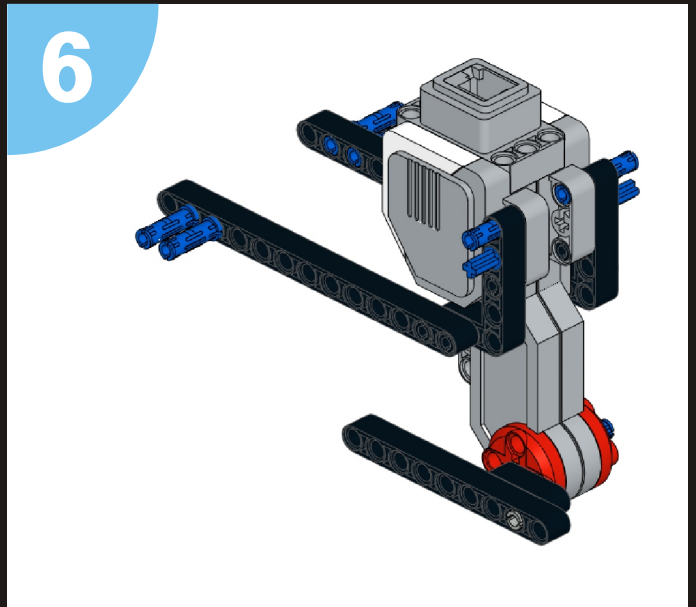
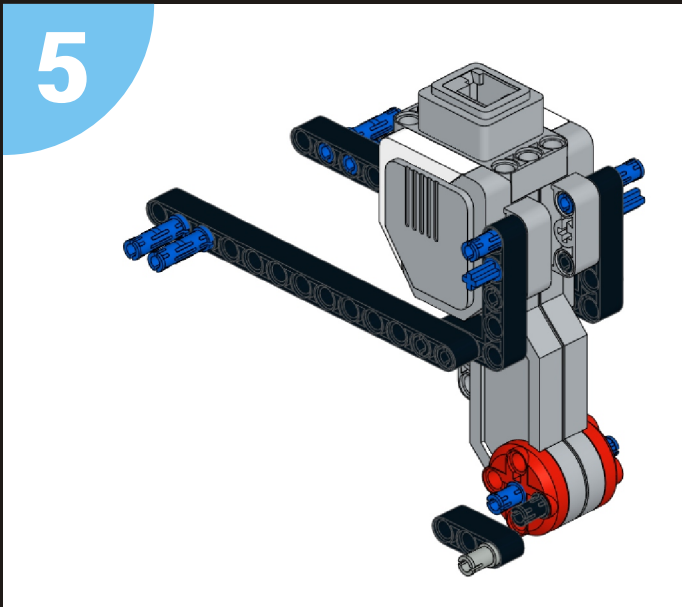
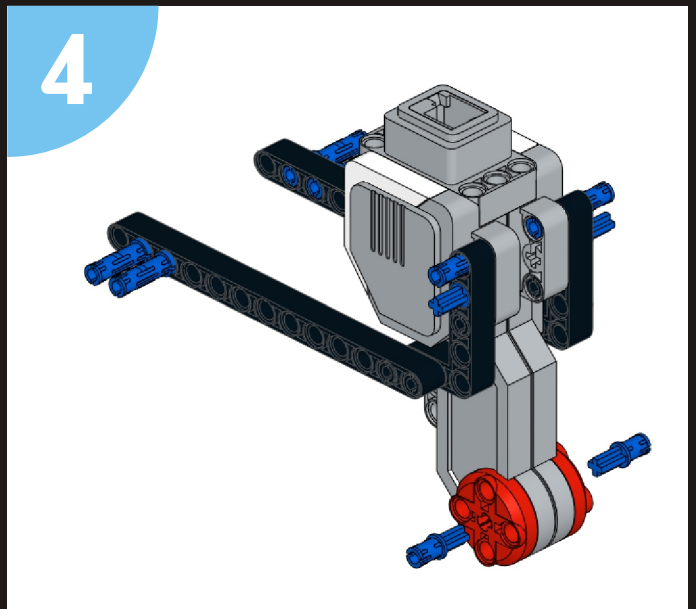
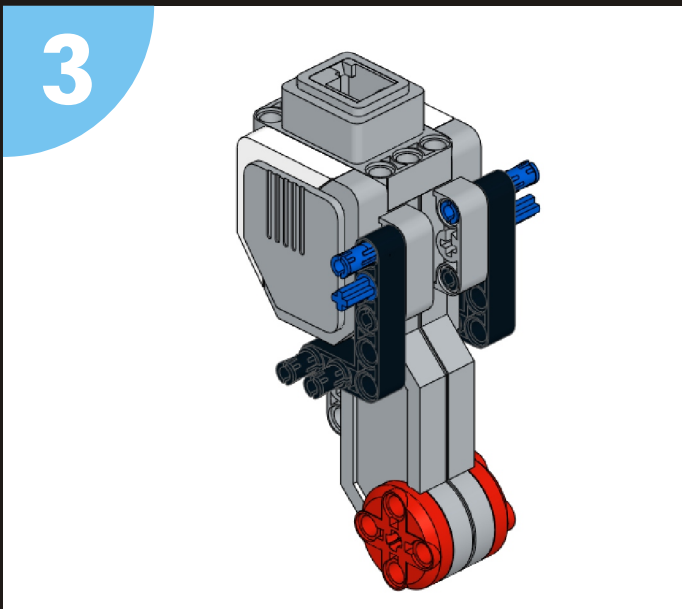
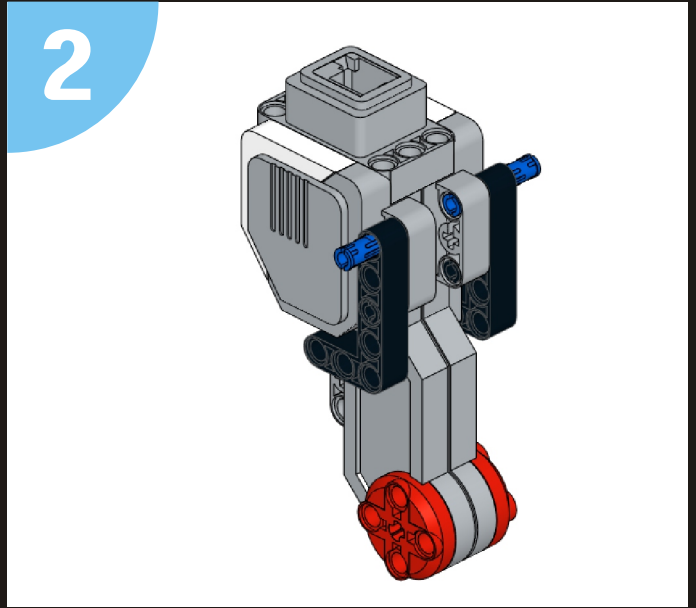
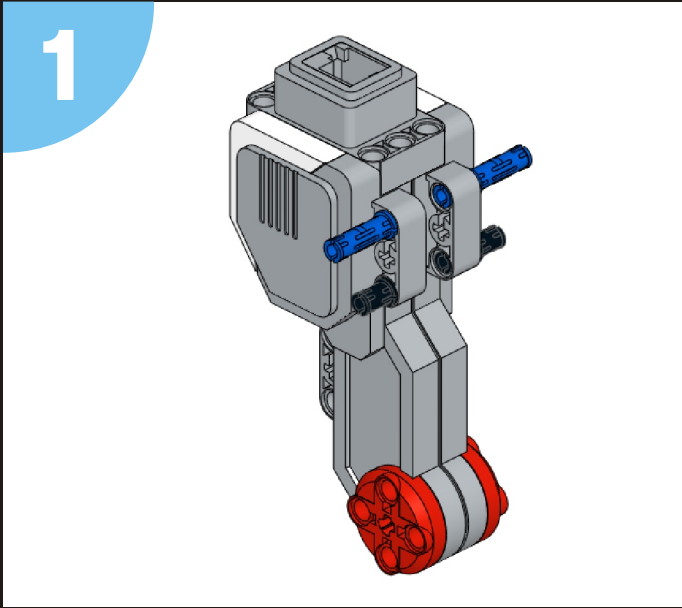
29



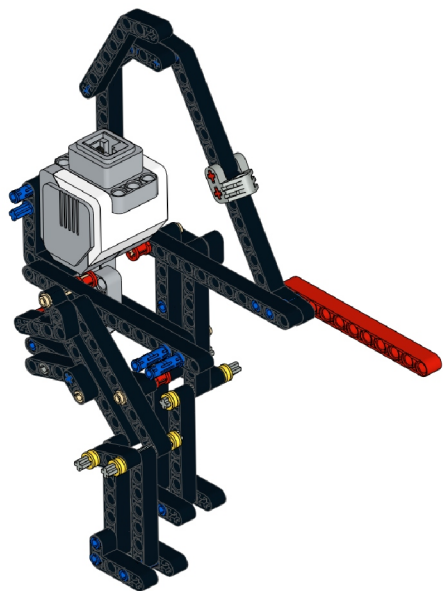
30



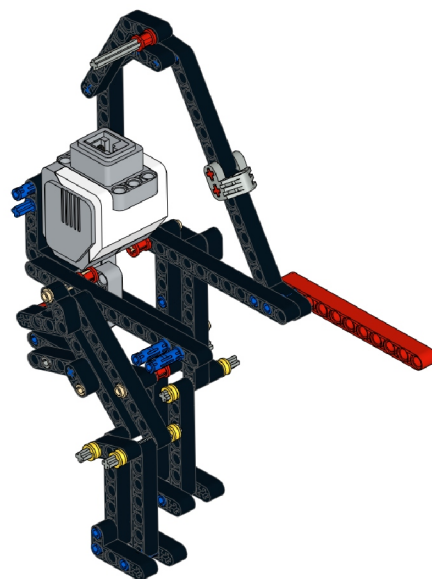
# Instruction



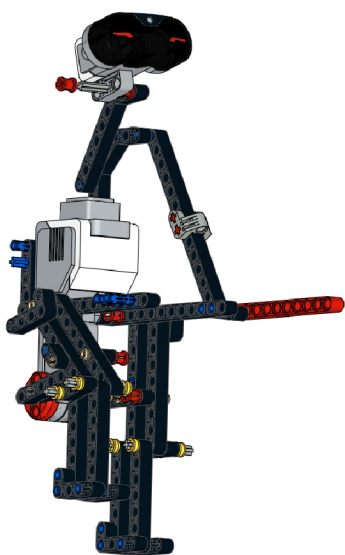
31



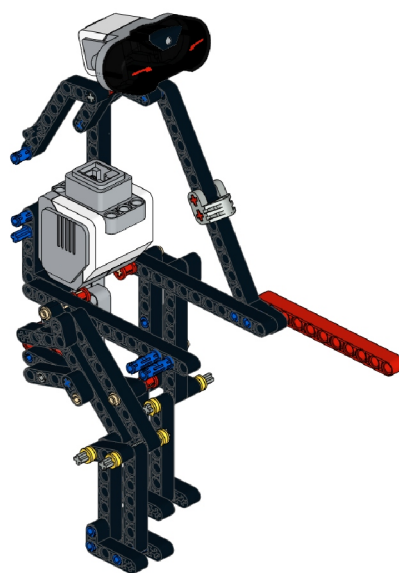
32



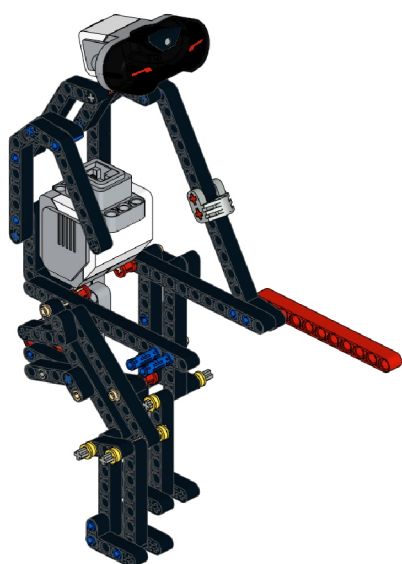
33



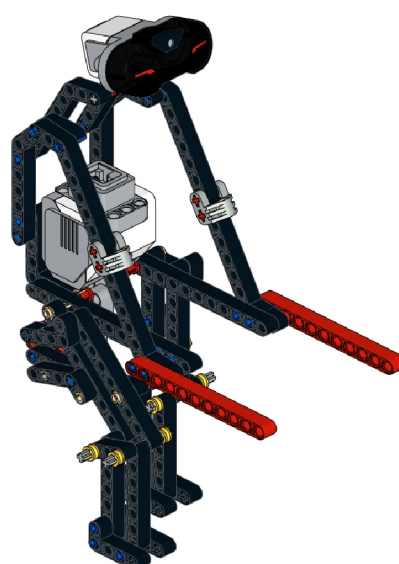
34



35



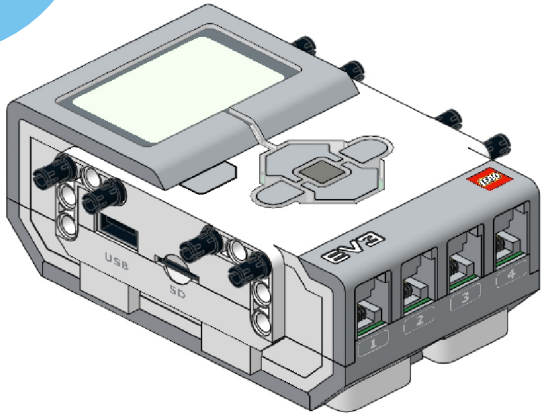
36



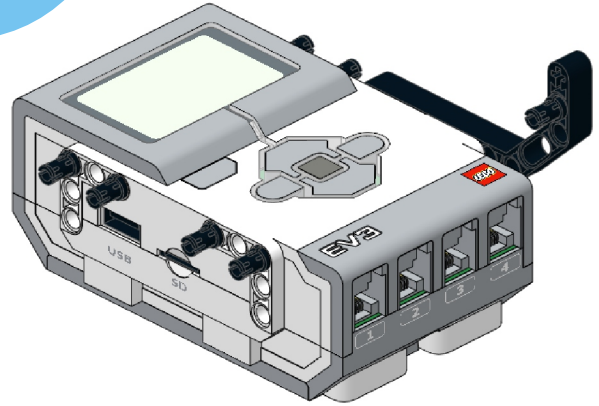


# Instruction

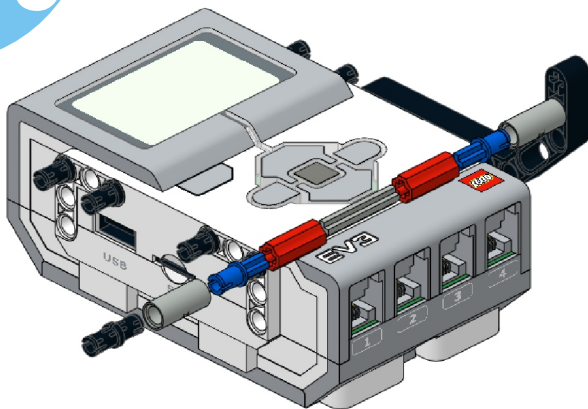
37



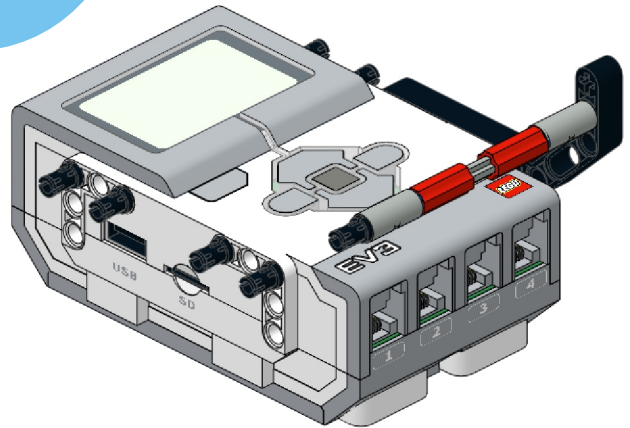
38



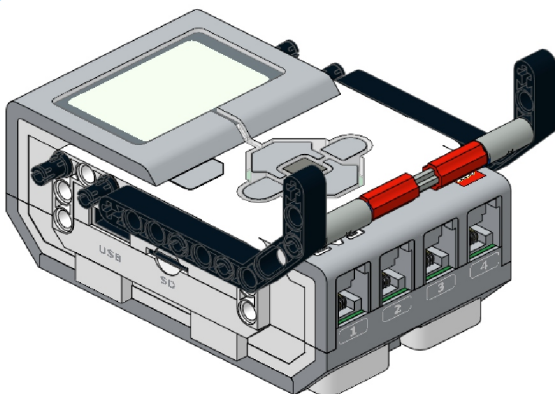
39



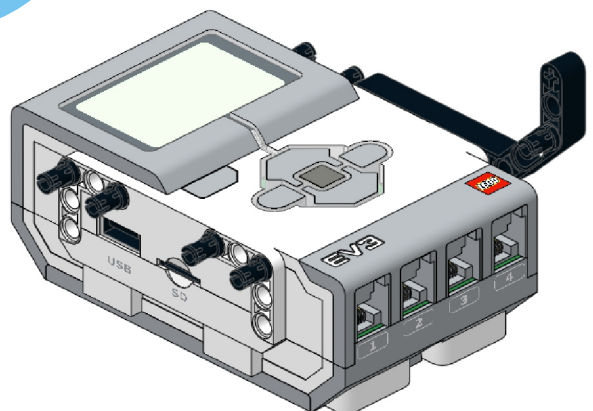
40



41

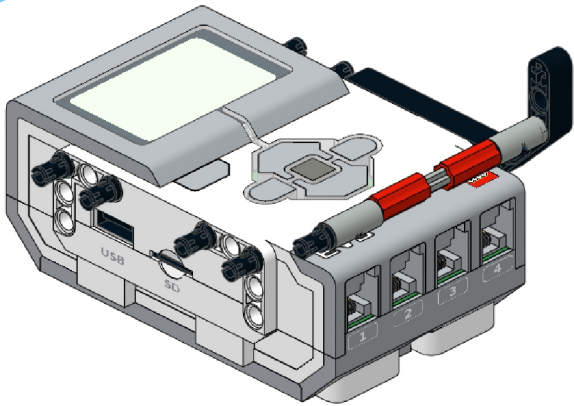


42

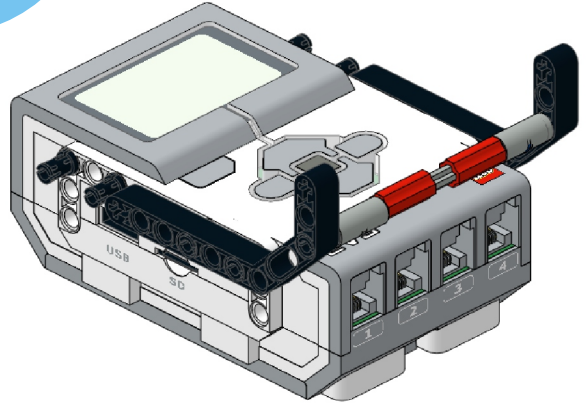


# Instruction

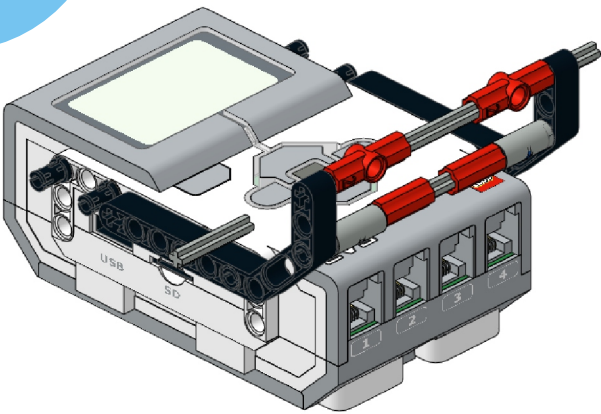
43



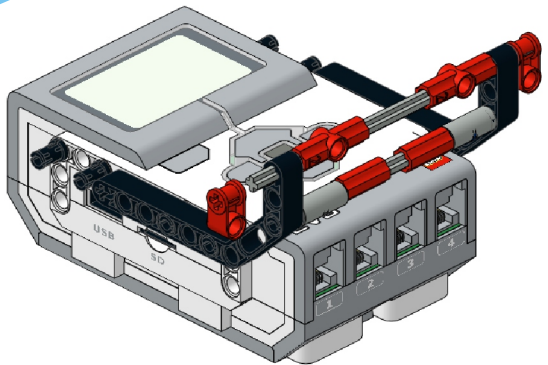
44



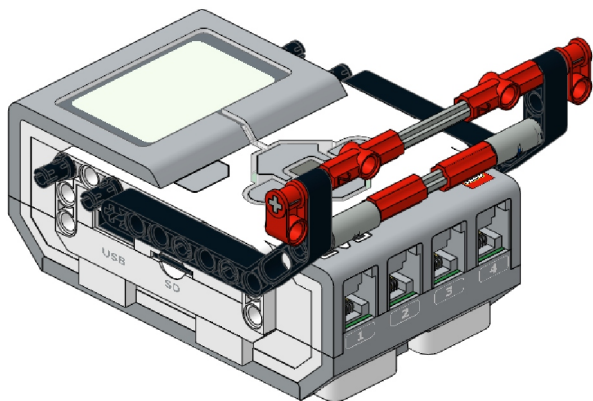
45



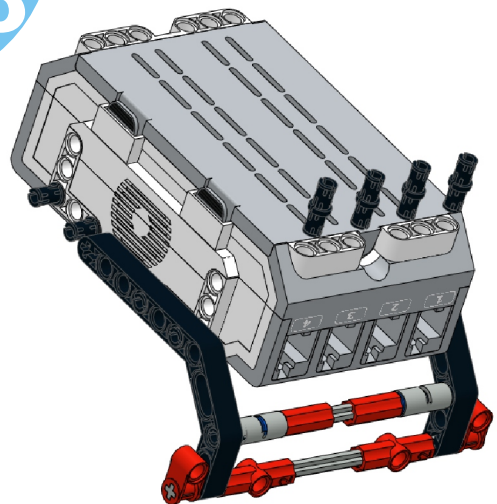
46



47



48

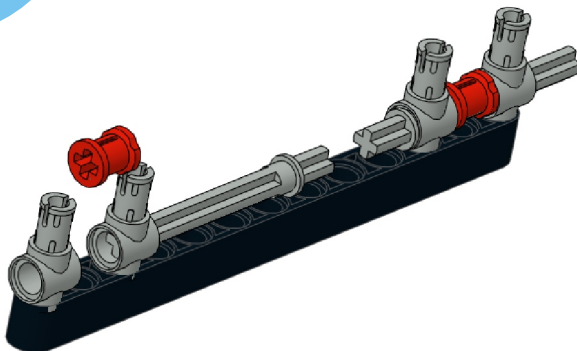


# Instruction

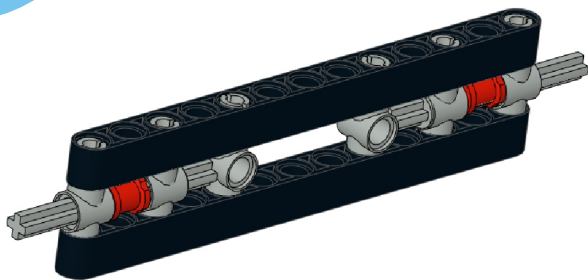
49



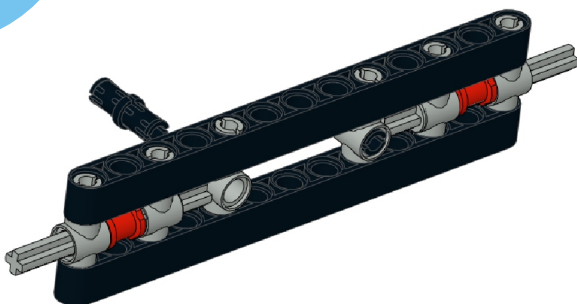
50



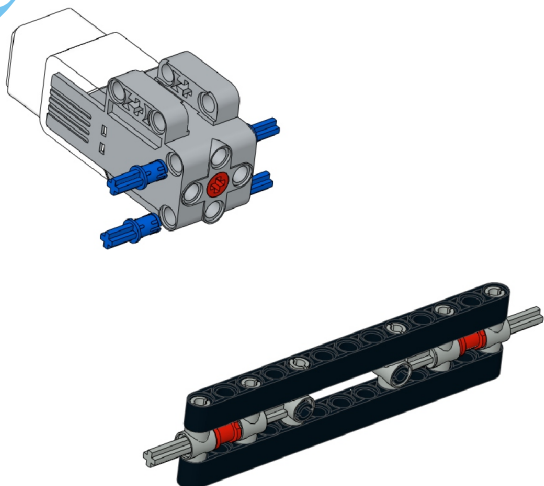
51



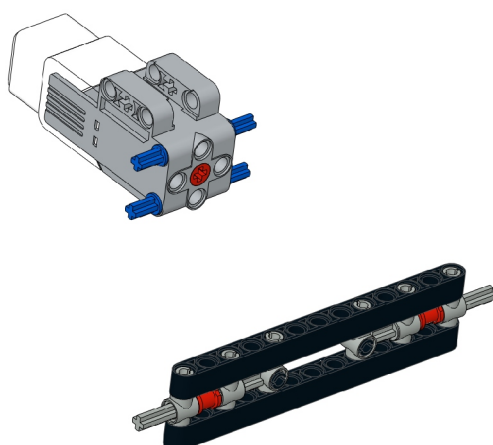
52



53

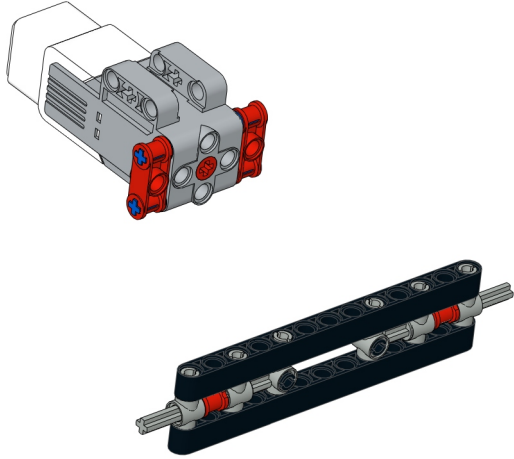


54

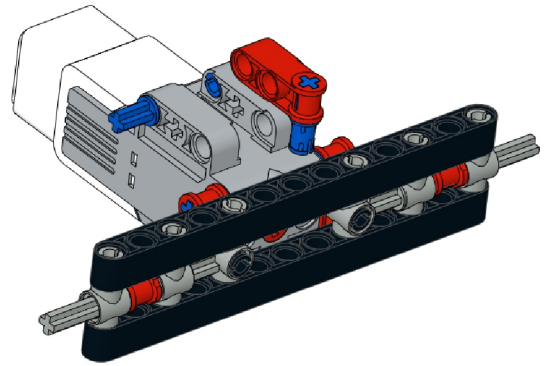


# Instruction

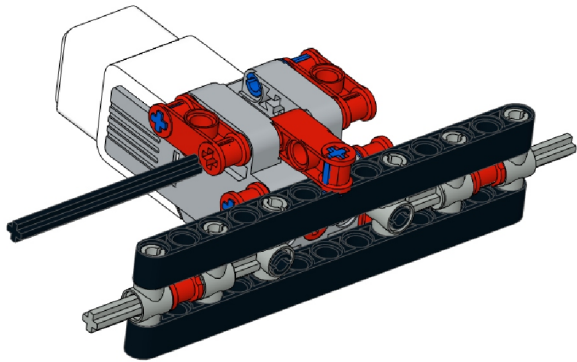
55



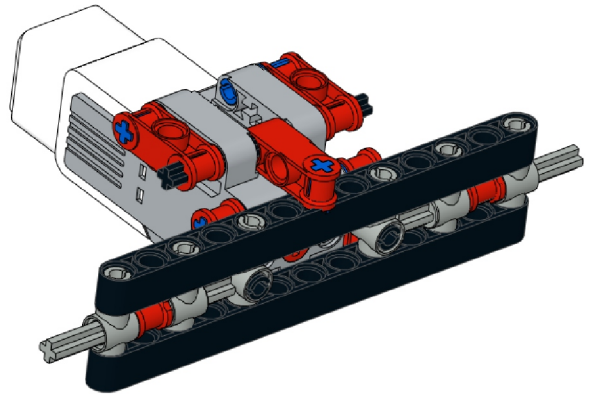
56



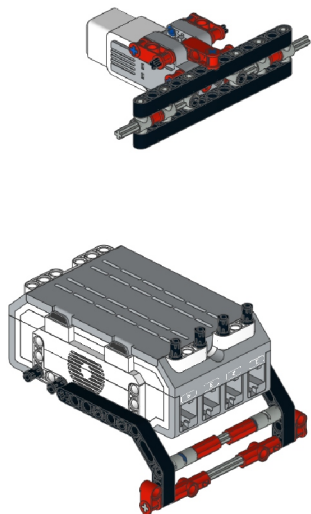
57



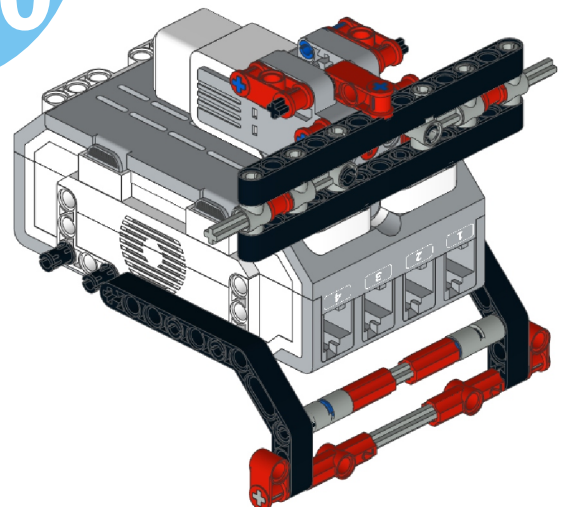
58



59

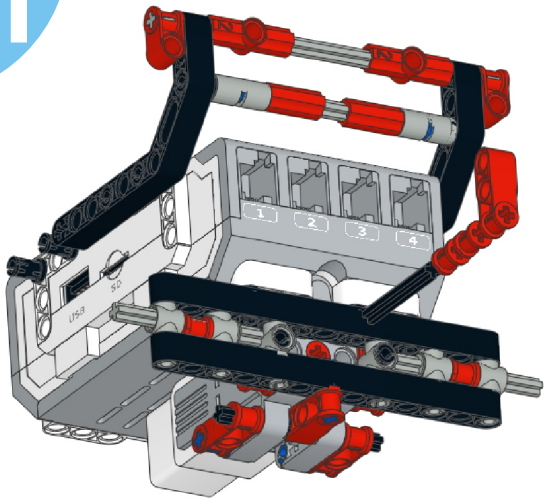


60

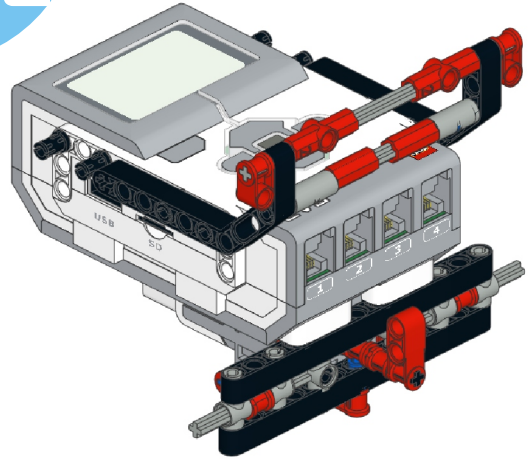


# Instruction

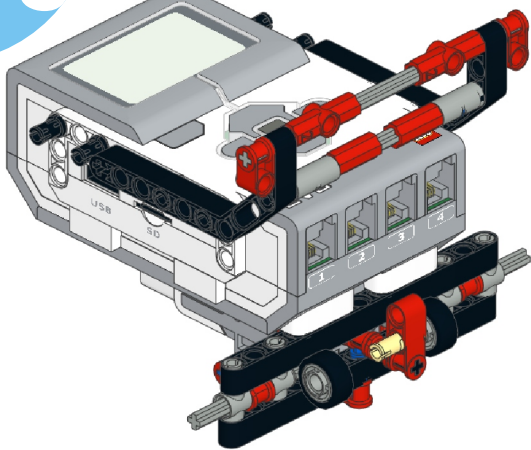
61



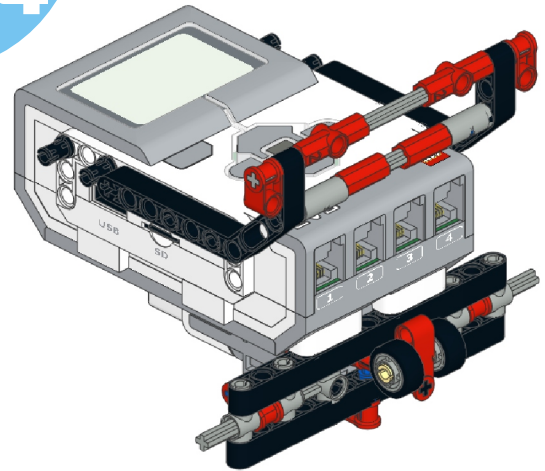
62



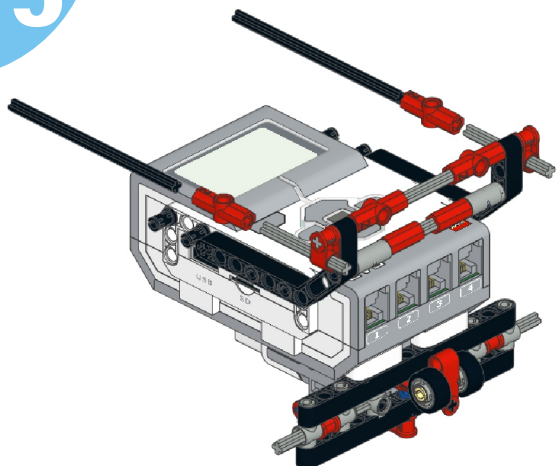
63



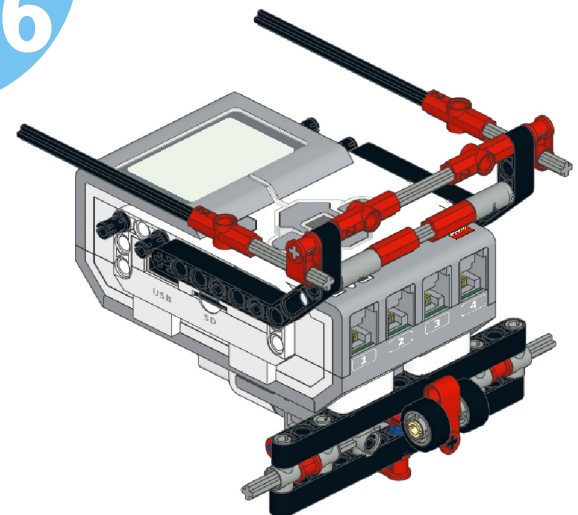
64



65

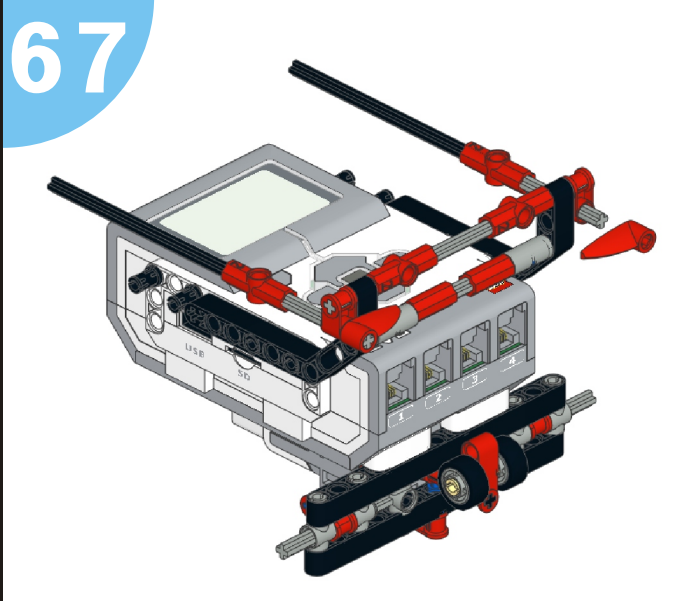


66

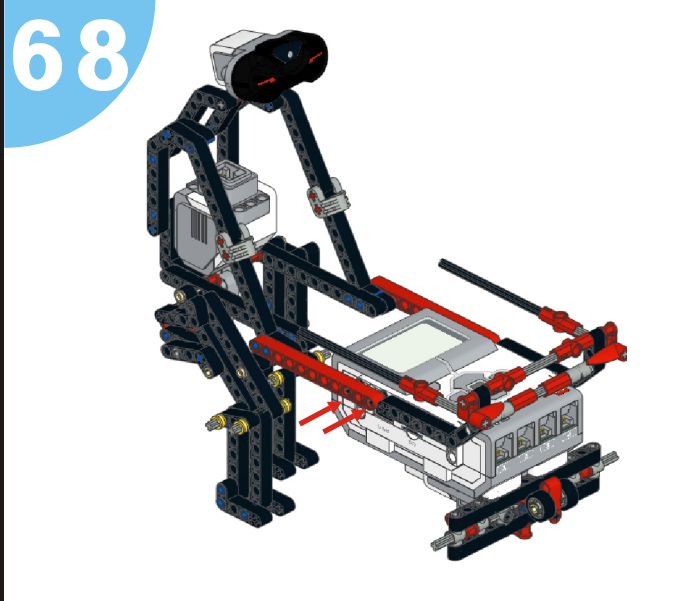


# Instruction

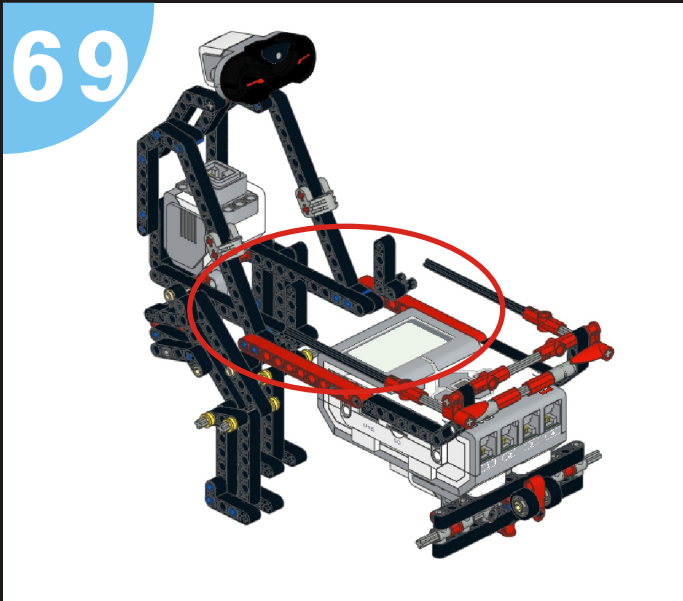
67



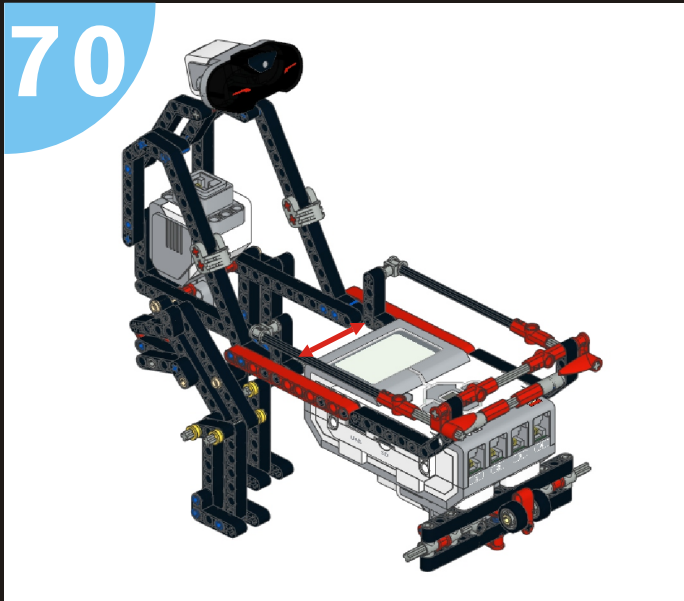
68



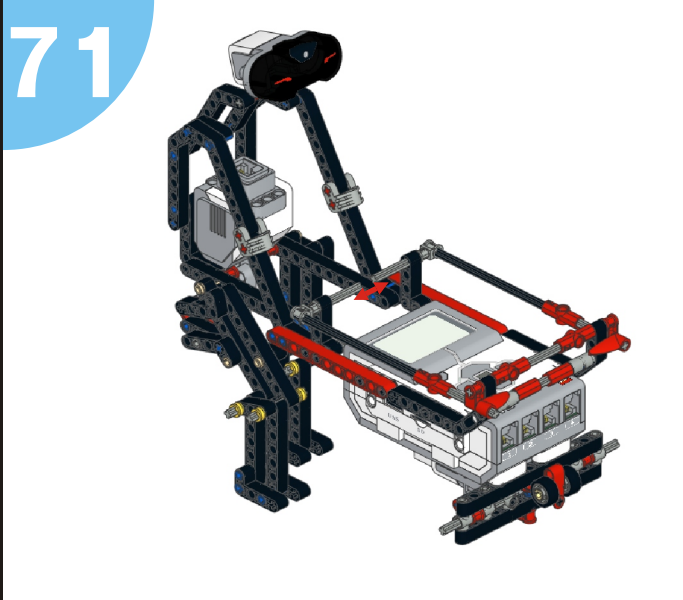
69



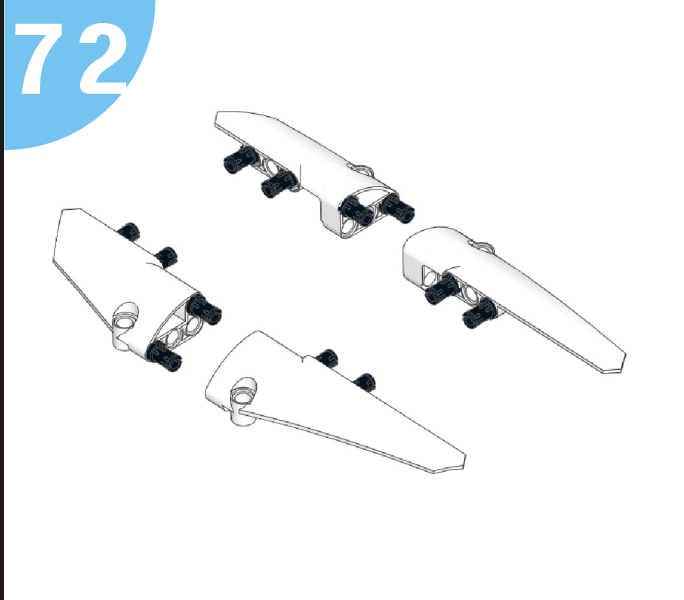
70



71

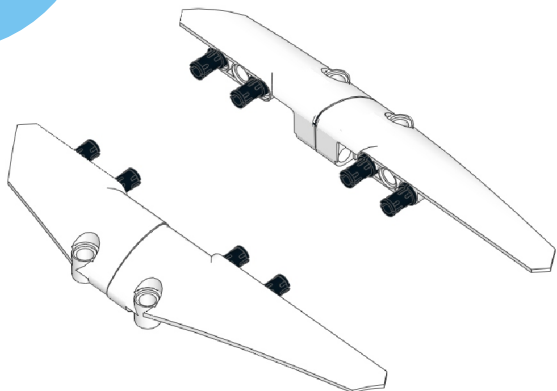


72

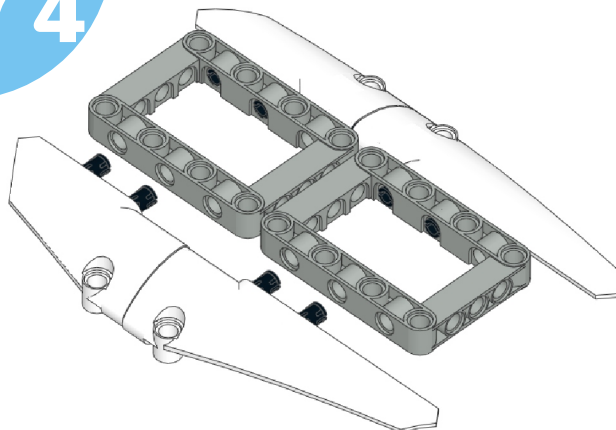


# Instruction

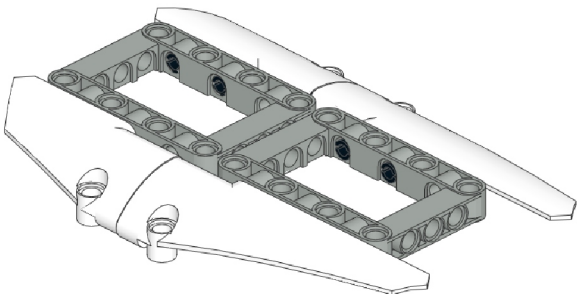
73



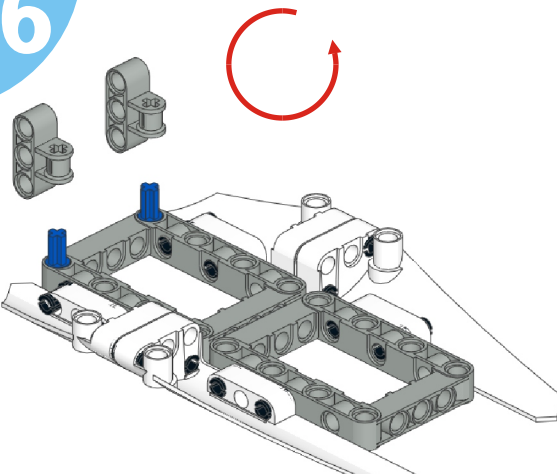
74



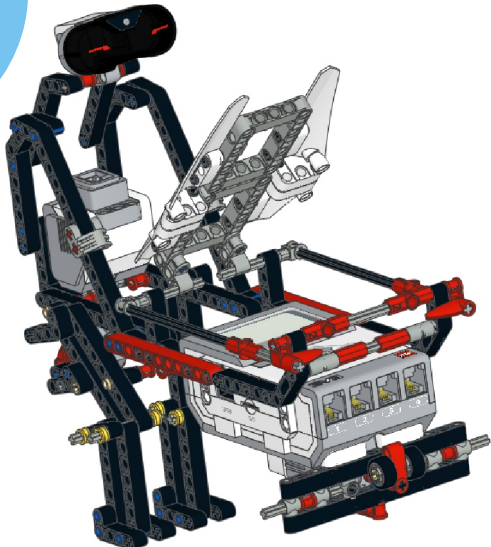
75



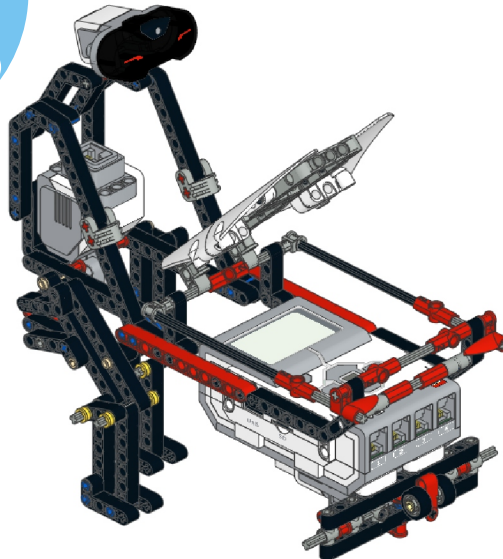
76



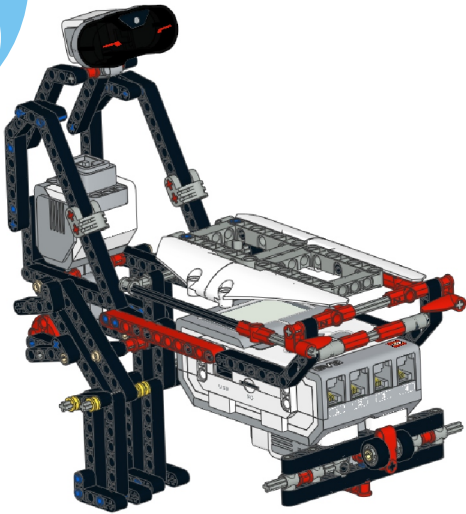
77



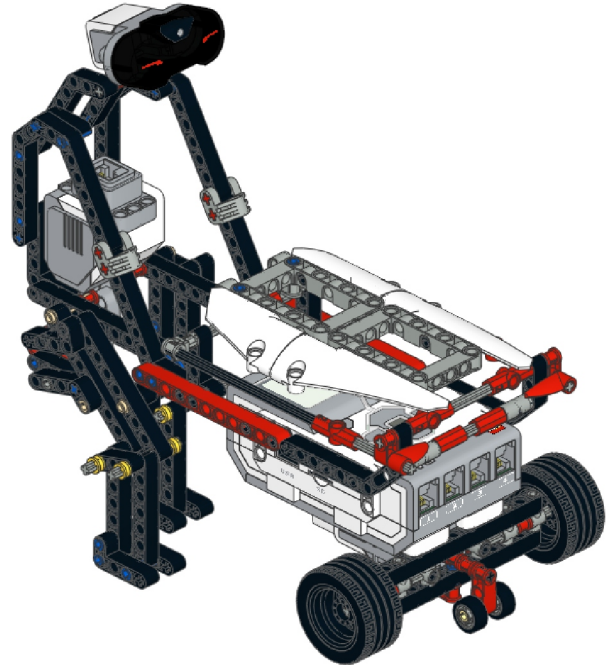
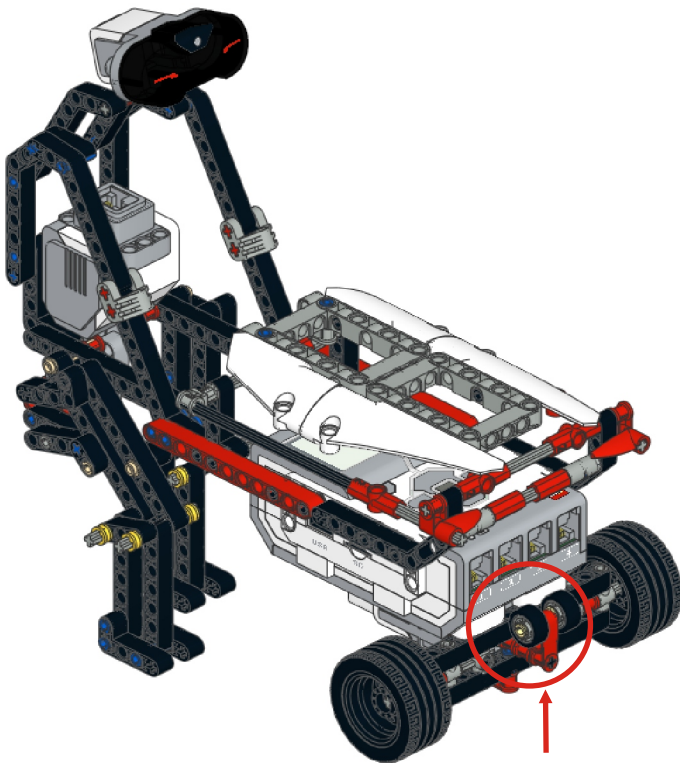
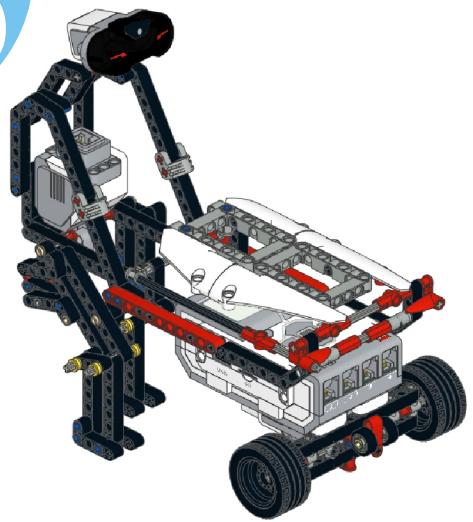
78



79



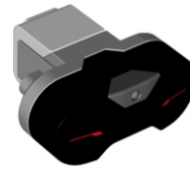
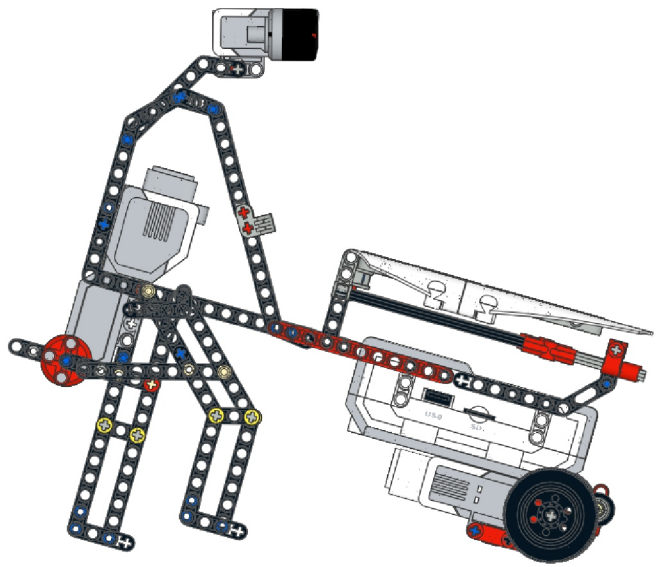
80



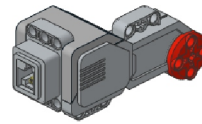
작은 타이어의 위치를 위로 옮겨줍니다.

이 타이어는 회전하면서 수레의 방향을 전환시켜 줍니다.

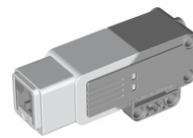




적외선 센서: 4번 단자



서보모터: D 단자



미디움모터: A 단자

