FIRST® LEGO® League

TUTORIALS

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INCREASING EFFICIENCY IN THE ROBOT GAME

SESHAN BROTHERS

OBJECTIVES

- *FIRST* LEGO League robot runs only last 2 mins and 30 seconds
- How do some teams manage to complete so many missions in that time while others do not?
- This lessons shares some tips to increase your robot efficiency

GROUP MISSIONS TOGETHER INTO A SINGLE RUN

- Your robot game strategy is important. Before you begin, think about which mission might be grouped together in a single lauch
- Completing many missions every time you leave the Launch Area avoids time wasted in Home.
- However, if something goes wrong in that run, you will lose a lot of points
- Therefore, you have to make sure that all your robot runs are reliable if you plan to combine many missions
  - See 8 lessons related to Robot Reliability on FLLTutorials.com

MINIMIZE ATTACHMENTS

- Attachment changes generally cost a lot of time
- Students also tend to make mistakes during the attachment changes when they are nervous during a robot match
- Minimizing the number of attachments and changes needed in Home will help
- Try to think of ways in which a single attachment might serve more than one purpose

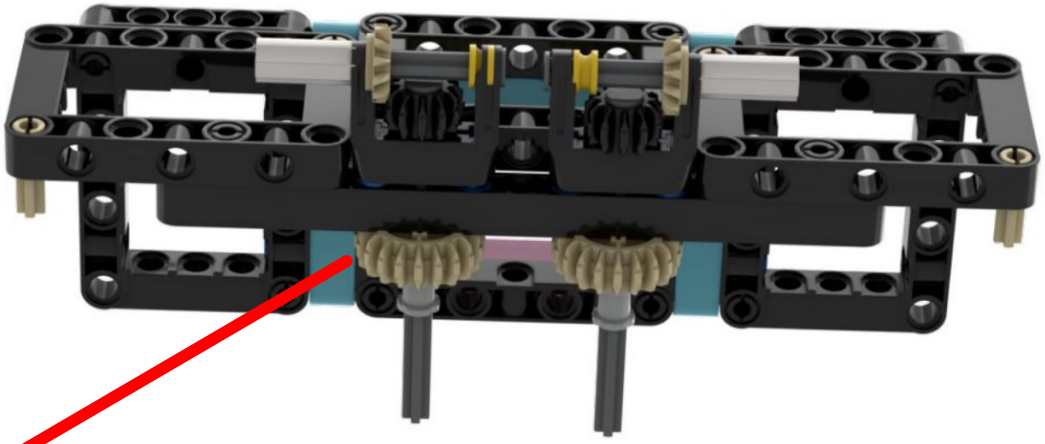
NO ATTACHMENTS/EVERYTHING ON THE ROBOT

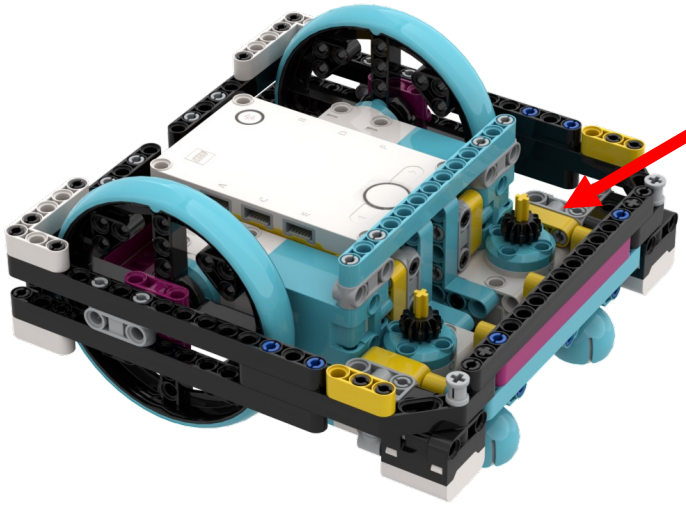
- One approach is to have no attachment changes at all!
  - Depending upon the season, this might be possible.
  - Either have one set of attachments on that complete all/most missions
  - Or have the approach of only taking off attachments from the robot (never adding anything new)
- A lot of missions tend to be one action (e.g. push or lift).

MAKE CHANGES IN HOME FASTER

- Make adding and taking off attachments as easy as possible to save time
  - Using friction pegs to add attachments takes time
  - Attaching directly to a motor can take time
  - Think about how to slide on and lock attachments in place quickly
- Practice the changes again and again with your teammates to reduce time spent in Home
- Many teams struggle to align their robot in Launch Area
  - Think about how you can either pick just one location for every launch
  - Or avoid needing an exact location for a launch (e.g. robot finds lines or aligns immediately after a launch)

EASY ON/OFF ATTACHMENTS





Drop on attachments

Connects to the gears

CREDITS

- This tutorial was created by Sanjay and Arvind Seshan
- More lessons at www.ev3lessons.com, www.primelessons.org, and www.flltutorials.com