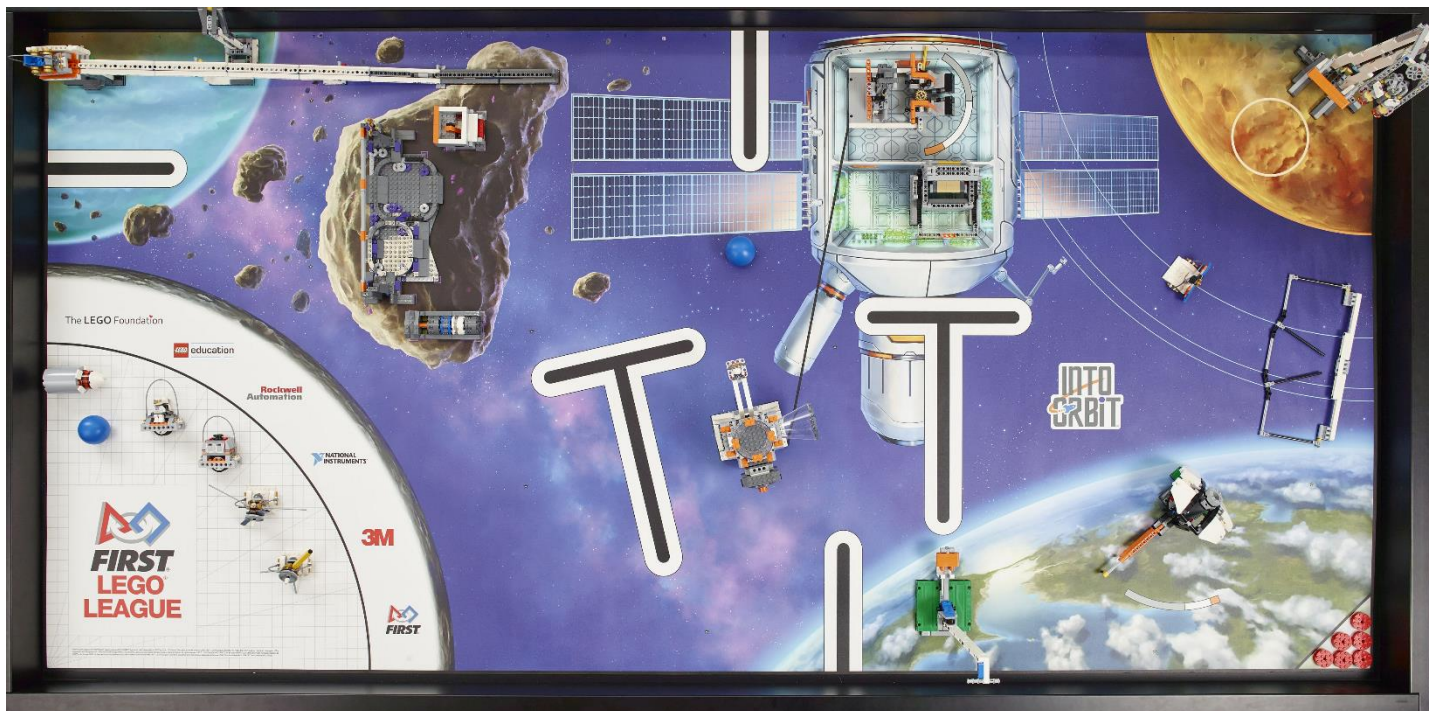# FIRST® LEGO® League
TUTORIALS

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LESSON 1:
INTRODUCTION TO NAVIGATION

SESHAN BROTHERS

WHAT IS NAVIGATION IN FIRST LEGO LEAGUE?

- Navigation is getting your robot from base to where it needs to be

- Navigation needs to be both reliable and repeatable

- To accomplish this, you need to learn several strategies

NAVIGATING RELIABLY IN FIRST LEGO LEAGUE

- Good navigation will use some or all of these techniques

  - Aligning in Base

  - Wall following

  - Aligning on lines

  - Aligning on walls

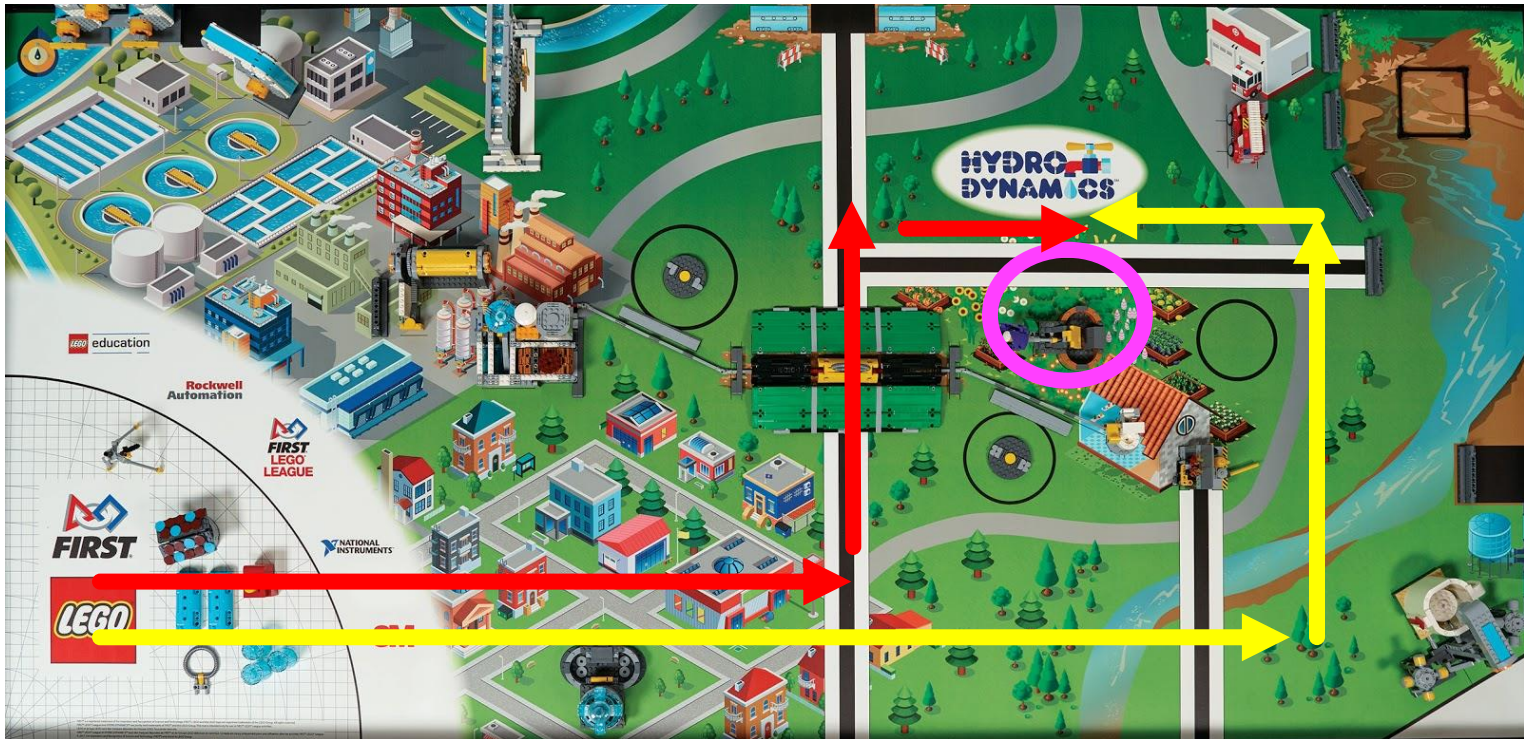 - Aligning on mission models

  - Line following

DISCUSSION

- Let's say we want to go from base to the mission marked with the pink circle.
- What can you do to get there reliably?

SELECTING A ROUTE

- There may be more than one path to get to the destination
- What would it take to make the red or yellow path reliable?

POSSIBLE SOLUTION (YELLOW)

- Look for places that the robot can accurately position or orient itself
- You may need to add extra moves to make it possible to position the robot

POSSIBLE SOLUTION (RED)

- Different paths may have more opportunities for alignment or introduce obstacles (e.g. a ramp) that make your position less predictable

WHAT'S NEXT

- Let's learn some building and programming techniques to achieve each of these strategies

- As you go through the lessons think about how your team can apply the technique to this year's Challenge.

CREDITS

- This tutorial was created by Sanjay Seshan and Arvind Seshan

- More lessons at www.ev3lessons.com and www.flltutorials.com

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