Guided Mission

for *FIRST* LEGO League Challenge

SUBMERGED℠

Last Update: 8/25/2024

Guided Mission

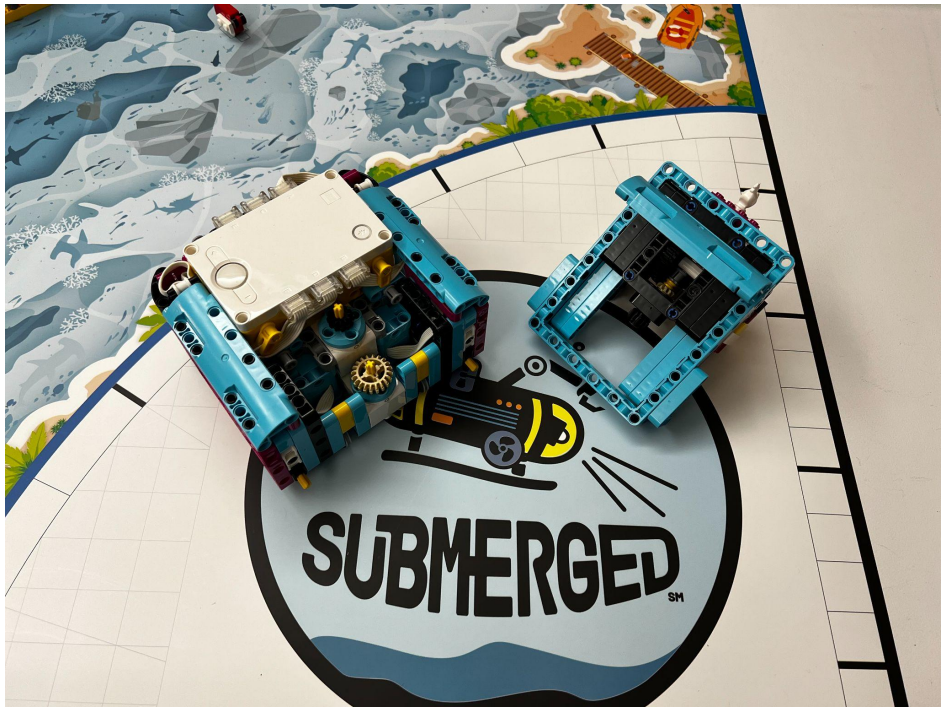
This season’s Guided Mission is Send Over the Submersible

What Reliability Techniques are Used?

- Aligning using walls
- Aligning on mission models
- Aligning using mat marking
- Gyro-based turns
- Squaring to a line to ensure robot is straight

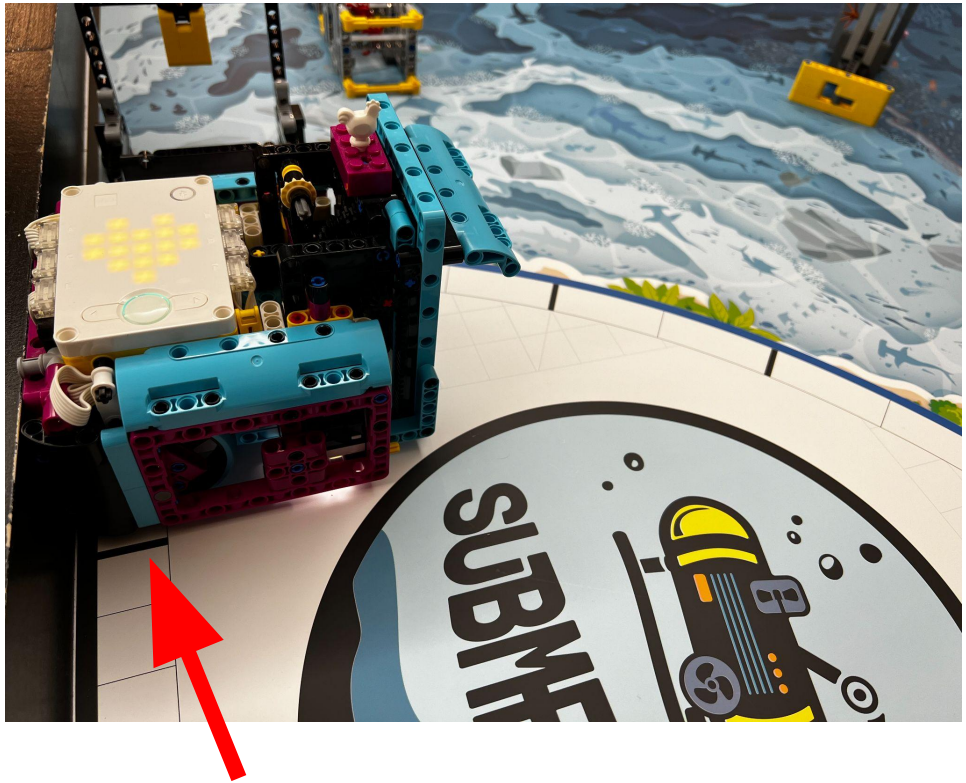
Robot Used in Video

- Notice that the mission requires teams to lift up a bar..
- Think about what you can built to do this.
- For this sample Guided solution, we use Coop Bot with a forklift.
- The techniques in this solution can be used on any robot but if you want to build Coop Bot, building instructions are available on PrimeLessons.org and FLLTutorials.com



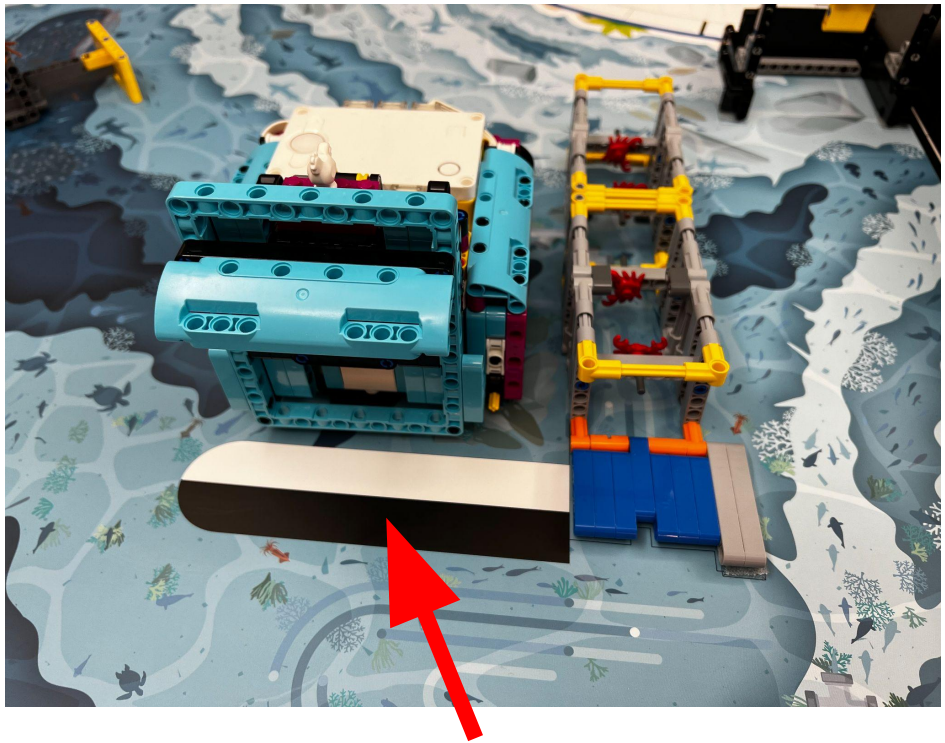
Starting Position

- Position robot in the Blue Launch Area as shown
- Starting against a wall improves reliability
- Use the markings on the mat to be consistent



Other Techniques for Reliability

- While there are no lines to follow, there are lines to align on
- You can also align on mission models itself - be sure to create a flat bumper on your robot if you want to employ this technique

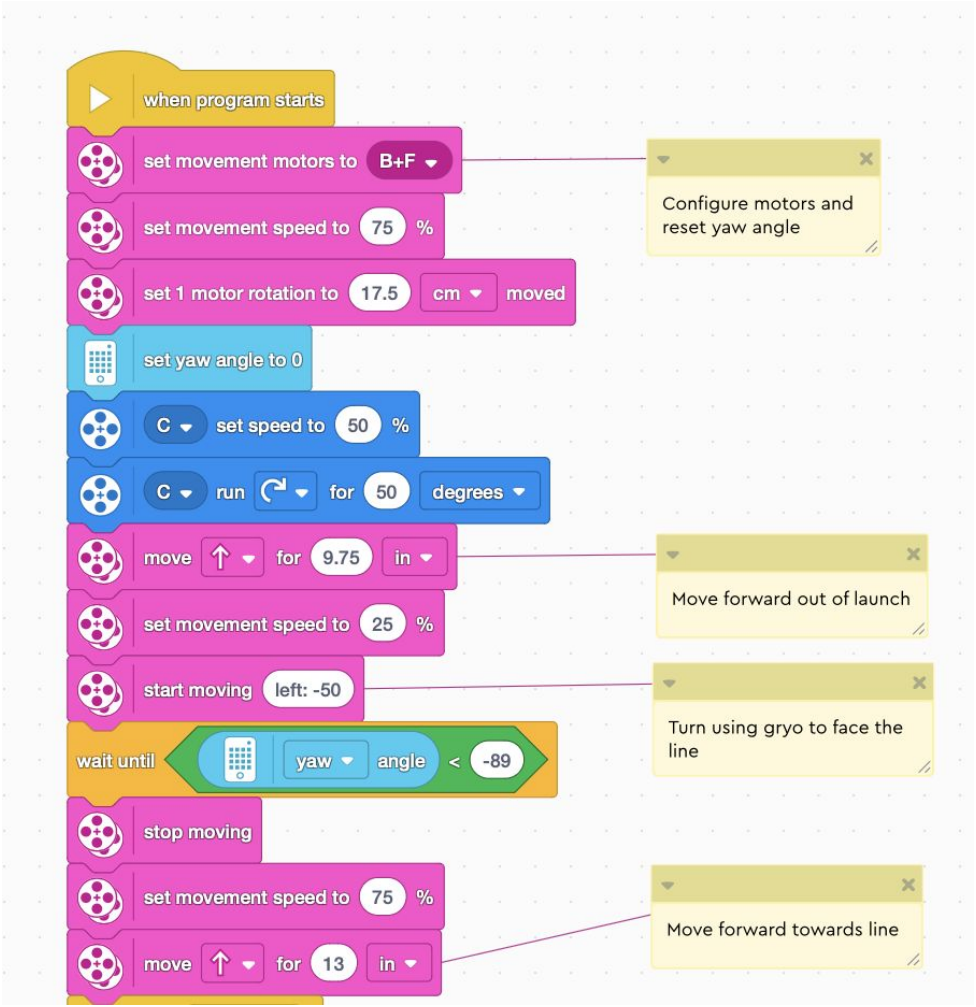


Pick a Strategy/Robot Path

Alignment points

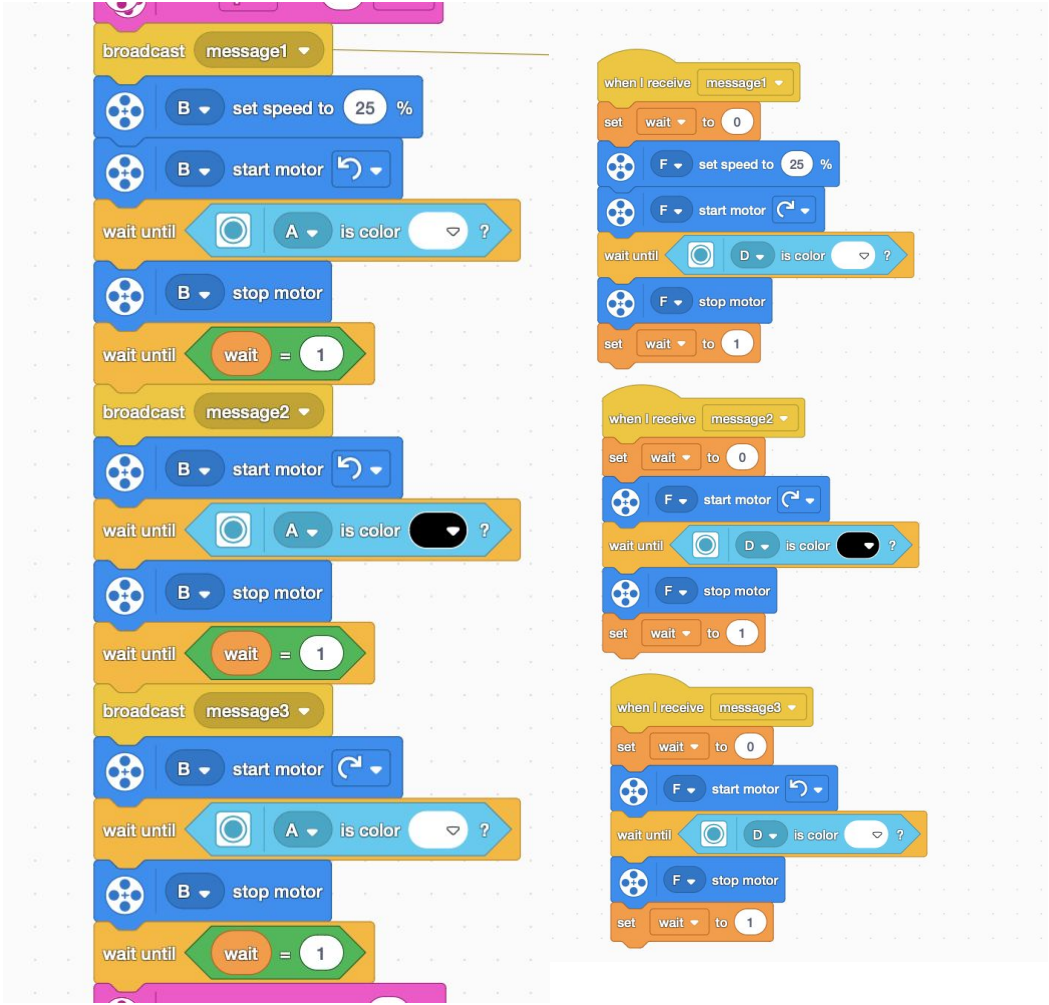
Part 1

- This section of the code moves the robot from Launch Area up to the black and white lines
- Turning using the gyro will be more accurate than turning using motor degrees



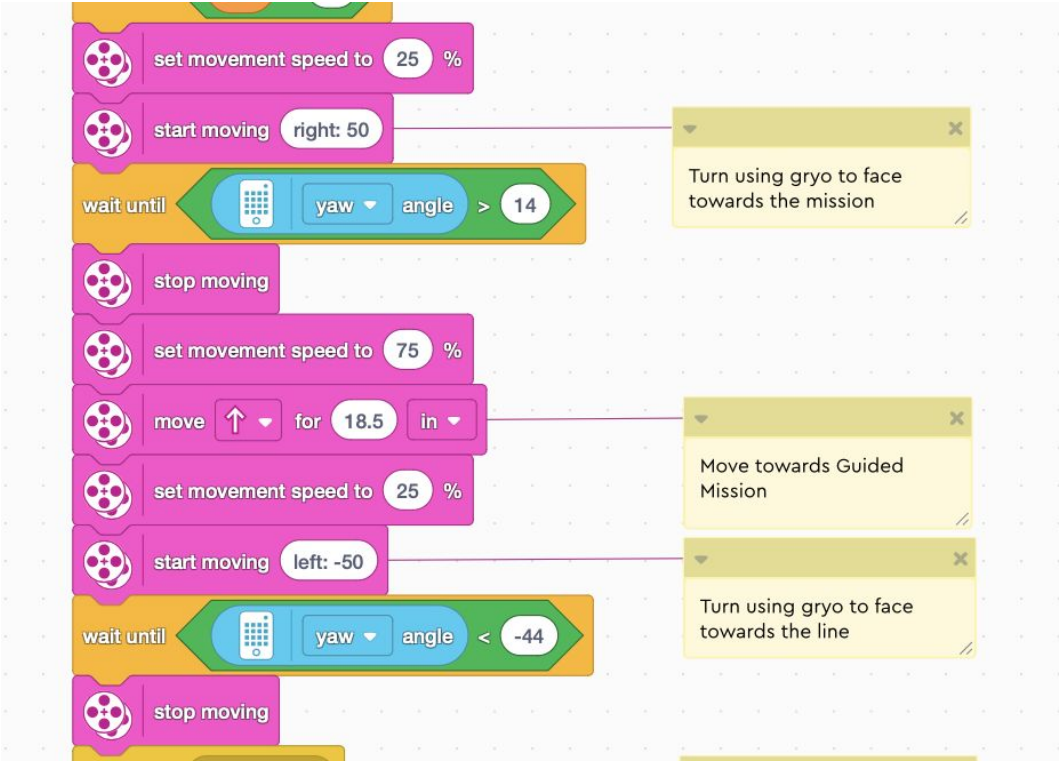
Part 2

- Squaring on a line improves reliability and helps the robot straighten out as well as know where it is on the mat.
- This is repeated multiple times to ensure that the robot is perfectly straight
- Note, to make this code neater and more easily reusable, you could make it into a MyBlock.



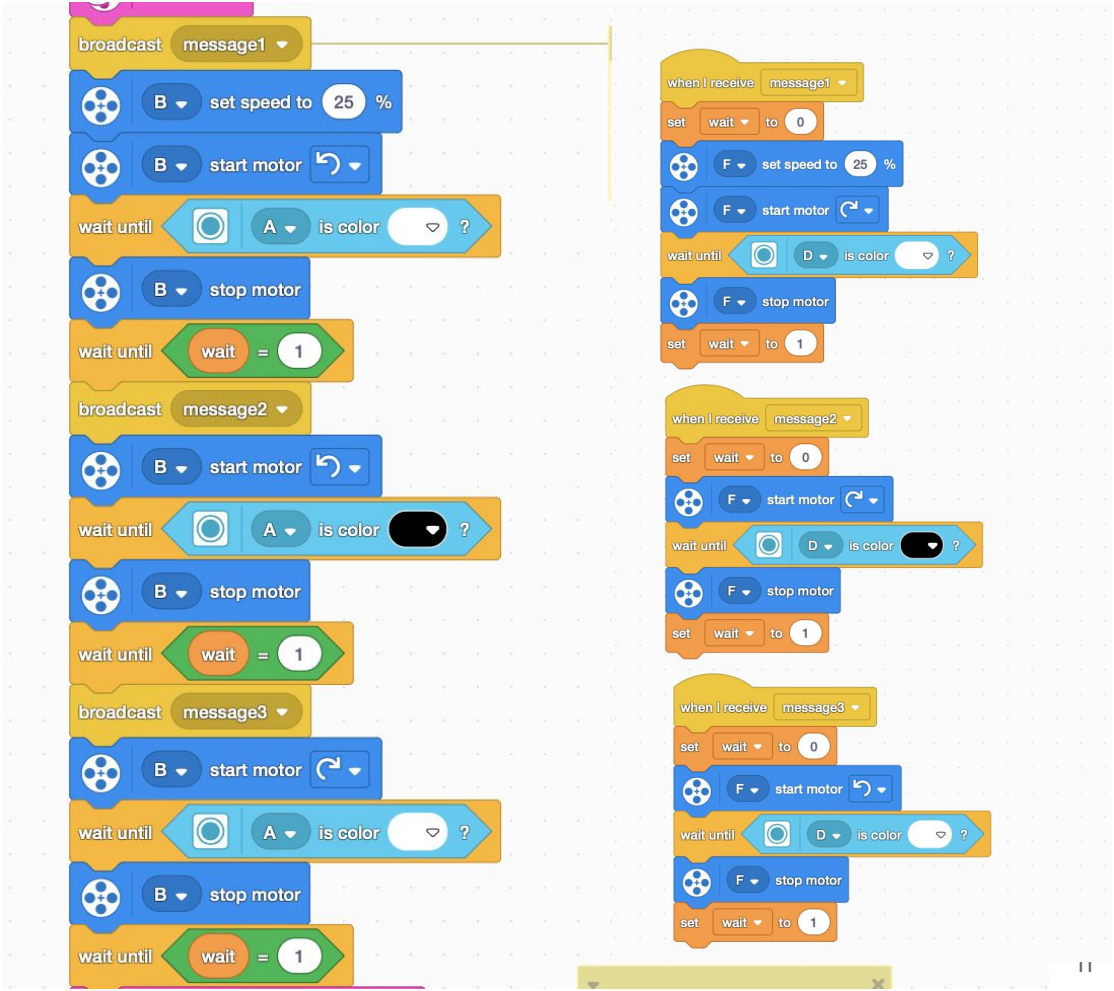
Part 3

- Gyro-based turns used to turn towards the mission model.



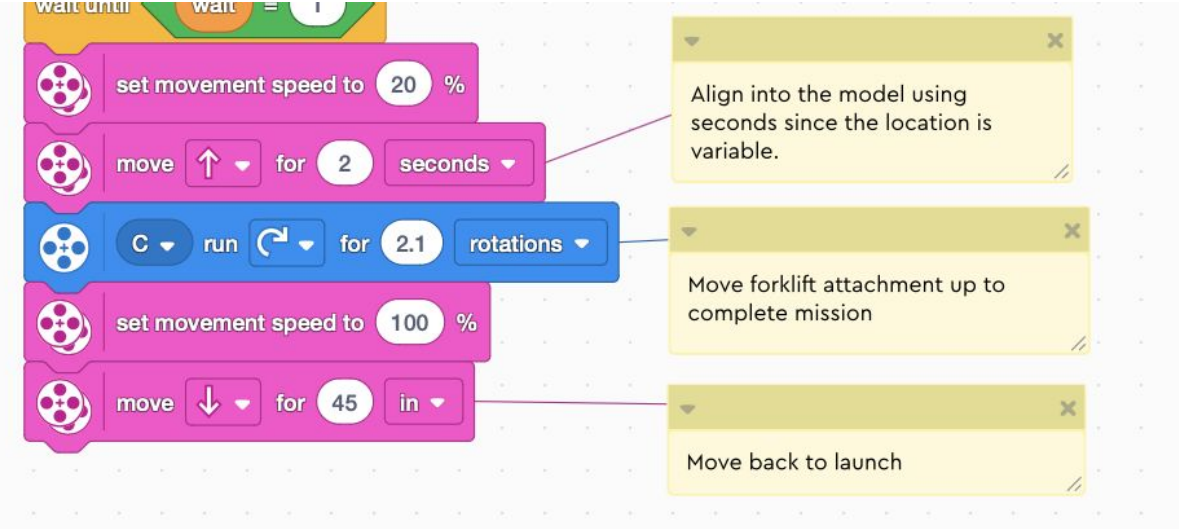
Part 4

- Square on the next set of black and white lines near the mission model.



Part 5

- Move into model (for Seconds) to align on it (important since model has variable placement on mat)
- Lift forklift to activate model
- Return back Home as quickly as possible using the shortest path



- Note that a Krill might be along the path. Make sure elements on the table do not go under the robot, and you can even collect it on the way back!

Where can I learn to program like this?

- All the lessons are available for free on PrimeLessons.org
- Just like with this mission, you should combine reliability techniques to complete other missions