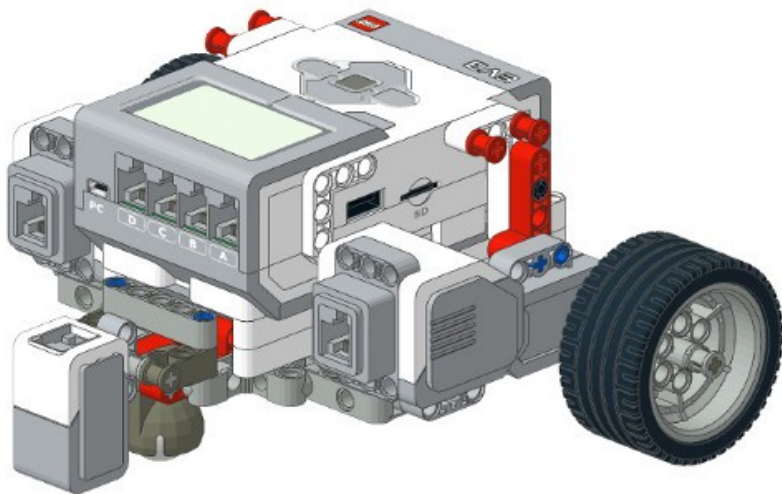# Line vs Gyro

A POSTERIORI
Play · Experience · Learn

Which is Better?

- Neither!
- Each is good for some situation
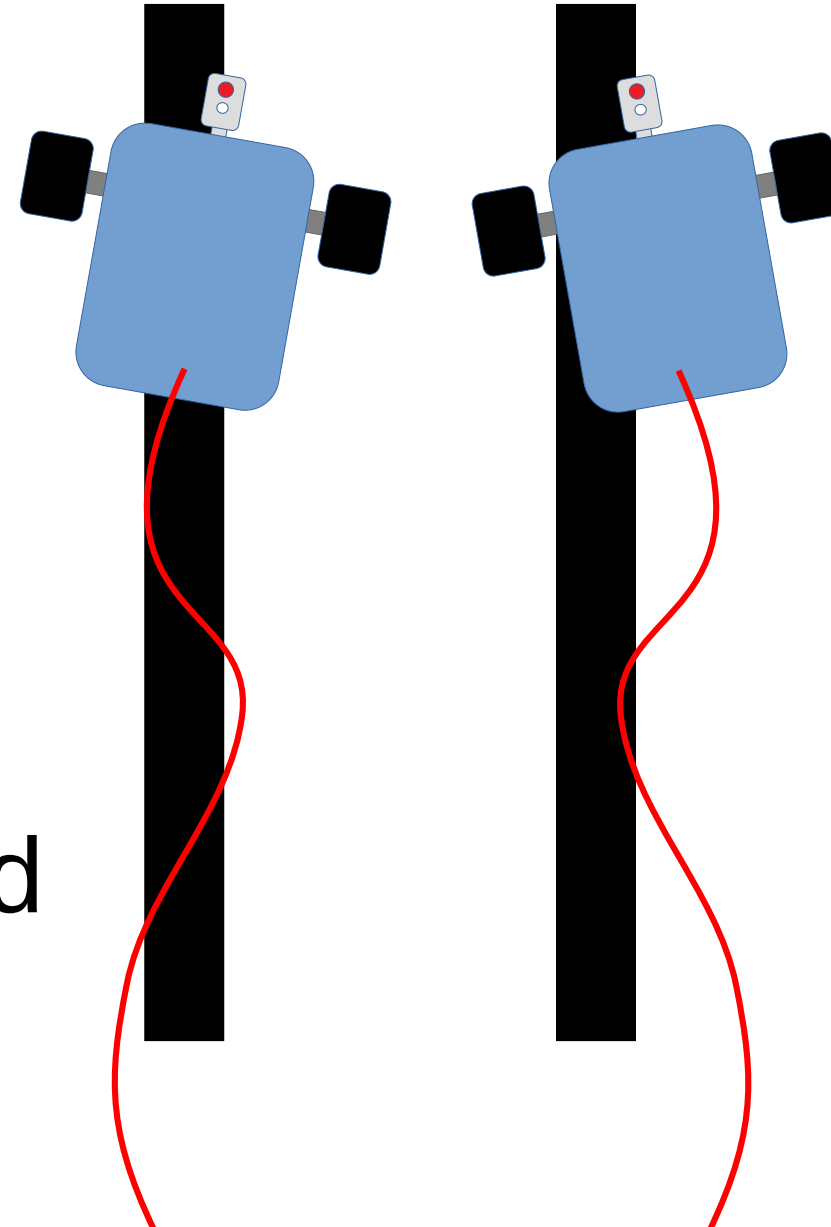- Use both for the best results

Line Following

- Good
  - Robot can stay on edge of line with only a few mm errors
  - Error does not increase
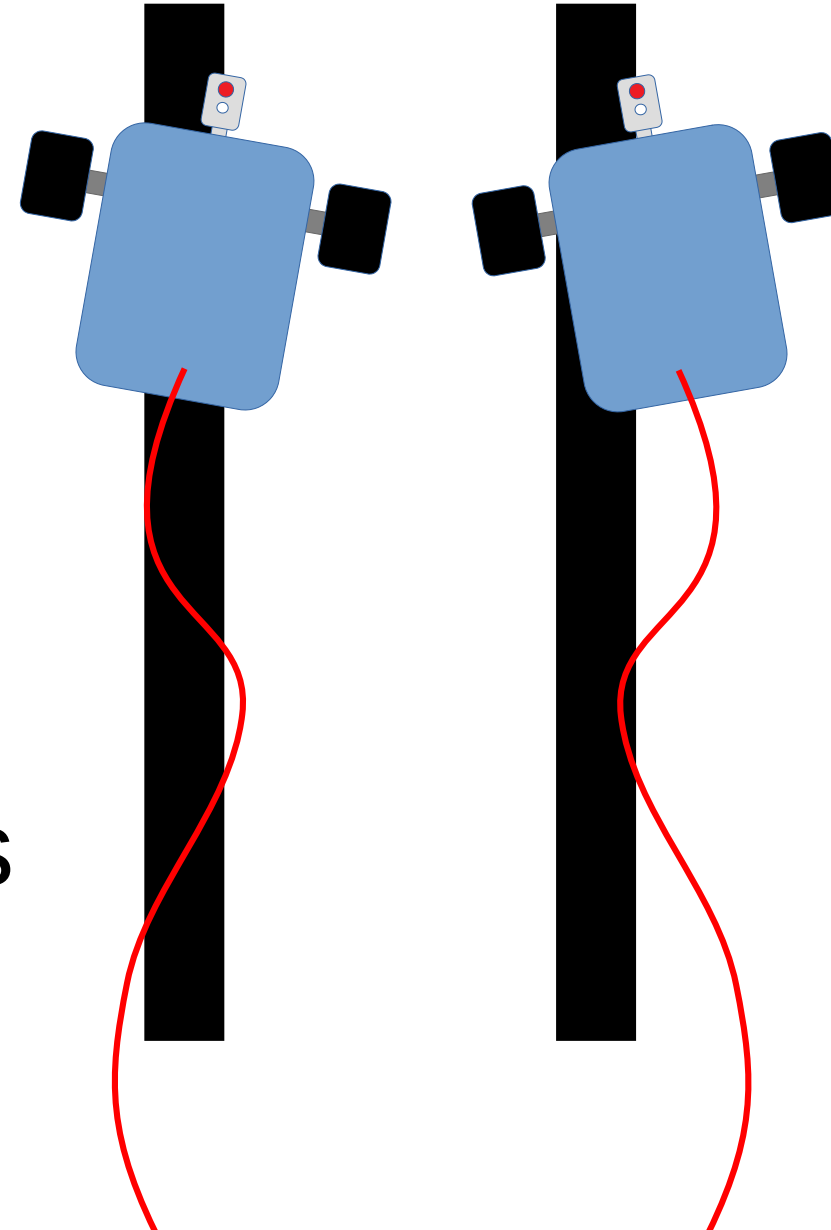 - Best for traveling long distances

Line Following

- Bad
  - Angles are not guaranteed
  - Robot will turn left-right while moving
  - May not be facing straight when stopped
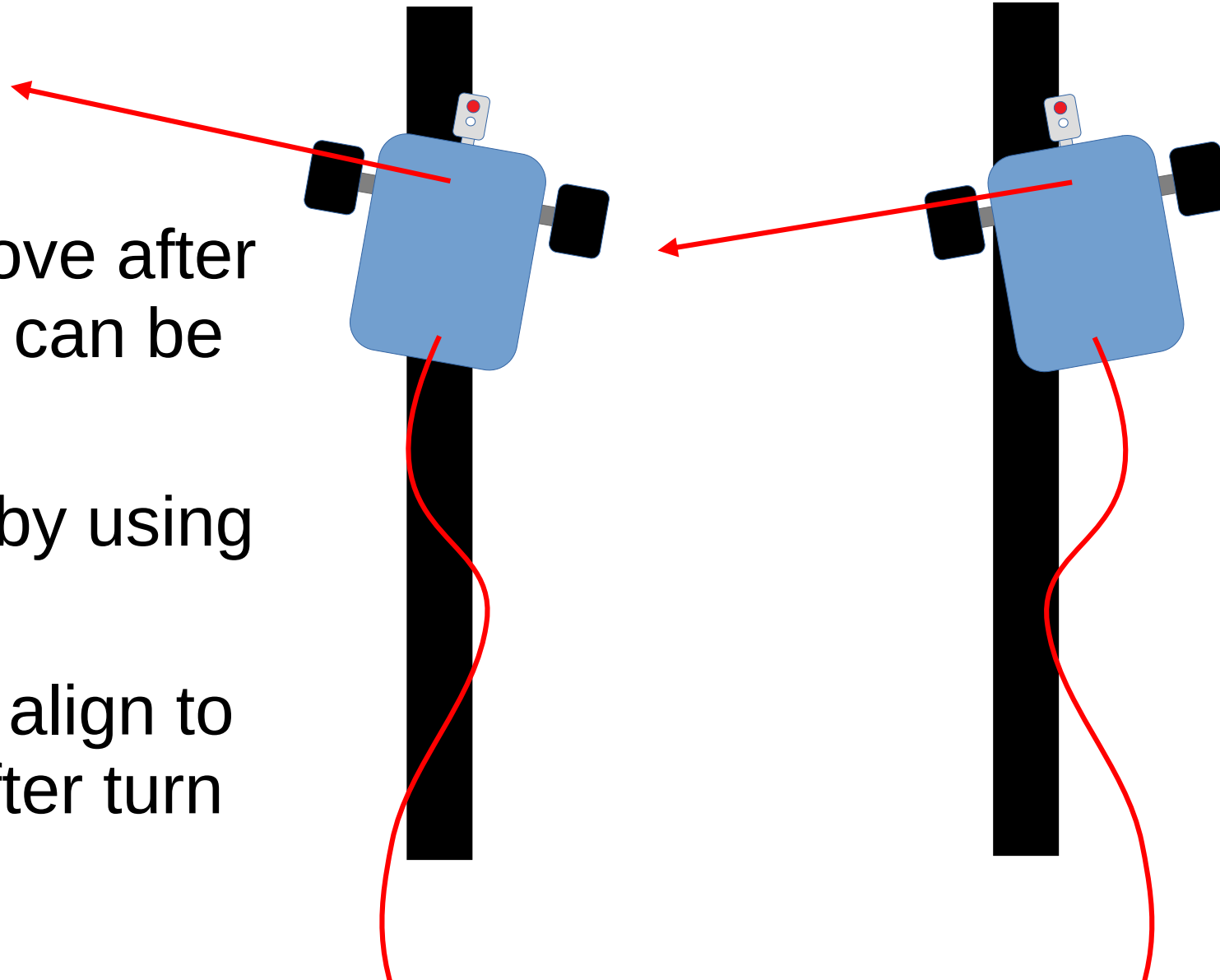
Line Following

- Inaccurate Angles
  - Often need to <u>turn</u> and leave line to perform mission
  - Inaccurate angles means that the turns may be inaccurate as well
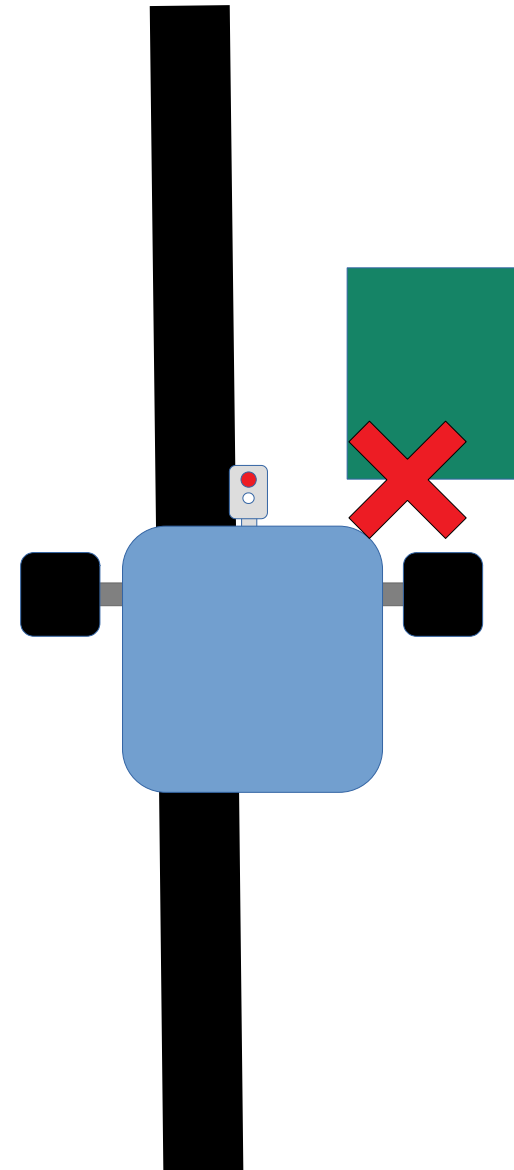
Line Following

- Turns and move after line following can be inaccurate

- Workaround by using gyro turns

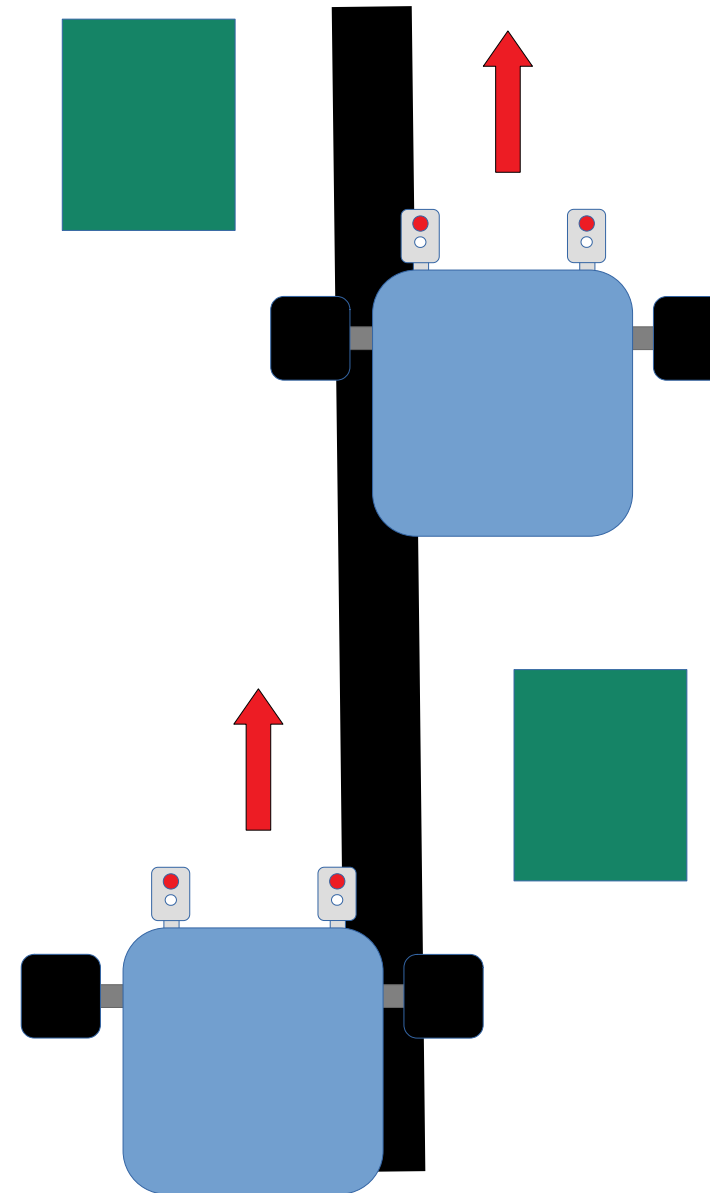- Alternatively, align to line or wall after turn

Line Following

- Limited Path
  - Path may be blocked by mission model
  - Especially if your robot is large

Line Following

- Limited Path
  - Placing sensors on both sides of robot will allow more flexibility
  - Choose which sensor to use depending on where the obstacle is

Gyro

- Good
  - Accurate turns
  - Move straight without requiring lines
  - Can move anywhere on the play field without restrictions

Gyro

- Bad
  - Gyro errors are <u>cumulative</u>
    - Not much if distance is short…
    - …but increases the further you travel
  - Must be calibrated before use
  - Occasional risk of catastrophic failure (due to bug in the EV3)

Summary

- Line following
  - Use when traveling long distances
  - Place color sensor on both sides
  - Use gyro when turning and leaving line
- Gyro
  - Use when turning and moving without line
  - Good for short to medium distances

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