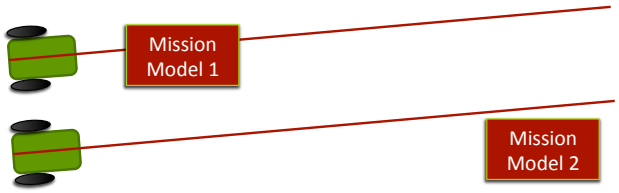
IMPROVING ROBOT RELIABILITY

By Droids Robotics, 2015

Why do you need to find techniques to be more reliable?

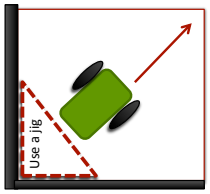


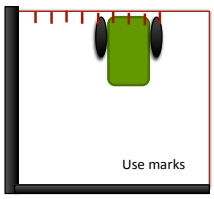
- No robot travels perfectly straight
- Errors accumulate and completing missions further from base become harder.

Battery levels, motors and sensors have an impact on reliability

- If you program your robot when the battery level is low, it won't run the same when fully charged
  - Solution: Using sensors makes you not as dependent on the battery
- Motors and sensors don't always match
  - Solution: You will never get a perfect match. Find other techniques to increase reliability

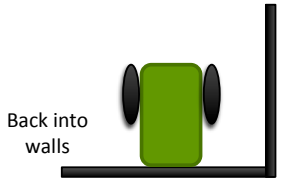
Not starting consistently in base can make a difference





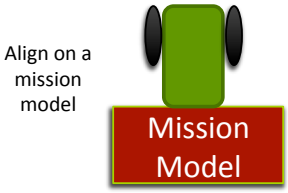
- **Jigs:** a LEGO ruler that your robot can align against in base
- **Same start each time:** pick one spot to start on
- **Inch marks:** Use the marks on the mat
- **Words:** Use the words/letters

Strategies to increase reliability



- **Align on walls** – deliberately back into a wall to straighten out
- **Square/Align on lines** –If you are moving angled, you can straighten out whenever you see a line.

- **Move until a line** – travel until you find a line so you know where you are on the mat



- **Align on a mission model** – Mission models that are stuck in one place can be used to align against

Repeat the above strategies as often as you can!!

For more details and suggestions see the following lessons on EV3Lessons.com:

Beginner: Color Sensor
Intermediate Reliability
Advanced: Stall Detection
Advanced: Squaring on Lines