ADVANCED EV3 PROGRAMMING LESSON

EV3 Classroom: Line Followers: Basic to PID

By Sanjay and Arvind Seshan

EV3 CLASSROOM LESSON
BY EV3LESSONS.COM

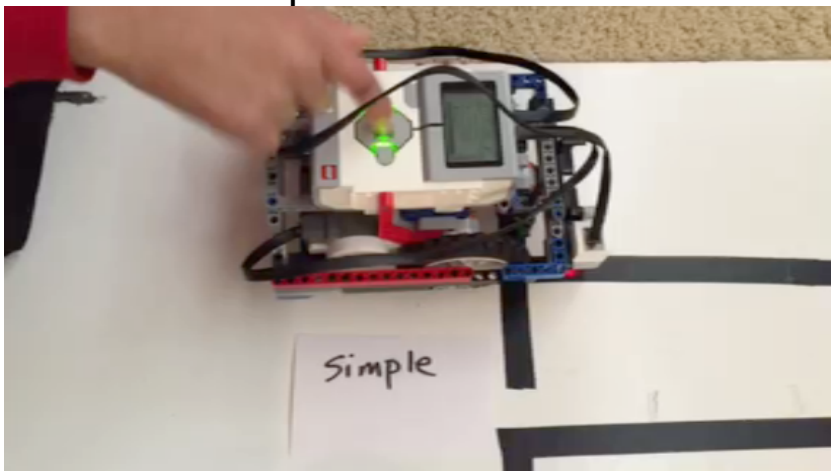
Lesson Objectives

- Evaluate and compare different line followers

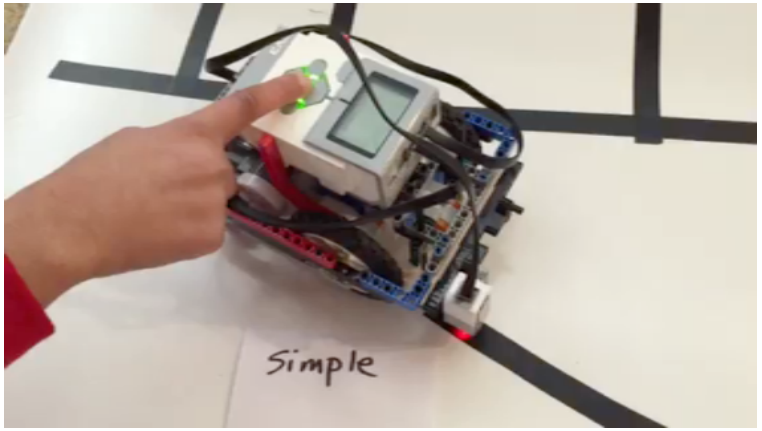
- Prerequisites: Complete all Line Follower lessons on EV3Lessons.com, Calibration
- Videos will not play in PDF

Watch Videos

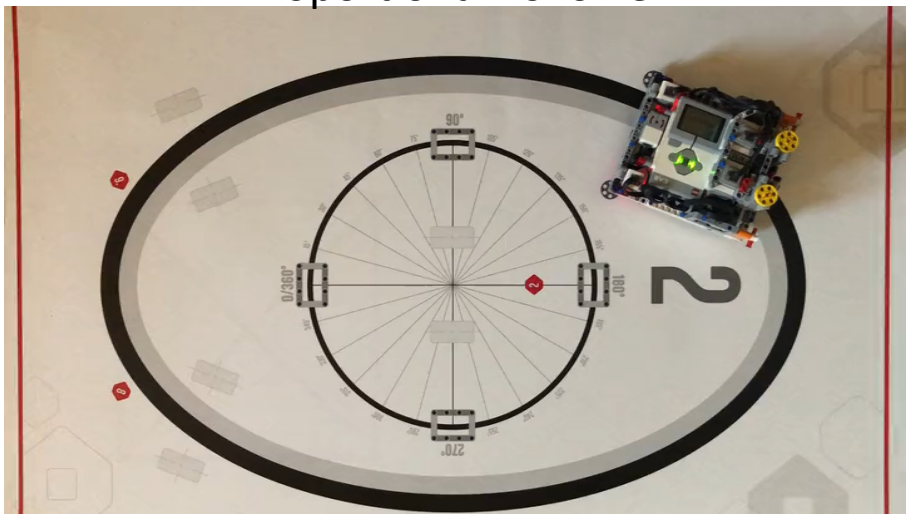
Simple Line Follower



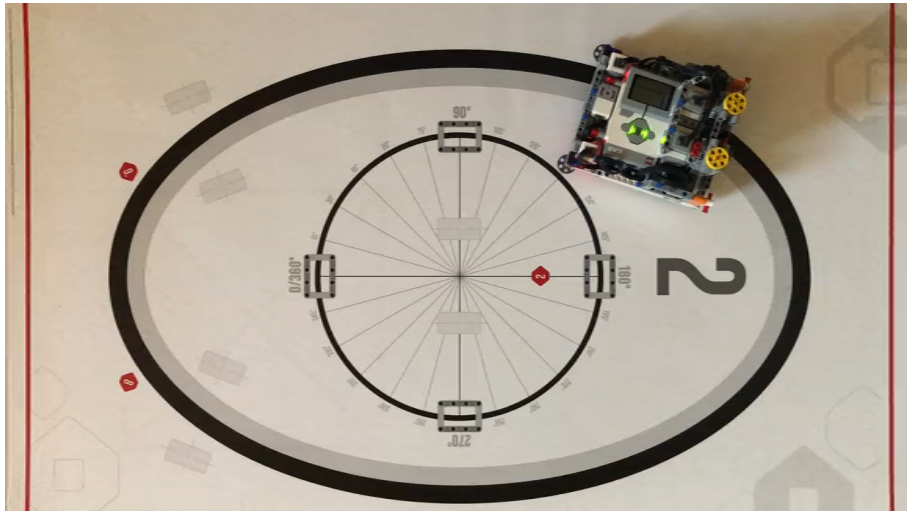
Simple Line Follower



Proportional Follower



PID Follower

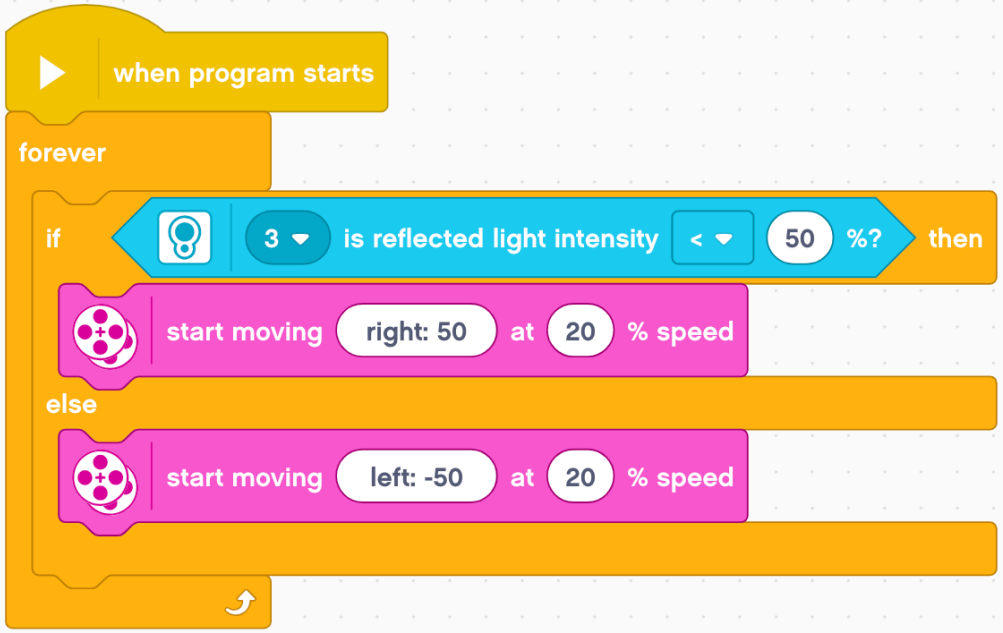


A Note About Our Solutions

- CALIBRATE:
  - The programs use the EV3 Color Sensor in Reflected Light mode
  - You will have to calibrate your sensors.
  - Please refer to Intermediate: Color Sensor Calibration Lesson
- PORTS:
  - The Color Sensor is connected to Port 3.
  - Please change this for your robot.
- WHICH SIDE OF THE LINE:
  - Please take note of which side of the line the code is written for

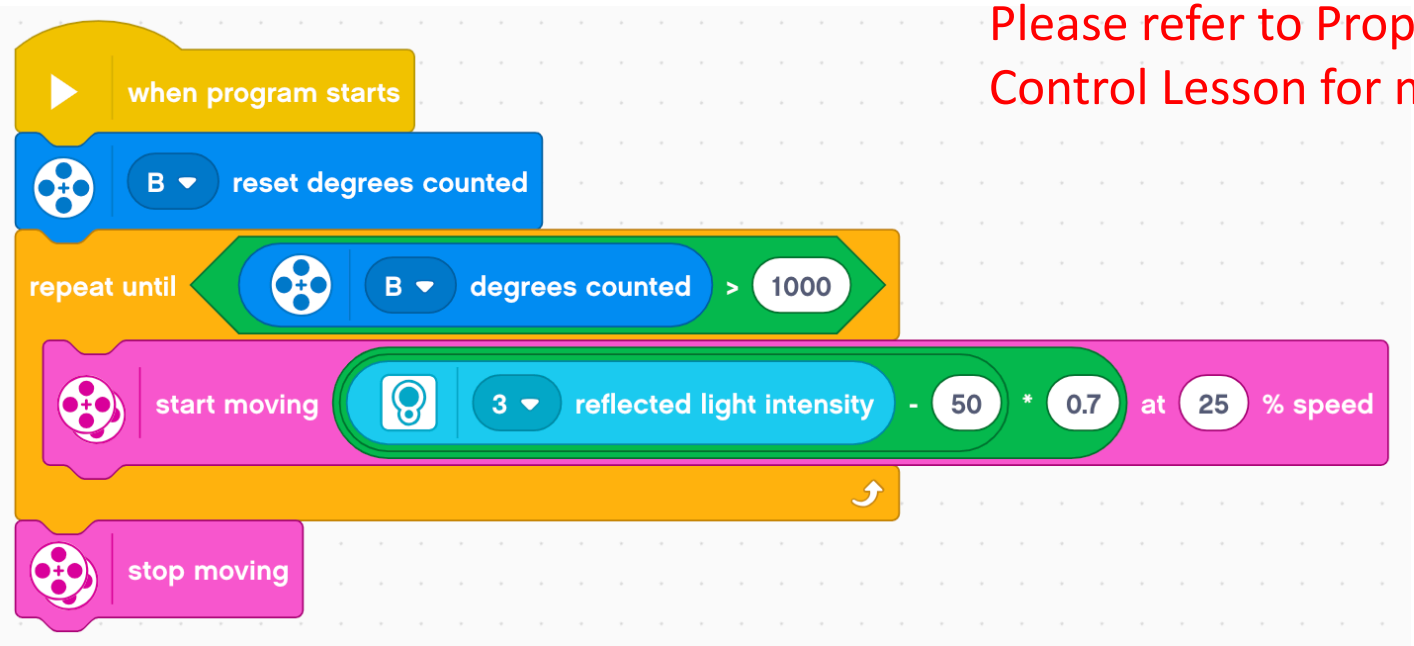
Simple Line Follower

Simple Line Follower



- Most basic line follower
- Wiggles a lot due to sharp turns
- Good for rookie teams → need to know loops and switches

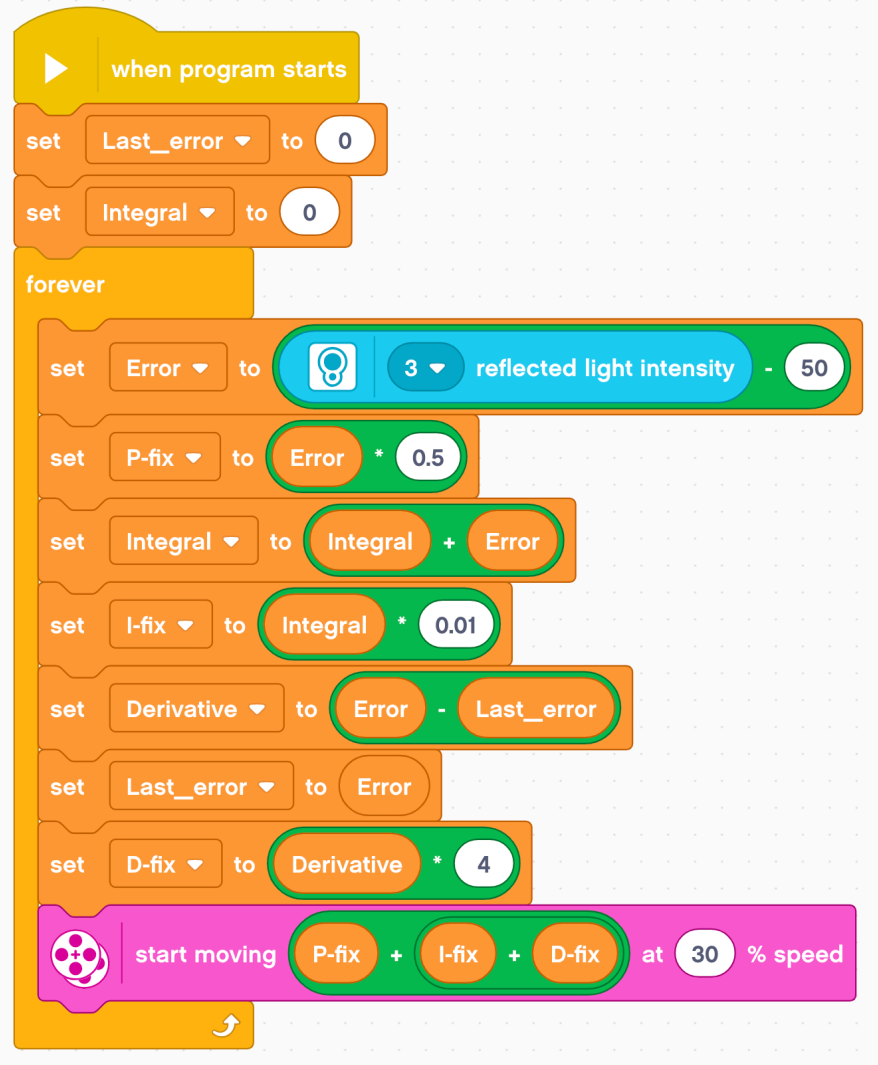
Proportional Line Follower



Please refer to Proportional Control Lesson for more details

- Uses the “P” in PID
- Makes proportional turns
- Works well on both straight and curved lines
- Good for intermediate to advanced teams → need to know math blocks and data wires

PID Code



Refer to PID lesson for more details

- It is better than proportional control on a very curved line, as the robot adapts to the curviness
- However, for FIRST LEGO League, which mostly has straight lines, proportional control can be sufficient

Credits

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