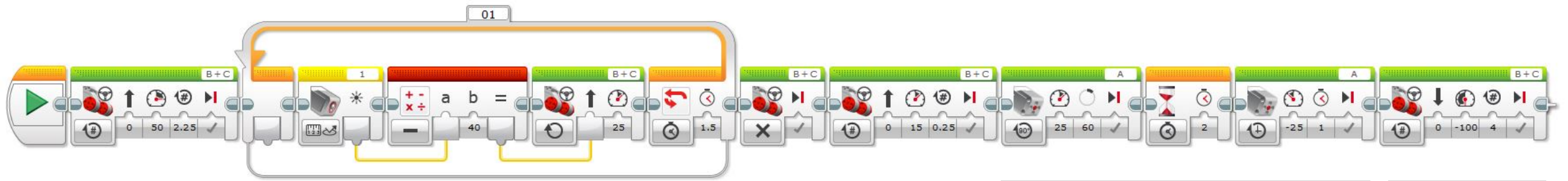# Crane Mission Tips & Tricks from EV3Lessons.com

This is the code provided by FIRST for the Crane Mission:

Move forward until Black Line

Line Follow for 1.5 seconds

Move forward for 0.25 rotations to reach the Crane Mission model

Turn the medium motor to activate the Crane Mission. Wait for 2 seconds as the Blue Unit descends. Lower the robot's arm back down.

Return to Launch Area moving backwards

Tip: Always comment your code so that it is easy for others to understand your code

Preparations: Setting up in Launch

Tip: Line follower follows LEFT side of the line, so make sure robot's color sensor will be positioned to find the left edge of the black line outside Launch
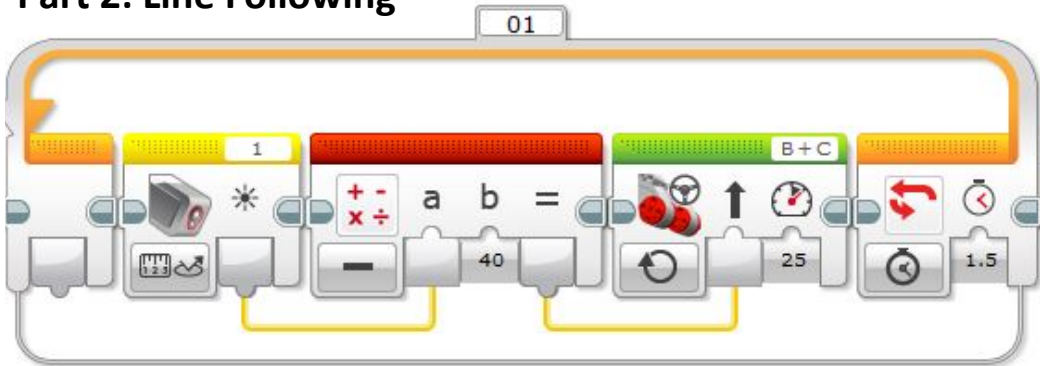
Part 1: Moving out of Launch

This a Green Move Steering Block. It moves both motors at once and they are synchronized. The same block is used again after the line follower ends.

Tip: There are different ways of moving – using rotations, degrees or seconds.

Where can I learn more?
EV3Lessons.com → Beginner → Moving Straight

Part 2: Line Following

This is a Proportional Line Follower

This is a Sensor Block set to reflected light mode. It is not available in the App version of the software

This is a Math Block that subtracts 40 from the light sensor reading. The value 40 represents a reading between black and white for the sensor.

This Steering Block moves the robot with steering based on the math computation. This makes it always steer towards the line.

Repeats for 1.5sec in this Loop Block

Note 1: This program uses the color sensor in reflected light mode. You may need to calibrate your color sensor.

Note 2: The Sensor Block and the Math Block above are not available in the EV3 Programming App on iPads/Tablets/Chromebooks. This code is for the full Software Version only

Tip 1: You might consider Line following for a particular distance instead of for seconds.

Tip 2: You might want to begin with a simpler line follower

Where can I learn more?
EV3Lessons.com → Intermediate → Color Sensor Calibration

Where can I learn more?
EV3Lessons.com → Beginner → Line Follower

Where can I learn more?
EV3Lessons.com → Advanced → Proportional Control, Proportional Line Follower

Part 3: Activating the Crane Mission Model

Tip: When activating a motor arm, it is important to start from the same position each time, otherwise when you move a certain degree, the arm could over-rotate and stall the motor. Consider using seconds to prevent stalling.

Where can I learn more?
EV3Lessons.com → Beginner → Move Object

Where can I learn more?
EV3Lessons.com → Advanced → Stall Detection

Part 4: Returning to Launch Area

Tip: This code simply moves straight backwards. You will have to learn how to turn to make sure that your robot *returns into Home instead of Launch* for the City Shaper season.

Where can I learn more?
EV3Lessons.com → Beginner → Basic Turning