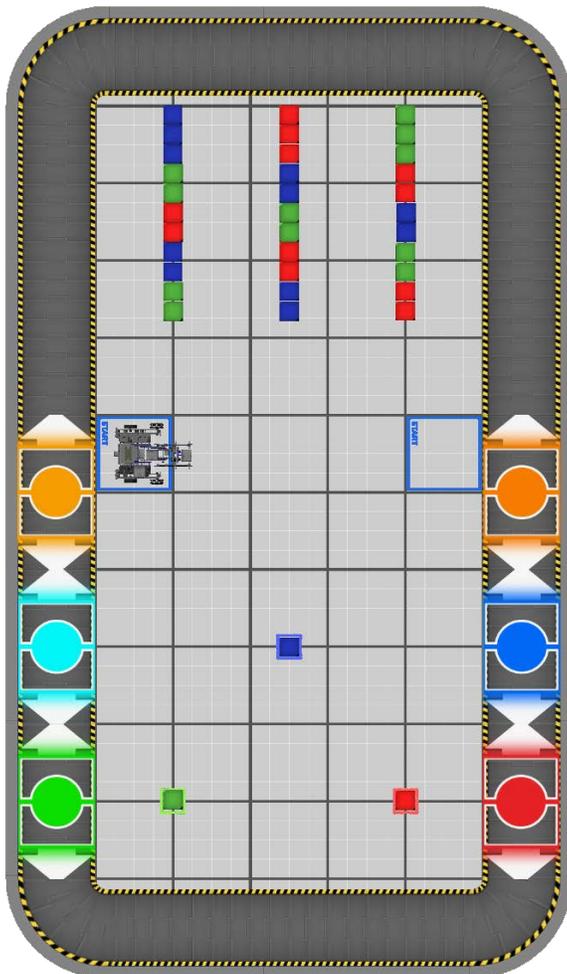# Introduction to Programming
VEX IQ®

VEX Highrise RVW Challenge: Beltway

In this challenge, you will program your VEX IQ robot to autonomously score as many cubes as possible during the 2 minute period. The standard Highrise game has been augmented with a conveyor belt around the perimeter and several other gameplay elements.

Rules and Procedures:

- You have 2 minutes to autonomously score as many cubes as possible.
- The timer pauses when the robot is riding the belt.
- Cubes are scored by stacking them on matching-colored Highrise bases.
- Your score is calculated by multiplying the number of cubes in the green base, by the number of cubes in the blue base, by the number of cubes in the red base.
- You may drive your robot onto the arrows on the belt to start the robot moving in that direction.
- The robot will complete one full lap around the belt if it is not stopped.
- You can stop the robot along the belt by illuminating the Touch LED to the matching colored pad:
  - **Dark Orange**
  - **Orange**
  - **Blue**
  - **Blue Green**
  - **Red**
  - **Green**
- You can also manually spin the belt by setting the Touch LED **Violet** (spins the belt clockwise), **Yellow** (spins the belt counter clockwise), or **Off** (stops the belt).
- Your robot may not be controlled using remote control-based commands. Your robot may be controlled using any other combination of commands.
- At the end of the 2 minute period, submit your score and code to CS2N (free CS2N account required).

Hints:

- For help with autonomous programming, follow along with the lessons in the *Introduction to Programming VEX IQ* curriculum.
- Use the RVW Measurement Toolkit to find the distances and angles from the robot to the cubes, goals, and any areas where the robot needs to stop or turn.
- Think about how to use the belt to creatively move the robot and cubes around the board.
- Use the sample programs included with the Highrise RVW to get started, found in ROBOTC by going to File > Open Sample Program, and double-clicking on the Highrise folder.
- You may use more than one ROBOTC program to solve the challenge.