CLASSROOM EXPLORER

Designed for LEGO® MINDSTORMS® 45544 and EV3 Programming

By Asha Seshan

LEARNING OBJECTIVES: Learn decision making (switches), to take actions based on sensor feedback, and learn to read sensor values

PROGRAMMING CHALLENGE: You will program the Educator Vehicle robot to explore your classroom while avoiding obstacles (e.g. tables, students, walls) using the Ultrasonic Sensor.

Go straight until 20cm
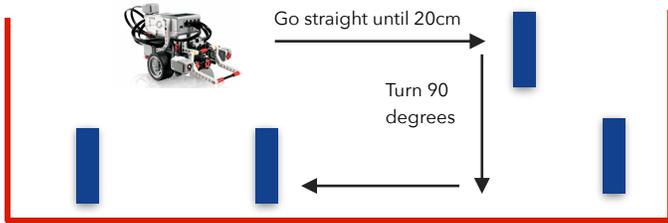
Turn 90 degrees

Tool to discover: To measure a 90 degree turn for the robot, you will have to use Port View on your brick to view the motor. Go to one of the motors (B or C). Using your hand to turn the robot 90 degrees making sure to not let the wheels slip. Write down the degree value you see on Port View (e.g. 360).

Type to enter text

BLOCKS YOU NEED:

Move Steering block in "On" Mode found in the Green Programming Pallet tab

On/Off

Steering   Power
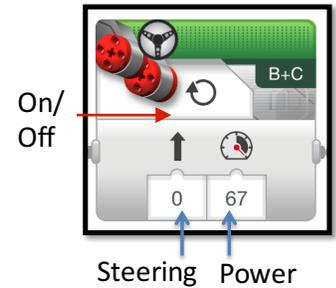
Switch block that uses the Ultrasonic Sensor in the Compare Mode (Distance = CM) in the Orange Programming Pallet tab

Compare
- Distance Centimetres
- Distance Inches
- Presence/Listen
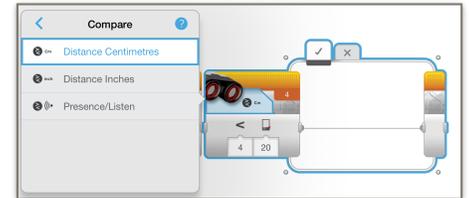
Loop block that repeats forever found in the Orange Programming Pallet tab

Set to Infinite
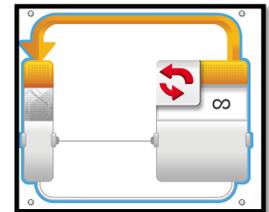
CLASSROOM EXPLORER SOLUTION

STEP 1: Start with a Switch that makes a decision based on the Ultrasonic Sensor in Compare mode (use less than 20 cm).

STEP 2: If False (X) make the robot move forward using the Move Steering in On Mode. If True, then turn right (use the value from Port View to decide how many degrees it takes to turn the robot 90 degrees).

STEP 3: Place all of the above in the Loop so it repeats forever.

STEP 4: Download your program and have it explore your classroom.
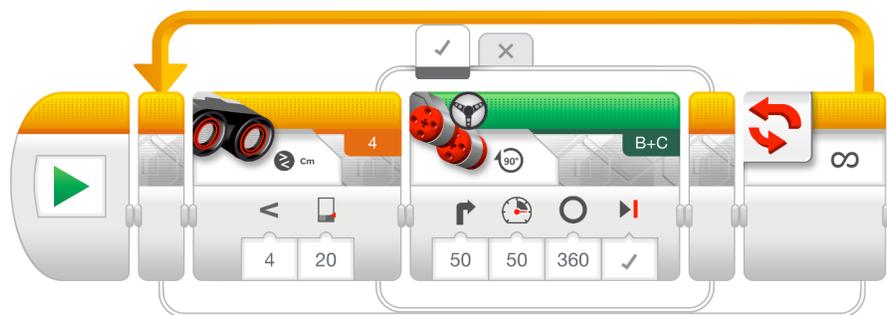
360 degree Right Turn to make the robot turn 90 degrees

FALSE
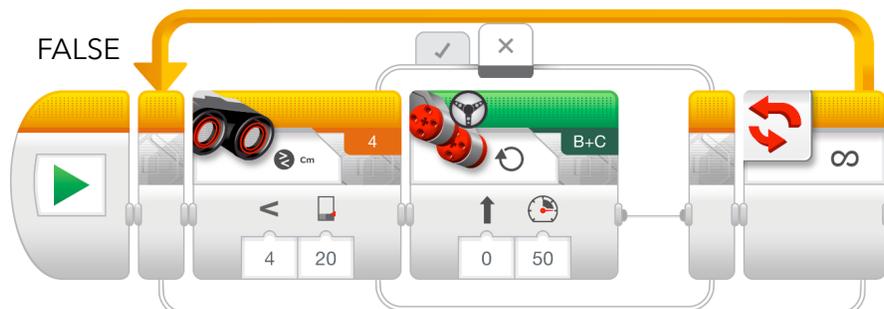
To go straight, use the Steering Block in "On" Mode.