Ultrasonic Sensor

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The Ultrasonic Sensor enables the robot to "see" objects by detecting them through ultrasonic feedback. In our experience, solid objects (walls, blocks, etc.) work best, soft or round objects do not return good readings.

The sensor measures the distance to an object and thus helps the robot act accordingly, for instance by avoiding obstacles or approaching them closely.

Attaching the Ultrasonic Sensor

Please follow pp. 42-47 in the EV 3 Manual (Building Instructions).

Programming the Ultrasonic Sensor

For this task, the robot approaches an object closely without touching it by using the Ultrasonic Sensor.

The following basic program is taken from screenshots of *LEGO Mindstorms Education EV3 Classroom*™ on a desktop computer.
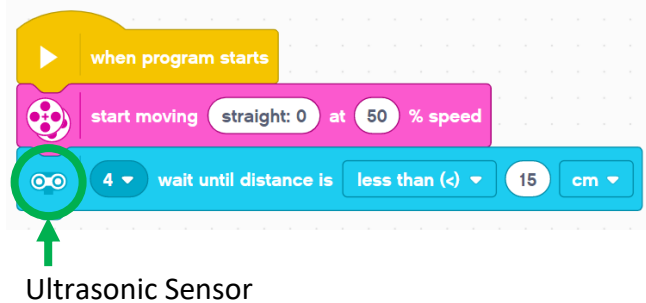
STEP 1

First, drag a <Move> Block from the pink *Movement* menu. This block will make the robot drive towards the object (e.g., a wall).
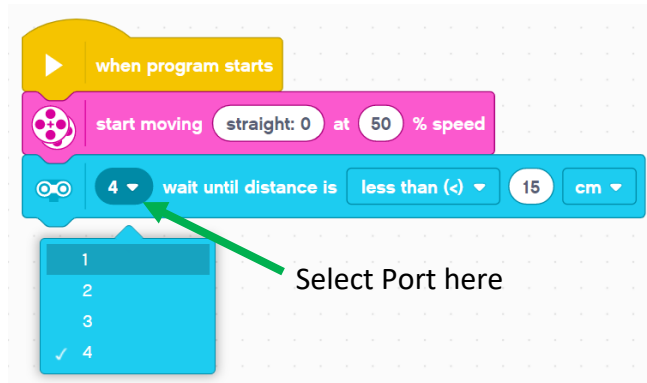To set the speed, choose appropriate power between 0 and 100.

Set the Power here
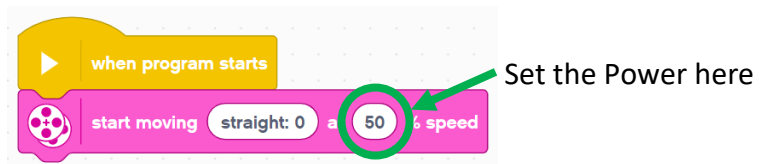
STEP 2

Next, drag a <Wait> Block from the blue *Sensor* menu. Select the block with the Ultrasonic Sensor (note the icon).

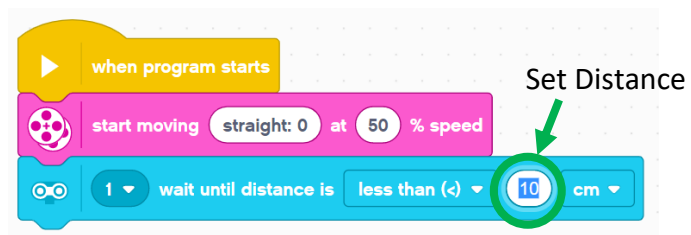when program starts

start moving straight: 0 at 50 % speed

4 ▾ wait until distance is less than (<) ▾ 15 cm ▾

↑ Ultrasonic Sensor

Select the correct port. Check where you plugged the sensor into the base: The ports are labelled 1-4.

when program starts

start moving straight: 0 at 50 % speed

4 ▾ wait until distance is less than (<) ▾ 15 cm ▾

1
2
3
✓ 4

Select Port here

Set the distance:

In the example, once the Ultrasonic Sensor detects an object that is *less than* 10 cm away, the next block will be run.

The Ultrasonic Sensor can also be programmed to detect inches.

when program starts

start moving straight: 0 at 50 % speed

1 ▾ wait until distance is less than (<) ▾ 10 cm ▾

Set Distance

STEP 3

Finally, drag a second
<Move> Block from the pink
tab menu to stop the
forward motion.