4tronix bit:bot makecode starter guide

This is the second part of our tutorial, and assumes that you've already completed Part 1 - which shows how to add the Bitbot extension to the makecode PXT editor, and load your code onto your micro:bit in your Bitbot. This new code will run with the code from Part 1 already loaded. Instead of adding code to the on start block, we'll be adding to the forever block, so that it repeats endlessly. If you deleted the forever block, you can find it by searching at the top of the command categories.

In this tutorial, you'll learn how to:

1. Read the Ultrasonic sensor on the Bitbot
2. Control the motors to drive forward and turn
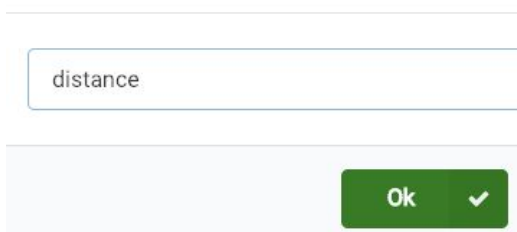3. Avoid objects detected within a set distance of the Ultrasonic sensor

You can find the finished code for this project at https://makecode.microbit.org/_f85DqbX634wM

Read the Ultrasonic sensor into a variable

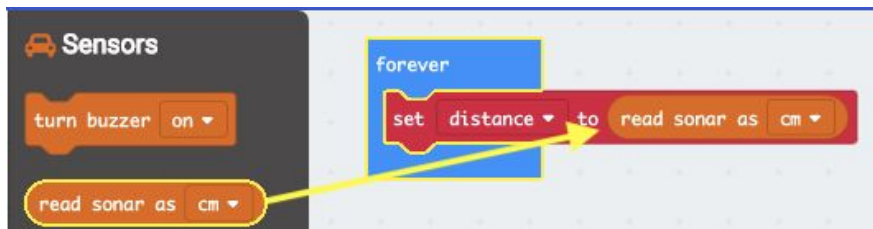❏ From the command categories, find the **Make a Variable** button under **Variables**.

❏ We'll create a variable named 'distance' to read our Ultrasonic sensor values into

❏ Add the new **set distance** to block from Variables, to the forever block.
From the **Bitbot > Sensors** category, drag the **read sonar as** block into the **set distance** block.

Now the Ultrasonic sensor's data will be repeatedly loaded into the **distance** variable.

# Do something if the sensor detects an object within a set distance

- ❏ Every time we read the sensor data into the distance variable, we will use an **if..then..else** block to check whether an object has been detected within 15cm of the sensor. Drag this into the forever block, from the **Logic** category.
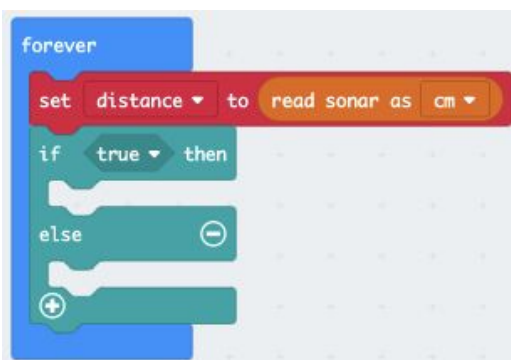
- ❏ We'll need to create a condition that tells our code when our robot is too close to an object. Drag the comparison block from the **Logic** category, then drag the **distance** variable onto the left circle. Edit the values so it looks like this.

- ❏ So if an object is too close, we need the robot to spin around, otherwise it can keep moving forward. Once we drag those blocks from the **Bitbot** category, and add our above condition, your code should look like this.
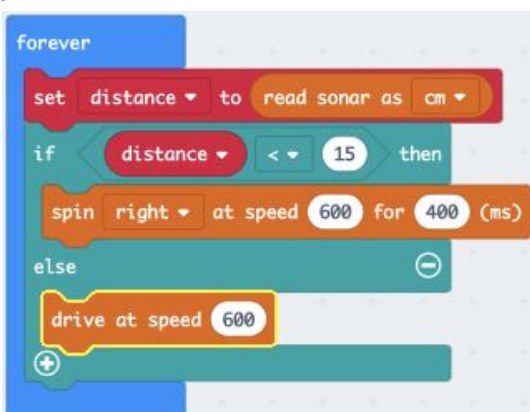
Load your code onto your Bitbot, and run it as you did in Part1 of this tutorial. The robot should drive forward, and then turn when it detects an object in front of it.

The finished code

Combining the completed code with Part 1, looks like this:
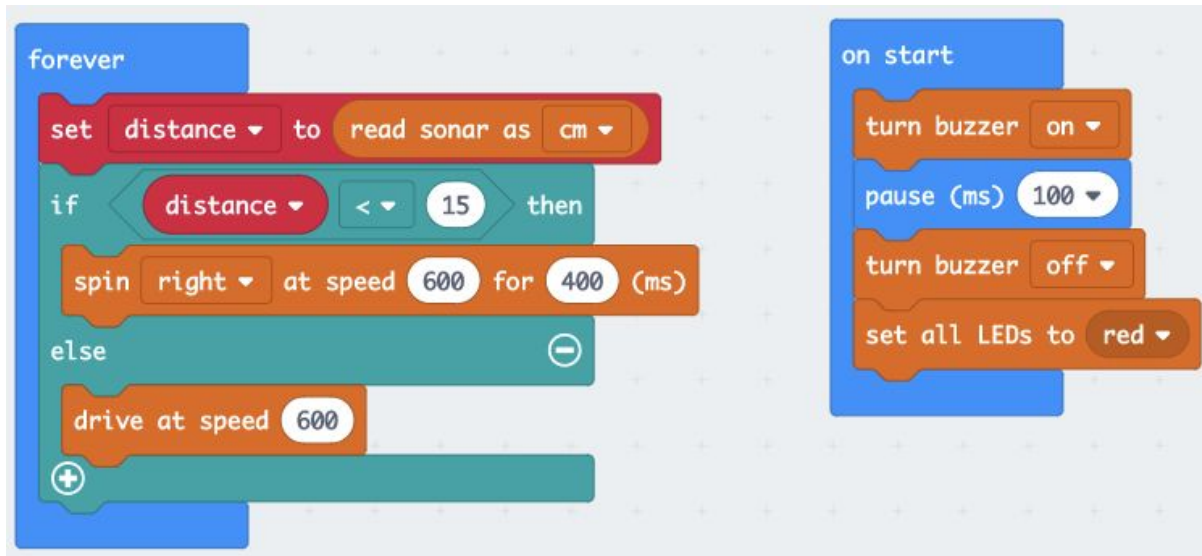
Loading and running this code on your Bitbot will make it:
1. Turn the buzzer on for 100 milliseconds
2. Set all the LEDs to red
3. Move the Bitbot forwards, and avoid obstacles that are closer than 15cm