

## Lesson 7.1 - Ultrasonic Ranging Datalogging

Simulation of this lesson can be found at <https://makecode.microbit.org/94576-41892-90128-19604>

**Note:** (Robot construction must be completed before this Step)

### Goal for this lesson

Learn to read the Ultrasonic sensor serial data on PC via USB and produce a sound when the ultrasonic threshold is met.

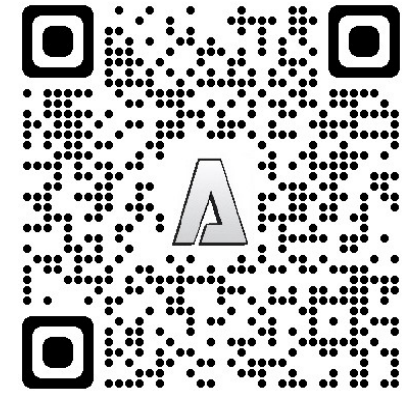
### Hardware Required

PC will be required to log the serial data

1 x micro USB cable

1 x Smart Robot with micro:bit & battery installed.

Scan QR code for Lesson 7.1 Simulation



### Step 1 As per Figure 1

- Goto URL <https://makecode.microbit.org/#>
- Create **"New Project"** & give it a name
- Press **Gear** symbol – top right
- Press **Extensions**
- Add repository found using link below.  
[https://github.com/AltronicsAUKits/Z6454-Robot-Kit-v2\\_KS0426](https://github.com/AltronicsAUKits/Z6454-Robot-Kit-v2_KS0426)
- On start up both **"on start"** & **"forever"** will be in your work space, move **"forever"** block below **"on start"** block.

### Step 2 as per Figure 2

Moving forward we will only highlight the locations for the required modules to produce the desired code.

- We will be utilising the **"Music"** Tab
- We will be utilising the **"Loops"** Tab
- We will be utilising the **"Logic"** Tab
- We will be utilising the **"Variables"** Tab
- We will be utilising the **"K\_Bit"** Tab
- We will be utilising the **"Serial"** Tab under **"Advanced"** Tab
- Download the code to the micro:bit

### Expected Result!

- Once the code has been written to the micro:bit.
- Insert the micro:bit into the robot.
- Power on the robot and plug the USB lead into the micro:bit & PC.
- On the Makecode website press **"Show data device"**  
This will display the read data from the Ultrasonic sensor on the PC and produce a beeping tone if something is detected within the Ultrasonic sensors ranges.

Figure 1

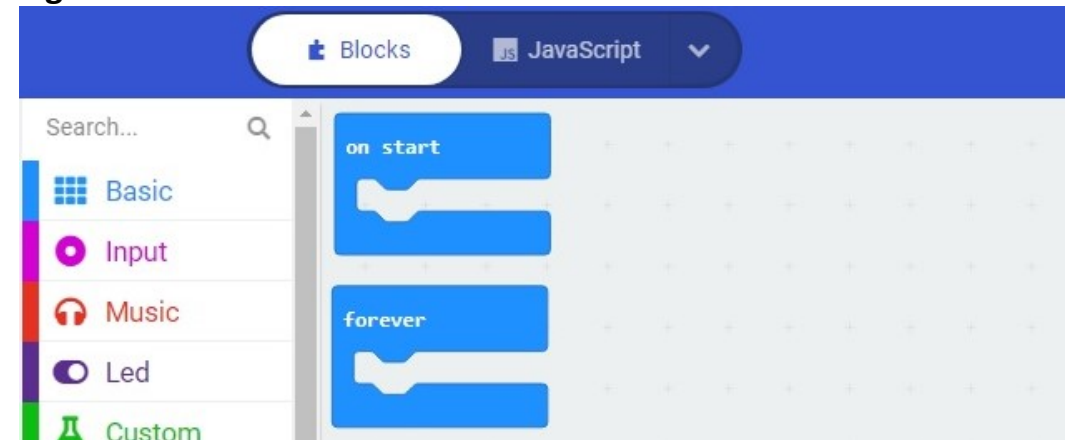
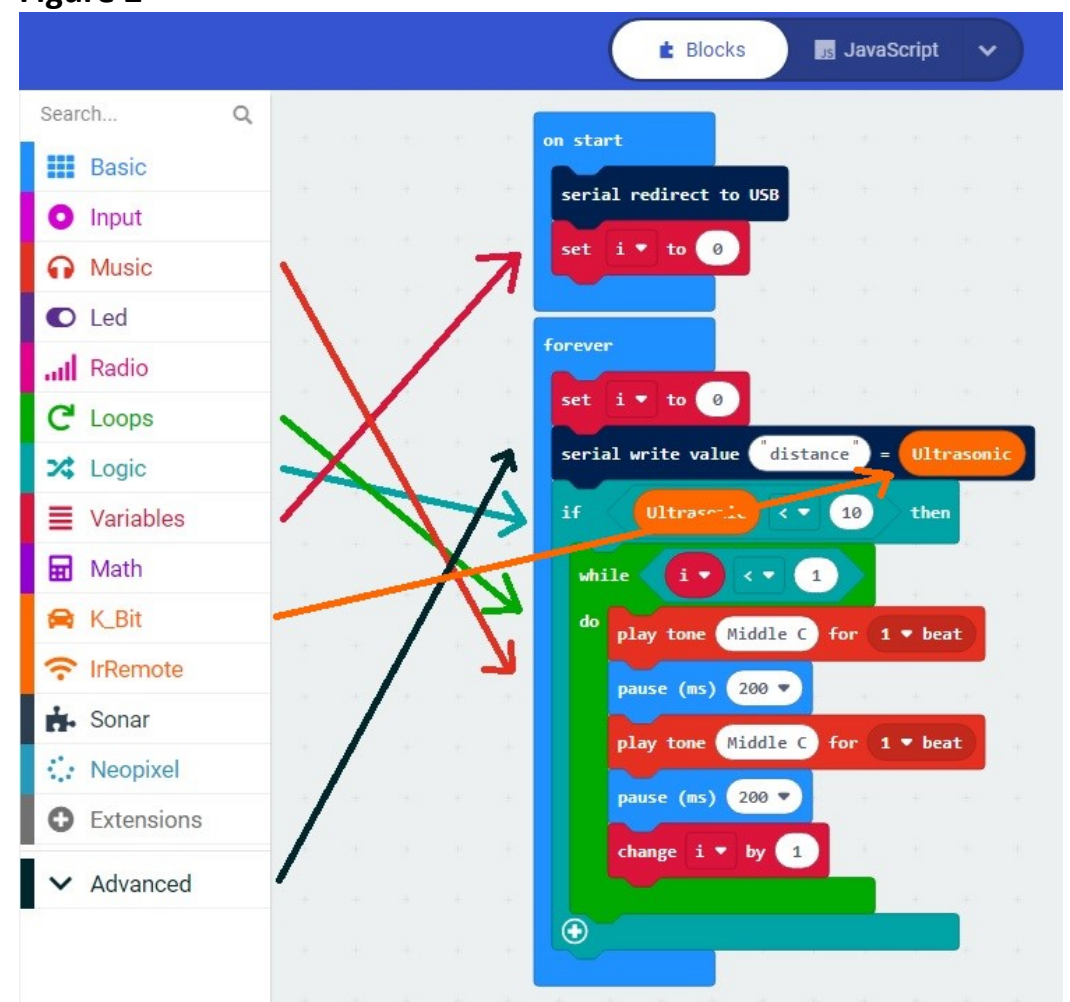


Figure 2



Example Ultrasonic Ranging Datalogging can be found at <https://makecode.microbit.org/94576-41892-90128-19604>

STEM Smart Robot can be purchase from Altronics.

<https://www.altronics.com.au/p/z6454-stem-microbit-mini-smart-robot-car-v2.0/>