Lesson 6.3 - Line Tracking Datalogging & Display

Simulation of this lesson can be found at https://makecode.microbit.org/84393-81242-16382-85365

Scan QR code for Lesson 6.3 Simulation

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

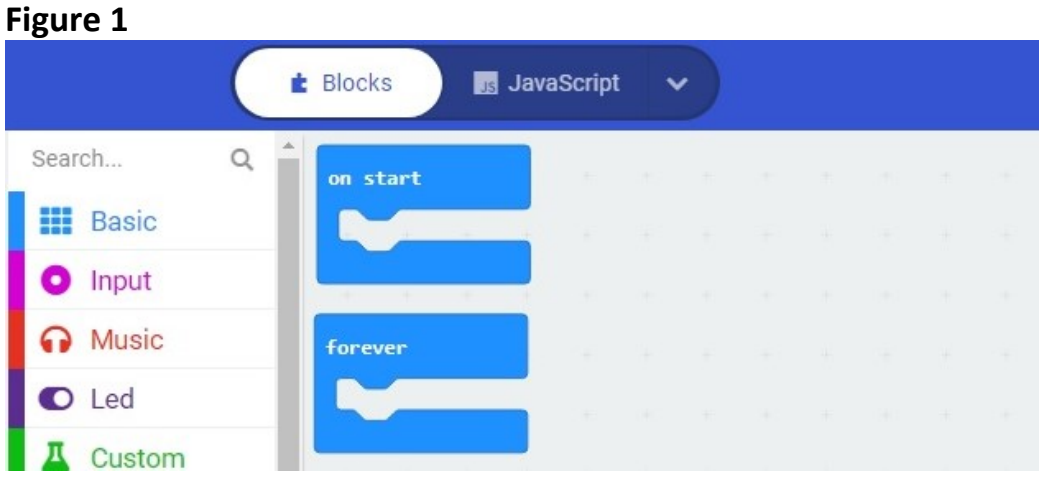
Goal for this lesson
Learn to utilise the photo interrupter and when a line is detected we will see a visual output on the matrix display, we can also read the serial when connected to a PC via USB.

Hardware Required
PC for data logging
1 x micro USB cable
1 x Smart Robot with micro:bit & battery installed

Step 1 *As per Figure 1*

a. Goto URL https://makecode.microbit.org/#
b. Create **"+New Project"** & give it a name
c. Press **Gear** symbol – top right
d. Press Extensions
e. Add repository found using link below.
https://github.com/AltronicsAUKits/Z6454-Robot-Kit-v2_KS0426
f. On start up both **"on start"** & **"forever"** will be in your work space, move **"forever"** block below **"on start"** block.

Figure 1

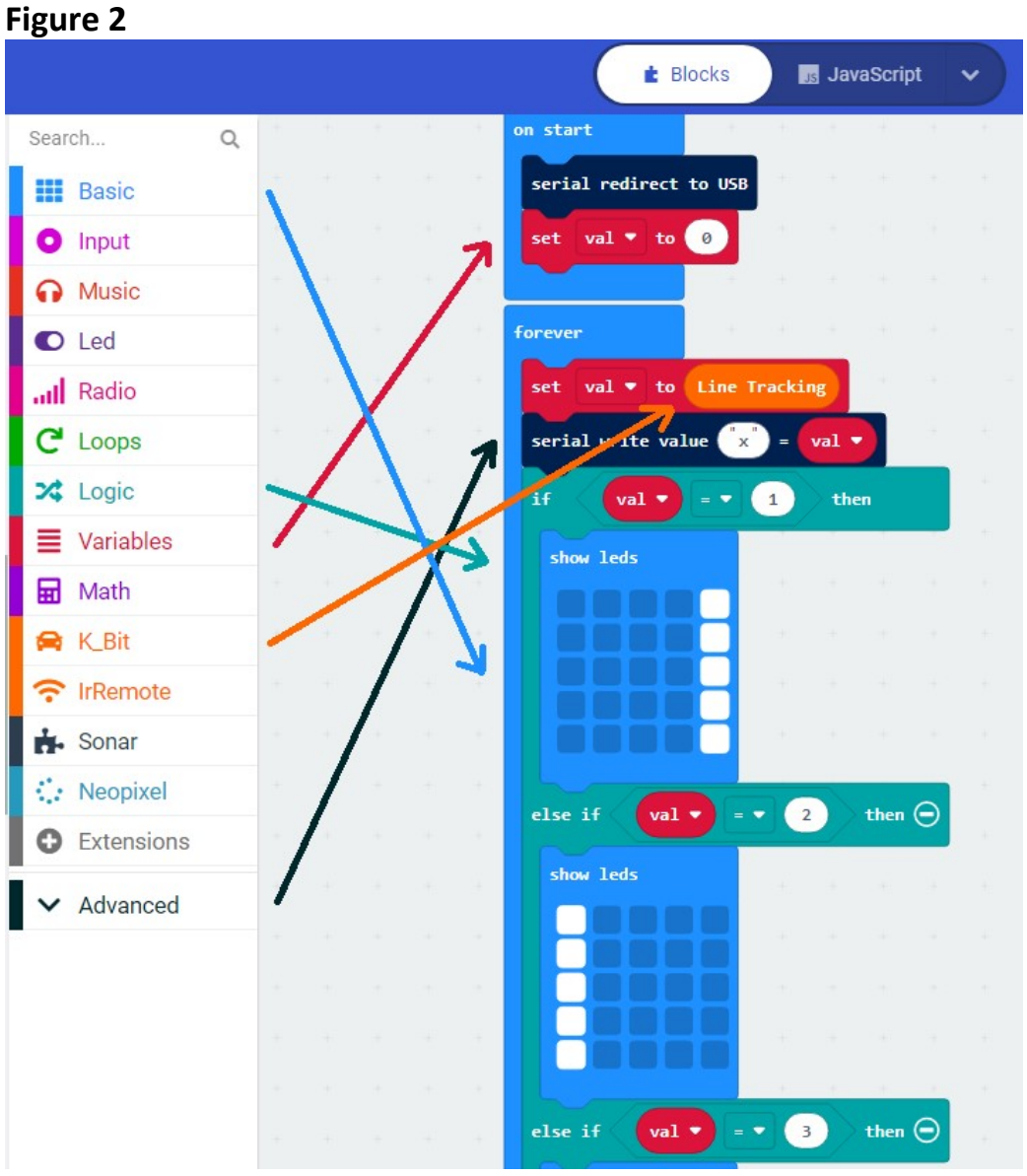


Step 2 *as per Figure 2*

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

a. We will be utilising the **"Basic"** Tab
b. We will be utilising the **"Logic"** Tab
c. We will be utilising the **"Variables"** Tab
d. We will be utilising the **"K_Bit"** Tab
e. We will be utilising the **"Serial"** Tab under **"Advanced"** Tab
f. Download the code to the micro:bit

Figure 2



Expected Result!

a. Once the code has been written to the micro:bit.
b. Insert the micro:bit into the robot and power it on.
c. Plug the USB cable into the Micro:bit and PC.
d. The robot will display a **"large heart"** on the matrix screen when no line is detected.
e. Now on the MakeCode website – press "**Show data** device".
f. Now if we move the Robot over a black line on white paper the matrix display with show us a **"line"** on either the left or right of the screen.
g. We will also see live serial data readout on the PC as the Robot is moved over the line.
h. If the photo interrupters both detect a line a **"small heart"** will appear on the matrix display.

Example Line Tracking Datalogging & Display can be found at
https://makecode.microbit.org/84393-81242-16382-85365

STEM Smart Robot can be purchase from Altronics.
https://www.altronics.com.au/p/z6454-stem-microbit-mini-smart-robot-car-v2.0/