

## Lesson 6.4 - Line Tracking Smart Robot Demo

Simulation of this lesson can be found at <https://makecode.microbit.org/55144-14870-92905-74154>

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

### Goal for this lesson

Learn to utilise the photo interrupter to control the motors and navigate a line, the NeoPixel LED will also illuminate based on the set variables.

### 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

- 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 **"Logic"** Tab
- We will be utilising the **"Variables"** Tab
- We will be utilising the **"K\_Bit"** Tab
- We will be utilising the **"NeoPixel"** Tab
- Download the code to the micro:bit

### Expected Result!

- When powered up a smiley face will appear on the matrix display and the NeoPixel Display will illuminate.
- With the robot placed over a black line on white paper it will begin to track the line by using the photo interrupters on the base.
- It will repeatedly check the logic and compare the photo interrupter outputs to continue to adjust the motors.

Scan QR code for Lesson 6.4 Simulation

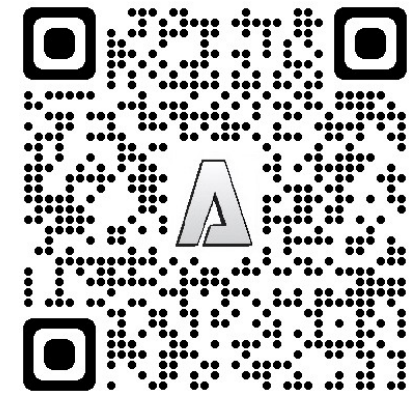
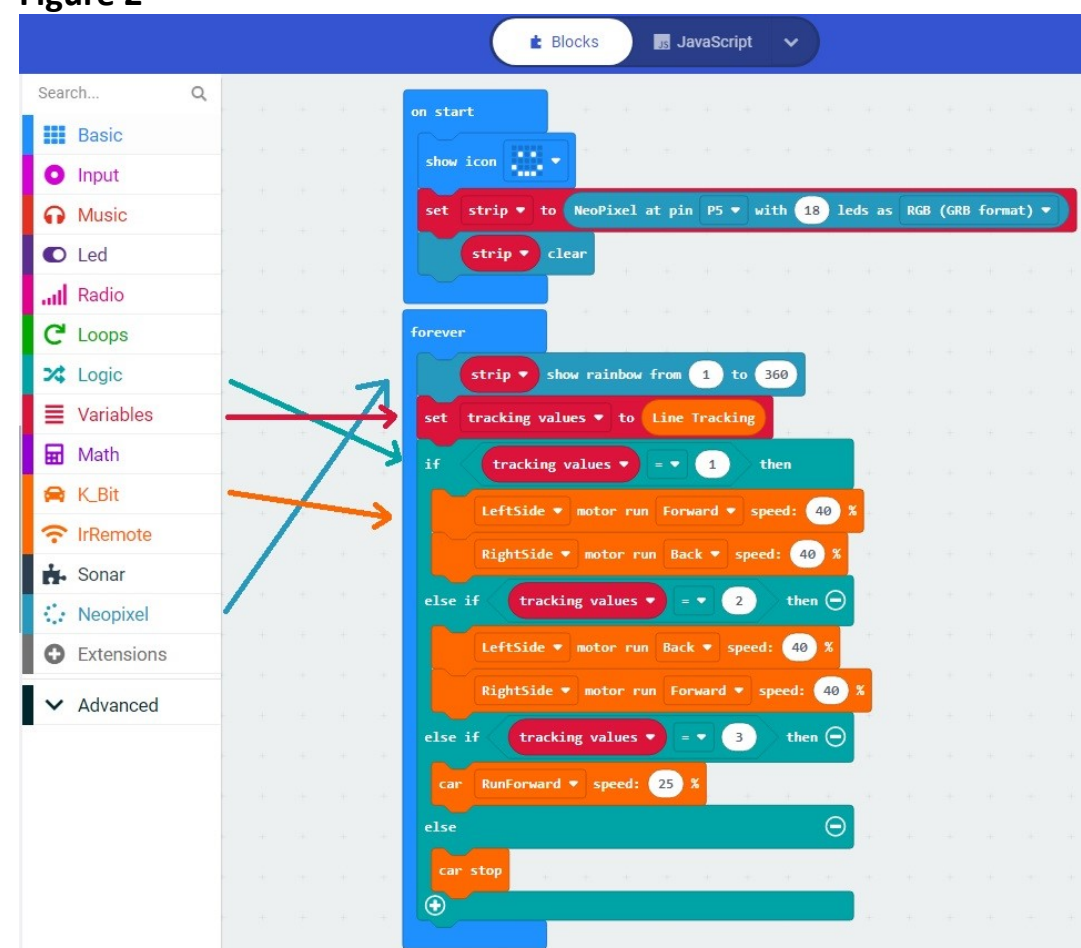


Figure 1



Figure 2



Example Line Tracking Smart Robot Demo can be found at <https://makecode.microbit.org/55144-14870-92905-74154>

STEM Smart Robot can be purchase from Altronics.

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