STEM - Smart Robot v2 - Altronics Z6454

Lesson 3.3 - LED Neopixel Module Control Experiment 3

Scan QR code for Lesson 3.3 Simulation

Simulation of this lesson can be found at https://makecode.microbit.org/52843-69175-24338-64710

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

Goal for this lesson

Learn to control the Neopixel RGB LED on the Smart Robot and make colour adjustments that repeat indefinitely.

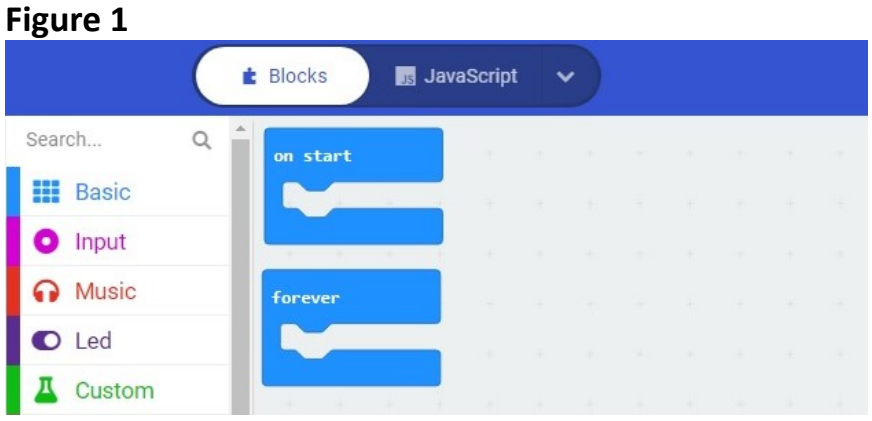
Hardware Required

PC or Tablet
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*

a. Press **"Neopixel"** Tab
b. Drag **"set strip to Neopixel at pin P0 leds as "RGB (GRB format)** into **"on start"** tab.
c. Above item may read **"set strip 2"**, If need be change to **"set strip"**
d. Adjust **pin P0** to **pin P5**
e. Adjust **24 leds** to **18 leds**
f. Press **"Loops"** Tab
g. Drag **"for index from 0 to 4"** into **"forever"** field
Adjust **"for index from 0 to 4"** to **17**
h. Press **"Neopixel"** Tab
i. Drag **"strip clear"** into **"for index from 0 to 17"** field
j. Press **"... more"** Tab under **"Neopixel"** Tab
k. Drag in **"strip set pixel colour at 0 to red"** – ***as per Figure 3***
l. Press **"Variables"** Tab
m. Drag **"index"** into **0** position on **"strip set pixel colour at 0 to red"**
Adjust **index to "red"** to desired **colour** – ***as per Figure 4***
n. Press **"Neopixel"** Tab
o. Drag in **"strip show"** into **"for index from 0 to 17"** field
p. Press **"Basic"** Tab
q. Drag **"pause (ms) 100"** into **"forever"** field
Adjust pause **time** as desired
r. Repeat **Step 2** as desired until you have added your desired amount of colour changes
s. Download the code to the micro:bit

Figure 2

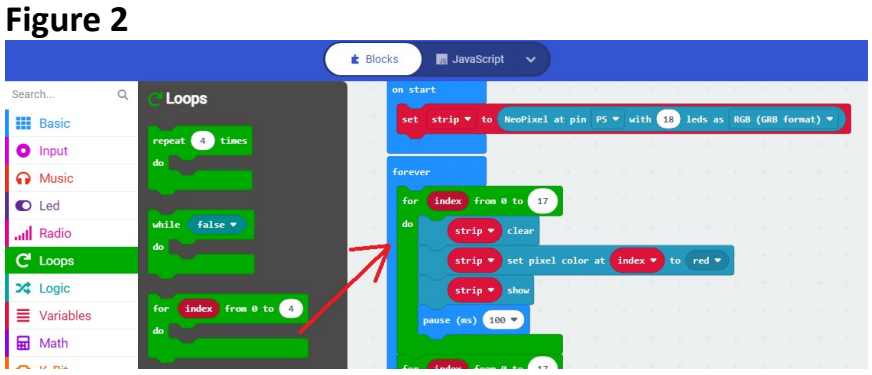


Figure 3

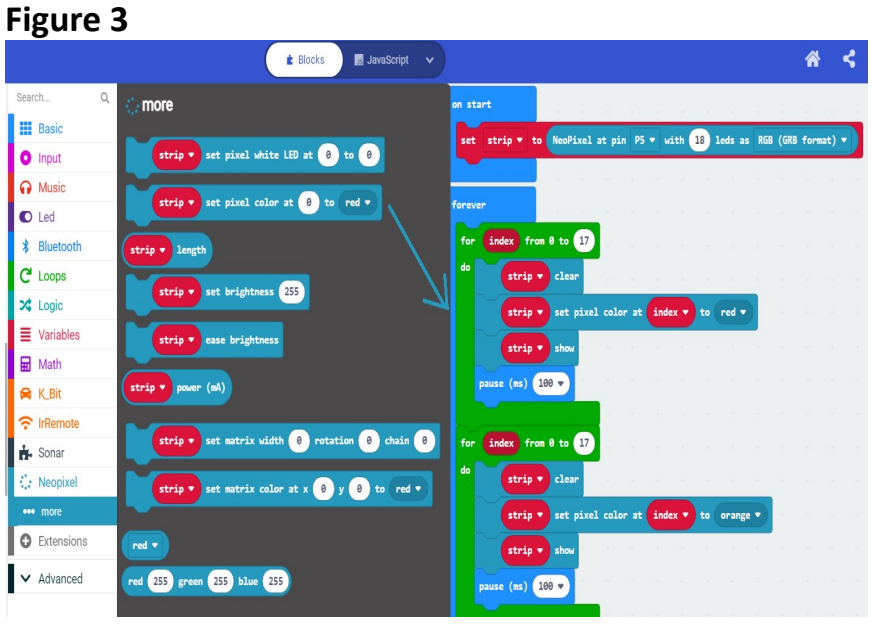
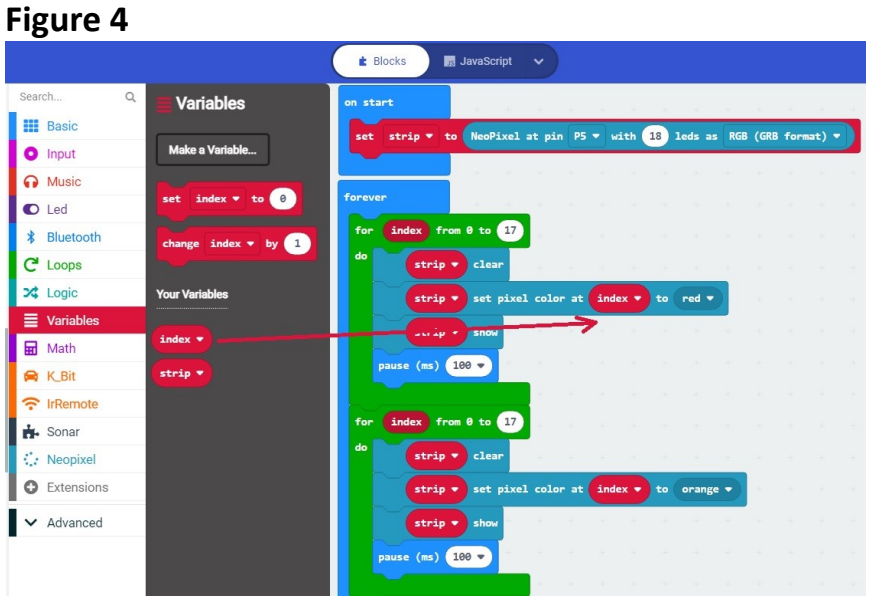


Figure 4



Example Neopixel Experiment 3.3 can be found at
https://makecode.microbit.org/52843-69175-24338-64710

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