Pins and Extensions

Traffic Lights

This week you be creating your own traffic light program using NeoPixels.

Whether programming in blocks, JavaScript or Python, please complete the bronze requirements before starting the silver, and complete the silver before starting the gold.

BRONZE Challenge:

1. Create a start-up for your traffic light program

2. Use the blocks provided by the Neopixel extension to connect a 24 LED strip to pin 1

3. Set up 3 equal size ranges to recreate a traffic light with red at the top, yellow in the middle, and green at the bottom

4. Have the traffic light repeatedly cycle through a crossing sequence - that is red for 10 seconds, red and yellow for 5 seconds, green for 10 seconds, and then yellow for 5 seconds.

SILVER Challenge:

1. Move each light change into their own functions, remember to then call them in the forever loop.

2. Add animations to the Micro:Bit to show when it is and isn't safe for pedestrians to cross the road. Do this using three new functions - one for walk, one for wait, and one for warning that the lights are changing to green for the traffic.

GOLD Challenge:

1. Create a traffic light colour variable for use to identify which light is currently active and use this in if/else if statements for setting the lights

2. Have the A button on the Micro:Bit cause the traffic to come to a stop (safely). Important: You can stop a loop early using the 'break' block found in the Loops menu.

3. Add sound to indicate when it is safe to cross for those who cannot see the visual instructions.

Extension Challenge:

- Add a second NeoPixel as the traffic light for the other direction.

- How much can you tidy up your code with functions, while loops, repeat blocks and variables?

Thank You