**Programming Notes (Stage 3)**

About: An overview of the functions used in the Ultrasonic LED Arduino Lab

CONFIGURE LEDS

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Function : strip.Color(r, g, b)

Variable: r : Red brightness

Variable: g : Green brightness

Variable: b: Blue brightness

Use : Defines one 24 bit packet (as described in the Neopixel datasheet). The three 8 bit variables are combined to define a colour.

Example: color\_BLACK = strip.Color(0, 0, 0); // Set brightness of all colours to zero

Your task here is to insert an identical statement to make the LEDs

light up in yellow colour when they are on. To achieve that you will

need to find out which RGB values encode the yellow colour. Finally,

you should call the variable 'color\_on'.

INSERT A LINE OF CODE:

uint32\_t color\_on = //Blank: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_//;

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SETUP

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Following the examples from the individual LED and Ultrasonic sensor

codes, you will have to initialize both devices with corresponding

statements.

// INSERT CODE BELOW:

void setup() {

//Blank: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_//;

//Blank: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_//;

}

Hint: use code from the previous two stages.

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

FOR LOOPs & IF STATEMENTS

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Now that you have the number of LEDs that have to be turned on (led\_counter)

and the number of LEDs in the strip (NUM\_OF\_PIXELS), you will need to form

another loop that will go through all LEDs and turn them on or off. In other words,

if the index of an LED is less than the value stored in 'led\_counter', turn the LED on,

otherwise turn it off. You will need to complete a both a for loop and an if statement.

**FOR LOOP**

|  |  |  |
| --- | --- | --- |
|  |  | for(int Counter=0; Counter<Max\_Counter; Counter++){ |
|  |  | // DO THIS // |
|  |  | }  “For Counter equals zero, while Counter is less than Max\_Counter, DO THIS, then add one to Counter.” |

If Max\_Counter = 10, this code will “do this” ten times. Each time it does it Counter increases by 1, so Counter = 0, then 1 then 2 … then 9 and it stops. See the flowchart below.



No

Yes

**IF STATEMENT**

if( x < y)

{

// DO YELLOW //

}

else

{

// DO GREEN //

}

“If x is less than y, do yellow, else, do green.”



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*If you’re stuck ask for help and tell us what you are thinking.*