ROBOTC Display Text Features

ROBOTC has a rich set of functionality for drawing text and shapes on the LCD screen. The NXT is equipped with a 100 pixel wide by 64 pixel high display.

Notes:

- The bottom left corner is point (0, 0) and the top right corner of the display is point (99, 63).
- There are eight text lines, numbered zero through seven. The top line on the display is number zero and the bottom line on the display is number seven.

<table>
<thead>
<tr>
<th>specifier</th>
<th>Output</th>
<th>Example Code</th>
<th>Example Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;%d&quot;</td>
<td>Signed decimal integer</td>
<td>(&quot;%d&quot;, 4246)</td>
<td>4246</td>
</tr>
<tr>
<td>&quot;%e&quot;</td>
<td>Scientific notation (mantissa/exponent) using lowercase “e”</td>
<td>(&quot;%e&quot;, 392.65)</td>
<td>3.9265e+2</td>
</tr>
<tr>
<td>&quot;%f&quot;</td>
<td>Floating point decimal (floats)</td>
<td>(&quot;%f&quot;, 3.14159)</td>
<td>3.14159</td>
</tr>
<tr>
<td>&quot;%s&quot;</td>
<td>String of characters</td>
<td>(&quot;%s&quot;, “ROBOTC”)</td>
<td>ROBOTC</td>
</tr>
<tr>
<td>&quot;%c&quot;</td>
<td>Character</td>
<td>(&quot;%c&quot;, ‘e’)</td>
<td>e</td>
</tr>
</tbody>
</table>

Note on Displaying Digits

When displaying floats, for example, you can tell ROBOTC how many decimals places to display. This is standard across all ‘C’ - like programing languages. For example, if your float is \( \pi \ (3.14159265) \), but you only want to display “3.14”, your string should contain, “ \%1.2f \”.

The number before the decimal is how many digits before the decimal you wish to display, while the number after the decimal is how many digits after the decimal you wish to display. So “ \%1.2f \” tells us to display one digit before the decimal and two digits after the decimal, with “3.14” as the final result.
Simple Print to Screen Example One

Suppose you have two variables that you wanted to display on the NXT screen. Variable one is named “firstVar” and variable two is named “secondVar”.

Example Code

```c
1. task main()
2. {
3.     int firstVar = 1;
4.     int secondVar = 2;
5.     nxtDisplayBigStringAt(0, 31, "%d,%d", firstVar, secondVar);
6.     wait1Msec(10000);
7. }
```

The display at the left shows what the NXT display screen will display using the code above. Experiment by changing the values of “0” and “31” in the program above to change the position on the screen.

The display on the right shows data that is formatted a little better. Look at the example below to see how it was done. ROBOTC has a large library of helper files that will help you to format your data.

Open help/ROBOTC help/NXT Functions/Display in the ROBOTC application to learn more.

Simple Print to Screen Example Two

The example below shows how you can add words to describe the data that you wanted to display to your screen. In the example below “nxtDisplayCenteredTexLine” is a very simple function to use. The first parameter “0” describes the line that you want the text on. Remember the lines on the NXT display start at the top and the first line is named “0”. In the code below, line 5 identifies the starting lower left corner of the two variables firstVar and secondVar. The parameters “25, 25” describe the location on the screen that you want the code to be located. Think of the display screen as a graph, with (0,0) in the lower left hand corner being the starting reference point on the display screen.

Example Code

```c
1. task main()
2. {
3.     int firstVar = 1;
4.     int secondVar = 1;
5.     nxtDisplayBigStringAt(25, 25, "%d,%d", firstVar, secondVar);
6.     nxtDisplayCenteredTexLine (0, "Here are your results, do you need anything else?");
7.     nxtDisplayCenteredTexLine (1, "result, do you");
8.     nxtDisplayCenteredTexLine (3, "need anything");
9.     nxtDisplayCenteredTexLine (3, "else?");)
10.    wait1Msec(10000);}
```