Displaying Text and Graphics

By Sanjay and Arvind Seshan
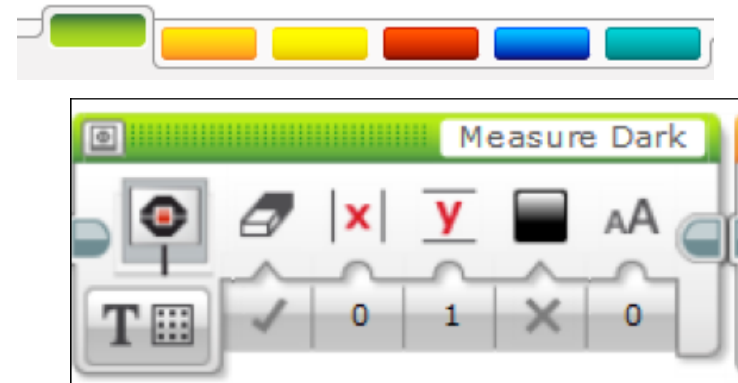
BEGINNER PROGRAMMING LESSON

LESSON OBJECTIVES

1. **Learn to use the Display Block to display text and images**

2. **Understand why the Display Block can be useful in programming**

DISPLAY BLOCK

- The Display Block to show information and pictures on the screen

- You can control the location and size of text

- You can use this same block to display sensor readings and instructions.
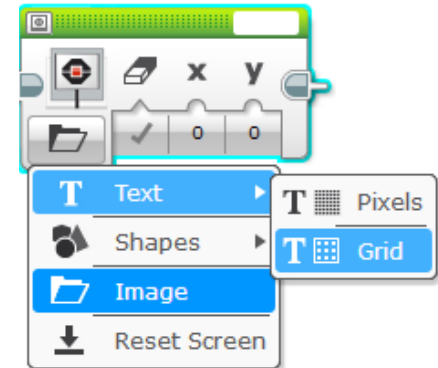
- Located in Green Tab

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MORE ON DISPLAY BLOCKS

Two modes to display

Pixel mode (Use for displaying images or text)

- 178 pixels left and right
- 128 pixels up and down

Grid mode (Easier to use, only works for text mode)

- 22 columns of 8 pixels each
- 12 rows of 10 pixels each
- Small characters are 1 row and 1 column
- Large characters are 2 rows and 2 columns
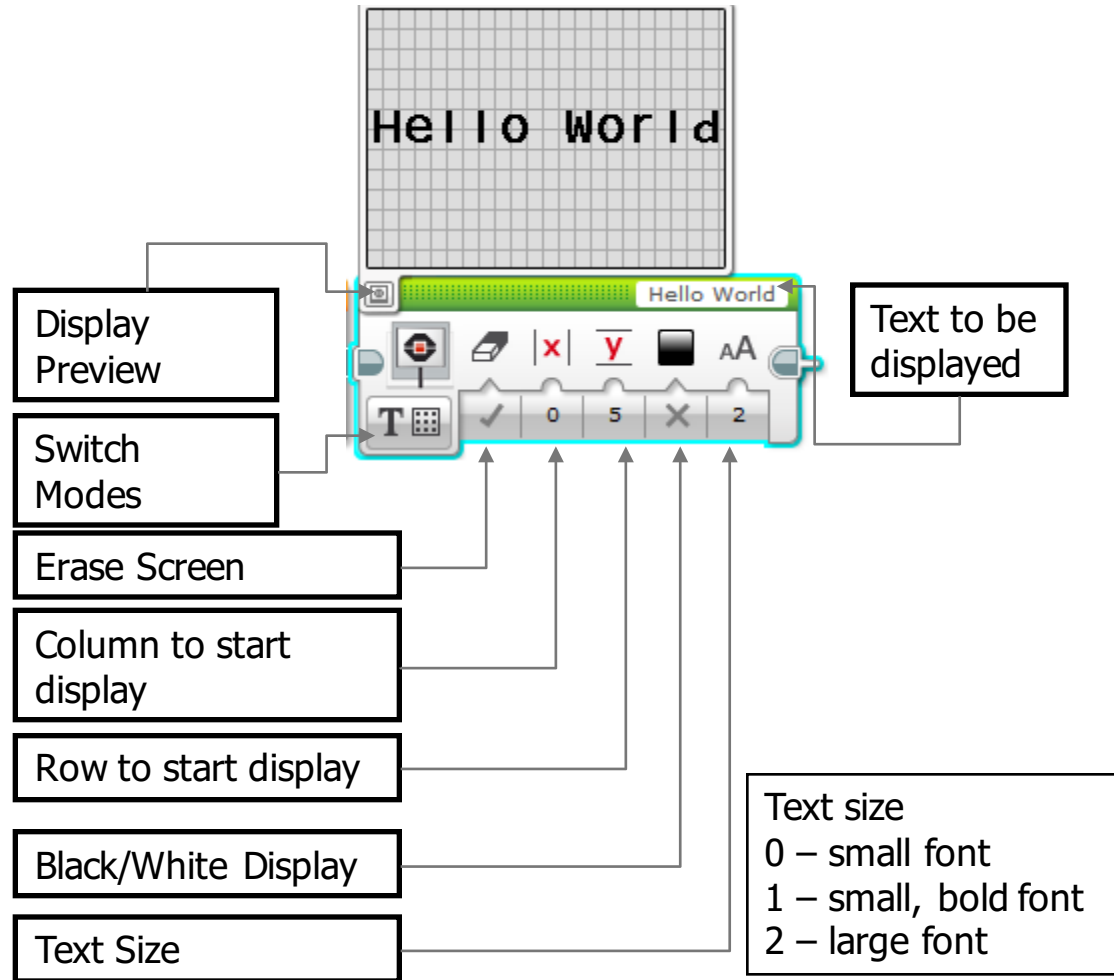
DISPLAYING TEXT IN GRID MODE

Step 1:
Pick Display Block

Step 2:
Click on "Switch Modes" icon and hover over "text". Then click on "grid". The icon will change into a square with dots.

Step 3:
Use the box on the top right to enter the text you want to display

Display Preview

Switch Modes

Erase Screen

Column to start display

Row to start display

Black/White Display

Text Size

Text to be displayed

Text size
0 – small font
1 – small, bold font
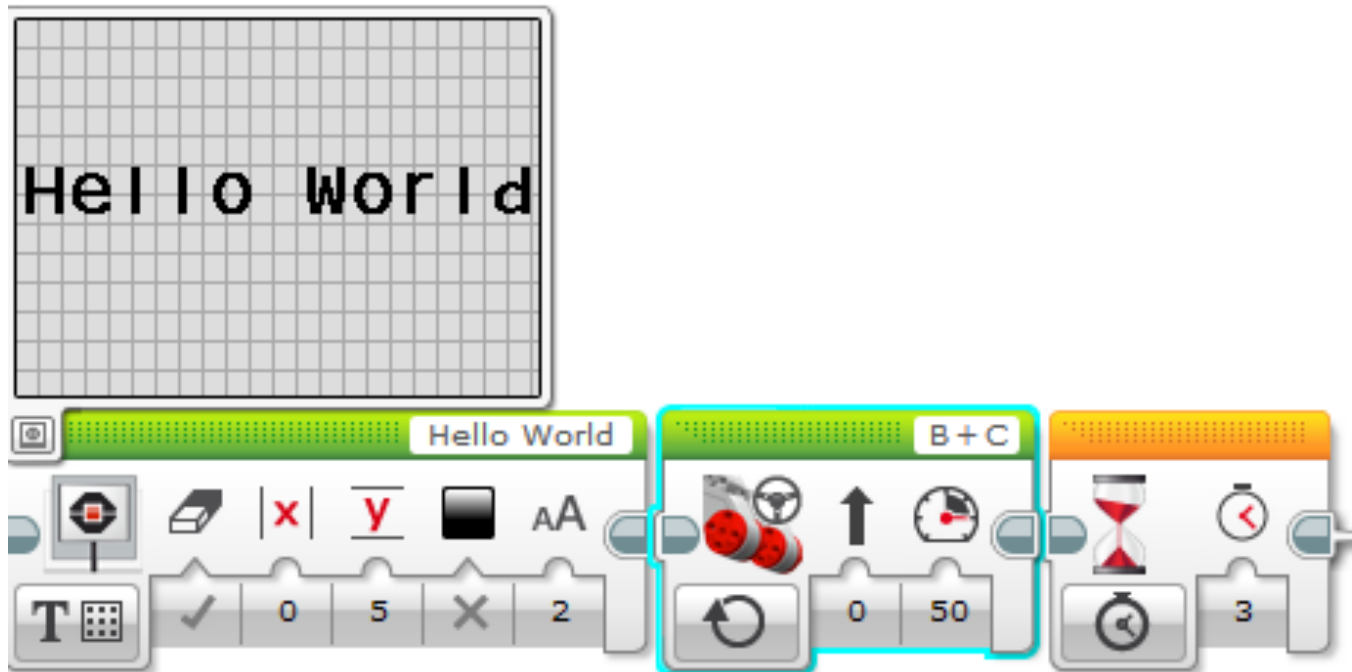2 – large font

DISPLAY BLOCK CHALLENGE 1

Can you write a program to display text in the middle of the screen?

- Display "Hello World"

Make the display block run for 3 seconds

Can you also move while doing this?
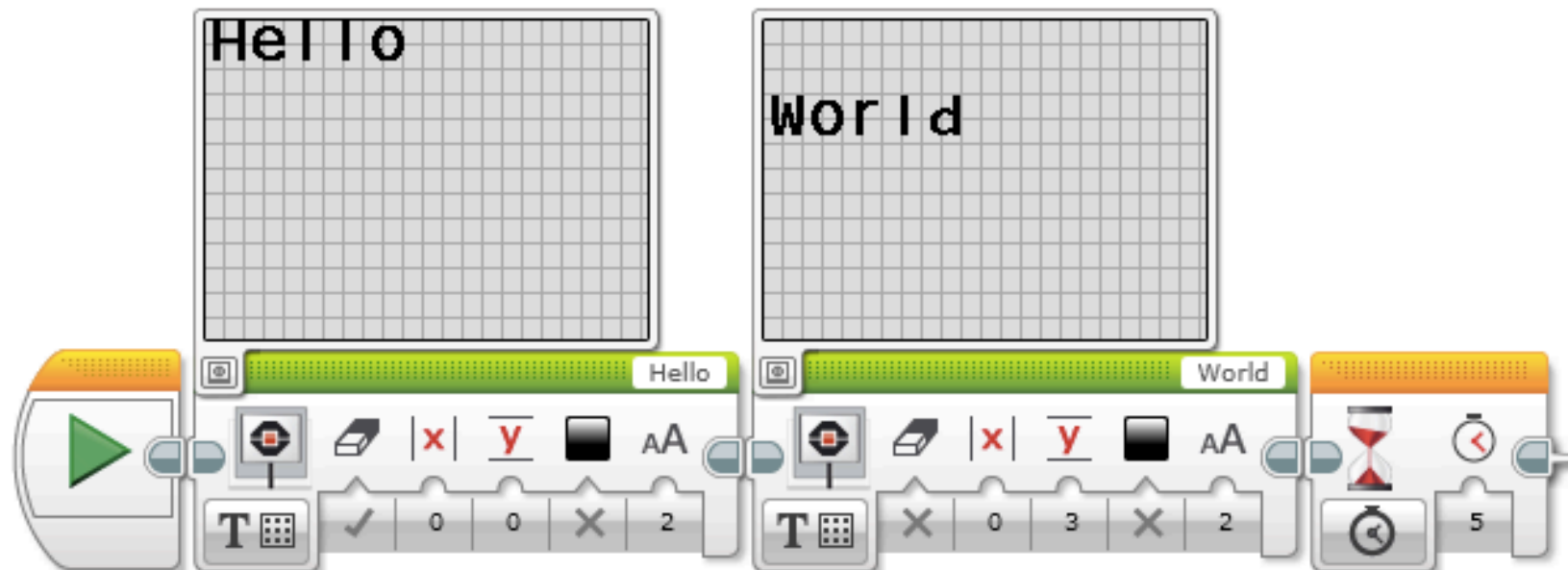
CHALLENGE 1 SOLUTION

CHALLENGE 2: TWO LINES OF TEXT

Now what if you want "Hello" to appear on one line and "World" to appear on the next line?

Hint: You will use two display blocks and don't clear the screen on the second display block otherwise the first word will disappear!
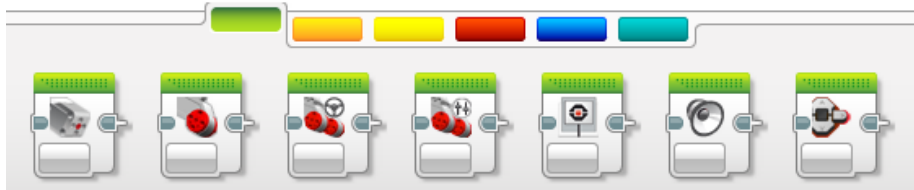
CHALLENGE 2 SOLUTION

Display block in Display Text, Grid Mode. In this first block, the first parameter is true (the screen is cleared)
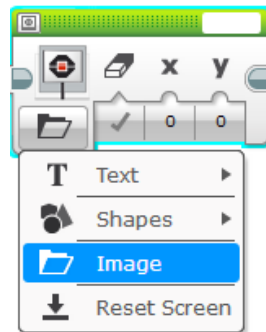
The first parameter is set to False so the screen will not clear. The "Y" axis is moved down to "3" so the text doesn't overlap with the first word.

A Wait Block is added so that you will have time to read the text - otherwise it will disappear.
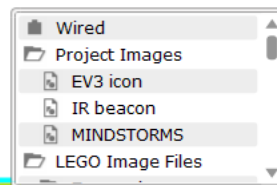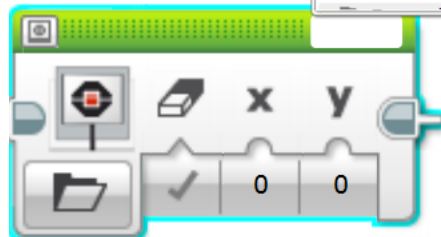
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DISPLAYING AN IMAGE IN PIXEL MODE

Step 1:
Pick Display Block

Step 2:
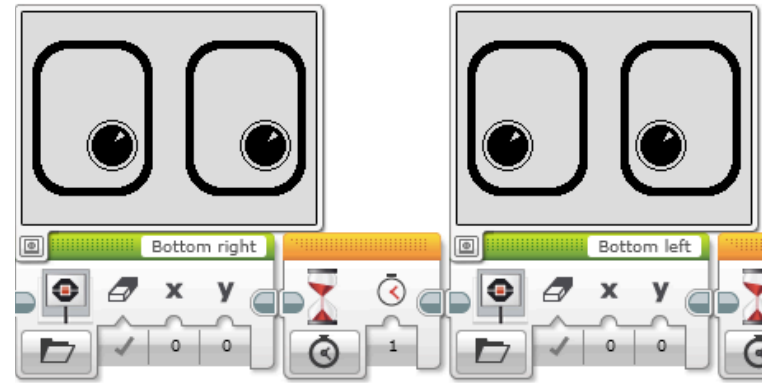Click on the "Select Mode" which has a folder icon and pick "image"

Step 3:
Use the empty box on the top right to pick the image you want to display
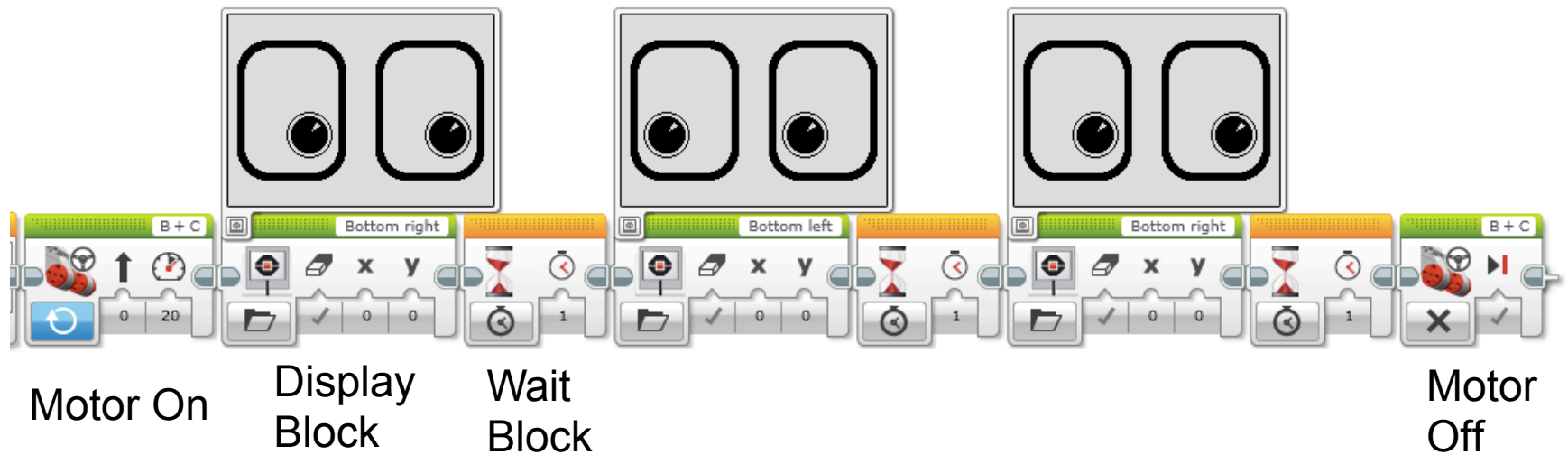
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DISPLAY BLOCK CHALLENGE 3

Can you display eyes on the screen while moving? Alternate eyeballs that look left and right.

- Use the Display Block, Motor On and Wait Block

- Feel free to have fun with this challenge and make it yours!

CHALLENGE 3 SOLUTION

Motor On

Display Block

Wait Block

Motor Off

DISCUSSION GUIDE

Why might you want to know how to use the display block?

- You might want to know what the sensor value your robot is seeing
- You might have to program a robot to stop when the robot reaches a red line but it stops before
  - Does the robot see the same thing you see?
  - You can display the value on the screen and check

It's a great debugging tool. You can learn more about debugging code in one of our Intermediate lessons.

CREDITS

- **This tutorial was created by Sanjay Seshan and Arvind**
- **More lessons are available at www.ev3lessons.com**

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