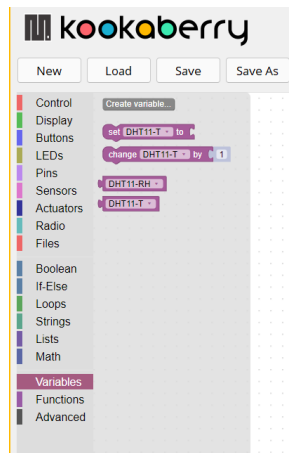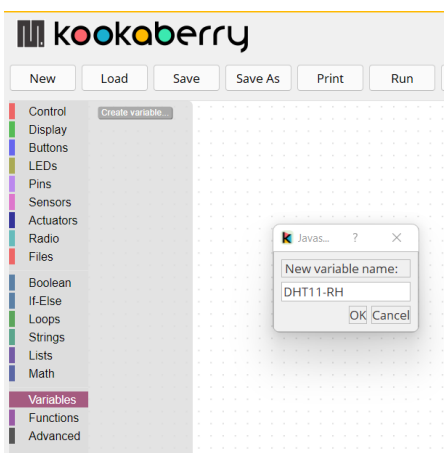# DHT11 Continuous - KookaBlockly

Overview

This tutorial describes how to create a KookaBlockly programme to measure Relative Humidity (RH) and Temperature using the DHT11 peripheral and the Kookaberry microcontroller STEM platform on a continuous basis.

DHT11 Module

The DHT11 module measures two variables – RH and temperature – and transmits their values as digital signals to a connected computer (in this case the Kookaberry). The chip in the module samples the RH and T values at high speed, but a pause between reading their values at the Kookaberry interface is necessary to avoid errors occurring.

Setting the RH and T Variables

Open KookaBlockly; open the Variables menu; and click on the Create variable grey box. A prompt box will appear on the canvas inviting you to name the variable. Type in DHT11-RH and click OK. The blocks for the RH variable will appear in the Variables menu. Repeat for the Temp variable. The variable (if more than one) can be selected from the dropdown menu within the set and change blocks

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Set up Control Loop for Measurement

Open the Control menu and drag the "every loop" onto the canvas. Now bring the DHT11-T variable into the loop and attach the DHT11 sensor block to it as shown Note that the selected pin is "P1" and the variable is "temperature". Now drag the "sleep for "0.5"secs" block underneath the variable blocks and change (simply type over) the delay to 1 second. This allows for bit of time pass before the DHT11 is asked for the value of the other variable (RH in this case).

Repeat for the RH variable but change the variable name to DHT=RH and change the sensor measurement to humidity using the block's internal dropdown menus.
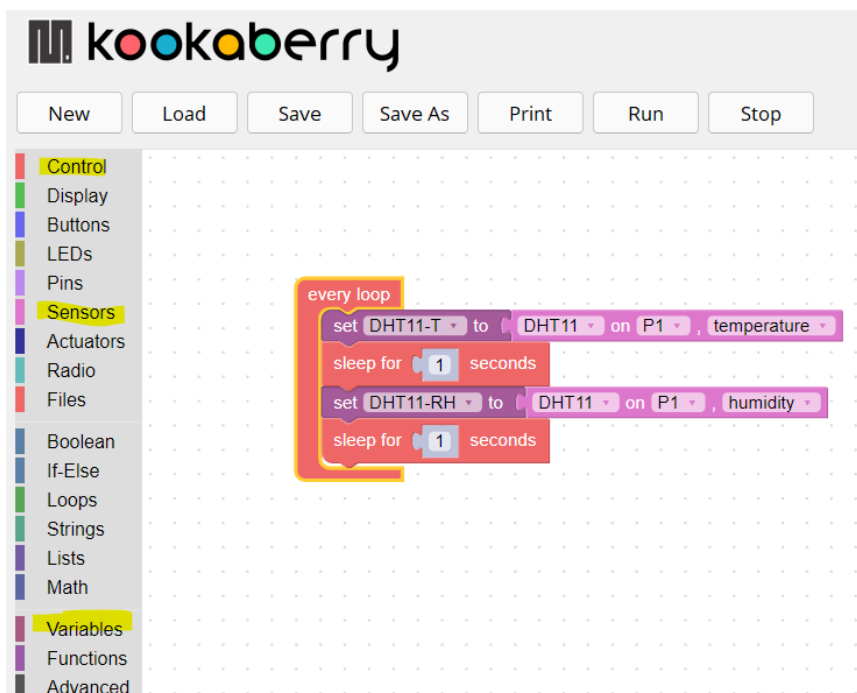
Setting screen layout

Now arrange text on the screen to show the name of the programme and the individual measurements of RH and T. Remember that the screen is 128 pixels wide and 64 pixels deep, and that character strings start at specific pixel coordinates set in the display blocks.

Open the Display menu and drag the "display clear" block into the loop. This ensures that the screen is cleared ready for a new measurement at the beginning of every chip cycle. Make sure you add a complementary "show screen" block at the end of the sequence.

Now drag successive "display text value "Hello"" blocks into the loop as shown. The first, second, and fourth blocks simply start printing the required text (just type over "Hello") at the coordinates shown.
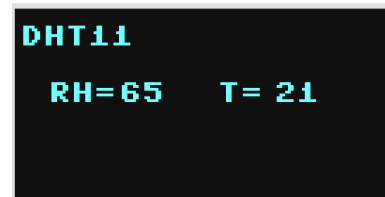
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The third and fifth blocks display the value of the variable selected from the Variables menu.

Run the programme and click on "Show display" at the top right of the KookaBlockly window. The display should be as shown below.

Save it on your Kookaberry

To save this file on your Kookaberry so that you can run it independently from your computer, you have to add

- an Exit programme instruction (press Button A to Exit)

- a command instruction (press button * to send)

- screen prompts (what button does what…)

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- a suffix .kby to the file name so it can be identified as a KookaBlockly file in the Kookaberry's menu

Additional Exit Code