



DHT11 Buttons - KookaBlockly

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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.

The required measurement (RH or T) at any given moment is selected using the buttons on the Kookaberry.

DHT11 Module

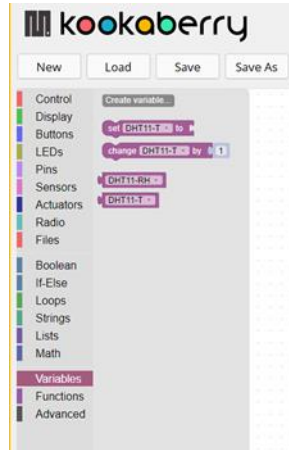
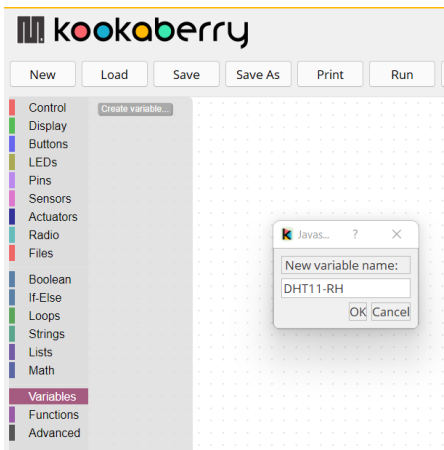
The DHT11 module measures two variables – RH and temperature – and transmits their values as digital signals to a connected computer (in this case the Kookaberry).



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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



Measure temperature when Button C is pressed

Open the Buttons menu and drag the “When button “A” is pressed” block onto the canvas. Change the button to “C” using the block’s internal dropdown menu. Next

- Drag the set.” variable into the button block and make sure the variable is set to DHT11-T
- Open the Strings menu and attach the “format as an integer” block to the variable.
- Open the Sensors menu and put the DHT11 block into the first space in the format block. Set the variable to “temperature” and the integer width to “2”. Temperature will be constrained to always be a whole number of 99 or less.
- Open the Display menu and drag the “display print/and” block into the button block. Replace the “Hello” string block with the DHT11-T variable.
- Open the String menu and replace the “123” block with the top “”” block. Type “Degrees” into this new block.



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Measure temperature when Button D is pressed

Repeat the above, but with Button C measuring RH and the text to RH%

[**Tip:** Right click on the Button C block and select duplicate from the menu.]

```
when button C is pressed
  set DHT11-T to format DHT11 on P1, temperature as integer, width 2
  display print DHT11-T
  and "Degrees"

when button D is pressed
  set DHT11-RH to format DHT11 on P1, humidity as integer, width 2
  display print DHT11-RH
  and "% RH"
```

Setting screen layout

Because measurements will not appear on the screen until either Button C or D is pressed, instructions must always be present on the screen. This is achieved by a separate loop programme as shown below. Note the change of font size by dragging in the "display set font to" "mono5x5" block from the Display menu and changing it to mono6x7 using the block dropdown menu. This displays the instructions in the bottom right of the Kookaberry screen

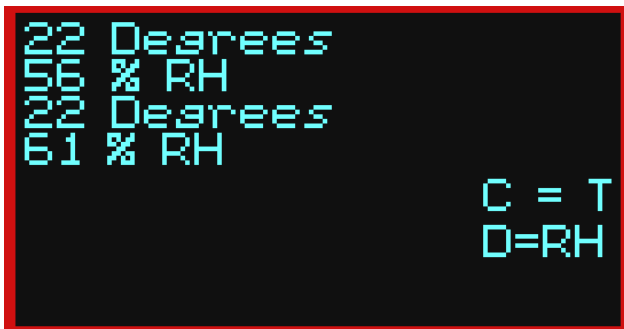
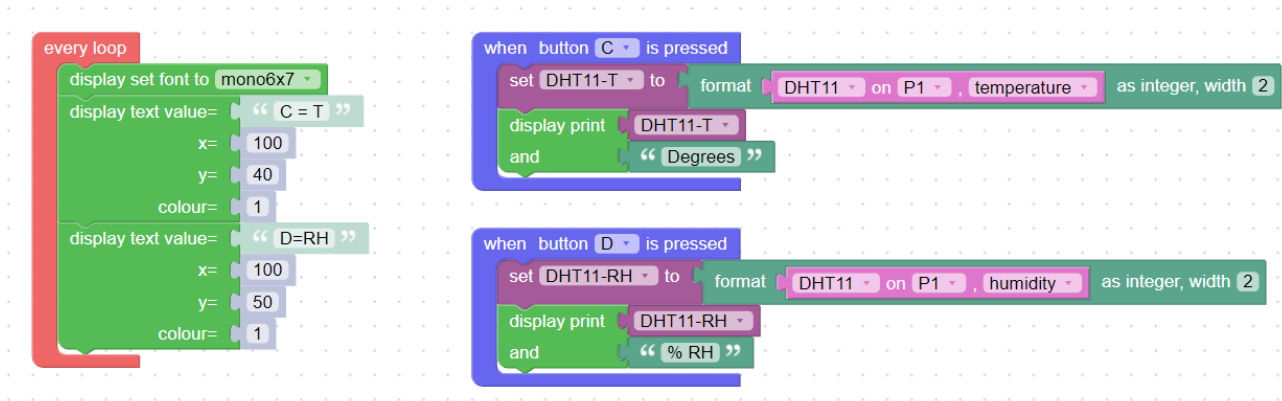
```
every loop
  display set font to mono6x7
  display text value= "C = T"
  x= 100
  y= 40
  colour= 1
  display text value= "D=RH"
  x= 100
  y= 50
  colour= 1
```



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Running the programme

Running the complete programme and pressing Buttons C&D will display the measurements for each button press down the left-hand side of the screen (This format is created by the “display print/and” display block)



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)
- include Exit button in on-screen instructions
- a command instruction (press button * to send)
- screen prompts (what button does what...)
- a suffix .kby to the file name so it can be identified as a KookaBlockly file in the Kookaberry's menu



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Additional Exit Code

```
every loop
  display set font to mono6x7
  display text value= " C = T "
    x= 100
    y= 40
    colour= 1
  display text value= " D=RH "
    x= 100
    y= 50
    colour= 1
  display text value= " A=Exit "
    x= 90
    y= 60
    colour= 1

when button C is pressed
  set DHT11-T to format DHT11 on P1 , temperature as integer, width 2
  display print DHT11-T
  and " Degrees "

when button D is pressed
  set DHT11-RH to format DHT11 on P1 , humidity as integer, width 2
  display print DHT11-RH
  and "% RH "

when button A is pressed
  display clear
  display show
  exit program
```

