Micro:bit measures temperature which is sent to MatDeck and displayed in instrument widget

This example illustrates communications between MatDeck and micro:bit using a com port.The obtained results are displayed in instrument widget.

The document here contains the micro:bit Python program. The user can flash .HEX files onto a micro:bit directly from the document.They will need to highlight the whole Python block they would like to flash and click Deploy. If the micro:bit Python block has already been deployed to the micro:bit, you will not need to deploy it again to run it.The micro:bit should be connected to the PC. The receiver code is also in this MatDeck document

The micro:bit's processor contains a temperature sensor which can be used in your programs. It's a useful approximation of the temperature around the micro:bit.

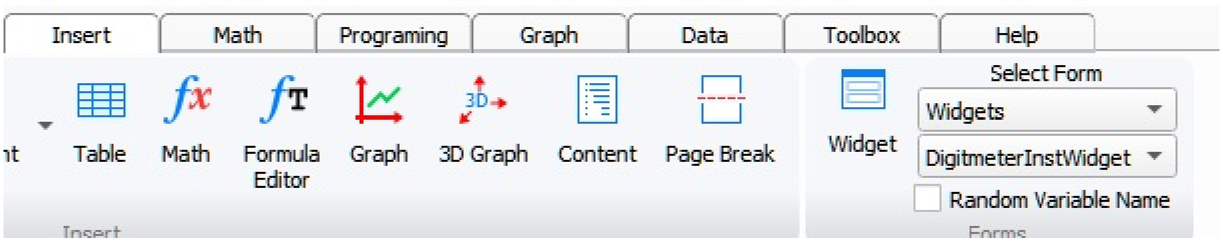
- Flush the following code to your micro:bit (select all lines and click Deploy button from programing tab)

```
#py
from microbit import *

while True:
    x = temperature()
    print(x)
    display.show(Image.YES)
    sleep(250)
    display.show(Image.NO)
    sleep(250)

###
```

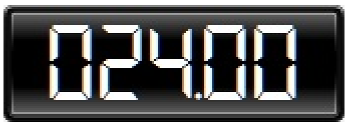
The temperature read from the micro:bit unit is displayed by the virtual instrument in the canvas below. The instrument is added from **Insert - Select Form.**



Select Form: Widgets, DigitmeterInstWidget; Random Variable Name [ ]

It is related to the variable given in the code.

WGT2:=DigitmeterInstWidget("WGT2")



Temperature measured in Celsius

MatDeck can communicate and receive data from the micro:bit unit via com port. The micro Python code given above will cause the micro:bit to send temperature data via a com port. The data can then be displayed using Virtument. The required parameters for com port communications are:

- COM3
- Baud rate = 115200
- Data = 8 bits
- Parity = none
- Stop = 1 bit

```
handle := com_open("COM3,115200,N,8,1")
t := timer_create(250)
Temp := 0
counter := 10
on_event(t,microbit_read())
```

Here, we temperature sent from micro:bit.

```
microbit_read()
{
  value := com_read(handle, 100)

  if(size(value) == 4)
  {
     valuestr := vec2str(value)
     Temp = to_number(mid(valuestr, 0,2))
     set_widget_value(WGT2, Temp)
  }
  counter -= 1
  if(counter == 0)
  {
    com_close(handle)
    timer_delete(t)
  }
}
```