Introduction to Computer Systems COSC 2473 Assignment 2 - Project

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Video Link

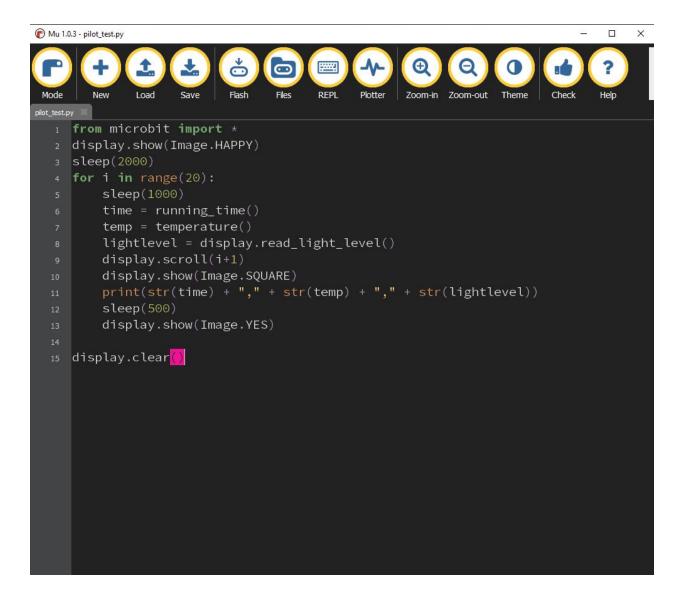
Please excuse the phone recording - no webcam.

Link to video:

https://drive.google.com/file/d/1M2Jbx4ZufNR2KEVKtRp6Wc RvR4TjeCC/view?usp=sharing

Steps to reproduce sampling

- 1. Copy "microbitprogram.py" to the microbit, in my case using Mu. The smiling face tells you it's running and to start the PC program.
- 2. Run "PCprogram.py" on the PC.
- 3. The Microbit will then:
- Take a finite number of samples of temperature and light
- Send each sample to the PC program by printing a formatted comma separated string



4. The PC program will

- Take the formatted string from the microbit with running time, temperature and light reading
- Append the datetime from the PC
- Append to an existing txt file (headers already loaded) with a new line, following CSV convention

```
PCprogram.py × microbitprogram.py * ×
  1 import serial
  2 import time
  3 from datetime import datetime
  5 ser = serial.Serial()
  6 ser.baudrate = 115200
  7 ser.port = "COM3"
  8 ser.open()
  9
 10
 11
 12 while True:
 13
         ## add the time
 14
         data1 = str(ser.readline())
         data1 = data1.replace("b","")
 15
         data1 = data1.replace("'","")
 16
         data1 = data1.replace("\\r\\n","")
 17
 18
         if data1 is not None:
 19
             with open("datadump.txt", "a") as myfile:
                 myfile.write(str(datetime.now()) + "," + data1 + "\n")
 20
 21
         print(data1)
 22
 23 ser.close()
Shell ×
 27115, 22, 15
 30162,22,16
 33738,22,14
 37229,22,7
 40877,22,6
 44521,22,15
 48315,22,13
 52109,22,16
 55900,22,16
 59694,22,12
 63488,22,9
 67282,22,17
 MicroPython v1.9.2-34-qd64154c73 on 2017-09-01; micro:it v1.0.1 with
 Type "help()" for more information.
```

Example output

```
atadump.txt - Notepad
   File Edit Format View Help
   pcdatetime, microbitruntime, temp, light
   2020-10-17 03:01:30.020560,3270,22,14
   2020-10-17 03:01:32.925476,6167,22,11
   2020-10-17 03:01:35.822362,8996,22,10
   2020-10-17 03:01:38.875023,11888,22,10
   2020-10-17 03:01:41.929449,14933,22,14
   2020-10-17 03:01:44.982883,17978,22,17
   2020-10-17 03:01:48.036480,21023,22,12
   2020-10-17 03:01:51.089420,24068,22,15
   2020-10-17 03:01:54.143597,27115,22,15
   2020-10-17 03:01:57.796595,30162,22,16
   2020-10-17 03:02:01.294441,33738,22,14
   2020-10-17 03:02:04.948679,37229,22,7
   2020-10-17 03:02:08.601847,40877,22,6
   2020-10-17 03:02:12.404253,44521,22,15
   2020-10-17 03:02:16.207228,48315,22,13
   2020-10-17 03:02:20.011701,52109,22,16
   2020-10-17 03:02:23.881985,55900,22,16
   2020-10-17 03:02:27.685174,59694,22,12
   2020-10-17 03:02:31.488098,63488,22,9
   2020-10-17 03:02:35.141226,67282,22,17
   2020-10-17 03:02:35.655879, MicroPython v1.9.2-34-gd64154c73 on 2017-09-01; micro:it v1.0.1 with nRF51822
   2020-10-17 03:02:35.658878, Type "help()" for more information.
```

Output graphed (note, I put my hand over the device halfway through the sampling to demonstrate the light). This was demonstrated in the video.

1	Α	В	С	D	E	F	G	Н		1		J		K		L			M
1	pcdatetim	microbitru	temp	light															
2	01:30.0	3270	22	14															
3	01:32.9	6167	22	11															
4	01:35.8	8996	22	10							ligh	t							
5	01:38.9	11888	22	10		18					Ŭ								
6	01:41.9	14933	22	14					۸										1
7	01:45.0	17978	22	17		16					1				/				
8	01:48.0	21023	22	12		14	1		-			1		1	\checkmark		1		-
9	01:51.1	24068	22	15		12			V			1					1		
10	01:54.1	27115	22	15		10						-1						V	
11	01:57.8	30162	22	16		8						-\	/					•	
12	02:01.3	33738	22	14		6							V						
14						35.0													
13	02:04.9	37229	22	7		- 4													
-	02:04.9 02:08.6	37229 40877	22 22			4													
13				6		2													
13 14	02:08.6	40877	22	6 15		250	1.2.5				10	44 4	2 42	14	45	ic 47	10	10	20
13 14 15	02:08.6 02:12.4	40877 44521	22 22	6 15 13		2	1 2 5	4 5	6 7	8 9	10	11 1	2 13	14	15 :	16 17	18	19	20
13 14 15 16	02:08.6 02:12.4 02:16.2	40877 44521 48315	22 22 22	6 15 13 16		2	1 2 3	4 5	6 7	8 9	10	11 1	2 13	14	15	16 17	18	19	20
13 14 15 16	02:08.6 02:12.4 02:16.2 02:20.0	40877 44521 48315 52109	22 22 22 22	6 15 13 16 16		2	1 2 5	3 4 5	6 7	8 9	10	11 1	2 13	14	15	16 17	18	19	20
13 14 15 16 17 18	02:08.6 02:12.4 02:16.2 02:20.0 02:23.9	40877 44521 48315 52109 55900	22 22 22 22 22 22	6 15 13 16 16		2	1 2 5	3 4 5	6 7	8 9	10	11 1	2 13	14	15	16 17	18	19	20
13 14 15 16 17	02:08.6 02:12.4 02:16.2 02:20.0 02:23.9 02:27.7	40877 44521 48315 52109 55900 59694	22 22 22 22 22 22	6 15 13 16 16 12		2	1 2 5	3 4 5	6 7	8 9	10	11 1	2 13	14	15	16 17	18	19	20