

2024-2025 Quality Education Fund Thematic Network - Tertiary Institutes

Progressive Development of STEAM Literacy through STEAM Education and Self-directed Learning

透過STEAM教育自主學習有序發展STEAM素養

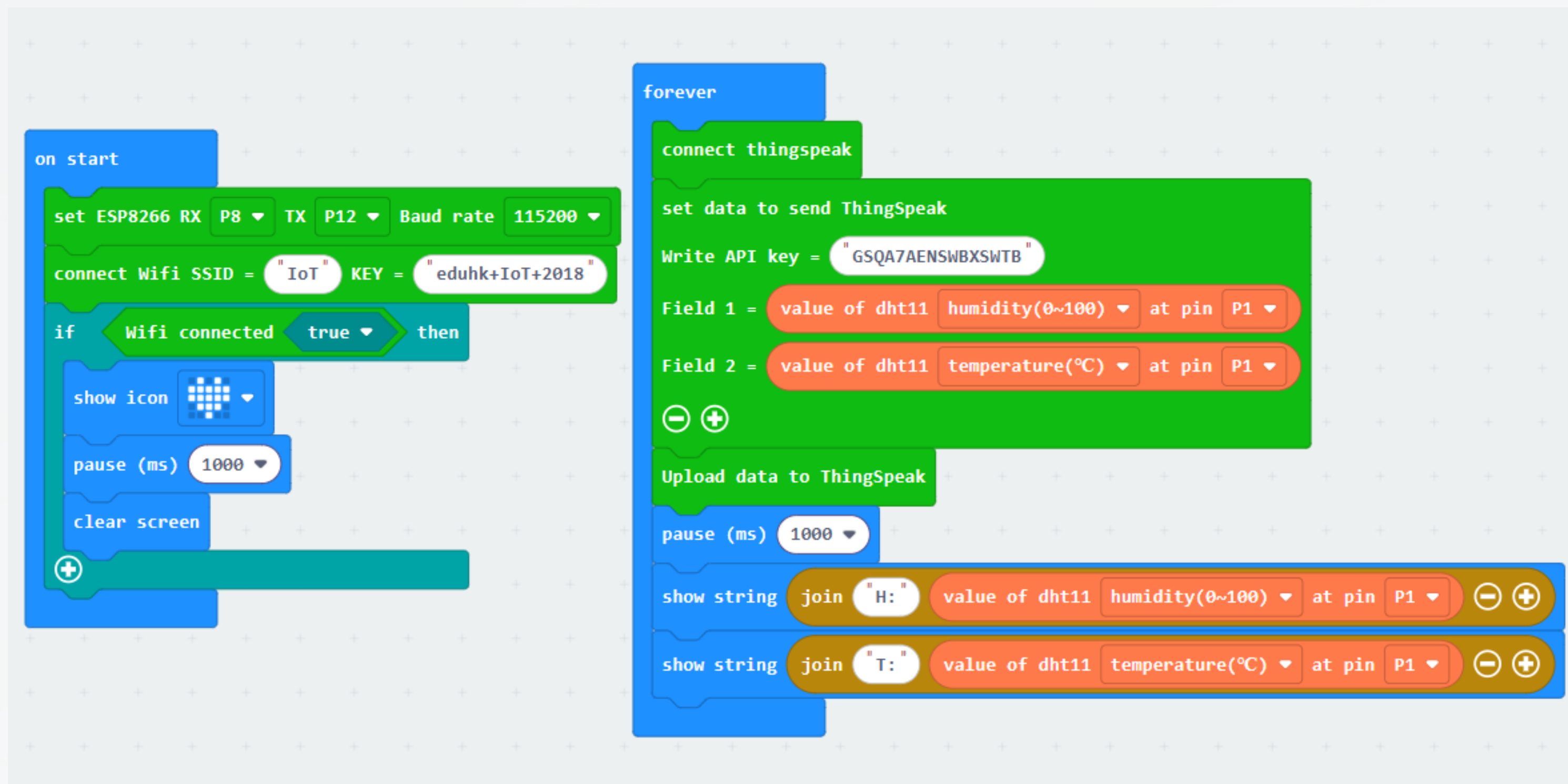
乾衣測量

馬頭涌官立小學

Materials

- Micro:bit
- Iot 擴展板 (for Thingspeak)
- DHT11
- 濕毛巾
- 風扇
- Dehumidifier (吸濕大笨象)
- 膠箱
- Battery&Charger

Makecode (Thinkspeak)



Thinkspeak

DHT11_g

Channel ID: **2282557**

Author: [mwa0000031385108](#)

Access: Private

Private View

Public View

Channel Settings

Sharing

API Keys

Data Import / Export

+ Add Visualizations

+ Add Widgets

Export recent data

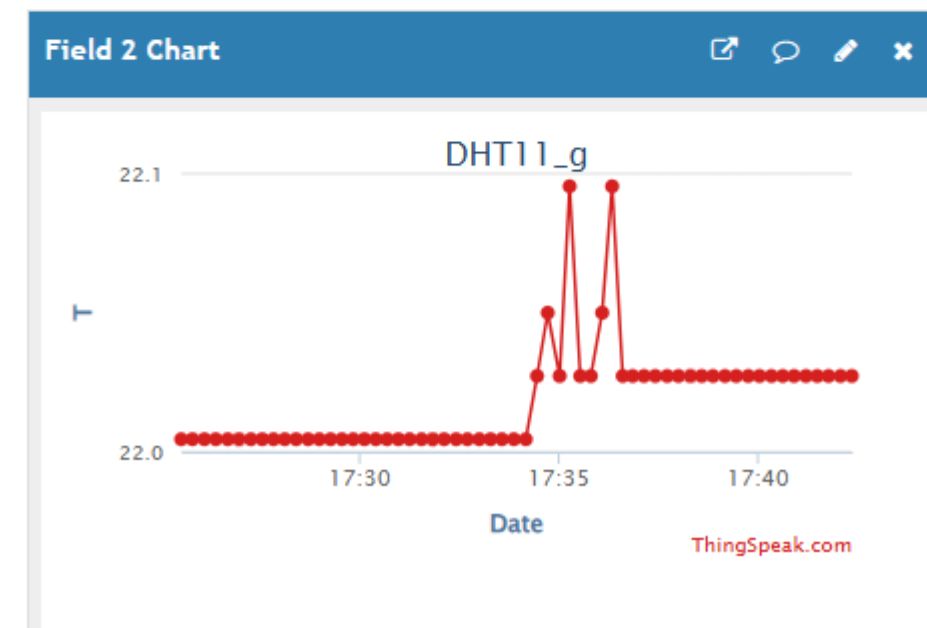
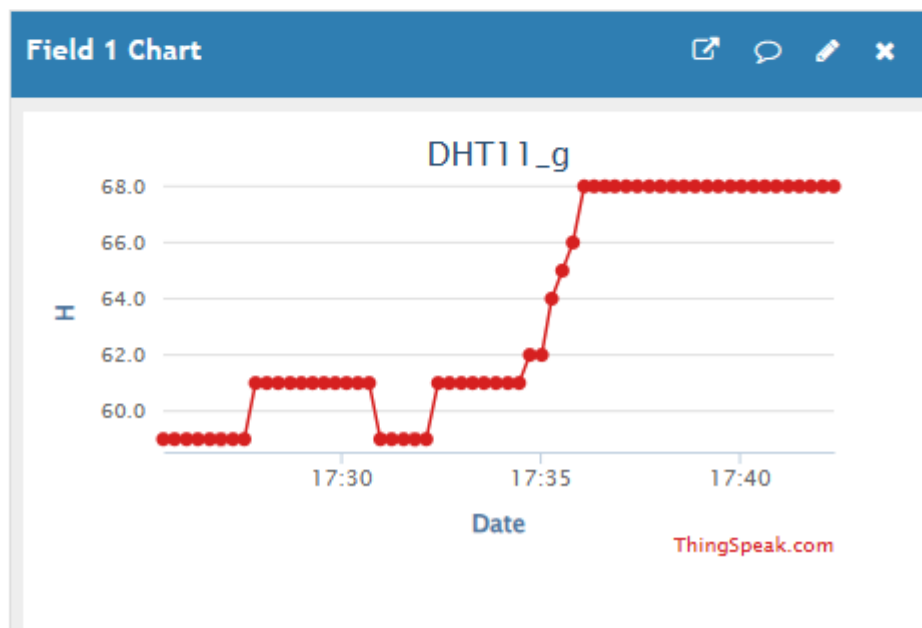
MATLAB Analysis

Channel Stats

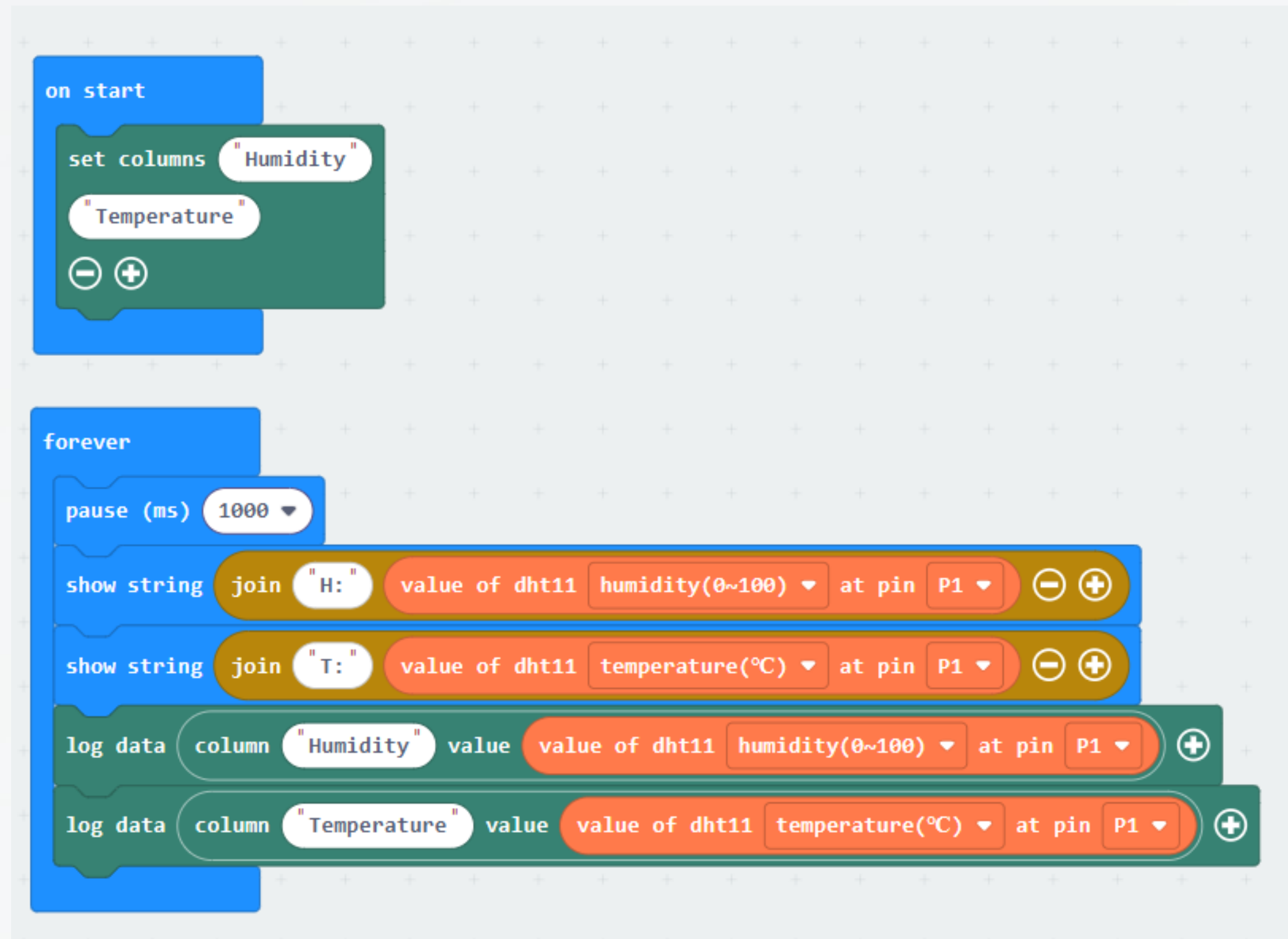
Created: [about a year ago](#)

Last entry: [about 18 hours ago](#)

Entries: 1364



Makecode (Datalog)



Set-up

情景 A：吸濕大笨象、密封環境

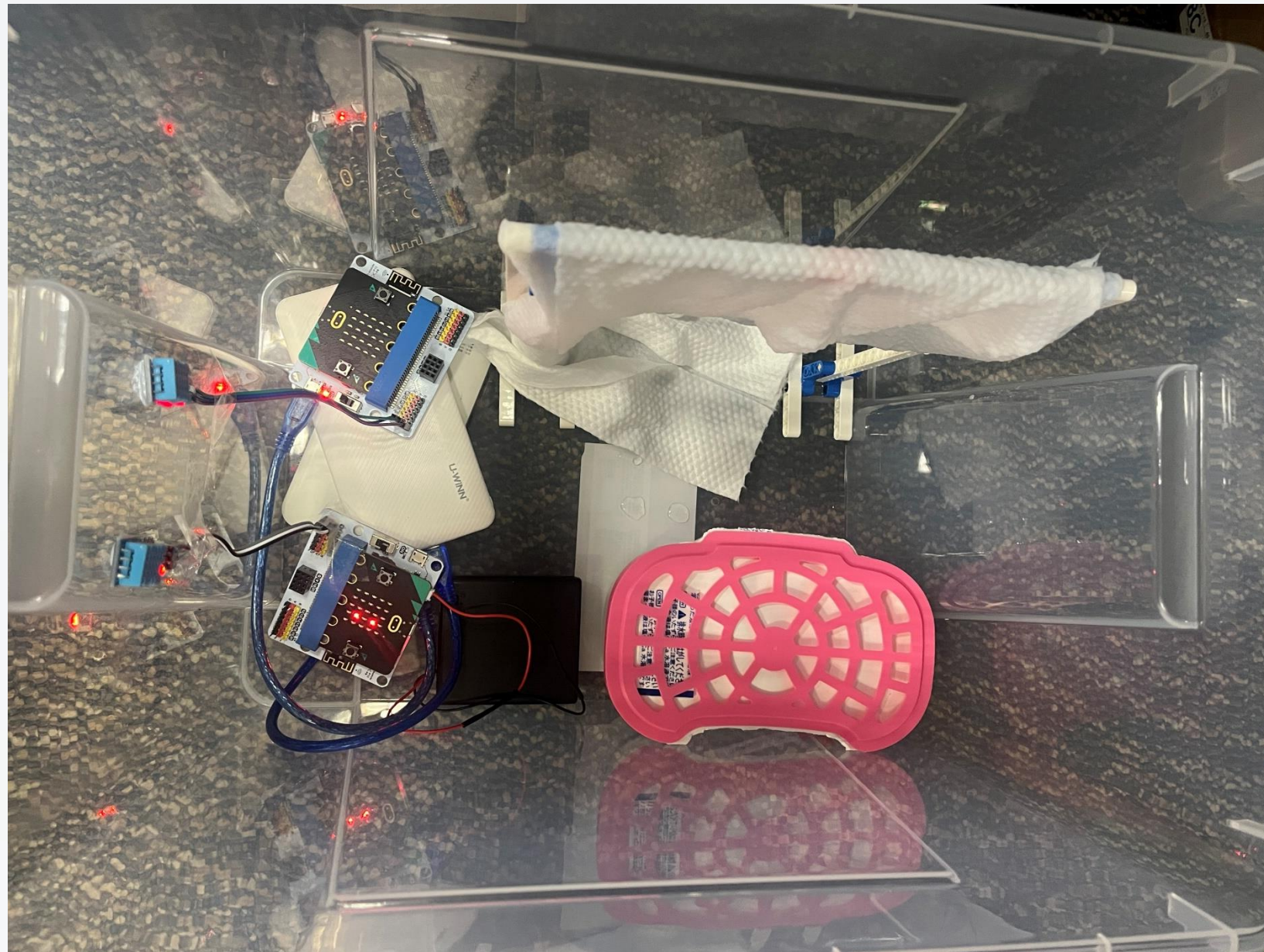


情景 B：風扇、吸濕大笨象、密封環境



Set-up

情景 C：濕毛巾、吸濕大笨象、密封環境



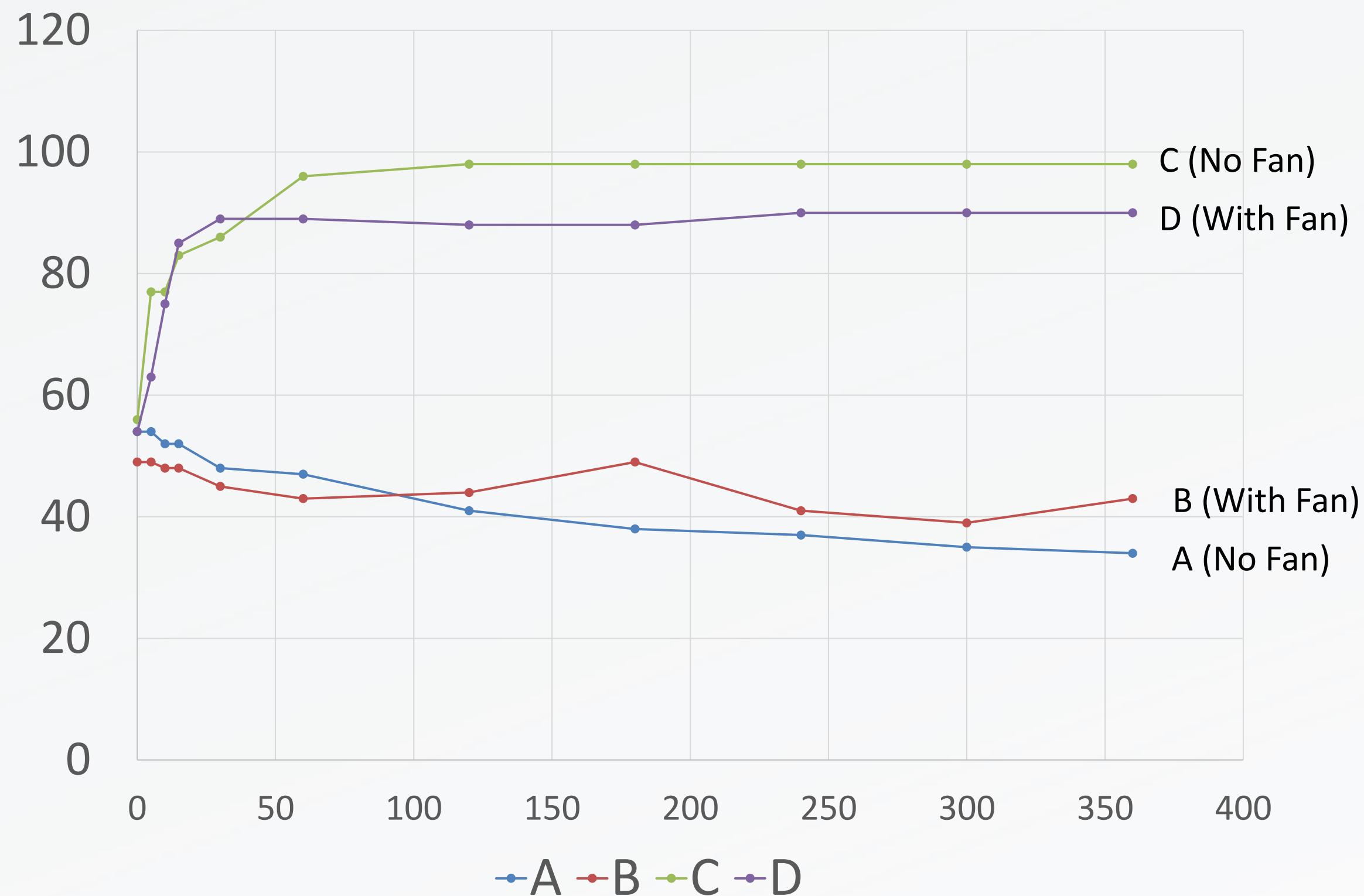
情景 D：濕毛巾、風扇、吸濕大笨象、密封環境



Micro:bit Data

Time (minute)	A		B (With Fan)		C		D (With Fan)	
	ThingSpeak	Datalog	ThingSpeak	Datalog	ThingSpeak	Datalog	ThingSpeak	Datalog
0	54	59	49	66	56	56	54	60
5	54	59	49	65	77	63	63	76
10	52	58	48	62	77	74	75	92
15	52	55	48	59	83	74	85	92
30	48	55	45	55	86	79	89	92
60	47	47	43	51	96	79	89	92
120	41	42	44	61	98	89	88	92
180	38	41	49	55	98	90	88	94
240	37	38	41	46	98	88	90	94
300	35	36	39	44	98	90	90	95
360	34	34	43	48	98	90	90	92
Difference	-20	-25	-6	-18	42	34	36	32

Micro:bit Data



Weight of Dehumidifier

Weight (g)	A	B (With Fan)	C	D (With Fan)
Before	318.50	324.64	315.37	314.30
After	319.06	325.67	324.64	319.06
Difference	0.56	1.03	9.27	4.76

Set-up

情景 E：吸濕大笨象、開封環境

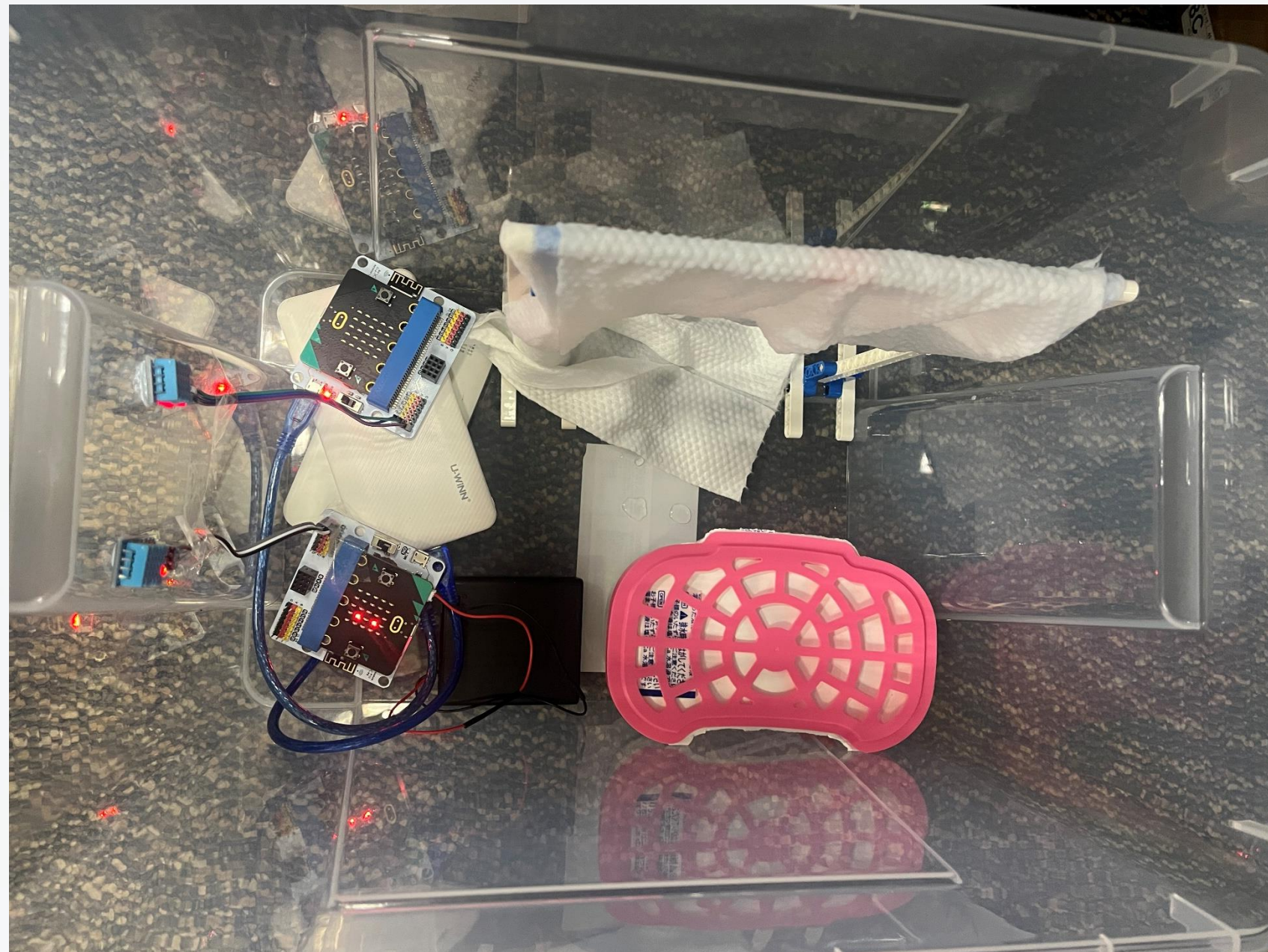


情景 F：風扇、吸濕大笨象、開封環境



Set-up

情景 G：濕毛巾、吸濕大笨象、開封環境



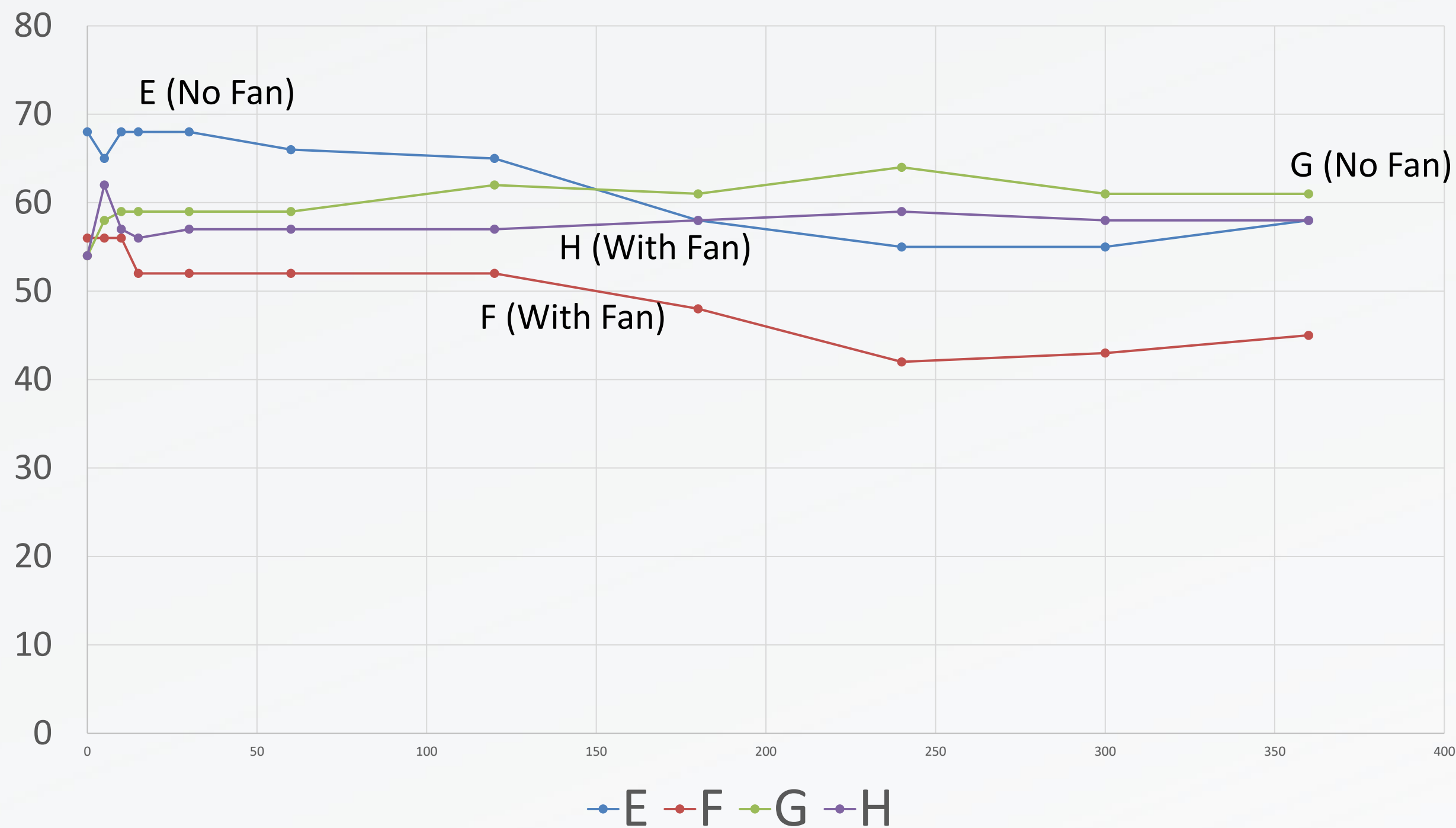
情景 H：濕毛巾、風扇、吸濕大笨象、開封環境



Micro:bit Data

Time (minute)	E		F (With Fan)		G		H (With Fan)	
	ThingSpeak	Datalog	ThingSpeak	Datalog	ThingSpeak	Datalog	ThingSpeak	Datalog
0	68	55	56	54	54	53	54	64
5	65	56	56	54	58	52	62	66
10	68	56	56	54	59	32	57	66
15	68	56	52	54	59	54	56	61
30	68	55	52	54	59	61	57	70
60	66	54	52	52	59	59	57	64
120	65	52	52	51	62	61	57	71
180	58	49	48	48	61	64	58	71
240	55	43	42	42	64	65	59	73
300	55	43	43	42	61	65	58	75
360	58	41	45	44	61	68	58	71
Difference	-10	-14	-11	-10	7	15	4	7

Micro:bit Data



Weight of Dehumidifier

Weight (g)	E	F (With Fan)	G	H (With Fan)
Before	318.57	307.97	321.46	312.06
After	320.00	310.00	323.25	315.83
Difference	1.43	2.03	1.79	3.77

土壤濕度傳感器

	Original	G	H (With Fan)
Data	775	751	655



Limitation

- Connection of Battery Charger
- Efficiency of Dehumidifier (吸濕大笨象)
- Individual differences of DHT11