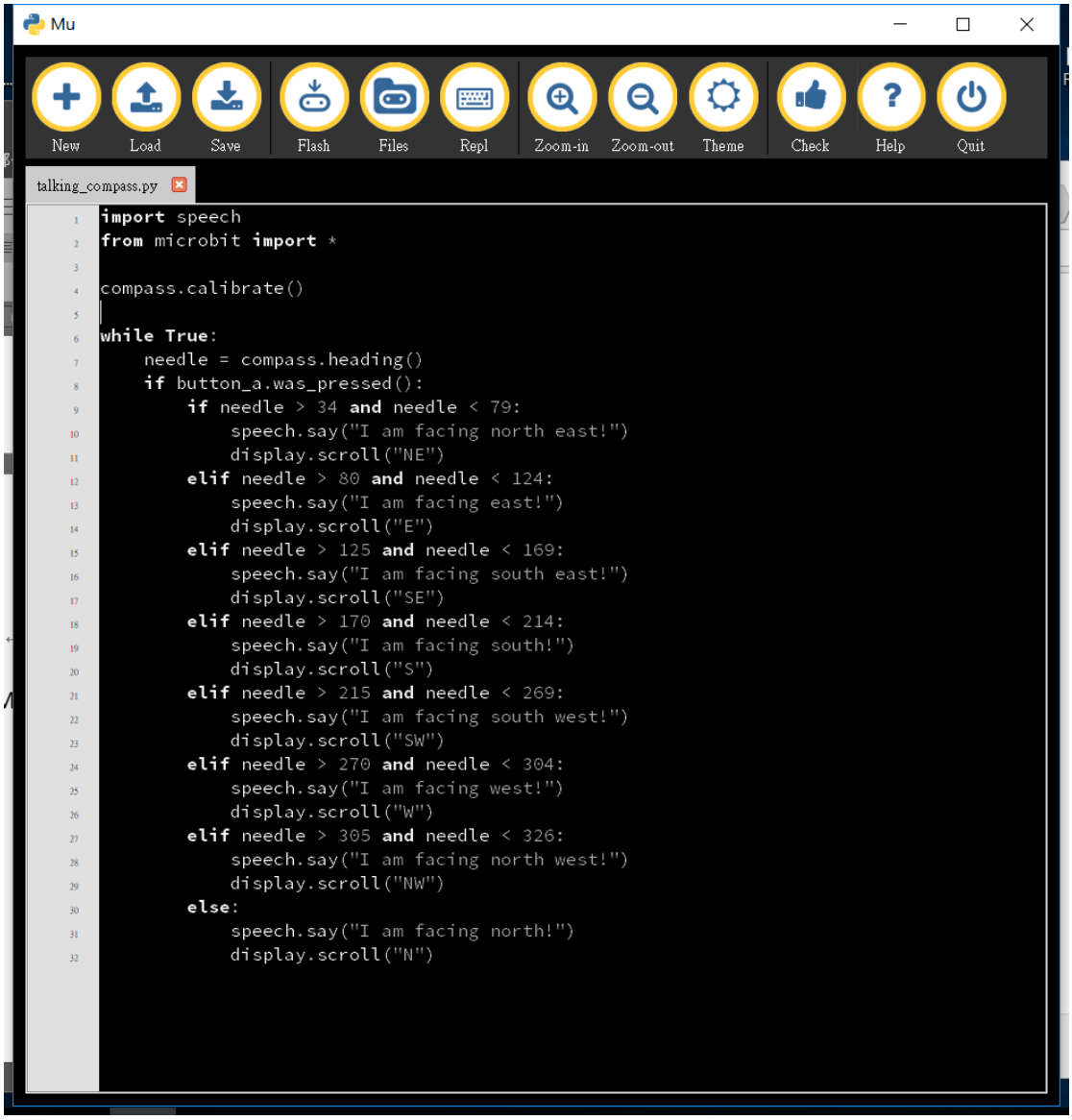
補充教材

2017/12/26

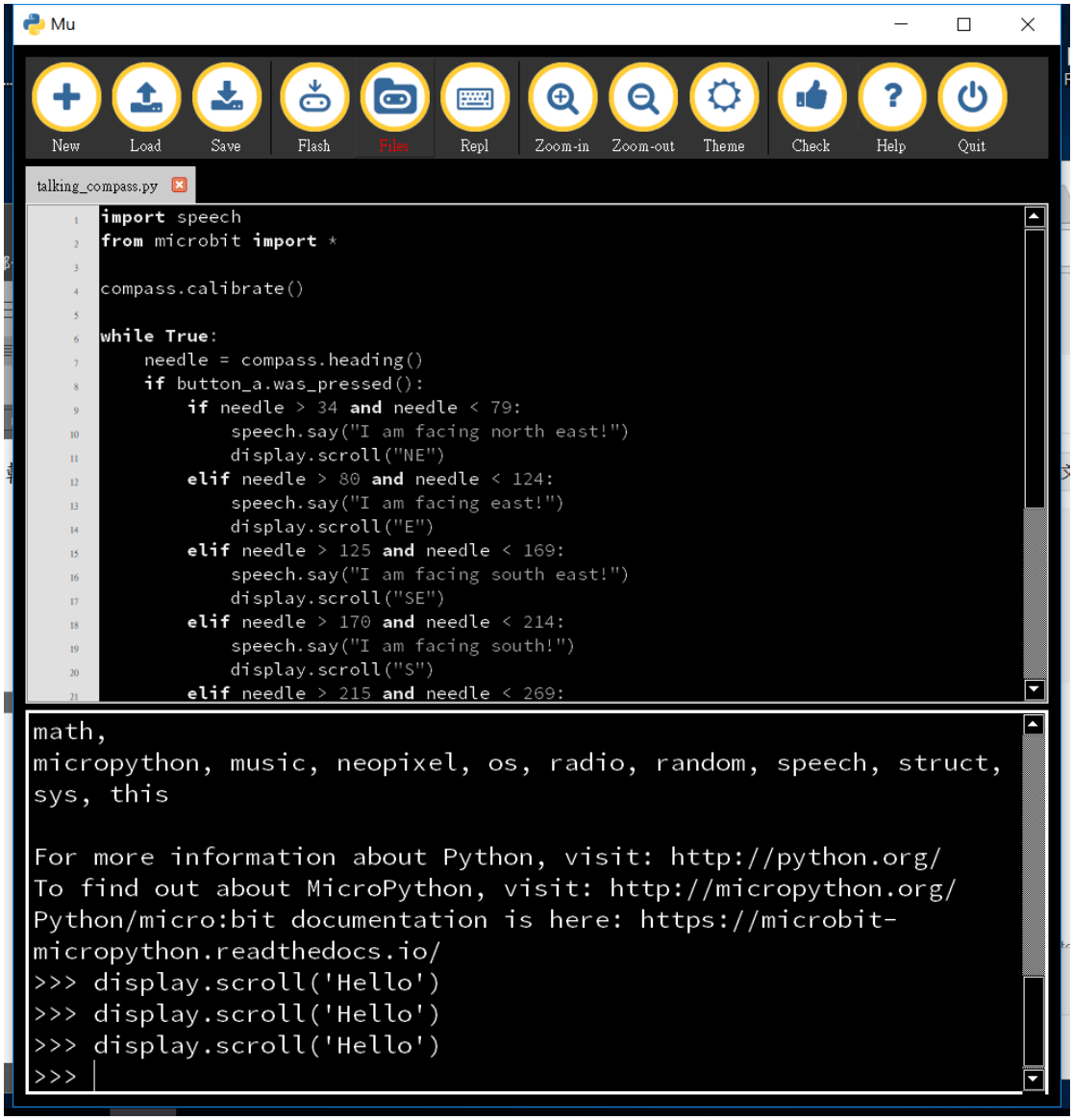
一、 會說話的指南針

利用 **Mu** 來線習撰寫 MicroPython 程式碼，如下圖



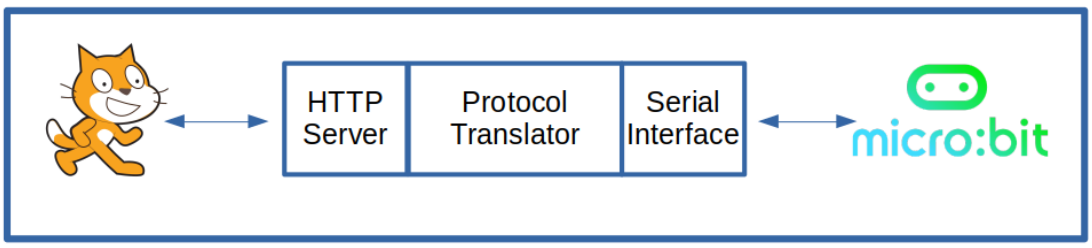
請注意，每次需執行磁場校正動作(劃一大圓後，會出現笑臉)…

另外，按下 Mu 上方功能 Repl，可於下方顯示 REPL 模式(可執行 micropython 直譯功能)，輸入 **help()**可查詢輔助說明，輸入 **display.scroll('Hello')**可輸出至 TaiBit 的 LED 矩陣，如下圖

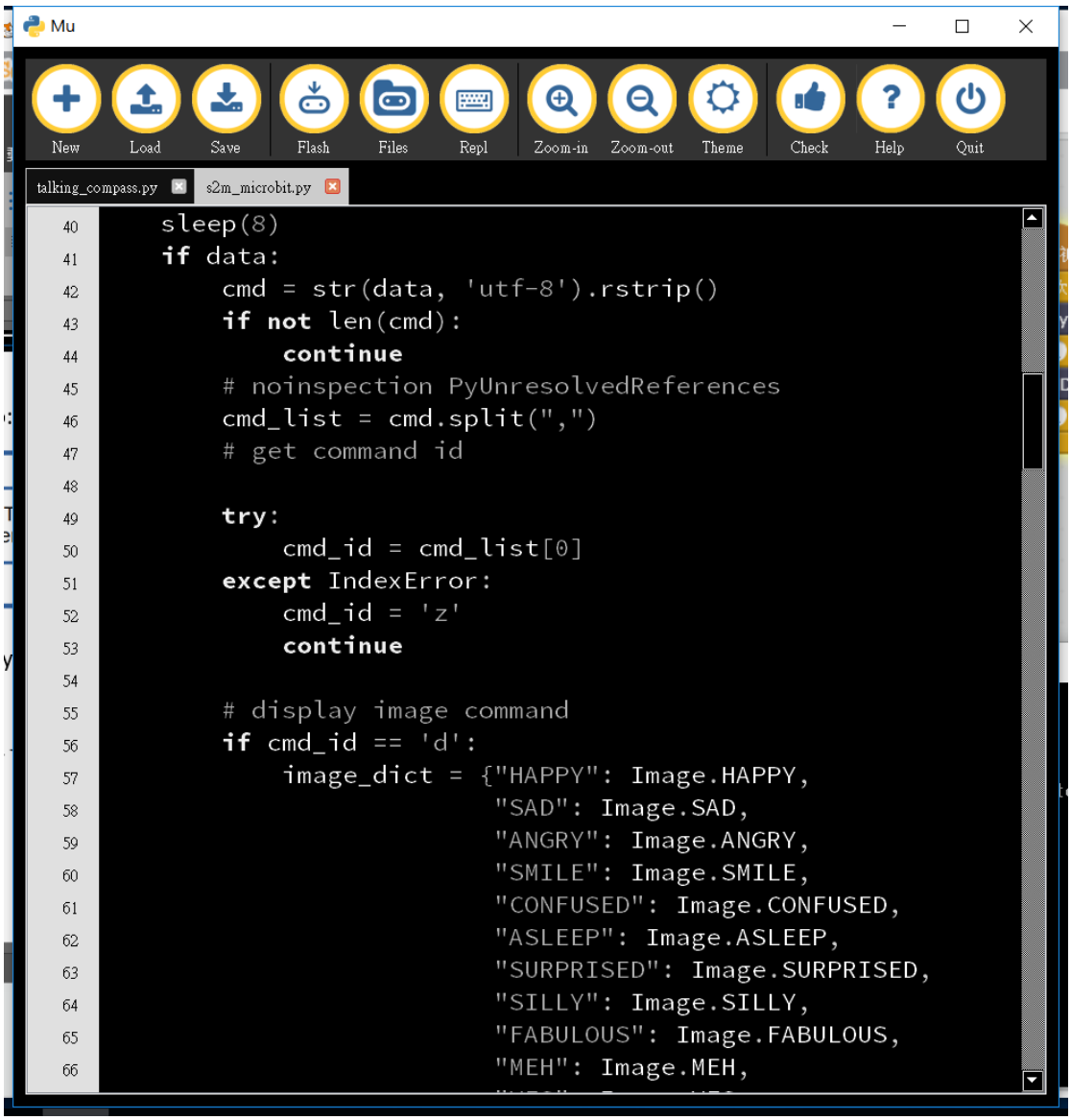


二、 Scratch to micro:bit bridge

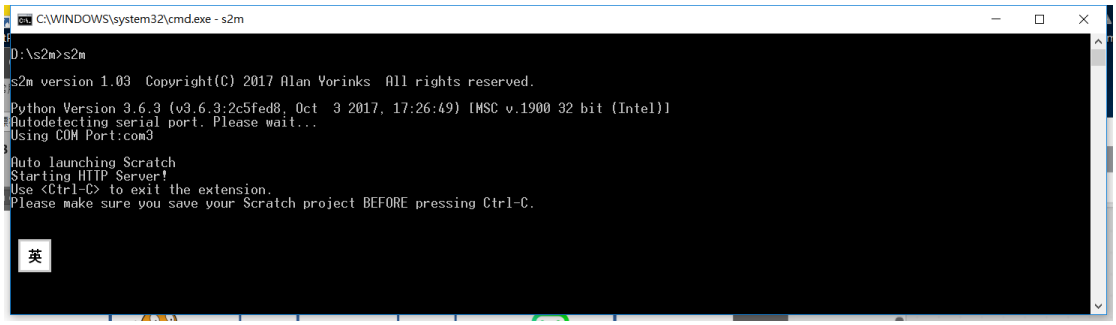
參考網址：https://github.com/MrYsLab/s2m

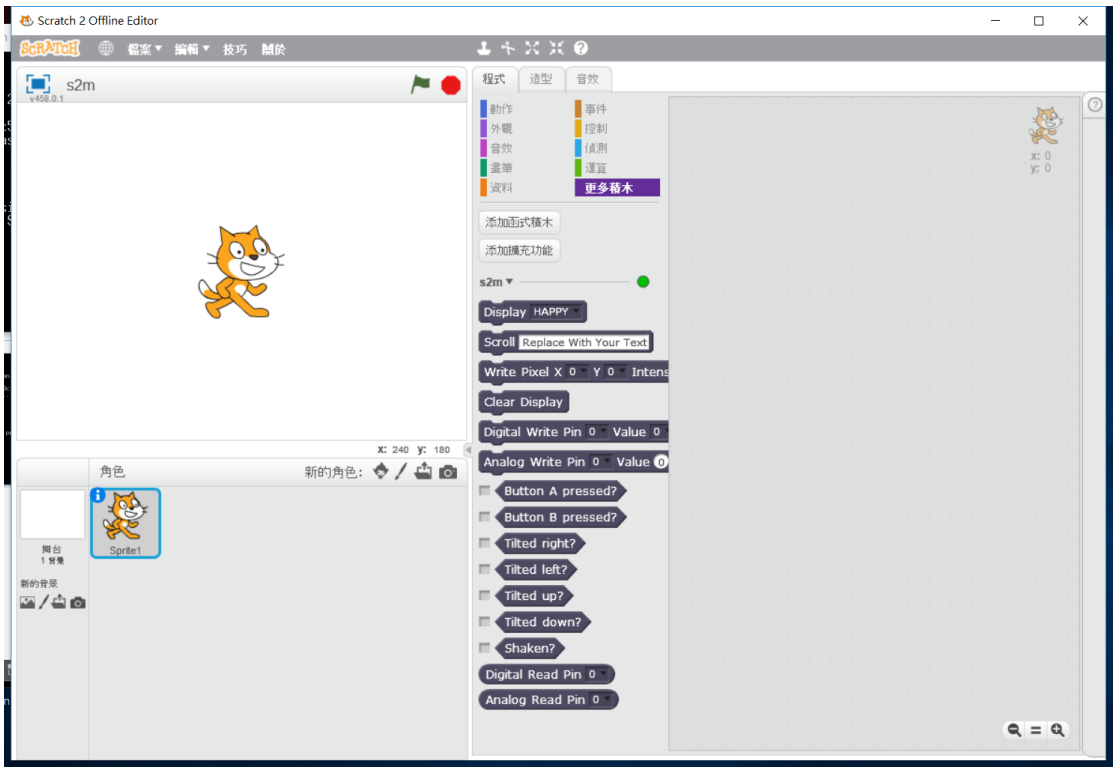


利用 Mu 製作 micropython 程式並 Flash 至 TaiBit，如下圖

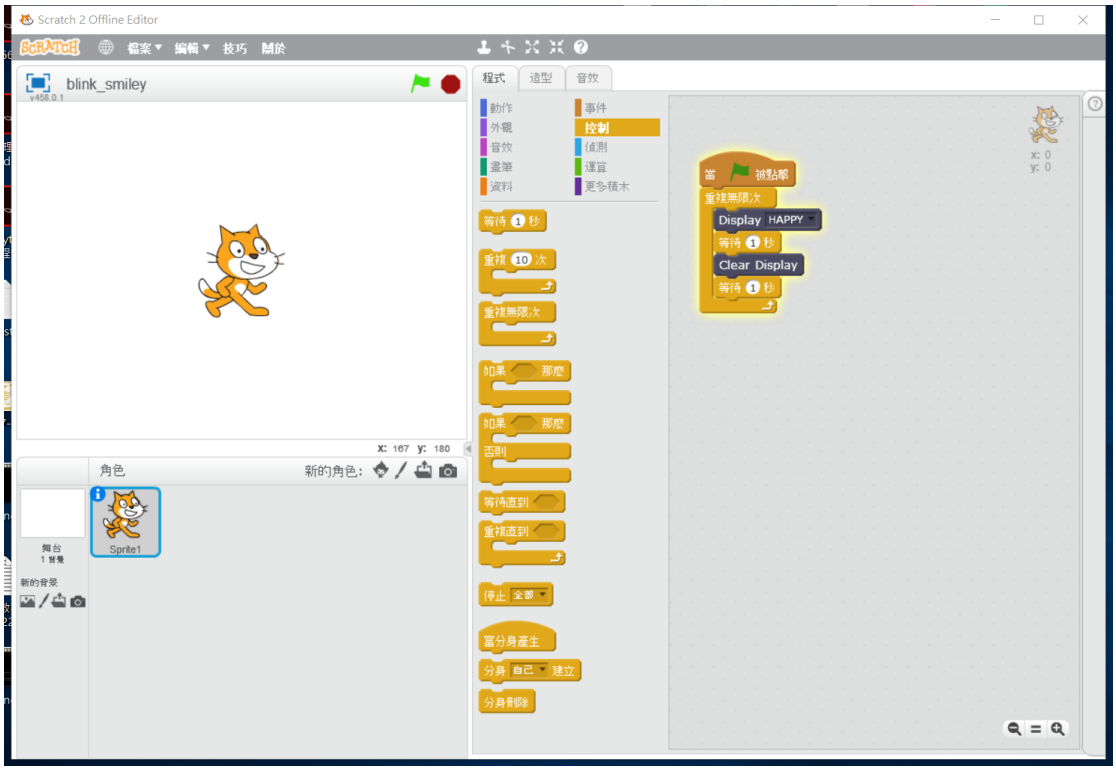


安裝 s2m 並執行，如下圖

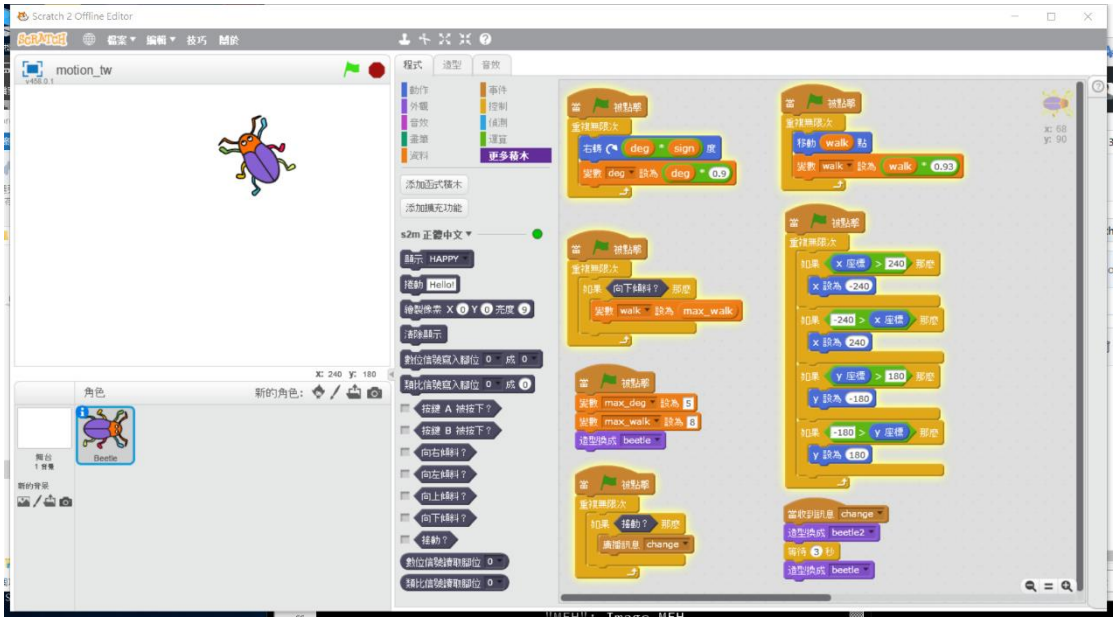




閃爍笑臉，如下圖



體感小蟲遊戲，如下圖



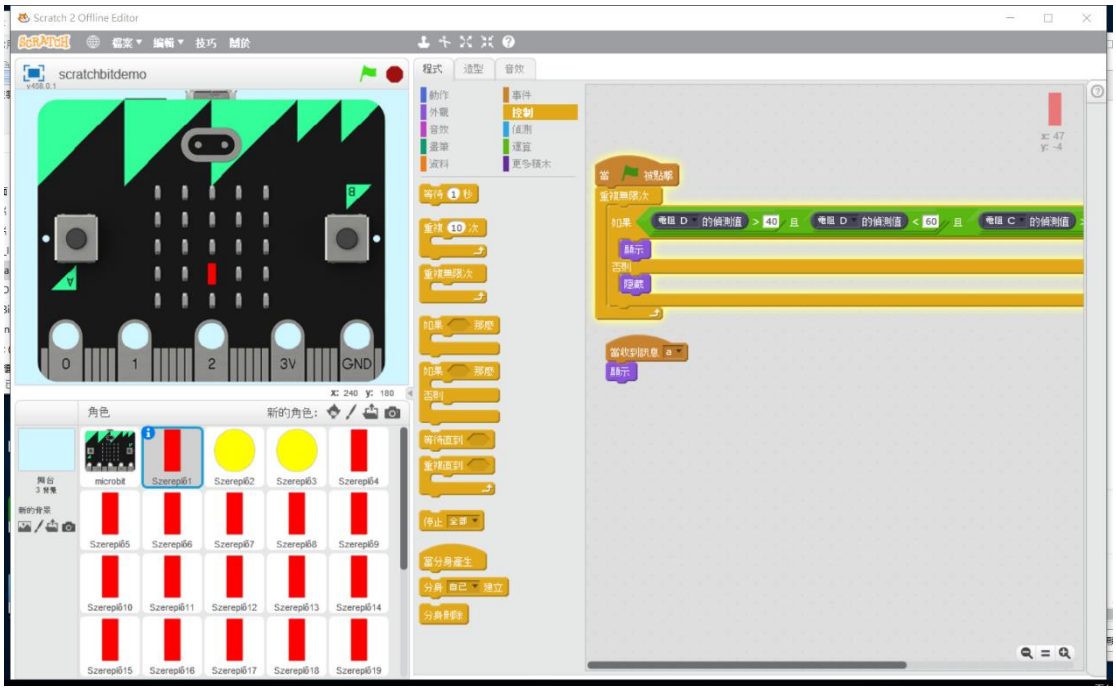
結束 s2m 請按 Ctrl+C

三、 **Scratchbit**

參攷網址：https://github.com/vecsei/Scratchbit

利用 Mu 將 scratchbit.py 程式 Flash 至 TaiBit

再開啟 scratchbitdemo.sb2 即可玩小遊戲，如下圖

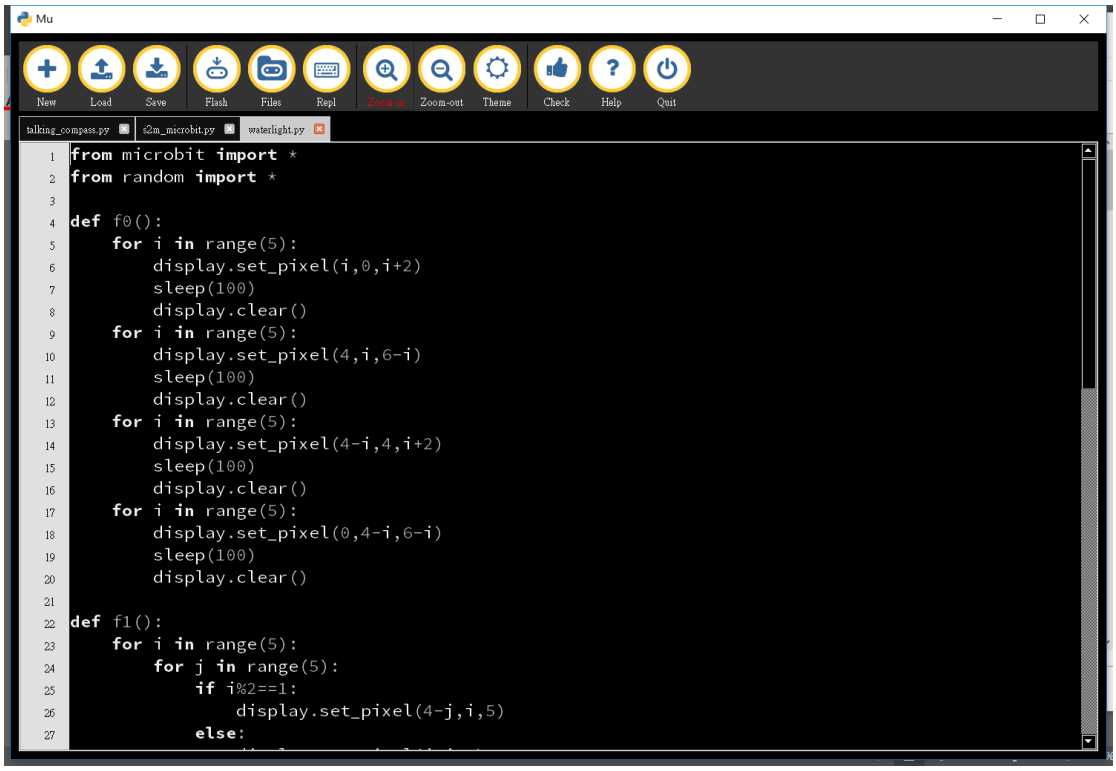


有關 key map 對照，如下圖

Scratch	micro:bit
resistance-A	press of the "A" button
resistance-B	press of the "B" button
resistance-C	X direction tilt
resistance-D	Y direction tilt
light	P0 pin
sound	P1 pin
slider	P2 pin

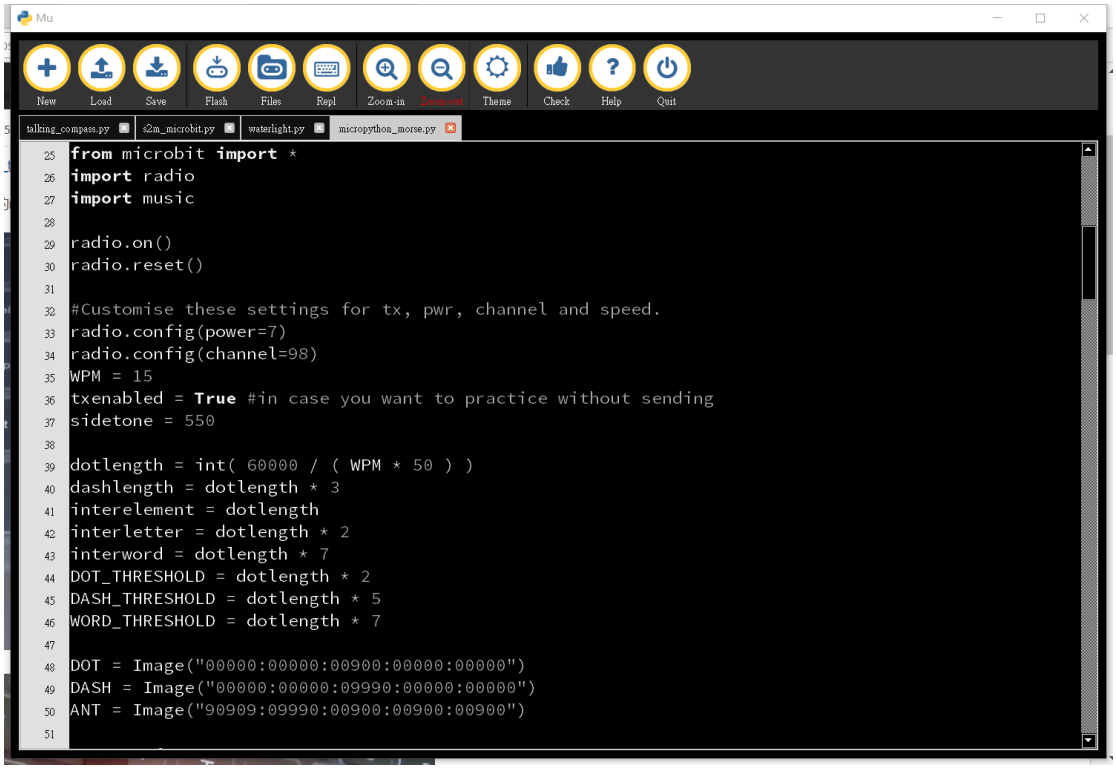
四、 進階的跑馬燈

利用 micropython 增加演算法可以作進階版的跑馬燈，如下圖



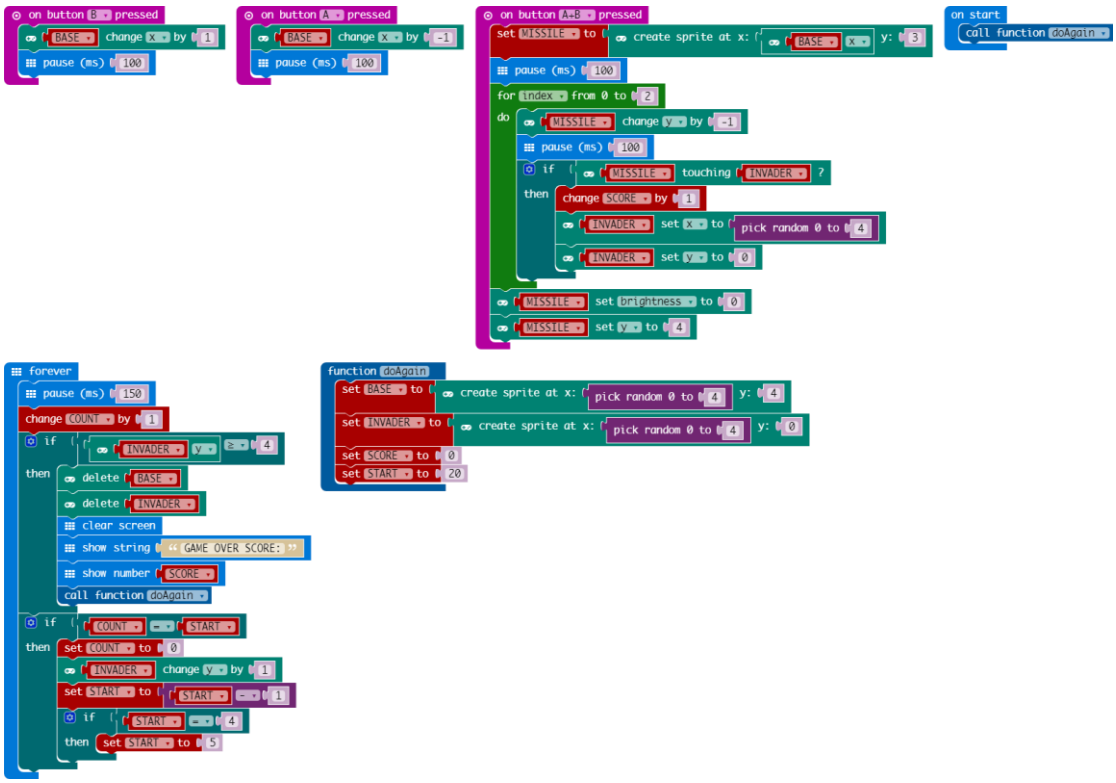
五、 摩斯電碼發報機

利用 MicroPython 及 TaiBit 的蜂鳴器及振動馬達，並使用 Radio 廣播可以一片發送摩斯電碼(使用按 B 鍵的長短來控制)、另一片接收，如下圖



六、 射擊小遊戲

利用 Game 積木可以來設計遊戲，如下圖


on button B pressed
BASE change x by 1
pause (ms) 100
on button A pressed
BASE change x by -1
pause (ms) 100
on button A+B pressed
set MISSILE to create sprite at x: BASE x y: 3
pause (ms) 100
for index from 0 to 2
do
MISSILE change y by -1
pause (ms) 100
if MISSILE touching INVADER ?
then
change SCORE by 1
INVADER set x to pick random 0 to 4
INVADER set y to 0
MISSILE set brightness to 0
MISSILE set y to 4
on start
call function doAgain
forever
pause (ms) 150
change COUNT by 1
if INVADER y ≥ 4
then
delete BASE
delete INVADER
clear screen
show string GAME OVER SCORE:
show number SCORE
call function doAgain
if COUNT = START
then
set COUNT to 0
INVADER change y by 1
set START to START - 1
if START = 4
then
set START to 5
function doAgain
set BASE to create sprite at x: pick random 0 to 4 y: 4
set INVADER to create sprite at x: pick random 0 to 4 y: 0
set SCORE to 0
set START to 20