

# Google Blockly積木撰寫

WBBIT教育版&BLOCKLYDUINO

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2020/8/19

# 自訂積木撰寫課程表

- 09:00-10:00 自訂積木安裝與架構說明
- 10:00-11:00 Blockly Developer Tools
- 11:00-12:00 多國語系製作與常用技巧
- 13:00-14:00 Webbit教育版自訂積木實作
- 14:00-15:00 BlocklyDuino自訂積木實作

# Webbit教育版安裝

- 下載網址：Google搜尋 “WebBitSetup.exe”  
離線版：<https://ota.webduino.io/WebBitInstaller/WebBitSetup.exe>  
網頁版：<https://webbit.webduino.io/blockly/> (無法使用USB連線)
- 驅動程式：[http://www.wch.cn/download/CH341SER\\_ZIP.html](http://www.wch.cn/download/CH341SER_ZIP.html)  
(離線版安裝已內建驅動程式)
- 更新韌體：離線版接上Webbit後可自動偵測線上更新)

# BlocklyDuino v3 Beta 5

下載網址：<https://github.com/MediaTek-Labs/BlocklyDuino-for-LinkIt/releases/tag/3.0.312b>

64位元 [blocklyduino-3.0.312b-win64-ide.zip](#)

32位元 [blocklyduino-3.0.312b-win32-ide.zip](#)

使用指南：<https://docs.labs.mediatek.com/linkit-7697-blocklyduino/linkit-7697-blocklyduino-12879411.html>

吉哥積木：<https://sites.google.com/jes.mlc.edu.tw/ljj/linkit7697/如何安裝吉哥自製積木>

ICSHOP：[https://github.com/iCShopMgr/LinkIt7697\\_Bit\\_for\\_BlocklyDuino](https://github.com/iCShopMgr/LinkIt7697_Bit_for_BlocklyDuino)

法蘭斯積木：<https://github.com/fustyles/webduino/tree/master/LinkIt7697/FranceFu>

# Webbit教育版新增自訂積木(法一)

- 研習資料：

[https://github.com/fustyles/Workshop/2020.8.19\\_blockly.zip](https://github.com/fustyles/Workshop/2020.8.19_blockly.zip)

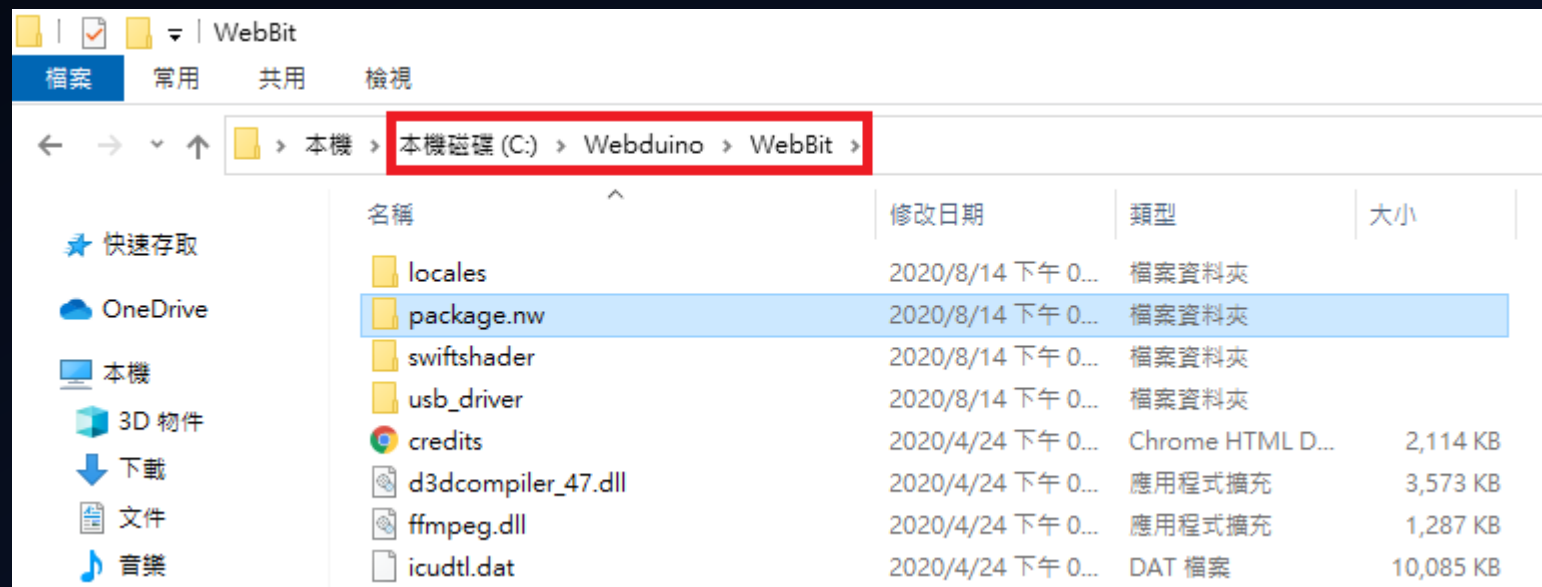
點選

Clone or download ▾

並解壓縮壓縮檔。

- 安裝外掛：解壓縮 2020.8.19\_blockly.zip

目錄內package.nw資料夾覆蓋至C:\Webduino\WebBit\



開啟目錄 C:\Webduino\WebBit\package.nw\blockly\toolbox\  
以記事本開啟檔案 index.xml 新增「進階 catPlus」程式碼。  
可將自訂積木設定掛載在此目錄下。

```
<category id="catPin" COLOUR="50">
  <block type="pin_read_digital"></block>
  <block type="pin_read_analog"></block>
  <block type="pin_write_analog">
    <value name="value_">
      <block type="math_number">
        <field name="NUM">0</field>
      </block>
    </value>
  </block>
  <block type="pin_write_digital">
    <value name="value_">
      <block type="math_number">
        <field name="NUM">0</field>
      </block>
    </value>
  </block>
</category>
</category>
<sep></sep>
<category id="catPlus" COLOUR="190" index="99"></category>
<category id="catEduExtension" COLOUR="290" index="99"></category>
</xml>
```

新增catPlus目錄

<category id="catPlus" COLOUR="190" index="99"> </category>

「以瀏覽器開啟」可利於自訂積木撰寫與除錯，AI影像辨識積木可正常執行。



顏色

函式

怪獸控制

偵測

語音 &amp; 音效

Web:Bit -

開發板

矩陣 LED

按鈕開關

偵測光線 &amp; 溫度

音樂 &amp; 聲音

九軸體感偵測

I/O 引腳

擴充功能 -

Google 試算表

氣象資訊

網路廣播

LINE

基礎套件包

MoonCar 自走車

自訂積木

“ ”

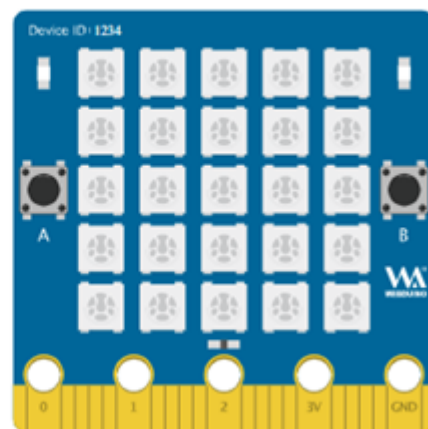
當紅外線 (腳位 1) 接收到訊號  
執行

紅外線接收的代碼

紅外線發射 (腳位 2), 發射代碼 (十六進位) “ ”

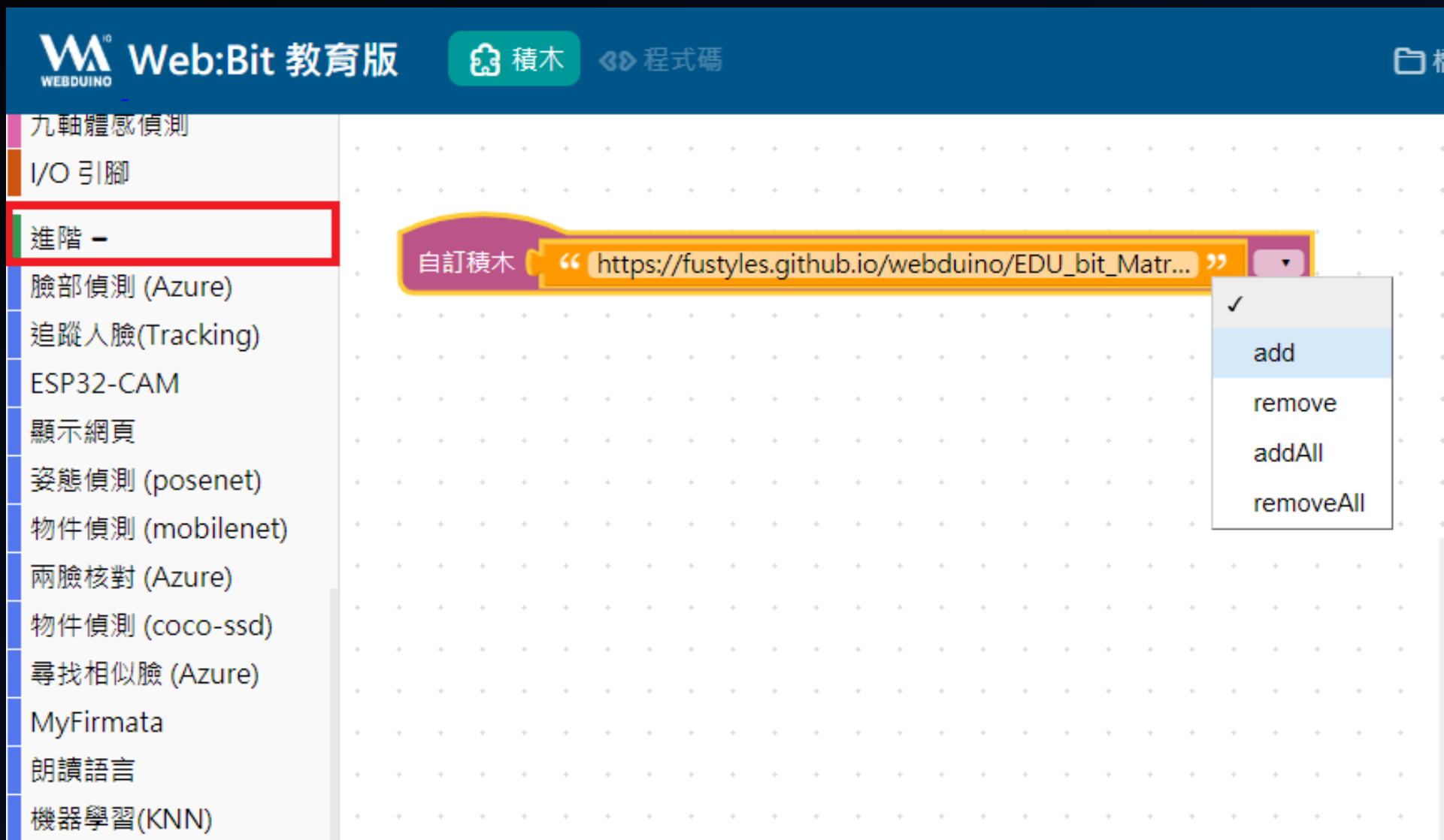
超音波傳感器, Trig 3 Echo 9 所擷取的距離 (公分)

伺服馬達, 腳位 1 旋轉角度 (0-180) 90

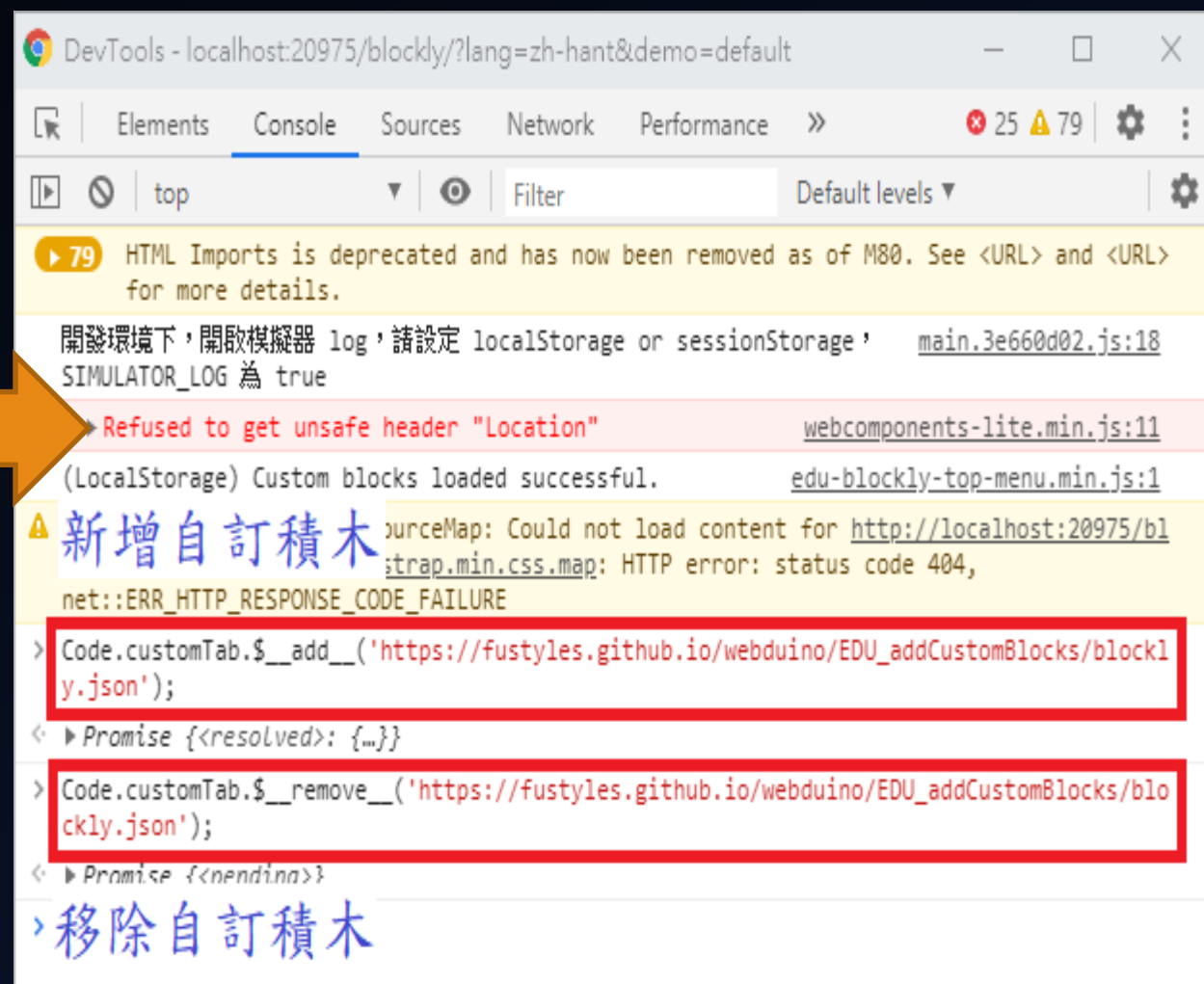




填入自訂積木連結下拉選單點選add，或點選addAll新增所有自訂積木。  
<https://github.com/fustyles/webduino/blob/master/CustomBlock.txt>



# Webbit教育版新增自訂積木(法二)



指令參考：[https://github.com/fustyles/webduino/blob/master/EDU\\_addCustomBlocks/blockly/blocks.js](https://github.com/fustyles/webduino/blob/master/EDU_addCustomBlocks/blockly/blocks.js)

自訂積木

變數

邏輯

重複

數學

文字

陣列

顏色

函式

怪獸控制

偵測

語音&amp;音效

Web:Bit -

開發板

矩陣 LED

按鈕開關

偵測光線&amp;溫度

音響&amp;聲音

上一頁(B)

Alt + 向左鍵

下一頁(F)

Alt + 向右鍵

重新載入(R)

Ctrl + R

另存新檔(A)...

Ctrl + S

列印(P)...

Ctrl + P

投放(C)...

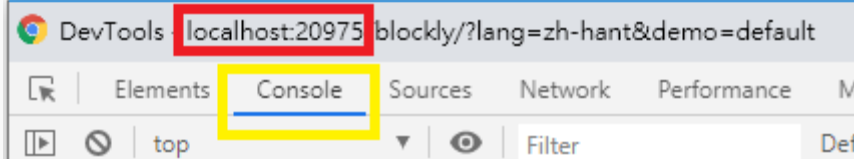
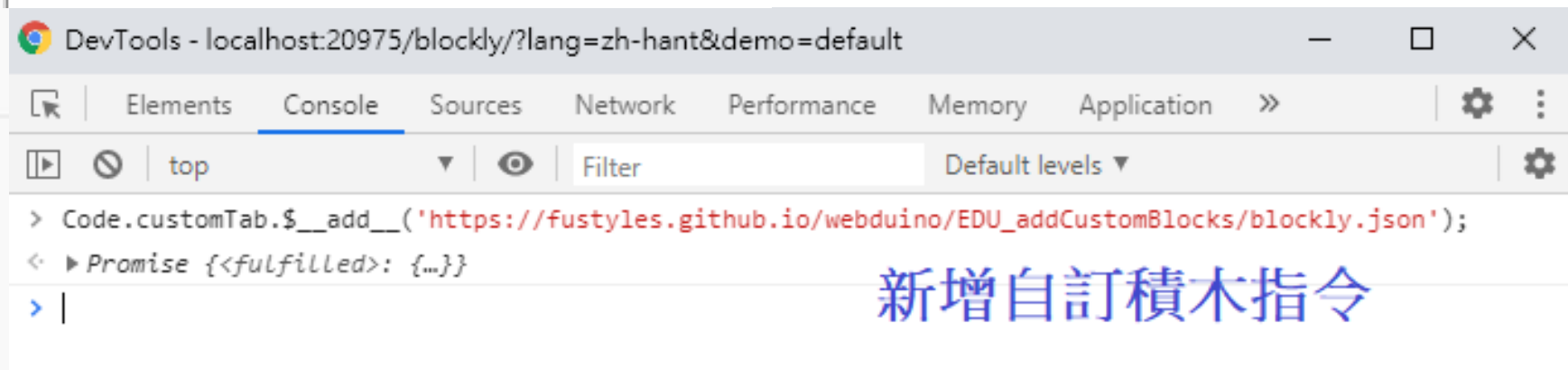
翻譯成中文(繁體)(T)

檢視網頁原始碼(V)

Ctrl + U

檢查(N)

Ctrl + Shift + I

首頁網址 <http://localhost:20975>

新增自訂積木指令

# Webbit教育版新增自訂積木(法三)

檔案 常用 共用 檢視

← → ↕ ↑ C:\Users\fsm\Desktop\109.8.19自訂積木研習\package.nw\Webbit教育版自訂積木安裝

名稱	修改日期	類型	大小
blocks	2020/8/14 下午 02:40	JavaScript 指令檔	15 KB
javascript	2020/8/16 下午 05:32	JavaScript 指令檔	4 KB
toolbox	2020/8/16 下午 05:32	XML Document	1 KB
webbit_edu_addCustomBlock	2020/8/16 下午 05:33	Windows 批次檔案	1 KB

快速存取

- OneDrive
- 本機
- 3D 物件
- 下載
- 文件
- 音樂
- 桌面
- 圖片
- 影片
- 本機磁碟 (C:)
- 網路

類型: Windows 批次檔案  
大小: 289 個位元組  
修改日期: 2020/8/16 下午 05:33

點選批次檔執行檔案覆蓋至安裝目錄

[自訂積木 設定] “ ”

# BlocklyDuino自訂積木安裝

The image shows two overlapping Windows File Explorer windows. The top window is titled 'Webbit\_customBlocks' and shows a list of files and folders. The bottom window is titled 'BlocklyDuino3' and shows a list of folders and files. A yellow arrow points from the 'package.nw' file in the top window to the 'package.nw' file in the bottom window, with the text '覆蓋檔案' (Overwrite file) in red.

**Top Window: Webbit\_customBlocks**

名稱	修改日期	類型	大小
package.nw	2020/8/16 下午 10:20	檔案資料夾	
Webbit教育版自訂積木批次檔安裝	2020/8/18 下午 03:42	檔案資料夾	
Webbit教育版新增自訂積木說明	2020/8/16 下午 10:44	文字文件	1 KB
下拉圖檔選單範例	2020/8/18 下午 07:41	文字文件	2 KB
官方自訂積木模組開發說明	2020/8/16 下午 05:02	Chrome HTML D...	4,975 KB

**Bottom Window: BlocklyDuino3**

名稱	修改日期
arduino-1.8.5	2020/8/14
example	2020/8/14
locales	2020/8/14
node_modules	2020/8/14
package.nw	2020/8/18
pnpm	2020/8/14

# BlocklyDuino自訂積木手動程式碼安裝

109.8.19自訂積木研習 > LinkIt\_customBlocks > package.nw > js

名稱	修改日期	類型	大小
init	2020/8/16 下午 09:16	JavaScript 指令檔	16 KB

init - 記事本

檔案(F) 編輯(E) 格式(O) 檢視(V) 說明

```
var javascript_path = "./myBlocks/javascript.js"; //載入自訂積木轉出程式碼檔
var toolbox_path = "./myBlocks/toolbox.xml"; //讀取自訂積木目錄檔
var en_path = "./myBlocks/en.js"; //載入自訂積木英文語系設定檔
var en_category_path = "./myBlocks/en_category.xml"; //載入自訂積木目錄英文語系設定檔
var zhant_path = "./myBlocks/zh-hant.js"; //載入自訂積木繁體語系設定檔(預設繁體語系)
var zhant_category_path = "./myBlocks/zh-hant_category.xml"; //載入自訂積木目錄繁體語系設定檔(預設繁體語系)

initial(blocks_path, javascript_path, toolbox_path);

function initial(blocks_path, javascript_path, toolbox_path) {
    addScript(blocks_path);
    addScript(javascript_path);
    var xml = $.ajax({url: toolbox_path, async: false}).responseXML;

    var len = new DOMParser().parseFromString(xmlValue, "text/xml").firstChild.childNodes.length;
    var xmlNewValue = '<xml id="toolbox">'+new XMLSerializer().serializeToString(xml.firstChild)+'<sep></sep>';
    if (len>0) {
        for (var i=0;i<len;i++)
            xmlNewValue+=new XMLSerializer().serializeToString(new DOMParser().parseFromString(xmlValue, "text/xml").firstChild.childNodes[i]);
    }
    xmlNewValue+='/>';
    xmlValue = xmlNewValue;

    if ((document.getElementById('select-lang-en').checked)) {
        addScript(en_path);
        var xml = $.ajax({url: en_category_path, async: false}).responseXML.firstChild;
        var xml = $.ajax({url: zhant_category_path, async: false}).responseXML.firstChild;
        var i = 0;
        while (i < xml.childNodes.length) {
            var rep = xml.childNodes[i].childNodes[0].firstChild.nodeValue;
            var rep = xml.childNodes[i].childNodes[1].firstChild.nodeValue;
            xmlValue = xmlValue.replace('name="'+ini+'"', 'name="'+rep+'");');
            i++;
        }
    }
    catch (e){}
}

function addScript(url) {
    var s = document.createElement("script");
    s.type = "text/javascript";
    s.src = url;
    $("body").append(s);
}
```

將自訂積木程式碼插入在BlocklyDuino3\package.nw\js檔此行程式碼之前  
Blockly.inject(document.getElementById('content\_blocks'),{

1 個項目 | 已選取 1 個項目 15.2 KB | 第 1 列, 第 1 行 | 60% | Unix (LF)



# Javascript 程式編輯

免費編輯軟體 Notepad++ 7.8.6

<https://www.azofreeware.com/2006/10/notepad-35.html>

Javascript 編輯器介紹

<https://kknews.cc/zh-tw/code/nanm2ng.html>

<https://www.temok.com/blog/top-20-javascript-ide-source-code-editors/>

JavaScript 教學文件

<https://www.w3schools.com/js/>

JavaScript Online Editor

[https://www.w3schools.com/js/tryit.asp?filename=tryjs\\_myfirst](https://www.w3schools.com/js/tryit.asp?filename=tryjs_myfirst)

檔案(F)編輯(E)搜尋(S)檢視(V)編碼(N)語言(L)設定(T)工具(O)巨集(M)執行(R)外接(P)視窗(W)?

資料夾工作區

109.8.19自訂積木研習

LinkIt\_customBlocks

package.nw

js

myBlocks

blocks.js

en.js

en\_category.xml

javascript.js

toolbox.xml

zh-hant.js

zh-hant\_category.xml

LinkIt7697新增自訂積木說明.txt

Webbit\_customBlocks

package.nw

blockly

myBlocks

Webbit教育版自訂積木批次檔安裝

Webbit教育版新增自訂積木說明.txt

下拉圖檔選單範例.txt

官方自訂積木模組開發說明.pdf

~\$傅仲儀教師-Webbit教育版&Blockduino自訂積木撰寫.pptx

blocklyjson.png

blocksjs.png

javascript1js.png

javascriptjs.png

library.xml

toolbox1xml.png

toolboxxml.png

傅仲儀教師-Webbit教育版&Blockduino自訂積木撰寫.pptx

blocks.js

```
1 Blockly.Blocks['digitalwrite'] = {
2   init: function() {
3     this.appendDummyInput ()
4     .appendField(Blockly.Msg.digitalWrite);
5     this.appendValueInput ("pin")
6     .setCheck ("Number")
7     .appendField (" ");
8     this.appendDummyInput ()
9     .appendField (" ");
10    .appendField(new Blockly.FieldDropdown([["HIGH","1"], ["LOW","0"]]), "mode")
11    .appendField (" ");
12    this.setInputsInline (true);
13    this.setPreviousStatement (true, null);
14    this.setNextStatement (true, null);
15    this.setColour (255);
16    this.setTooltip ("digitalWrite (pin, value)");
17    this.setHelpUrl ("https://www.arduino.cc/reference/en/language/functions/digital-io/digitalwrite/");
18  }
19 };
20
21 Blockly.Blocks['digitalread'] = {
22   init: function() {
23     this.appendDummyInput ()
24     .appendField(Blockly.Msg.digitalRead);
25     this.appendValueInput ("pin")
26     .setCheck ("Number")
27     .appendField (" ");
28     this.appendDummyInput ()
29     .appendField (" ");
30     this.setInputsInline (true);
31     this.setOutput (true, "Number");
32     this.setColour (60);
33     this.setTooltip ("digitalRead (pin)");
34     this.setHelpUrl ("https://www.arduino.cc/reference/en/language/functions/digital-io/digitalread/");
35   }
36 };
```

JavaScript file

length: 1,201 lines: 36

Ln: 20 Col: 1 Sel: 0 | 0

Unix (LF)

UTF-8

INS



# Google Blockly 學習資源

Blockly | Google Developers

<https://developers.google.com/blockly>

Blockly討論區

<https://groups.google.com/g/blockly>

Blockly函式庫

<https://developers.google.com/blockly/reference/overview>

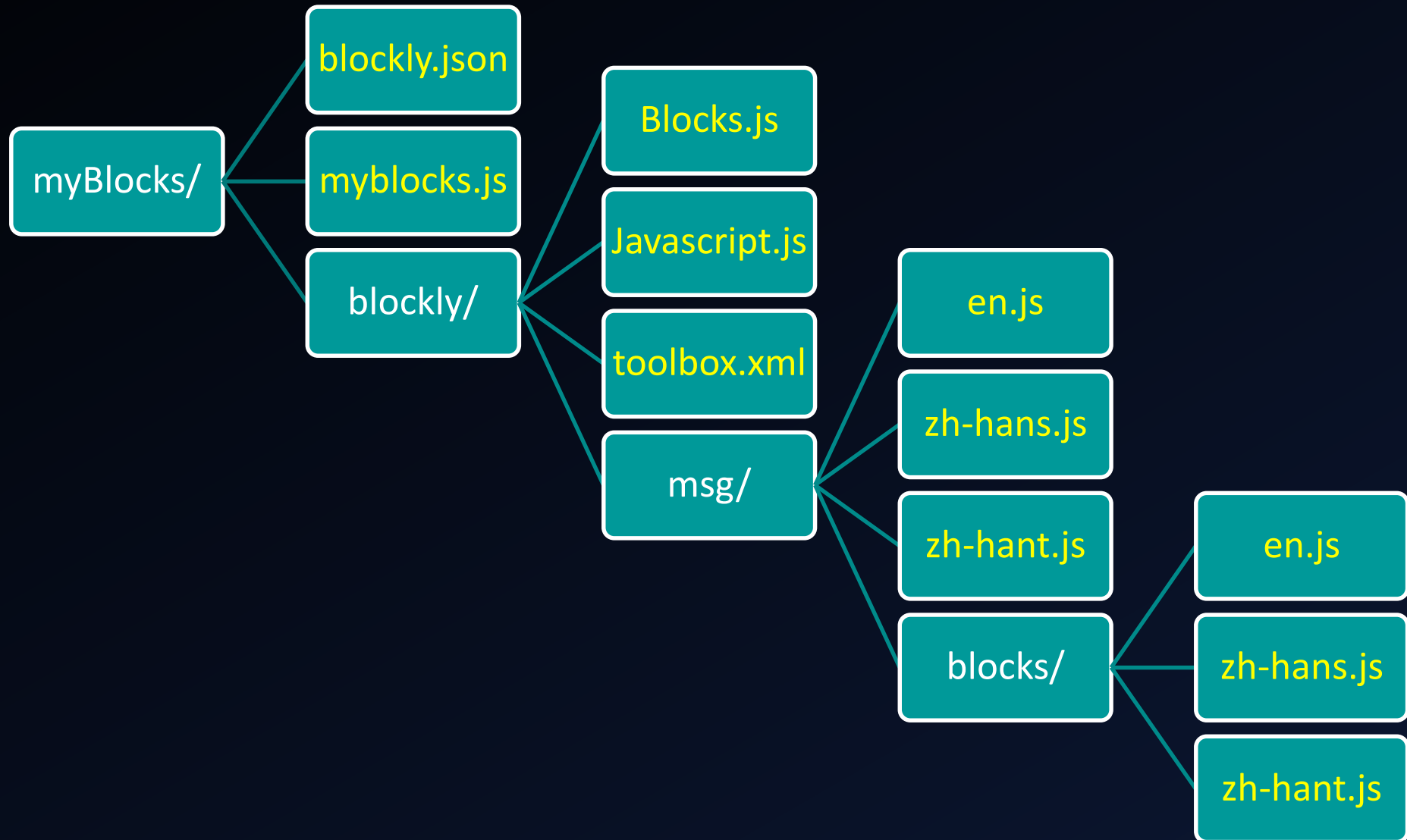
Blockly原始碼離線包

<https://github.com/google/blockly/zipball/master>

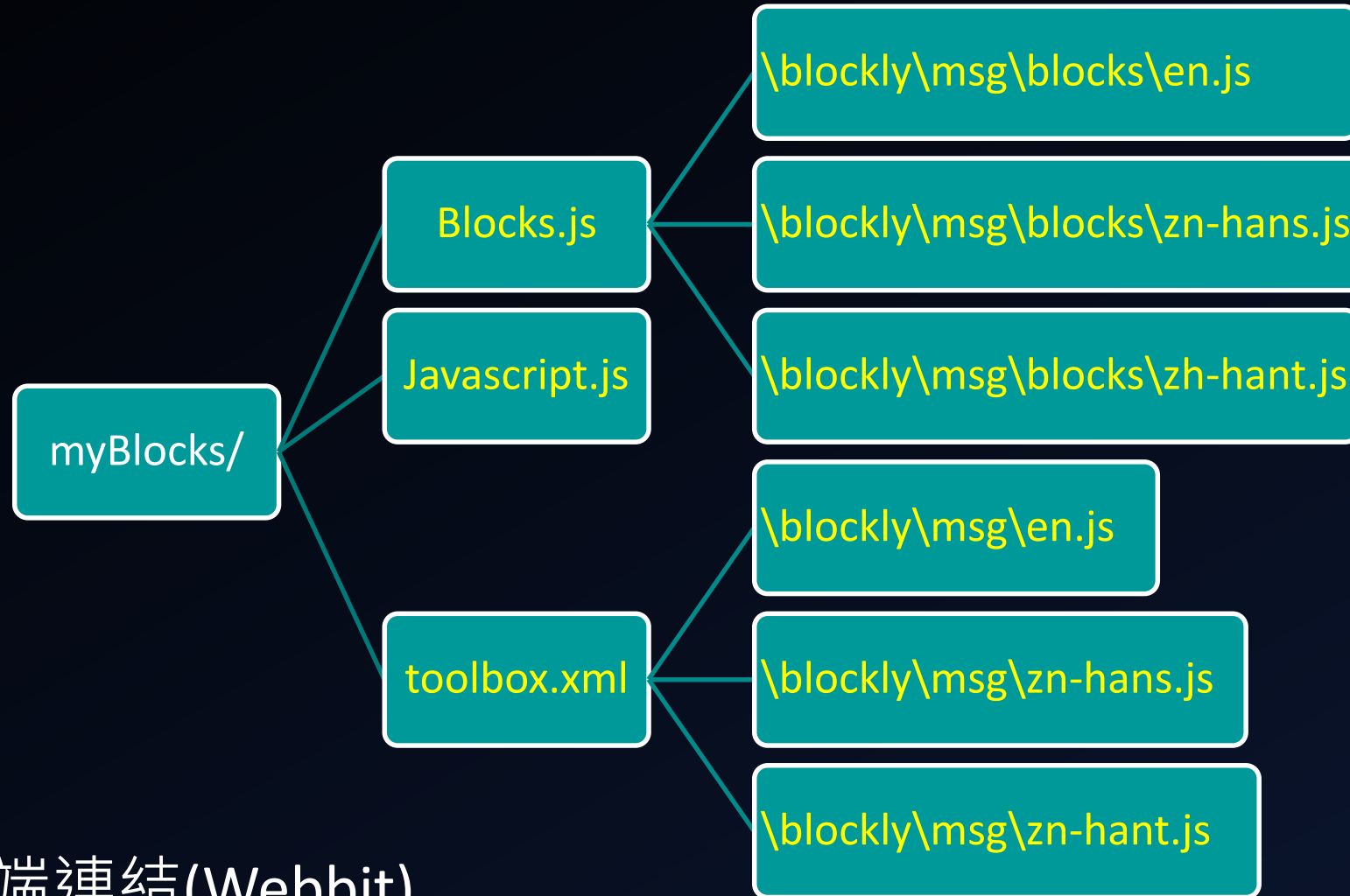
Webduino官方撰寫積木教學文件

<https://www.facebook.com/groups/webduino/permalink/1536223946446669/>

# Webduino檔案架構(雲端平台、教育版、Kebbi)



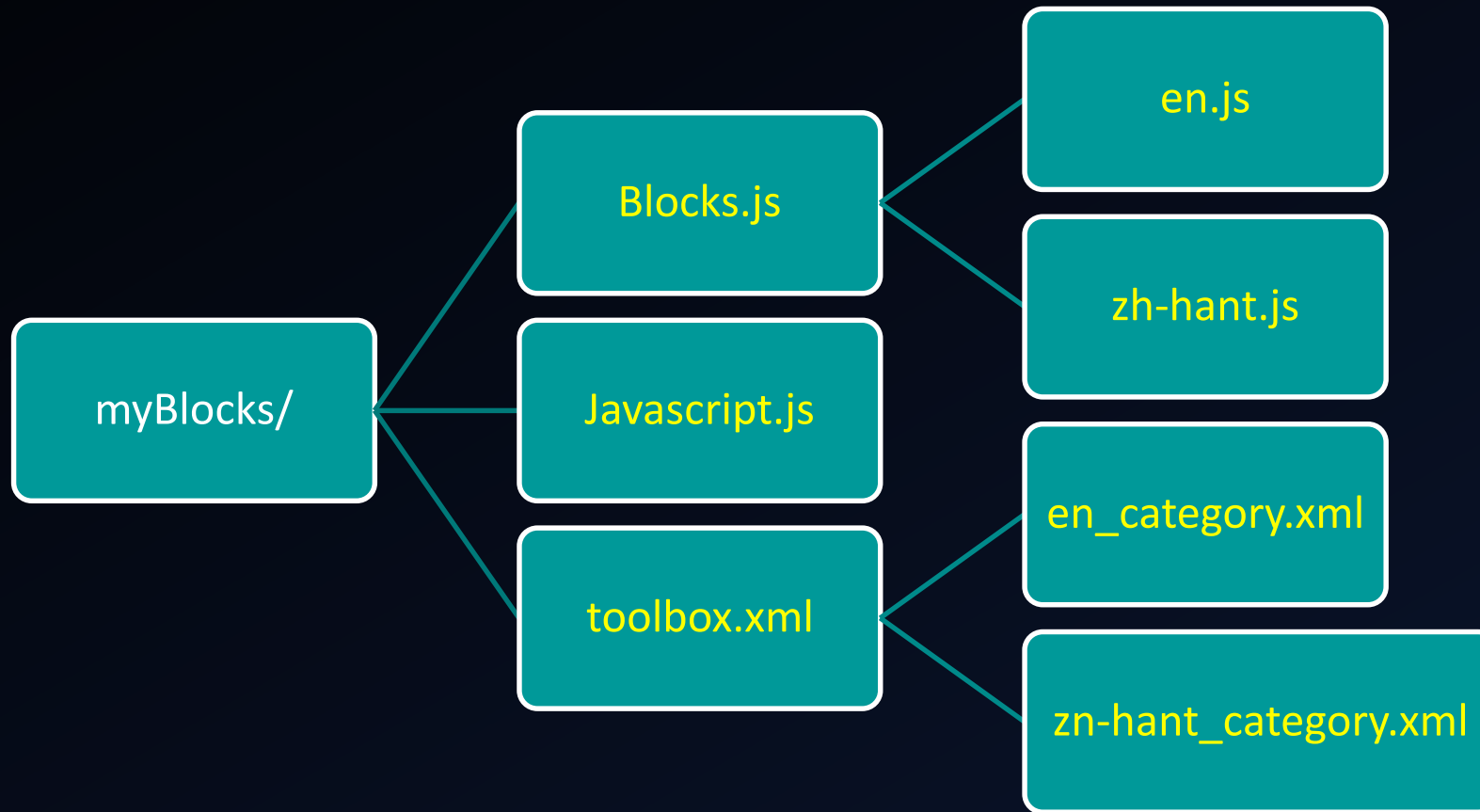
# Webduino自訂積木架構



自訂積木遠端連結(Webbit)

<http://xxx.xxx.xxx.xxx/myBlocks/blockly.json>

# BlocklyDuino自訂積木架構



自訂積木本機連結(BlocklyDuino)

[./myBlocks/blockly.json](#)

# Blockly.json (Webbit) 自訂積木佈署檔

```
{  
  "types": ["digitalwrite", "digitalread"],  
  "category": "catPlus",  
  "scripts": [  
    "blockly/blocks.js",  
    "blockly/javascript.js"  
  ],  
  "dependencies": [  
    "myBlocks.js"  
  ],  
  "msg": "blockly/msg",  
  "blocksMsg": "blockly/msg/blocks",  
  "toolbox": "blockly/toolbox.xml"  
}
```

自訂積木id列表。執行程式前會檢查是否使用到列表中的積木則載入"dependencies"下的檔案。

自訂積木掛載主目錄id

自訂積木定義檔 (Blockly Developer Tools產出)

自訂積木產出原始碼變數檔 (Blockly Developer Tools產出)

執行程式時載入對應javascript.js產出的函式的自訂js函式庫

自訂積木目錄名稱語系檔en.js(英文), zh-hans.js(簡中), zh-hant.js(繁中)

自訂積木文字語系檔en.js(英文), zh-hans.js(簡中), zh-hant.js(繁中)

自訂積木目錄配置檔 (Blockly Developer Tools產出)

# Blockly Developer Tools (Block Factory)

Blockly Developer Tools ( 匯出blocks.js, javascript.js, toolbox.xml )

<https://blockly-demo.appspot.com/static/demos/blockfactory/index.html>

使用教學

<https://developers.google.com/blockly/guides/create-custom-blocks/blockly-developer-tools>

教學影片

[https://www.youtube.com/watch?time\\_continue=705&v=s2\\_xaEvcVI0&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=705&v=s2_xaEvcVI0&feature=emb_logo)

Block Factory

Block Exporter

Workspace Factory

Block Library

Update "digitalwrite"

Delete "digitalwrite"



Clear Library

Import Block Library

Download Block Library

Preview: LTR ▾

digitalWrite ( HIGH )

Block Definition: JavaScript ▾

```
Blockly.Blocks['digitalwrite'] = {
  init: function() {
    this.appendDummyInput()
      .appendField("digitalWrite");
    this.appendValueInput("pin")
      .setCheck("Number")
      .appendField("(");
    this.appendDummyInput()
      .appendField(" ");
```

Generator stub: JavaScript ▾

```
Blockly.JavaScript['digitalwrite'] = function(block) {
  var value_pin = Blockly.JavaScript.valueToCode(block, 'pin', Blockly.JavaScript.ORDER_ATOMIC);
  var dropdown_mode = block.getFieldValue('mode');
  // TODO: Assemble JavaScript into code variable.
  var code = '...;\n';
  return code;
};
```

Input  
Field  
Type  
Colour

name digitalWrite

inputs

dummy input

fields left ▾ text digitalWrite

value input pin

fields left ▾ text (

type Number

dummy input

fields left ▾ text ,

dropdown mode

- HIGH , 1
- LOW , 0

text )

inline ▾ inputs

↑ top+bottom connections ▾

tooltip

help url

top type

“ digitalWrite(pin, value) ”

“ <https://www.arduino.cc/reference/en/language/fun..> ”



Block Factory

Block Exporter

Workspace Factory

First, select blocks from your block library by clicking on them. Then, use the Export Settings form to download starter code for selected blocks.

## Block Selector

Select

Clear Selected

digitalWrite ( HIGH )

☒ digitalWrite

digitalRead ( )

☒ digitalread

## Export Settings

Currently Selected:

digitalwrite, digitalread

☒ Block Definition(s)

Format: JavaScript

File Name:

blocks

☒ Generator Stub(s)

Language: JavaScript

File Name:

javascript

Export

## Export Preview

Block Definitions:

```
Blockly.Blocks['digitalwrite'] = {
  init: function() {
    this.appendDummyInput()
      .appendField("digitalWrite");
    this.appendValueInput("pin")
      .setCheck("Number")
      .appendField("");
    this.appendDummyInput()
      .appendField(",")
      .appendField(new Blockly.FieldDropdown([["HIGH", "1"], ["LOW", "0"]]), "mode");
  }
};
```

Generator Stubs: 若是BlocklyDuino須將程式碼中"Javascript"全部取代為"Arduino"

```
Blockly.JavaScript['digitalwrite'] = function(block) {
  var value_pin = Blockly.JavaScript.valueToCode(block, 'pin', Blockly.JavaScript.VALUE_NUMBER);
  var dropdown_mode = block.getFieldValue('mode');
  // TODO: Assemble JavaScript into code variable.
  var code = `${value_pin};\n`;
  return code;
};

Blockly.JavaScript['digitalread'] = function(block) {
  var value_pin = Blockly.JavaScript.valueToCode(block, 'pin', Blockly.JavaScript.VALUE_NUMBER);
  // TODO: Assemble JavaScript into code variable.
  var code = `digitalRead(${value_pin});\n`;
  return code;
};
```



Block Factory   Block Exporter   **Workspace Factory**

Import Custom Blocks   Load to Edit   **Export**   Clear

## Edit

Drag blocks into the workspace to create your custom workspace.

Toolbox   **Workspace**

Starter Code

**Toolbox**

Workspace Blocks

All

Logic

Loops

Math

Text

Lists

Colour

Variables

Functions

**Block Library**

digitalWrite ( 2 , HIGH )

digitalRead ( 2 )

You currently have no categories.

+

-

↑

↓

Edit Category...

Make Shadow

## Preview

This is what your custom workspace will look like.

digitalWrite ( 2 , HIGH )

digitalRead ( 2 )

# myBlocks\blockly\blocks.js (WebBit)

## myBlocks\blocks.js (BlocklyDuino)

```
Blockly.Blocks['digitalwrite'] = {  
  init: function() {  
    this.appendDummyInput() 動態語系文字  
      .appendField(Blockly.Msg.digitalWrite);  
    this.appendValueInput("pin") 自訂名稱  
      .setCheck("Number")  
      .appendField("("); 固定文字  
    this.appendDummyInput() 數值輸入  
      .appendField(","); 固定文字  
      .appendField(new Blockly.FieldDropdown([["HIGH", "1"], ["LOW", "0"]]), "mode") 下拉選單  
      .appendField(")"); 固定文字  
    this.setInputsInline(true); 不換行顯示  
    this.setPreviousStatement(true, null);  
    this.setNextStatement(true, null);  
    this.setColour(255); 積木顏色  
    this.setTooltip("digitalWrite(pin, value)");  
    this.setHelpUrl("https://www.arduino.cc/reference/en/language/functions/digital-io/digitalwrite/");  
  }  
};
```

myBlocks\blockly\msg\blocks\en.js

Blockly.Msg.digitalWrite = "Digital Write";

myBlocks\blockly\msg\blocks\zh-hant.js

Blockly.Msg.digitalWrite = "數位輸出";

輸出指令

數位輸出 ( 2 , HIGH )

digitalWrite(pin, value)

數位輸出 ( 2 , HIGH )

複製

教學

小工具

digitalWrite() - Arduino Reference

This page is also available in  
2 other languages

English

輸出值

this.setOutput(true, "Number");

數位輸入 ( 2 )

# myBlocks\blockly\javascript.js (WebBit)

```
Blockly.JavaScript['digitalwrite'] = function(block) {  
  var value_pin = Blockly.JavaScript.valueToCode(block, 'pin', Blockly.JavaScript.ORDER_ATOMIC); 值輸入  
  var dropdown_mode = block.getFieldValue('mode'); 下拉選單  
  
  var code = 'digitalWrite('+value_pin+', '+dropdown_mode+')'; 換行  
  return code; 輸出指令  
};
```

程式碼變數 (尾端加 ;)

注意是否要加雙引號

""+dropdown\_mode+""

myBlocks\myBlocks.js

```
function digitalWrite(pin, val) {  
  var url = "http://192.168.1.100/?digitalwrite="+pin+";"+val;  
  console.log(url);  
  fetch(url);  
}
```

數位輸出 ( 2 , HIGH )

digitalWrite(2, 1);

```
Blockly.JavaScript['digitalread'] = function(block) {  
  var value_pin = Blockly.JavaScript.valueToCode(block, 'pin', Blockly.JavaScript.ORDER_ATOMIC); 值輸入  
  
  var code = 'digitalRead('+value_pin+')'; 程式碼變數 (尾端不加 ;)  
  
  return [code, Blockly.JavaScript.ORDER_NONE]; 輸出值  
};
```

myBlocks\myBlocks.js

```
function digitalRead(pin) {  
  var url = "http://192.168.1.100/?digitalread="+pin;  
  console.log(url);  
  return url;  
}
```

數位輸入 ( 2 )

digitalRead(2);

# myBlocks\javascript.js (Blocklyduino)

```
Blockly.JavaScript['digitalwrite'] = function(block) {  
  var value_pin = Blockly.JavaScript.valueToCode(block, 'pin', Blockly.JavaScript.ORDER_ATOMIC);  
  var dropdown_mode = block.getFieldValue('mode');  
  
  var code = 'digitalWrite('+value_pin+', '+dropdown_mode+');\n';  
  return code;  
};
```



digitalWrite(2, 1);

Arduino函式庫

將Blockly Developer Tools 產生的程式碼所有"Javascript"取代為"Arduino"

```
Blockly.Arduino['digitalwrite'] = function(block) {  
  var value_pin = Blockly.Arduino.valueToCode(block, 'pin', Blockly.Arduino.ORDER_ATOMIC);  
  var dropdown_mode = block.getFieldValue('mode');  
  
  var code = 'digitalWrite('+value_pin+', '+dropdown_mode+');\n';  
  return code;  
};
```

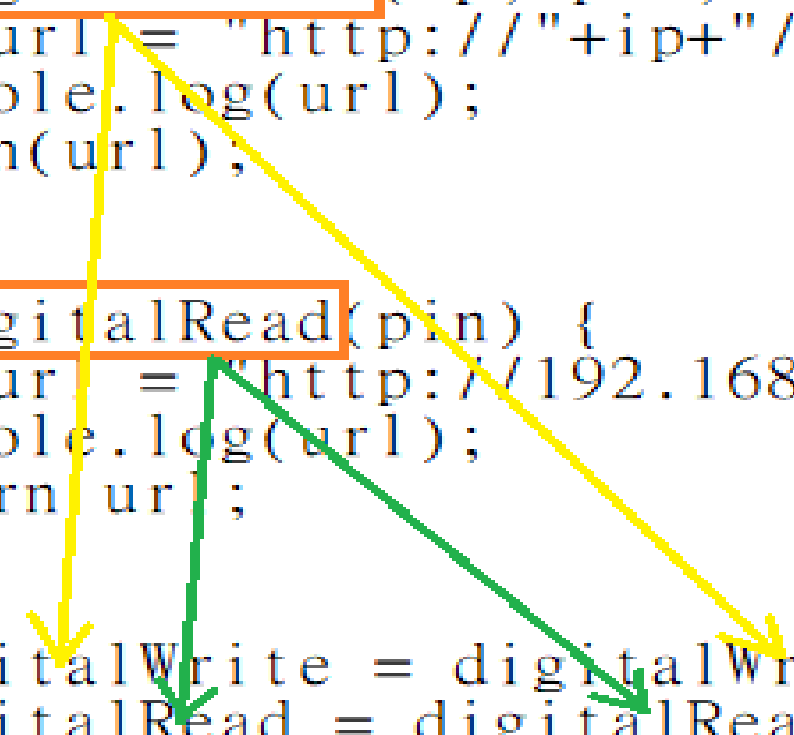


digitalRead(2);

Arduino函式庫

# myBlocks.js (Webbit)

```
+(function (window, document) {  
    'use strict';  
    function digitalWrite(ip, pin, val) {  
        var url = "http://" + ip + "?digitalwrite=" + pin + ";" + val;  
        console.log(url);  
        fetch(url);  
    }  
    function digitalRead(pin) {  
        var url = "http://192.168.1.100/?digitalread=" + pin;  
        console.log(url);  
        return url;  
    }  
    window.digitalWrite = digitalWrite;  
    window.digitalRead = digitalRead;  
    新增函式要對應新增此行程式碼  
})(window, window.document));
```



The diagram consists of two yellow arrows and one green arrow. One yellow arrow originates from the `digitalWrite` function definition and points to the `window.digitalWrite = digitalWrite;` assignment. The other yellow arrow originates from the `digitalRead` function definition and points to the `window.digitalRead = digitalRead;` assignment. A green arrow originates from the `return url;` statement inside the `digitalRead` function and points to the `return url;` statement in the `window.digitalRead = digitalRead;` assignment, indicating that the function returns the value.

# myBlocks\blockly\toolbox.xml (Webbit) 對應id

<category id="myBlocks" name="myBlocks"> 主目錄

```
<category id="myCategory1" name="myCategory1">
  <block type="digitalwrite">
    <field name="mode">1</field>
    <value name="pin">
      <block type="math_number">
        <field name="NUM">2</field>
      </block>
    </value>
  </block>
  <block type="digitalread">
    <value name="pin">
      <block type="math_number">
        <field name="NUM">2</field>
      </block>
    </value>
  </block>
</category>
```

子目錄1

myBlocks\blockly\msg\en.js

```
MSG.myBlocks = "My Blocks";
MSG.myCategory1 = "Category 1";
MSG.myCategory2 = "Category 2";
```

目錄id

```
<category id="myCategory2" name="myCategory2">
  <block type="digitalread">
    <value name="pin">
      <block type="math_number">
        <field name="NUM">2</field>
      </block>
    </value>
  </block>
  <block type="digitalwrite">
    <field name="mode">1</field>
    <value name="pin">
      <block type="math_number">
        <field name="NUM">2</field>
      </block>
    </value>
  </block>
</category>
```

子目錄2

myBlocks\blockly\msg\zh-hant.js

```
MSG.myBlocks = "我的積木";
MSG.myCategory1 = "目錄 1";
MSG.myCategory2 = "目錄 2";
```

</category>

# myBlocks\toolbox.xml (BlocklyDuino) 對應name

檔案en\_category.xml、zh-hant\_category.xml 內容不可換行排列，請參照範例檔內容。

<category id="myBlocks" name="myBlocks"> 主目錄

```
<category id="myCategory1" name="myCategory1">
  <block type="digitalwrite">
    <field name="mode">1</field>
    <value name="pin">
      <block type="math_number">
        <field name="NUM">2</field>
      </block>
    </value>
  </block>
  <block type="digitalread">
    <value name="pin">
      <block type="math_number">
        <field name="NUM">2</field>
      </block>
    </value>
  </block>
</category>
```

子目錄1

```
<category id="myCategory2" name="myCategory2">
  <block type="digitalread">
    <value name="pin">
      <block type="math_number">
        <field name="NUM">2</field>
      </block>
    </value>
  </block>
  <block type="digitalwrite">
    <field name="mode">1</field>
    <value name="pin">
      <block type="math_number">
        <field name="NUM">2</field>
      </block>
    </value>
  </block>
</category>
```

子目錄2

</category>

myBlocks\en\_category.xml

```
<xml>
  <category>
    <name>myBlocks</name>
    <replace>My Blocks</replace>
  </category>
  <category>
    <name>myCategory1</name>
    <replace>Category 1</replace>
  </category>
  <category>
    <name>myCategory2</name>
    <replace>Category 2</replace>
  </category>
</xml>
```

myBlocks\en\_category.xml

```
<xml>
  <category>
    <name>myBlocks</name>
    <replace>我的積木</replace>
  </category>
  <category>
    <name>myCategory1</name>
    <replace>目錄 1</replace>
  </category>
  <category>
    <name>myCategory2</name>
    <replace>目錄 2</replace>
  </category>
</xml>
```



# 下拉圖檔選單 (Webbit)

```
//圖檔位置 C:\Webduino\WebBit\package.nw\blockly\media  
var monsterList = [  
  ['{"src":"media/demo-edu-a1-s.png", "width":"30", "height":"42", "title":"HIGH", "showTitle":"true"}', '1'],  
  ['{"src":"media/demo-edu-a4-s.png", "width":"30", "height":"42", "title":"LOW", "showTitle":"true"}', '0']  
];
```

神奇的空格

```
Blockly.Blocks['digitalwrite'] = {  
  init: function() {  
    this.appendDummyInput()  
      .appendField(Blockly.Msg.digitalWrite);  
    this.appendValueInput("pin")  
      .setCheck("Number")  
      .appendField("(");  
    this.appendDummyInput()  
      .appendField(",")  
      .appendField(new Blockly.FieldDropdown(monsterList), "mode")  
      .appendField(")");  
    this.setInputsInline(true);  
    this.setPreviousStatement(true, null);  
    this.setNextStatement(true, null);  
    this.setColour(255);  
    this.setTooltip("digitalWrite(pin, value)");  
    this.setHelpUrl("https://www.arduino.cc/reference/en/language/functions/digital-io/digitalwrite/");  
  }  
};
```





# Javascript.js常用技巧 (Webbit)

xmlHttp取得XML資料與AJAX取得跨網域資料

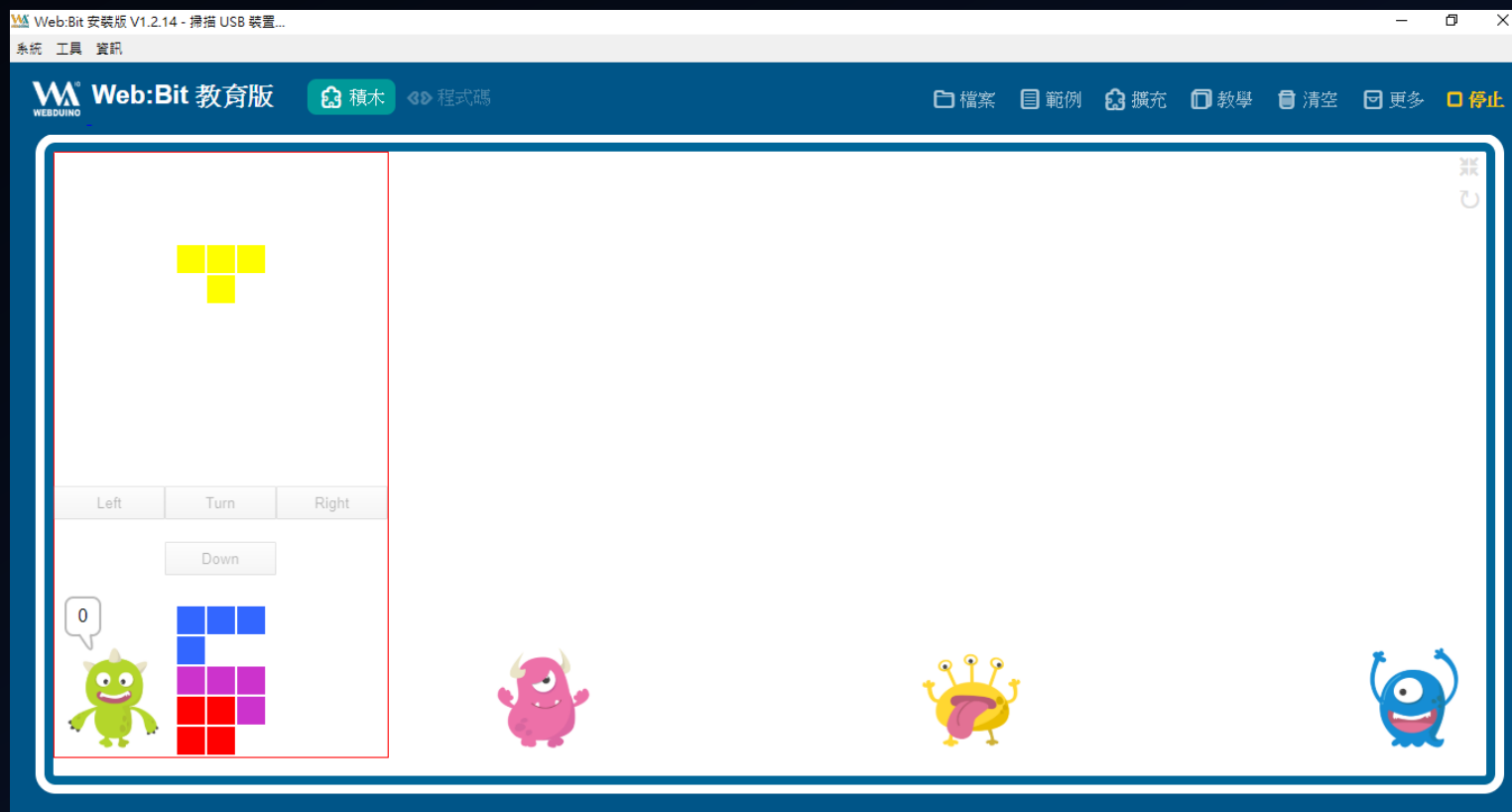
[https://github.com/fustyles/webduino/blob/master/AirQuality\\_Taiwan\\_20180121/AirQualityTaiwan.js](https://github.com/fustyles/webduino/blob/master/AirQuality_Taiwan_20180121/AirQualityTaiwan.js)

遊戲元素自訂積木原始碼解說

[https://github.com/fustyles/webduino/blob/master/GameElements\\_20190131/blockly/javascript.js](https://github.com/fustyles/webduino/blob/master/GameElements_20190131/blockly/javascript.js)

新增遊戲元素積木指令

[https://github.com/fustyles/webduino/blob/master/EDU\\_addCustomBlocks/blockly/blocks.js](https://github.com/fustyles/webduino/blob/master/EDU_addCustomBlocks/blockly/blocks.js)



# Javascript.js實用技巧 (BlocklyDuino)

置於程式碼最上方

```
Blockly.Arduino.definitions_['自訂名稱'] = '#include <函式庫名稱.h>';
```

取得目前Setup(){} 區塊內程式碼

```
var statements_setup = Blockly.Arduino.statementToCode(block, 'setup');
```

取得目前loop(){} 區塊內程式碼

```
var statements_loop = Blockly.Arduino.statementToCode(block, 'loop');
```

取得某statements\_input區塊內程式碼

```
var statements_custom = Blockly.Arduino.statementToCode(block, 'NAME值');
```

插入程式碼置於Setup(){}區塊內最前方

```
Blockly.Arduino.setups_.manual_add = "pinMode(2, OUTPUT);\n" + statements_setup;
```

插入程式碼置於Setup(){}區塊內最後方

```
Blockly.Arduino.setups_.manual_add = statements_setup + "pinMode(2, OUTPUT);\n";
```

# 新增函式庫置放目錄(BlocklyDuino)

libraries

檔案 常用 共用 檢視

← → ↕ ↑

BlocklyDuino3 > arduino-1.8.5 > libraries

名稱	修改日期	類型	大小
Adafruit_Circuit_Playground	2020/8/14 下午 01:35	檔案資料夾	
Bridge	2020/8/14 下午 01:35	檔案資料夾	
Esplora	2020/8/14 下午 01:35	檔案資料夾	
Ethernet	2020/8/14 下午 01:35	檔案資料夾	
Firmata	2020/8/14 下午 01:35	檔案資料夾	
GSM	2020/8/14 下午 01:35	檔案資料夾	
Keyboard	2020/8/14 下午 01:35	檔案資料夾	
LiquidCrystal	2020/8/14 下午 01:35	檔案資料夾	
Mouse	2020/8/14 下午 01:35	檔案資料夾	
Robot_Control	2020/8/14 下午 01:35	檔案資料夾	
Robot_Motor	2020/8/14 下午 01:35	檔案資料夾	
RobotIRremote	2020/8/14 下午 01:35	檔案資料夾	
SD	2020/8/14 下午 01:35	檔案資料夾	
Servo	2020/8/14 下午 01:35	檔案資料夾	
SpacebrewYun	2020/8/14 下午 01:35	檔案資料夾	
Stepper	2020/8/14 下午 01:35	檔案資料夾	
Temboo	2020/8/14 下午 01:35	檔案資料夾	
TFT	2020/8/14 下午 01:35	檔案資料夾	
WiFi	2020/8/14 下午 01:35	檔案資料夾	

★ 快速存取

- OneDrive
- 本機
  - 3D 物件
  - 下載
  - 文件
  - 音樂
  - 桌面
  - 圖片
  - 影片
  - 本機磁碟 (C:)
- 網路

# 自訂積木路徑設定 (BlocklyDuino)

開啟package.nw\js\init.js將本機路徑修改成遠端路徑

## 本機路徑

```
var blocks_path = "./myBlocks/blocks.js";  
var javascript_path = "./myBlocks/javascript.js";  
var toolbox_path = "./myBlocks/toolbox.xml";  
var en_path = "./myBlocks/en.js";  
var en_category_path = "./myBlocks/en_category.xml";  
var zhant_path = "./myBlocks/zh-hant.js";  
var zhant_category_path = "./myBlocks/zh-hant_category.xml";
```

## 遠端路徑

```
var blocks_path = "https://xxx.xxx.xxx.xxx/myBlocks/blocks.js";  
var javascript_path = "https://xxx.xxx.xxx.xxx/myBlocks/javascript.js";  
var toolbox_path = "https://xxx.xxx.xxx.xxx/myBlocks/toolbox.xml";  
var en_path = "https://xxx.xxx.xxx.xxx/myBlocks/en.js";  
var en_category_path = "https://xxx.xxx.xxx.xxx/myBlocks/en_category.xml";  
var zhant_path = "https://xxx.xxx.xxx.xxx/myBlocks/zh-hant.js";  
var zhant_category_path = "https://xxx.xxx.xxx.xxx/myBlocks/zh-hant_category.xml";
```

# 新增數個自訂積木 (BlocklyDuino)

## 法蘭斯自訂積木

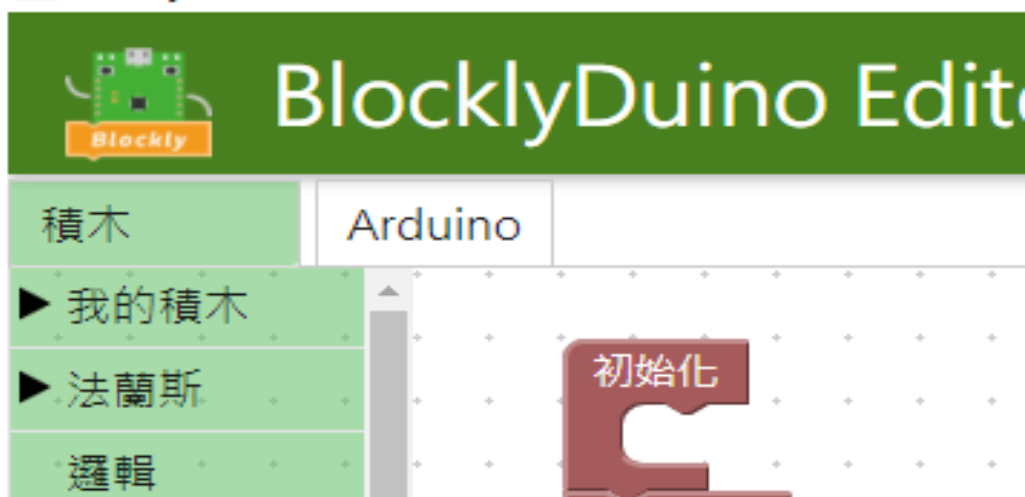
```
var blocks_path = "https://fustyles.github.io/webduino/LinkIt7697/FranceFu/blocks.js";  
var javascript_path = "https://fustyles.github.io/webduino/LinkIt7697/FranceFu/javascript.js";  
var toolbox_path = "https://fustyles.github.io/webduino/LinkIt7697/FranceFu/toolbox.xml";  
var en_path = "https://fustyles.github.io/webduino/LinkIt7697/FranceFu/en.js";  
var en_category_path = "https://fustyles.github.io/webduino/LinkIt7697/FranceFu/en_category.xml";  
var zh_hant_path = "https://fustyles.github.io/webduino/LinkIt7697/FranceFu/zh-hant.js";  
var zh_hant_category_path = "https://fustyles.github.io/webduino/LinkIt7697/FranceFu/zh-hant_category.xml";  
  
initial(blocks_path, javascript_path, toolbox_path);
```

可重複新增此區塊程式碼設定自訂積木路徑載入多個自訂積木

## 我的自訂積木

```
var blocks_path = "./myBlocks/blocks.js";  
var javascript_path = "./myBlocks/javascript.js";  
var toolbox_path = "./myBlocks/toolbox.xml";  
var en_path = "./myBlocks/en.js";  
var en_category_path = "./myBlocks/en_category.xml";  
var zh_hant_path = "./myBlocks/zh-hant.js";  
var zh_hant_category_path = "./myBlocks/zh-hant_category.xml";  
  
initial(blocks_path, javascript_path, toolbox_path);
```

BlocklyDuino



# 進階控制技巧

<https://blockly-demo.appspot.com/static/tests/playground.html?dir=ltr&toolbox=test-blocks>

# 法蘭斯自訂積木

## 法蘭斯點矩陣

[https://fustyles.github.io/webduino/EDU\\_bit\\_MatrixLed\\_20190827/blockly.json](https://fustyles.github.io/webduino/EDU_bit_MatrixLed_20190827/blockly.json)

## 遊戲元素

[https://fustyles.github.io/webduino/GameElements\\_20190131/blockly.json](https://fustyles.github.io/webduino/GameElements_20190131/blockly.json)

## Javascript 指令擴充

[https://fustyles.github.io/webduino/Instruction\\_20181213/blockly.json](https://fustyles.github.io/webduino/Instruction_20181213/blockly.json)

## 朗讀語言擴充

[https://fustyles.github.io/webduino/EDU\\_speak\\_setting/blockly.json](https://fustyles.github.io/webduino/EDU_speak_setting/blockly.json)

監看程式碼 (首頁開啟開發人員工具 <http://localhost:20975/blockly/>)

[https://fustyles.github.io/webduino/ShowCode\\_20181216/blockly.json](https://fustyles.github.io/webduino/ShowCode_20181216/blockly.json)



姿態辨識 (tfjs posenet)

[https://fustyles.github.io/webduino/posenet\\_20190822/blockly.json](https://fustyles.github.io/webduino/posenet_20190822/blockly.json)

物件辨識(tfjs mobilenet)

[https://fustyles.github.io/webduino/mobilenet\\_20190821/blockly.json](https://fustyles.github.io/webduino/mobilenet_20190821/blockly.json)

物件辨識(tfjs coco-ssd)

[https://fustyles.github.io/webduino/coco-ssd\\_20190821/blockly.json](https://fustyles.github.io/webduino/coco-ssd_20190821/blockly.json)

臉部偵測 (tfjs face-api.js)

[https://fustyles.github.io/webduino/faceapi\\_20200124/blockly.json](https://fustyles.github.io/webduino/faceapi_20200124/blockly.json)

臉部辨識 (tfjs face-api.js)

[https://fustyles.github.io/webduino/faceapi\\_20200402/blockly.json](https://fustyles.github.io/webduino/faceapi_20200402/blockly.json)



深度學習 (tfjs KNN-Classfier)

[https://fustyles.github.io/webduino/knn-classifier\\_20190608/blockly.json](https://fustyles.github.io/webduino/knn-classifier_20190608/blockly.json)

語音辨識

[https://fustyles.github.io/webduino/SpeechRecognition\\_20191225/blockly.json](https://fustyles.github.io/webduino/SpeechRecognition_20191225/blockly.json)

圖像分割 (tfjs deeplab)

[https://fustyles.github.io/webduino/deeplab\\_20200125/blockly.json](https://fustyles.github.io/webduino/deeplab_20200125/blockly.json)

身體偵測 (tfjs bodypix2)

[https://fustyles.github.io/webduino/bodypix2\\_20200125/blockly.json](https://fustyles.github.io/webduino/bodypix2_20200125/blockly.json)

身體偵測 (tfjs bodypix1)

[https://fustyles.github.io/webduino/bodypix1\\_20200125/blockly.json](https://fustyles.github.io/webduino/bodypix1_20200125/blockly.json)

人臉偵測 (Tracking.js)

[https://fustyles.github.io/webduino/Tracking\\_20190917/blockly.json](https://fustyles.github.io/webduino/Tracking_20190917/blockly.json)

顏色偵測 (Tracking.js)

[https://fustyles.github.io/webduino/Tracking\\_20200625/blockly.json](https://fustyles.github.io/webduino/Tracking_20200625/blockly.json)

手勢偵測 (tfjs handpose)

[https://fustyles.github.io/webduino/handpose\\_20200614/blockly.json](https://fustyles.github.io/webduino/handpose_20200614/blockly.json)

臉部網格偵測 (tfjs facemesh)

[https://fustyles.github.io/webduino/Facemesh\\_20200626/blockly.json](https://fustyles.github.io/webduino/Facemesh_20200626/blockly.json)

臉部偵測 (tfjs brazeface)

[https://fustyles.github.io/webduino/Blazeface\\_20200627/blockly.json](https://fustyles.github.io/webduino/Blazeface_20200627/blockly.json)

機械學習 (tfjs Machine Learning)

[https://fustyles.github.io/webduino/teachablemachine\\_20200729/blockly.json](https://fustyles.github.io/webduino/teachablemachine_20200729/blockly.json)

文字偵測 (tesseract.js)

[https://fustyles.github.io/webduino/tesseract.js\\_20200615/blockly.json](https://fustyles.github.io/webduino/tesseract.js_20200615/blockly.json)

Line Bot

[https://fustyles.github.io/webduino/LineBot\\_20181027/blockly.json](https://fustyles.github.io/webduino/LineBot_20181027/blockly.json)

Telegram Bot

[https://fustyles.github.io/webduino/Telegram\\_20200809/blockly.json](https://fustyles.github.io/webduino/Telegram_20200809/blockly.json)

物件辨識(Microsoft Azure Custom Vision)

[https://fustyles.github.io/webduino/Azure\\_ClassifyImage\\_20190901/blockly.json](https://fustyles.github.io/webduino/Azure_ClassifyImage_20190901/blockly.json)

物件辨識(Microsoft Azure Custom Vision + TFJS)

[https://fustyles.github.io/webduino/Azure\\_customvision-tfjs\\_20200128/blockly.json](https://fustyles.github.io/webduino/Azure_customvision-tfjs_20200128/blockly.json)

臉部辨識(Microsoft Azure Face API – Face Detect)

[https://fustyles.github.io/webduino/Azure\\_FaceDetection\\_20190901/blockly.json](https://fustyles.github.io/webduino/Azure_FaceDetection_20190901/blockly.json)

尋找相似臉(Microsoft Azure Face API - Find Similar Face)

[https://fustyles.github.io/webduino/Azure\\_FaceFindSimilar\\_20191117/blockly.json](https://fustyles.github.io/webduino/Azure_FaceFindSimilar_20191117/blockly.json)

驗證同一人(Microsoft Azure Face API API – Verify Face To Face)

[https://fustyles.github.io/webduino/Azure\\_FaceToFaceVerify\\_20191118/blockly.json](https://fustyles.github.io/webduino/Azure_FaceToFaceVerify_20191118/blockly.json)

ESP32-CAM (雲端平台網址須由https改成http)

[https://fustyles.github.io/webduino/ESP32-CAM\\_20191201/blockly.json](https://fustyles.github.io/webduino/ESP32-CAM_20191201/blockly.json)

[韌體]

[https://github.com/fustyles/Arduino/tree/master/ESP32-CAM\\_MyBlockly\\_JSON](https://github.com/fustyles/Arduino/tree/master/ESP32-CAM_MyBlockly_JSON)

WebBit (雲端平台網址須由https改成http)

[https://fustyles.github.io/webduino/WebBit\\_20190225/blockly.json](https://fustyles.github.io/webduino/WebBit_20190225/blockly.json)

[韌體]

[https://github.com/fustyles/Arduino/blob/master/WebBit\\_ESP32\\_MyBlockly\\_JSON.ino](https://github.com/fustyles/Arduino/blob/master/WebBit_ESP32_MyBlockly_JSON.ino)

WiFiBoard (ESP32 、 LinkIt7697)

[https://fustyles.github.io/webduino/ESP8266\\_20190128/blockly.json](https://fustyles.github.io/webduino/ESP8266_20190128/blockly.json)

[ ESP32韌體]

[https://github.com/fustyles/Arduino/blob/master/ESP32\\_MyBlockly\\_JSON.ino](https://github.com/fustyles/Arduino/blob/master/ESP32_MyBlockly_JSON.ino)

[ LinkIt7697韌體]

[https://github.com/fustyles/Arduino/blob/master/LinkIt7697\\_MyBlockly\\_JSON.ino](https://github.com/fustyles/Arduino/blob/master/LinkIt7697_MyBlockly_JSON.ino)

# 自訂積木範例 <https://github.com/fustyles/webduino>

## 雲端平台搜尋「自訂積木」

Blockly

Blockly ▾

我的專案

共享的專案

公開的專案

我的文件

自訂積木

搜尋

名稱	擁有者	上次修改日期
[ <a href="#">自訂積木</a> ] <a href="#">ESP32-CAM</a>	fu6625@gmail.com	2019/12/2 上午1:21:45
[ <a href="#">自訂積木</a> ] <a href="#">姿態偵測 (tfjs posenet) 智慧開關(通電動作)</a>	fu6625@gmail.com	2019/12/1 下午2:58:13
[ <a href="#">自訂積木</a> ] <a href="#">姿態偵測 (tfjs posenet) 智慧開關(拉弓動作)</a>	fu6625@gmail.com	2019/12/1 下午2:55:39
[ <a href="#">自訂積木</a> ] <a href="#">燈條(環)擴充積木 - 副本</a>	lcljp332@gmail.com	2019/11/27 下午8:31:53
[ <a href="#">自訂積木</a> ] <a href="#">Microsoft Azure Verify Face To Face</a>	fu6625@gmail.com	2019/11/22 上午1:14:41
[ <a href="#">自訂積木</a> ] <a href="#">臉部偵測 (Azure Face Detection)</a>	fu6625@gmail.com	2019/11/19 下午7:01:01
[ <a href="#">自訂積木</a> ] <a href="#">燈條(環)擴充積木</a>	fu6625@gmail.com	2019/11/19 下午2:30:00
[ <a href="#">自訂積木</a> ] <a href="#">Microsoft Azure Find Similar Face</a>	fu6625@gmail.com	2019/11/18 上午12:26:40
[ <a href="#">自訂積木</a> ] <a href="#">LinkIt7697 - LCD I2C</a>	fu6625@gmail.com	2019/10/29 下午10:10:40
[ <a href="#">自訂積木</a> ] <a href="#">Microsoft Azure Custom Vision</a>	fu6625@gmail.com	2019/10/13 下午11:32:15