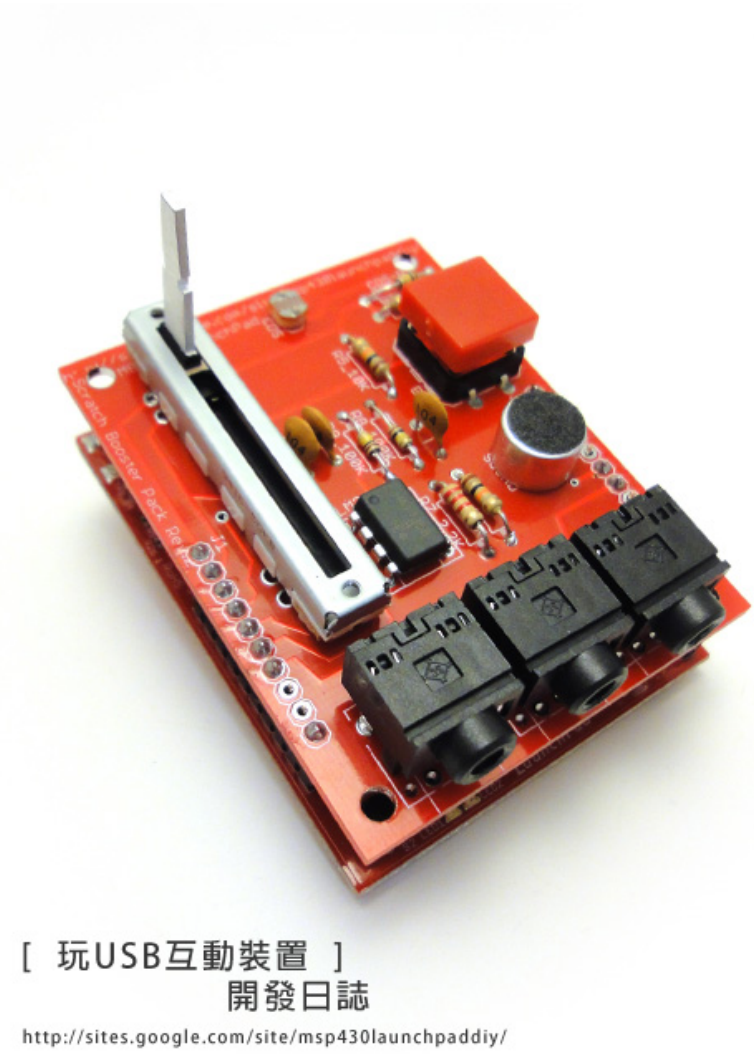
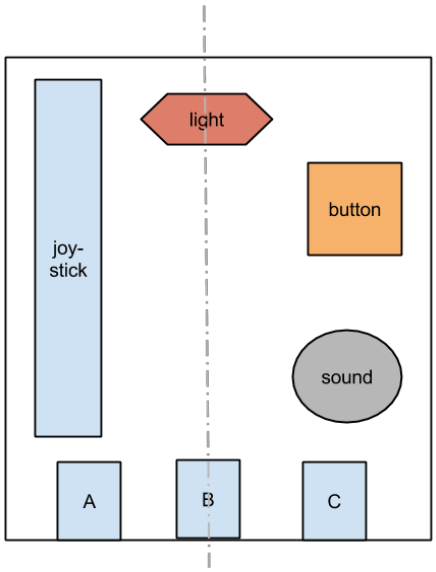
[OST - MSP430 launchpad]



Scratch booster pack user guide

1.feature

Scratch Booster Pack is an hardware extension kit for TI msp430 LaunchPad and make it into a scratch board (or picoboard compatible). By using this booster pack, user can have more fun with scratch program application, such as interaction with physical world to virtual world. Here is the hardware feature description as following:



- **joystick**- detect the joystick position. when the lower position the value show "0". when it at upper position, the value show "100".
- **light** - detect the light, indoor value about "45". in the dark room about "95". it will change by real environment.
- **sound** - detect the sound noise, in a quiet room the value about "0". in the noise room about "80". it will change by real environment.
- **push button** - normal value is "100" , when user push the button it will change to "0", as trigger signal

  reference video http://youtu.be/Nm8u80zmKP4

- **A B C** – reserved for additional external sensor , it is possible to plug in any 35MM type connector sensor (please refer chapter7.8)

2.assembly parts

Scratch板材料名稱與數量表

3.first time install

3.1 step 1 - launchpad usb driver

LaunchPad shipping included with standard USB type cable, we recommend to use it for computer usb port.

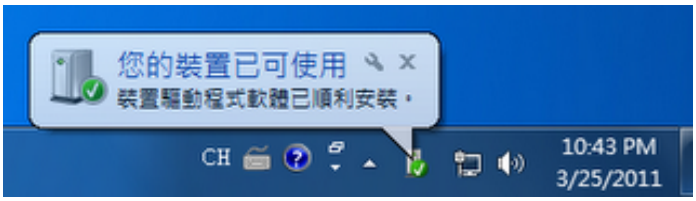
- launchpad windows usb driver also available at official website:

  http://e2e.ti.com/cfs-file.ashx/__key/CommunityServer-Discussions-Components-Files/166/4456.LaunchPad_5F00_Driver.zip

- when first time plug in LaunchPad board, windows system will show toolbar message as "now is search and install device driver.

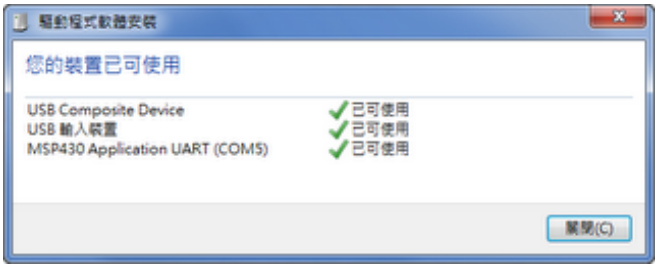
- select driver folder \Step1_USB launchpad driver for windows\430cdc.inf

- wait for windows system ready and complete driver installation。



- message show "your device already available"

*usb driver install procedure only necessary run first time with new computer



- check control panel>>system>>device manager>> device port(COM and LPT)"option >>find this new USB device.

- please note this example as port setting at COM5, the real application for COM PORT number maybe a difference value like COM6...COM7....or any number.

- check USB device name "MSP430 Application UART" message.

- congratulation ! end of usb driver installation.

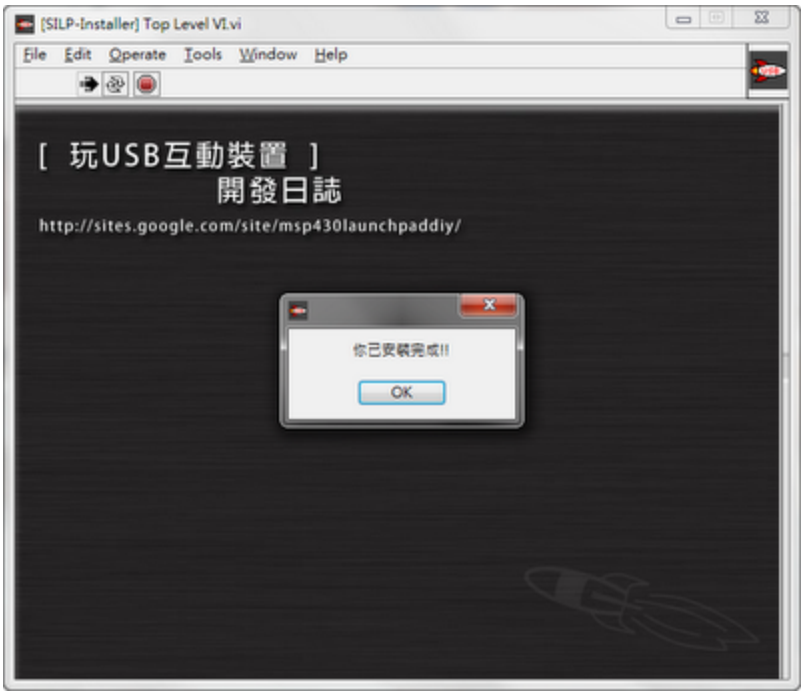
3.2. step 2 - SILP uploader

Scratch booster pack is an extension kit that based on TI MSP430 LaunchPad microprocessor.

To provide lauchpad work with scratch software, we use "**SILP**" protocol (Scrtach Interface for LaunchPad I/O Protocol).

*SILP uploader procedure only necessary run on the very first time with new launchpad board.

* this protocol support chip model for MSP430G2553, the original chip attached on MSP430G2 launchpad board.



- plug launchpad board usb on laptop computer usb port
- run \Step2_SILPv4 uploader\setup.exe
- complete installation
- click "**SILP**" shortcut on the desktop
- check the message show on the screen
- congratulation ! end of SILP installation.

3.3.step 3- install scratch

- run \Step3_Scratch software\ScratchInstaller1.4.exe

4.run Scratch:

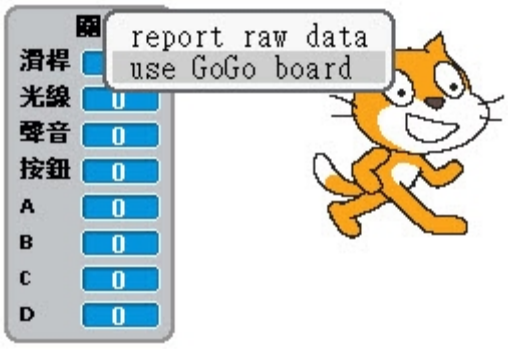
- click "Scratch.exe" icon on the desktop

- connect to USB port.
- open Scratch Board monitor
- step "A" - windows up- left section, select blue block "sensor"
- step "B" - windows down section,mouse Right-click the block, select display "show scratch board monitor"
- step "C" - window up right section, will show up a8 value for each sensor.

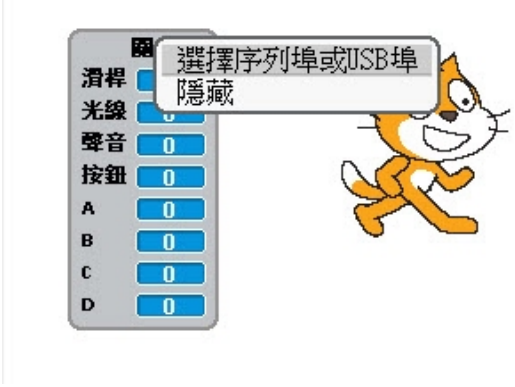
- move mouse on Scratch Board monitor。
- click "Shift" key with Mouse "right"key at the same time
- select "use GOGO Board"

please note ! this procedure is very important

click mouse "right" key AND "Shift" key at the SAME time. so this option will show up , select "use GoGo board"



- move mouse again on " Scratch Board monitor "
- move mouse "right" click, select "Serial/USB port"

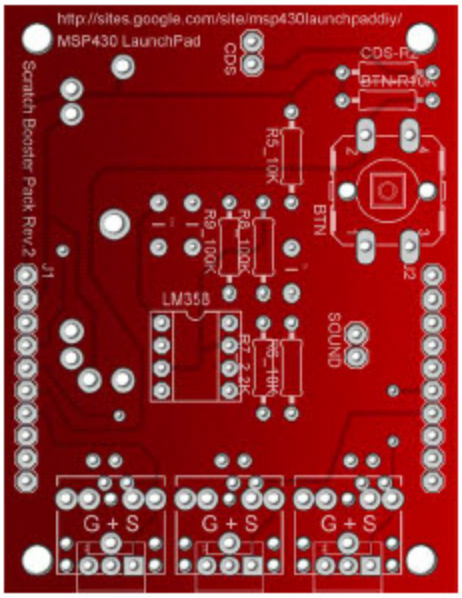


- select com port on your computer (such as:COM1 or COM2....)

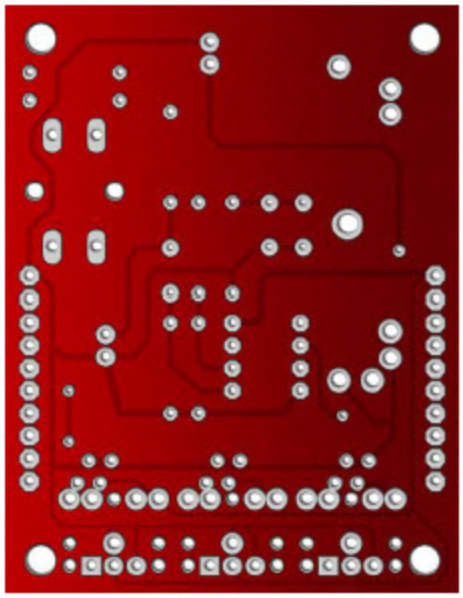
- try to change status, check the value on Scratch Board Monitor if change accordingly.
- select blue block section "sensoring", check for "enable".

- or other sensor type.
- since user can read this value change and have more environment interaction value for Scratch programming by hardware sensor.

6. pcb board design



top side



bottom side

7. external sensor

35mm phone jack connector for Scratch Booster Pack Phone Jack (Tip Ring Steeve , T-R-S terminal) it included three section as following:

Tip 前端(右聲道)	(紅線)	Analog 感應器輸入
Ring 中環(左聲道)	(白線)	+3.6V 電源
Sleeve 後段	(遮蔽線)	GND 接地

- 1.prepare one crocodile clip cable.
- 2.prepare one phone jack cable, find the red / black signal cable inside.
- 3.to connect signal cable to the other end of crocodile side.
- 4.plug phone jack connector to Scratch booster board.
- 5.so , you can connect any object.

8.more information

if something else you want to ask discussion group and technical support.

http://sites.google.com/site/msp430launchpaddiy/

http://sites.google.com/site/msp430launchpaddiy/home/tao-lun-qu